Undergraduate Academic Board
Agenda

April 8, 2011
2:00-5:00
ADM 204

I. Roll

( ) Hilary Davies	( ) Susan Wilson	( ) Deborah Fox	( ) Adjunct vacancy
( ) Paola Banchero	( ) Hilary Seitz	( ) Wayne Edwards	( ) USUAA vacancy
( ) David Meyers	( ) Cheryl Smith	( ) FS at large vacancy	Ex-Officio Members:
( ) Suzanne Forster	( ) Utpal Dutta	( ) Advis./Couns. vacancy	( ) Bart Quimby
( ) Susan Fallon	( ) Kevin Keating	( ) David Edgecombe	( ) Lora Volden
( ) Dave Fitzgerald	( ) Marion Yapuncich	( ) Kathrynn Hollis Buchanan	( ) Shirlee Willis-Haslip

II. Approval of the Agenda (pg. 1-5)

III. Approval of Meeting Summary (pg. 6-9)

IV. Administrative Report

A. Associate Vice Provost Bart Quimby

B. Interim University Registrar Shirlee Willis-Haslip and Associate Registrar Lora Volden

V. Chair's Report

A. UAB Chair- Hilary Davies

B. GERC- Sue Fallon

C. Assessment Committee Report- Bart Quimby

VI. Program/Course Action Request- Second Readings

Chg		Bachelor of Science, Biological Science (pg. 10-17)
Chg	AET A101	Fundamentals of CADD for Building Construction (4 cr) (2+4) (cross listed w/ CM A101) (pg. 18-26)
Chg	CM A101	Fundamentals of CADD for Building Construction (4 cr) (2+4) (cross listed w/ AET A101) (pg. 27-35)
Chg	AET A142	Mechanical and Electrical Technology (4 cr) (3+2) (cross listed w/ CM A142) (pg. 36-42)
Chg	CM A142	Mechanical and Electrical Technology (4 cr) (3+2) (cross listed w/ AET A101) (pg. 43-49)
Chg	AET A213	Civil Technology (4 cr) (2+4) (cross listed w/ CM A213) (pg. 50-55)
Chg	CM A213	Construction Civil Technology (4 cr) (2+4) (cross listed w/ AET A213) (pg. 56-62)
Chg	AET A231	Structural Technology (4 cr) (2+4) (cross listed w/ CM A231) (pg. 63-68)
Chg	CM A231	Structural Technology (4 cr) (2+4) (cross listed w/ AET A231) (pg. 69-74)
Chg	CM A301	Construction Project Management II (3 cr) (3+0) (pg. 75-81)
Chg	CM A440	Financial Management for Construction (3 cr) (3+0) (pg. 82-86)
Chg	CM A495	Advanced Construction Management Internship (3 cr) (1+15) (pg. 87-91)
Chg		Construction Management, Associate of Applied Science (pg. 92-94)

Chg		Construction Management, BS (pg. 95-104)
Chg	OSH A111	Training Needs and Methods (3 cr) (3+0) (pg. 105-108)
Chg	OSH A180	Introduction to Industrial Hygiene (4 cr) (4+0) (pg. 109-112)
Chg	OSH A211	Safety Program Assessment, Development and Implementation (4 cr) (3+2) (pg. 113-117)
Chg	OSH A240	Workplace Monitoring: Instrumentation and Calibration (3 cr) (2+2) (pg. 118-122)

No revisions received for the 2nd reading at the UAB meeting:

Chg	ANTH A415	Applied Anthropology (3 cr) (3+0) (stacked with ANTH A615)
Chg	ANTH A427	Ethnohistory (3 cr) (3+0) (stacked with ANTH A627)

Need updated bibliographies for ANTH A415 and A427

Chg	ANTH A210	Introduction to Linguistic Anthropology (3 cr) (3+0)
Chg	ANTH A211	Fundamentals of the Archaeology (3 cr) (3+0)
Chg	ANTH A225	Cook Inlet Anthropology (3 cr) (3+0)
Chg	ANTH A270	Women in Cross-cultural Perspective (3 cr) (3+0)
Chg	ANTH A312	North American Archaeology (3 cr) (3+0)
Del	ANTH A333	Peoples and cultures of Southeast Asia (3 cr) (3+0)
Chg	ANTH A335	Native North Americans (3 cr) (3+0)
Chg	ANTH A336	Peoples and Cultures of South America (3 cr) (3+0)
Chg	ANTH A338	Peoples and Cultures of Scandinavia (3 cr) (3+0)
Chg	ANTH A361	Languages and Culture (3 cr) (3+0)
Chg	ANTH A365	Modern Human Biological Diversity (3 cr) (3+0)
Chg	ANTH A400	Anthropology of Religion (3 cr) (3+0)
Chg	ANTH A413	Peopling of the Americas (3 cr) (3+0)
Chg	ANTH A416	Arctic Archaeology (3 cr) (3+0)
Chg	ANTH A431	Field Methods in Archeology (1-8 cr) (0+3-24) (stacked with ANTH A631)
Chg	ANTH A432	Hunting and Gathering Societies (3 cr) (3+0)
Chg	ANTH A435	Northwest Coast Cultures (3 cr) (3+0)
Chg	ANTH A436	Aleut Adaptations (3 cr) (3+0)
Chg	ANTH A437	Eskimo Adaptations (3 cr) (3 cr)
Chg	ANTH A438	Tlingit and Haida Adaptations (3 cr) (3+0)
Chg	ANTH A439	Athabascan Adaptations (3 cr) (3+0)
Chg	ANTH A445	Evolution of Humans and Disease (3 cr) (3+0) (stacked with ANTH A645)
Chg	ANTH A457	Food and Nutrition: An Anthropological Perspective (3 cr) (3+0) (stacked with ANTH A657)
Chg	ANTH A480	Analytical Techniques in Archeology (3 cr) (3+0) (stacked with ANTH A680)
Chg	ANTH A481	Museum Studies in Anthropology (3 cr) (3+0) (stacked with ANTH A681)

Tabled at 2nd reading:

Chg	PSY A490	Advanced Topics in Psychology (1 cr) (1-3+0)
Chg	PSY A492	Senior Seminar: Contemporary Issues in Psychology (3 cr) (3+0)

Tabled PSY A490 and PSY A492until GAB can review PSY A690 and PSY 6492

VII. Program/Course Action Request- First Readings

Chg	GUID A150	Creating Success in College (3 cr) (3+0)-***documents emailed***
Chg		GUID A150 Catalog Copy-***documents emailed***
Del	CE A470	Civil Engineering Internship (3 cr) (3+0) (pg. 123)
Del	ES A111	Engineering Science (3 cr) (3+0) (pg. 124)
Del	ES A201	Computer Techniques (3 cr) (3+0) (pg. 125)
Chg		Post-Baccalaureate Certificate, Early Childhood Pre-K Third Grade (with Teacher Certification)- ***documents emailed***

Chg	JPC A413	Communications Law (3 cr) (3+0) (cross listed with JUST A413) (pg. 126-130)
Chg	JUST A413	Communications Law (3 cr) (3+0) (cross listed with JPC A413) (pg. 131-135)
Chg		Bachelor of Science Civil Engineering- Undergraduate Certificate (pg. 136-179)
Chg		Minor Computer Information Systems (pg. 180-181)
Chg		Bachelor of Business Administration: Management Information Systems (pg. 182-192)
Chg		Bachelor of Business Administration: Accounting (pg. 193-202)
Chg	FREN A310	Selected Topics: Literary Trends and Traditions (3 cr) (3+0) (pg. 203-207)
Chg	GER A310	Selected Topics: Literary Trends and Traditions (3 cr) (3+0) (pg. 208-213)
Add	CHIN A201	Second Year Chinese I (4 cr) (4+0) (pg. 214-219)
Add	CHIN A202	Second Year Chinese II (4 cr) (4+0) (pg. 220-225)
Add	SPAN A320	Studies in Contemporary Cultures (4 cr) (4+0) (pg. 226-231)
Chg		Bachelor of Arts, Languages (pg. 232-238)
Chg	PS A312	Comparative Northern Politics (3 cr) (3+0) (pg. 239-242)
Chg		Bachelor of Arts, Political Science (pg. 243-250)
Chg	ENGL A444	Topics in Native Literatures (3 cr) (3+0) (pg. 251-255)
Chg	CIS A460	Web Development in the .Net Environment (3 cr) (3+0) (pg. 256-261)
Add	PHIL A320	Philosophy of Religion (3 cr) (3+0) (pg. 262-268)
Add	PHIL A350	Contemporary Social and Political Philosophy (3 cr) (3+0) (pg. 269-274)
Chg		Bachelor of Arts, Philosophy (pg. 275)
Chg		Minor, Philosophy (pg. 276-285)
Chg		Bachelor of Science, Natural Sciences (pg. 286-320)
Chg		Bachelor of Science, Biological Sciences (pg. 321-334)
Chg	GEO A158	Geomatics Computer Fundamentals (1 cr) (0+2) (pg. 335-338)
Add	GEO A181	Construction Surveying (1 cr) (0+3) (pg. 339-343)
Chg	GEO A256	Municipal and Civil Geomatics (3 cr) (2+3) (pg. 344-348)
Chg	GEO A266	Advanced Surveying (3 cr) (2+3) (pg. 349-353)
Chg	GEO A301	Professional Development I (1 cr) (0+2) (pg. 354-357)
Add	GEO A302	Professional Development II (1 cr) (0+2) (pg. 358-361)
Add	GEO A303	Professional Development III (1 cr) (0+2) (pg. 362-366)

Add	GEO A354	City and Regional Planning (3 cr) (3+0) (pg. 367-371)
Chg	GEO A365	Geomatics Adjustment and Analysis (4cr) (4+0) (pg. 372-376)
Del	GEO A456	Geomatics and Civil Design (3 cr) (pg. 377)
Chg	GEO A460	Geomatics Design Project (3 cr) (1+6) (pg. 378-381)
Chg	GEO A466	Geopositioning (3 cr) (3+0) (pg. 382-386)
Chg	GIS A268	Elements of Geographic Information Systems (GIS) (4 cr) (2+3) (pg. 387-392)
Chg	GIS A366	Spatial Information Analysis and Modeling (3 cr) (2+2) (pg. 393-397)
Chg	GIS A375	GIS Applications I (3 cr) (1+4) (pg. 398-401)
Chg	GIS A433	Coastal Mapping (3 cr) (2+2) (pg. 402-406)
Chg	GIS A458	Design and Management of Spatial Information (3 cr) (2+2) (pg. 407-410)
Chg	GIS A468	Integration of Geomatics Technologies (3 cr) (2+2) (pg. 411-415)
Chg	GIS A470	GIS Applications II (4 cr) (1+6) (pg. 416-419)
Chg		Associate of Applied Science, Geomatics (pg. 420)
Chg		Bachelor of Science, Geomatics (pg. 421-434)
Add	CSE A102	Introduction to Computer Systems (1 cr) (1+0) (pg. 435-439)
Chg	CSE A335	Operating Systems Engineering (3 cr) (3+0) (pg. 440-443)
Chg	CSE A465	Network Security (3 cr) (3+0) (pg. 444-447)
Add	CSE A480	Engineering Software/ Hardware Systems (3 cr) (3+0) (pg. 448-451)
Chg	ENGR A470	Engineering Internship (1 cr) (0+3) (pg. 452-454)
Chg	EE A203	Fundamentals of Electrical Engineering I (4 cr) (3+3) (pg. 455-460)
Add	EE A306	Dynamics of Systems (3 cr) (3+0) (pg. 461-464)
Add	EE A353L	Circuit Theory Lab (1 cr) (0+3) (pg. 465-468)
Chg	EE A407	Power Distribution (3 cr) (3+0) (pg. 469-472)
Chg	EE A441	Integrated Circuit Design (3 cr) (3+0) (pg. 473-476)
Chg	EE A462	Communication Systems (3 cr) (3+0) (pg. 477-479)
Chg	EE A465	Telecommunications (3 cr) (3+0) (pg. 480-483)
Chg	EE A471	Automatic Control (3 cr) (3+0) (pg. 484-487)
Add	ME A280	Solid Modeling for Engineers (3 cr) (2+2) (pg. 488-491)
Add	ME A306	Dynamics of Systems (3 cr) (3+0) (pg. 492-495)
Chg	ME A334	Materials Science (3 cr) (2+3) (pg. 496-498)

Chg	ME A408	Mechanical Vibrations (3 cr) (3+0) (pg. 499-502)
Chg	ME A414	Thermal System Design (3 cr) (2+2) (pg. 503-507)
Chg	ME A441	Heat & Mass Transfer (3 cr) (2+2) (pg. 508-512)
Chg	ME A450	Manufacturing Design (3 cr) (2+2) (pg. 513-517)
Chg	ME A453	Renewable Energy Systems Engineering (3 cr) (3+0) (pg. 518-523)
Chg	ME A455	HVAC Systems Optimization (3 cr) (2+2) (pg. 524-527)
Add	ME A459	Fracture Mechanics (3 cr) (3+0) (pg. 528-531)
Chg	ME A471	Automatic Control (3 cr) (3+0) (pg. 532-535)
Chg		Bachelor of Science in Engineering (Computer Systems Engineering, Electrical Engineering, Mechanical Engineering) (pg. 536-582)
Chg	EDSE A474	Special Children from Birth through Five (3 cr) (3+0) (pg. 583-587)
Chg	JUST A352	Substantive Criminal Law (3 cr) (3+0) (cross listed w/PARL A352) (pg. 588-595)
Chg	PARL A352	Substantive Criminal Law (3 cr) (3+0) (cross listed w/JUST A352) (pg. 596-603)
Chg	JUST A355	Rural Justice (3 cr) (3+0) (pg. 604-609)
Chg	JUST A371	Cinematic Images of Justice (3 cr) (3+0) (pg. 610-613)
Chg	PARL A362	Commercial Law Chg (3 cr) (3+0) (pg. 614-619)
Chg	HS A433	Health Education: Theory and Practice (3 cr) (3+0) (cross listed w/NS A433) (pg. 620-623)
Chg	NS A433	Health Education: Theory and Practice (3 cr) (3+0) (cross listed w/HS A433) (pg. 624-627)
Chg		Bachelor of Arts, Art (pg. 628-629)
Chg		Bachelor of Fine Arts, Art (pg. 630-644)

VIII. Old Business

A. Electronic signatures on curriculum- Lora Volden and Christine Lidren are researching options

IX. New Business

A. UAB topics (pg. 645)

X. Informational Items and Adjournment

A. Curriculum Log
B. Curriculum Handbook
C. Catalog Copy
D. Accreditation website

March 25, 2011
2:00-5:00
ADM 204

I. Roll

(x) Hilary Davies	(x) Susan Wilson	(x) Deborah Fox	( ) Adjunct vacancy
(x) Paola Banchero	(x) Hilary Seitz	(x) Wayne Edwards	( ) USUAA vacancy
(x) David Meyers	(x) Cheryl Smith	( ) FS at large vacancy	Ex-Officio Members:
( ) Suzanne Forster	(x) Utpal Dutta	( ) Advis./Couns. vacancy	(x) Bart Quimby
(x) Susan Fallon	(x) Kevin Keating-Deb Mole	(x) David Edgecombe	(x) Lora Volden
(x) Dave Fitzgerald	(x) Marion Yapuncich	(x) Kathrynn Hollis Buchanan	( ) Shirlee Willis-Haslip

II. Approval of the Agenda (pg. 1-3)
February 25th agenda
Approved both agendas

III. Approval of Meeting Summary
February 25th (pg. 4-6)
March 18th (pg. 7-10)
Approved both summaries

IV. Administrative Report

A. Associate Vice Provost Bart Quimby

B. Interim University Registrar Shirlee Willis-Haslip and Associate Registrar Lora Volden
Priority registration begins next Friday, April 1st for graduate students
Everyone else will start the following week
Spring graduates need to send all information to Registrar's Office by May 4th

V. Chair's Report

A. UAB Chair- Hilary Davies
Purge List (pg. 11)
Save courses: AET A490, BIOL A327, EE A314L, all GEOL courses
Unanimously approved

B. GERC- Sue Fallon
GER Purge List (pg. 12)
Save course: HNRS A490
Unanimously approved

C. Assessment Committee Report- Bart Quimby

VI. Program/Course Action Request- First Readings

Chg BIOL A425 Mammalogy (3 cr) (3+0) (pg. 13-18)
For 14
Against 0
Waive first reading and approved for second reading

Chg Bachelor of Science, Biological Science (pg. 19-25)
For 14
Against 0
Accepted for first reading

Chg CA A223 Catering Management (2 cr) (1+4) (pg. 26-31)
For 14
Against 0
Waive first reading and approved for second reading

Chg Hospitality and Restaurant Management (pg. 32-37)
For 14
Against 0
Waive first reading and approved for second reading

Add DN A150 Nutrition Through the Life Cycle (3 cr) (3+0) (pg. 38-43)

For 14
Against 0
Waive first reading and approved for second reading

Chg		Dietetics, BS (pg. 44-45)
Chg		Nutrition, BS (pg. 46-55)

For 11
Against 0
Waive first reading and approved for second reading

Del	CE A470	Civil Engineering Internship (3 cr) (3+0) (pg. 56)
Del	ES A111	Engineering Science (3 cr) (3+0) (pg. 57)
Del	ES A201	Computer Techniques (3 cr) (3+0) (pg. 58)

Tabled CE A470, ES A111, ES A201

Chg	AET A101	Fundamentals of CADD for Building Construction (Fund. Of CADD for Bldg. Const.) (4 cr) (2+4) (pg. 59-67)
Chg	AET A142	Mechanical and Electrical Technology (Mechanical & Electrical Tech.) (4 cr) (3+2) (pg. 68-74)
Chg	AET A213	Civil Technology (4 cr) (2+4) (pg. 75-80)
Chg	AET A231	Structural Technology (4 cr) (2+4) (pg. 81-86)
Chg	CM A101	Fundamentals of CADD for Building Construction (Fund. Of CADD for Bldg. Const.) (4 cr) (2+4) (pg. 87-95)
Chg	CM A142	Mechanical and Electrical Technology (Mechanical & Electrical Tech.) (4 cr) (3+2) (pg. 96-102)
Chg	CM A213	Construction Civil Technology (Constr. Civil Technology) (4 cr) (2+4) (pg. 103-109)
Chg	CM A231	Structural Technology (4 cr) (2+4) (pg. 110-115)
Chg	CM A301	Construction Project Management II (Const. Project Mgmt. II) (3 cr) (3+0) (pg. 116-122)
Chg	CM A440	Financial Management for Construction (Financial Mgmt. for Constr.) (3 cr) (3+0) (pg. 123-127)
Chg	CM A495	Advanced Construction Management Internship (Adv. Const. Mgmt. Internship) (3 cr) (1+15) (pg. 128-134)

Accepted all AET and CM courses for first reading

Chg		Construction Management, Associate of Applied Science (pg. 135)
Chg		Construction Management, BS (pg. 136-145)

Accepted all CM programs for first reading

Chg	JPC A413	Communications Law (3 cr) (3+0) (cross listed with JUST A413) (pg. 146-150)
Chg	JUST A413	Communications Law (3 cr) (3+0) (cross listed with JPC A413) (pg. 151-155)

JPC/JUST went back to CAS

VII. Program/Course Action Request- Second Readings

Motion to untable items

Chg	PEP A455	Cardiac Rehabilitation and Special Populations (4 cr) (3+2) (pg. 156-161)
Chg		Bachelor of Science, Physical Education (pg. 162-163)
Chg		Minor, Physical Education (pg. 164)
Chg		Minor, Outdoor Leadership (pg. 165)
Chg		Minor, Health & Fitness Leadership (pg. 166)
Add		Occupational Endorsement Certificate, Outdoor Leadership (pg. 167-174)

Approved
For 11
Against 0
Approved

Chg	AIRS A101	Foundations of the United States Air Force I (1 cr) (1+0) (pg. 175-177)
Chg	AIRS A102	Foundations of the United States Air Force II (1 cr) (1+0) (pg. 178-180)
Chg	AIRS A150	US Air Force Leadership Laboratory (1 cr) (0+4) (pg. 181-185)
Chg	AIRS A201	Evolution of USAF Air and Space Power I (2 cr) (2+0) (pg. 186-189)
Chg	AIRS A202	Evolution of USAF Air and Space Power II (2 cr) (2+0) (pg. 190-193)
Chg	AIRS A301	US Air Force Leadership and Management I (3 cr) (3+0) (pg. 194-197)
Chg	AIRS A302	US Air Force Leadership and Management II (3 cr) (3+0) (pg. 198-201)

Chg	AIRS A401	National Security Affairs I (3 cr) (3+0) (pg. 202-205)
Chg	AIRS A402	National Security Affairs II (3 cr) (3+0) (pg. 206-209)
Add		Minor, National Defense, Strategic Studies, and Leadership: Air Force Emphasis (pg. 210-217)

For 11
Against 0
Approved all AIRS courses and programs

No revisions received for the 2nd reading at the UAB meeting:

Chg	OSH A111	Training Needs and Methods (3 cr) (3+0)
Chg	OSH A180	Introduction to Industrial Hygiene (4 cr) (4+0)
Chg	OSH A211	Safety Program Assessment, Development and Implementation (4 cr) (3+2)
Chg	OSH A240	Workplace Monitoring: Instrumentation and Calibration (3 cr) (2+2)
Chg	ANTH A415	Applied Anthropology (3 cr) (3+0) (stacked with ANTH A615)
Chg	ANTH A427	Ethnohistory (3 cr) (3+0) (stacked with ANTH A627)

Need updated bibliographies for ANTH A415 and A427

Chg	ANTH A210	Introduction to Linguistic Anthropology (3 cr) (3+0)
Chg	ANTH A211	Fundamentals of the Archaeology (3 cr) (3+0)
Chg	ANTH A225	Cook Inlet Anthropology (3 cr) (3+0)
Chg	ANTH A270	Women in Cross-cultural Perspective (3 cr) (3+0)
Chg	ANTH A312	North American Archaeology (3 cr) (3+0)
Del	ANTH A333	Peoples and cultures of Southeast Asia (3 cr) (3+0)
Chg	ANTH A335	Native North Americans (3 cr) (3+0)
Chg	ANTH A336	Peoples and Cultures of South America (3 cr) (3+0)
Chg	ANTH A338	Peoples and Cultures of Scandinavia (3 cr) (3+0)
Chg	ANTH A361	Languages and Culture (3 cr) (3+0)
Chg	ANTH A365	Modern Human Biological Diversity (3 cr) (3+0)
Chg	ANTH A400	Anthropology of Religion (3 cr) (3+0)
Chg	ANTH A413	Peopling of the Americas (3 cr) (3+0)
Chg	ANTH A416	Arctic Archaeology (3 cr) (3+0)
Chg	ANTH A431	Field Methods in Archeology (1-8 cr) (0+3-24) (stacked with ANTH A631)
Chg	ANTH A432	Hunting and Gathering Societies (3 cr) (3+0)
Chg	ANTH A435	Northwest Coast Cultures (3 cr) (3+0)
Chg	ANTH A436	Aleut Adaptations (3 cr) (3+0)
Chg	ANTH A437	Eskimo Adaptations (3 cr) (3 cr)
Chg	ANTH A438	Tlingit and Haida Adaptations (3 cr) (3+0)
Chg	ANTH A439	Athabascan Adaptations (3 cr) (3+0)
Chg	ANTH A445	Evolution of Humans and Disease (3 cr) (3+0) (stacked with ANTH A645)
Chg	ANTH A457	Food and Nutrition: An Anthropological Perspective (3 cr) (3+0) (stacked with ANTH A657)
Chg	ANTH A480	Analytical Techniques in Archeology (3 cr) (3+0) (stacked with ANTH A680)
Chg	ANTH A481	Museum Studies in Anthropology (3 cr) (3+0) (stacked with ANTH A681)

Tabled at 2nd reading:

Chg	PSY A490	Advanced Topics in Psychology (1 cr) (1-3+0)
Chg	PSY A492	Senior Seminar: Contemporary Issues in Psychology (3 cr) (3+0)

Tabled PSY A490 and PSY A492until GAB can review PSY A690 and PSY 6492

VIII. Old Business

A. Electronic signatures on curriculum- Lora Volden and Christine Lidren are researching options

IX. New Business

A. CAR Box 13a. (pg. 218-219)
Approved on the condition that Hilary add an example of the Box 13a spreadsheet to the document.

B. CAR Box 16a. (pg. 220)
Proposed language for the Curriculum Handbook, Page 45
Box 16a. Course Prerequisite (s)
Identifies prerequisites which must be achieved prior to enrolling in a course. The prerequisite course (listed with prefix and number in alpha-numerical order) must be successfully completed prior to taking the course. Course prerequisites should be grouped using parenthesis and brackets similar to how you would group mathematical expressions. See the examples below.

Unless a minimum grade is specified for a prerequisite class, any grade value ***(including I, F, and W)*** will mark the class as satisfying the prerequisite if prerequisite checking has been turned on. For instance, if a student withdrew from a class and received a W, that student would be seen by Banner has having fulfilled any prerequisite requirement for the class they withdrew from. It is always assumed that faculty may waive the prerequisite or the minimum grade requirement.

All classes that do not have a minimum grade specified on their CAR for their prerequisites will automatically be coded with a minimum grade of D. This will result in the language "with minimum grade of D" appearing with the prerequisite list on UAOnline and in the printed UAA catalog.

A course prerequisite which may be taken concurrently must also be included in this box using the additional language "*or concurrent enrollment.*" This differs from a corequisite which should be placed in Box 16c. See the section on Box 16c. for detailed information about corequisites.
Approved

C. UAB topics (pg. 221)

X. Informational Items and Adjournment

A. Curriculum Log
B. Curriculum Handbook
C. Catalog Copy
D. Accreditation website

Department of
Biological Sciences
UNIVERSITY of ALASKA ANCHORAGE

3211 Providence Drive
Anchorage, Alaska 99508-4614
T 907.786.4770 • F 907.786.4607
http://www.uaa.alaska.edu/biology/

February 7, 2011

MEMO:

To: Dr. Doug Causey
Chair, Department of Biological Sciences

From: Don Spalinger
Assoc. Professor of Biological Sciences

Subject: Program Change in UAA Catalog, Pg 95.

In accordance with the requirements for notification of changes to Program Requirements, I am submitting the following PAR to the Department and CAS.

I request to change the catalog wording for the program: Bachelor of Science, Biological Sciences (pp 94 and 95 of the current catalog) as follows:

On Pg. 95, under the subheading "b. Recommended elective courses in organismal, ecology, and evolutionary biology, **Zoology"**:

Change "BIOL A425 Mammalogy (4)" to "BIOL A425 Mammalogy (3)".

This reflects the change in this course, dropping the associated laboratory section.

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College AS CAS	1b. Division AMSC Division of Math Science	1c. Department Biological Sciences

2. Complete Program Title/Prefix
Bachelor of Science, Biological Science

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: Bachelor of Science or Graduate: CHOOSE ONE

4. Type of Action:

PROGRAM	PREFIX
☐ Add	☐ Add
☒ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Spring/2012 To: 9999/9999

6a. Coordination with Affected Units — Department, School, or College: Biological Sciences, CAS

Initiator Name (typed): Donald E. Spalinger — Initiator Signed Initials: _________
Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 3/25/11

6c. Coordination with Library Liaison Date: ___

7. Title and Program Description - Please attach the following:

☒ Cover Memo ☐ Catalog Copy in Word using the track changes function

8. Justification for Action
Change in Course Description and credit hours for Biol. A425 (Mammalogy)

Initiator (faculty only) — Date Donald E. Spalinger Initiator (TYPE NAME)	☐ Approved ☐ Disapproved — Dean/Director of School/College — Date
☐ Approved ☐ Disapproved — Department Chairperson — Date	☐ Approved ☐ Disapproved — Undergraduate/Graduate Academic Board Chairperson — Date
☐ Approved ☐ Disapproved — Curriculum Committee Chairperson — Date	☐ Approved ☐ Disapproved — Provost or Designee — Date

Bachelor of Science, Biological Sciences

The Bachelor of Science degree includes a single core program of coursework with two areas of study. Completing courses from the cellular and molecular biology area prepares students for professional careers in areas such as medicine, dentistry and veterinary science. Completing courses from the organismal, ecology, and evolutionary area prepares students for careers in environmental, organismal, and evolutionary biology. A wide selection of electives is available to all students, including courses offered under BIOL A394 and BIOL A490, which are selected topics courses. It is imperative that students consult their academic advisors within the Department of Biological Sciences to determine which electives are most appropriate to their career interests. Some of these elective courses are offered periodically, depending on demand. Refer to course descriptions to identify these courses.

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Academic Progress

In order to graduate with a BS in Biological Sciences, all courses covered under Major Requirements for a BS in Biological Sciences must be completed with a grade of C or better. Students who audit a course in biology or who are unable to earn a grade of C or better in the course may repeat the course. All prerequisites for biology courses must be completed with a grade of C or better. Students repeating a course in the Department of Biological Sciences are required to complete all components of the course during the semester in which the course is retaken. For a course with a lecture and laboratory component, students may not carry forward an individual lecture or laboratory grade from a previous semester in which the course was taken.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section.

D. Major Requirements

1. Some major requirements may also be used to satisfy the College of Arts and Sciences BS requirements.
2. Complete these required support courses:

CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1
CHEM A106	General Chemistry II	3
CHEM A106L	General Chemistry II Laboratory	1
CHEM A321	Organic Chemistry I	3
CHEM A322	Organic Chemistry II	3
CHEM A323L	Organic Chemistry Laboratory	2
MATH A200	Calculus I	4
MATH A201	Calculus II	4
PHYS A123	Basic Physics I (3)	8
PHYS A123L	Basic Physics I Laboratory (1)	
	and	
PHYS A124	Basic Physics II (3)	
PHYS A124L	Basic Physics II Laboratory (1)	
	or	
PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	
	and	
PHYS A212	General Physics II (3)	
PHYS A212L	General Physics II Laboratory (1)	
STAT A253	Applied Statistics for the	

	Sciences (4)	3-4
	or	
STAT A307	Probability (3)	
STAT A308	Intermediate Statistics *	3

**It is recommended that STAT A308 be taken. Students may substitute STAT A308 with 3 upper division Biological Sciences credits.*

3. Complete Biological Sciences core courses:

BIOL A115/L	Fundamentals of Biology I with Laboratory	4
BIOL A116/L	Fundamentals of Biology II with Laboratory	4
BIOL A242/L	Fundamentals of Cell Biology with Laboratory	4
BIOL A252/L	Principles of Genetics with Laboratory	4
BIOL A271/L	Principles of Ecology with Laboratory	4
BIOL A308	Principles of Evolution	3
BIOL A310/L	Principles of Physiology with Laboratory (4)	3-4
	or	
BIOL A316	Introduction to Plan Physiology (3)	
	or	
BIOL A415	Comparative Animal Physiology (3)	
BIOL A340	General Microbiology	5
BIOL A492	Undergraduate Seminar	1

4. Complete 11-12 credits of upper division program electives from the following list: 11-12

Note: Preprofessional students may substitute CHEM A441-A442 Principles of Biochemistry and CHEM A443 Biochemistry Laboratory for 8 upper division biology credits.

a. *Recommended electives in cellular and molecular biology:*

Cellular-Molecular

BIOL A451	Applied Microbiology (3)
BIOL A452	Human Genome* (3)
BIOL A461	Molecular Biology (3)
BIOL A461L	Molecular Biology Laboratory (1)
BIOL A462	Virology (3)
BIOL/ CHEM A471	Immunochemistry (4)
BIOL A488	Developmental Biology (4)

Zoology

BIOL A327	Parasitology (4)
BIOL A415	Comparative Animal Physiology (3)
BIOL A487	Comparative Anatomy of Vertebrates (4)

Techniques

BIOL A403	Microtechnique (4)
BIOL A495	Instructional Practicum: Laboratory (1)

b. *Recommended elective courses in organismal, ecology and evolutionary biology:*

Botany

BIOL A316	Introduction to Plant Physiology (3)
BIOL A331	Systematic Botany (4)
BIOL A333	Biology of Non-Vascular Plants (4)
BIOL A334	Biology of Vascular Plants (4)
BIOL A479	Physiological Plant Ecology (3)

Zoology

BIOL A327	Parasitology (4)
BIOL A415	Comparative Animal Physiology (3)
BIOL A423	Ichthyology (4)
BIOL A425	Mammalogy (3)

BIOL A426	Ornithology (4)
BIOL A427	Invertebrate Zoology (4)
BIOL A487	Comparative Anatomy of Vertebrates (4)

Ecology-Systems

BIOL A309	Biogeography (3)
BIOL A373	Conservation Biology (3)
BIOL A378	Marine Biology (3)
BIOL A430	Marine Mammal Biology (4)
BIOL A441	Animal Behavior (4)
BIOL A445	Plant-Herbivore Ecology (4)
BIOL A450	Microbial Ecology (3)
BIOL A477	Tundra and Taiga Ecosystems (3)
BIOL A478	Biological Oceanography (4)
BIOL A479	Physiological Plant Ecology (3)
BIOL A489	Population Genetics and Evolutionary Processes* (3)

Techniques

BIOL A403	Microtechnique (4)
BIOL A495	Instructional Practicum: Laboratory (1)

c. *Special topics, independent study and individual research (credits vary):*

BIOL A456	Nonlinear Dynamics and Chaos (3)
BIOL A490	Selected Lecture Topics in Biology (1-3)
BIOL A490L	Selected Laboratory Topics in Biology (1-3)
BIOL A497	Independent Study in Biology
BIOL A498	Individual Research
BIOL A499	Senior Thesis (3)

*Integrative capstone courses

4. A total of 122-125 credits is required for the degree, of which 42 credits must be upper division.

Bachelor of Science, Biological Sciences

The Bachelor of Science degree includes a single core program of coursework with two areas of study. Completing courses from the cellular and molecular biology area prepares students for professional careers in areas such as medicine, dentistry and veterinary science. Completing courses from the organismal, ecology, and evolutionary area prepares students for careers in environmental, organismal, and evolutionary biology. A wide selection of electives is available to all students, including courses offered under BIOL A394 and BIOL A490, which are selected topics courses. It is imperative that students consult their academic advisors within the Department of Biological Sciences to determine which electives are most appropriate to their career interests. Some of these elective courses are offered periodically, depending on demand. Refer to course descriptions to identify these courses.

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In order to graduate with a BS in Biological Sciences, all courses covered under Major Requirements for a BS in Biological Sciences must be completed with a grade of C or better. Students who audit a course in biology or who are unable to earn a grade of C or better in the course may repeat the course. All prerequisites for biology courses must be completed with a grade of C or better. Students repeating a course in the Department of Biological Sciences are required to complete all components of the course during the semester in which the course is retaken. For a course with a lecture and laboratory component, students may not carry forward an individual lecture or laboratory grade from a previous semester in which the course was taken.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

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B. General Education Requirements

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Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section.

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CHEM A322	Organic Chemistry II	3
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MATH A201	Calculus II	4
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PHYS A123L	Basic Physics I Laboratory (1)	
	and	
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PHYS A124L	Basic Physics II Laboratory (1)	
	or	
PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	
	and	
PHYS A212	General Physics II (3)	
PHYS A212L	General Physics II Laboratory (1)	
STAT A253	Applied Statistics for the	

	Sciences (4)	3-4
	or	
STAT A307	Probability (3)	
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**It is recommended that STAT A308 be taken. Students may substitute STAT A308 with 3 upper division Biological Sciences credits.*

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BIOL A252/L	Principles of Genetics with Laboratory	4
BIOL A271/L	Principles of Ecology with Laboratory	4
BIOL A308	Principles of Evolution	3
BIOL A310/L	Principles of Physiology with Laboratory (4)	3-4
	or	
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a. *Recommended electives in cellular and molecular biology:*

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Zoology

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Techniques

BIOL A403	Microtechnique (4)
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b. *Recommended elective courses in organismal, ecology and evolutionary biology:*

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BIOL A316	Introduction to Plant Physiology (3)
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Zoology

BIOL A327	Parasitology (4)
BIOL A415	Comparative Animal Physiology (3)
BIOL A423	Ichthyology (4)
BIOL A425	Mammalogy (~~4~~3)

BIOL A426	Ornithology (4)
BIOL A427	Invertebrate Zoology (4)
BIOL A487	Comparative Anatomy of Vertebrates (4)

Ecology-Systems

BIOL A309	Biogeography (3)
BIOL A373	Conservation Biology (3)
BIOL A378	Marine Biology (3)
BIOL A430	Marine Mammal Biology (4)
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BIOL A450	Microbial Ecology (3)
BIOL A477	Tundra and Taiga Ecosystems (3)
BIOL A478	Biological Oceanography (4)
BIOL A479	Physiological Plant Ecology (3)
BIOL A489	Population Genetics and Evolutionary Processes* (3)

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BIOL A403	Microtechnique (4)
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c. *Special topics, independent study and individual research (credits vary):*

BIOL A456	Nonlinear Dynamics and Chaos (3)
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BIOL A498	Individual Research
BIOL A499	Senior Thesis (3)

*Integrative capstone courses

4. A total of 122-125 credits is required for the degree, of which 42 credits must be upper division.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College CT CTC	1b. Division ACDT Division of Construction Design Technology			1c. Department AET
2. Course Prefix AET	3. Course Number A101	4. Previous Course Prefix & Number NA	5a. Credits/CEUs 4 cr.	5b. Contact Hours (Lecture + Lab) (2+4)

6. Complete Course Title
Fundamentals of CADD for Building Construction
Fund. of CADD for Bldg. Const
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions

9. Repeat Status No # of Repeats NA Max Credits NA

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2011 To: /9999

12. ☒ Cross Listed with CM A101
☐ Stacked with NA
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. See attached spreadsheet.			
2.			
3.			

Initiator Name (typed): Jeffrey C. Callahan Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: January 31, 2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: January 31, 2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduces basic CADD (computer aided drafting and design) skills necessary in civil, architectural, structural, mechanical and electrical drafting within the construction industry. Defines the working relationship between design and construction professionals and drafters/technicians.

16a. Course Prerequisite(s) *(list prefix and number)*
MATH A105 with a minimum grade of C or concurrent enrollment.

16b. Test Score(s)
NA

16c. Co-requisite(s) *(concurrent enrollment required)*
NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Proof of eligibility for placement into ENGL A111. Appropriate SAT, ACT, or UAA-approved Math Placement Test scores may be used in lieu of MATH A105.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
To increase student success in the program by requiring them to understand intermediate algebra before they attempt classes that require AET A101 as a prerequisite. Update CCG.

Initiator (faculty only) Date	☐ Approved ☐ Disapproved Dean/Director of School/College Date
Jeffrey C. Callahan Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved Department Chairperson Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date
☐ Approved ☐ Disapproved Curriculum Committee Chairperson Date	☐ Approved ☐ Disapproved Provost or Designee Date

Course Being Changed: AET A101					
	Type of Impact (course or program)				
Impacted Program or Course	**Course Impacts** ***examples:*** prerequisite, corequisite, recommended	**Program Impacts** ***examples:*** requirement, selective, program credit total	***Catalog Page***	***Type/Date of Notification***	***Chair/Coordinator Contacted*** (not listerve)
Associate of Applied Science, Architectural and Engineering Technology		Requirement	166	Feb., 2011	Donald M. Ketner Jr.
Occupational Endorsement in CAD		Requirement	164	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Architectural Drafting		Requirement	164	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Civil Drafting		Requirement	165	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Mechanical and Electrical Drafting		Requirement	165	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Structural Drafting		Requirement	165	Feb., 2011	Donald M. Ketner Jr.
AET A123	Prerequisite		308	Feb., 2011	Donald M. Ketner Jr.
AET A142	Prerequisite		308	Feb., 2011	Donald M. Ketner Jr.
AET A181	Prerequisite		308	Feb., 2011	Donald M. Ketner Jr.
AET A213	Prerequisite		308	Feb., 2011	Donald M. Ketner Jr.
AET A231	Prerequisite		308	Feb., 2011	Donald M. Ketner Jr.
Associate of Applied Science, Construction Management		Requirement (cross-listed with CM A101)	184	Feb., 2011	Donald M. Ketner Jr.
Bachelor of Science, Construction Management		Requirement (cross-listed with CM A101)	184	Feb., 2011	Donald M. Ketner Jr.
CM A123	Prerequisite (cross-listed with CM A101)		351	Feb., 2011	Donald M. Ketner Jr.
CM A142	Prerequisite (cross-listed with CM A101)		351	Feb., 2011	Donald M. Ketner Jr.
CM A163	Prerequisite (cross-listed with CM A101)		351	Feb., 2011	Donald M. Ketner Jr.
CM A201	Prerequisite (cross-listed with CM A101)		351	Feb., 2011	Donald M. Ketner Jr.
CM A213	Prerequisite (cross-listed with CM A101)		351	Feb., 2011	Donald M. Ketner Jr.

CM A231	Prerequisite (cross-listed with CM A101)		351	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Welding		Requirement	214	Jan, 2011	Lorraine Stewart
Undergraduate Certificate, Construction Technology		Requirement	215	Jan, 2011	Lorraine Stewart
Associate of Applied Science, Technology		Requirement	215	Jan, 2011	Lorraine Stewart

Course Content Guide
University of Alaska Anchorage
Community and Technical College

Department:	Architectural and Engineering Technology **Date**: March 29, 2011
Course Number:	AET A101
Course Title:	Fundamentals of CADD for Building Construction
Credits:	4

I. Course Description:

Introduces basic CADD (computer aided drafting and design) skills necessary in civil, architectural, structural, mechanical and electrical drafting within the construction industry. Defines the working relationship between design and construction professionals and drafters/technicians.

II. Course Design:

A. The course is designed for entry-level students and associate degree-seeking students where students will establish basic skills used to produce construction drawings with CADD software.

B. 4.0 credits. (2 + 4)

C. Total time of student involvement: 180 hours
   1) Lecture: 30 hours
   2) Lab: 60 hours
   3) Outside: 90 hours

D. Required course for the AAS degree in Architecture & Engineering Technology, AET Architectural Drafting Certificate, AET Civil Drafting Certificate, AET Structural Drafting Certificate, AET Mechanical/Electrical Drafting Certificate and the Occupational Endorsement in CAD.

E. Lab fees are assessed for this course.

F. Course may be taught in any time frame, but not less than four weeks.

G. This is a revised course.

H. Course coordinated with: CM, KO, MA, UAF and faculty listserve.

I. Course level justification: This course introduces a field of knowledge and develops basic skills.

III. Course Activities:

Class sessions will consist of lecture/discussions and individual projects completed using CADD software. Emphasis will be on realistic assignments that will introduce students to office procedures and terminology.

IV. Course Prerequisites/Registration Restrictions:

MATH A105 with a minimum grade of C or concurrent enrollment. Proof of eligibility for placement into ENGL A111. Appropriate SAT, ACT, or UAA-approved Math Placement Test scores may be used in lieu of MATH A105.

V. Course Evaluation:

Grades will be A – F.

VI. Course Curriculum:

1.0 Safety Procedures
- 1.1 University policies
- 1.2 Course and lab procedures
- 1.3 Emergency egress review

2.0 Participants in Construction
- 2.1 Owners
- 2.2 Design team
- 2.3 Construction team
- 2.4 Regulatory agents

3.0 Construction Drawings
- 3.1 Use and role
- 3.2 National CAD standard
- 3.3 Sheet sizes, layout and numbering
- 3.4 Coordination with written specifications
- 3.5 Drawing subsets
- 3.6 Drawing views and orthographic projection

4.0 CADD Command Structure
- 4.1 File commands
- 4.2 Draw and edit commands
- 4.3 Modify commands
- 4.4 Insert and format commands
- 4.5 Dimension and text commands
- 4.6 Blocks
- 4.7 Scaling
- 4.8 Plotting

5.0 Civil/Site Development Drawings
- 5.1 Use and role
- 5.2 Reading/interpretation and line types
- 5.3 Plats, plot plans, as-builts
- 5.4 Topography
- 5.5 Civil engineering dimensioning (English and ISO units)
- 5.6 Terminology, symbols and abbreviations

6.0 Architectural Drawings
- 6.1 Use and role
- 6.2 Reading/interpretation and line types
- 6.3 Schedules
- 6.4 Architectural dimensioning (English and ISO units)
- 6.5 Terminology, symbols and abbreviations

7.0 Structural Drawings
   7.1 Use and role
   7.2 Reading/interpretation and line types
   7.3 Structural dimensioning (English and ISO units)
   7.4 Terminology, symbols and abbreviations
8.0 Mechanical Drawings
   8.1 Use and role
   8.2 Reading, interpretation and line types
   8.3 Plumbing
   8.4 HVAC
   8.5 Schedules
   8.6 Terminology, symbols and abbreviations
9.0 Electrical Drawings
   9.1 Use and role
   9.2 Reading, interpretation and line types
   9.3 Electrical system components
   9.4 Schematic and plan layouts
   9.5 Schedules
   9.6 Terminology, symbols, and abbreviations
10.0 Projection
   10.1 Projection theory: observer, projection plane, and object
   10.2 Projection types
11.0 Drawing sheet organization and schedules
   11.1 Drawing area and title blocks
   11.2 Production drawing area
   11.3 Drawing coordinate systems
   11.4 Cover sheets
   11.5 Schedule formats, heading, and content

VII. Suggested Texts:

Omura, G. (2010). *Mastering AutoCAD 2011 and AutoCAD LT 2011*. San Francisco, CA: Sybex.

Schrock, C. R. (2010). *Beginning AutoCAD 2011 exercise workbook*. New York, NY: Industrial Press.

Schrock, C. R. (2010). *Advanced AutoCAD 2011 exercise workbook*. New York, NY: Industrial Press.

VIII. References:

American Institute of Steel Construction. (2005). *Manual of steel construction* (13th ed.). Chicago, IL: Author.

Ching, F. D. K., & Winkel, S. R. (2001). *Building construction illustrated* (3rd ed.). New York, NY: Van Nostrand Reinhold.

Dix, M., & Riley, P. (2010). *Introduction to AutoCAD 2011*. Upper Saddle River, NJ: Prentice-Hall.

Hepler, D. E. (2011). *Architecture drafting and design* (7th ed.). New York, NY: Glencoe/McGraw-Hill.

Hoke, J. R. (Ed.). (2000). *Architectural graphics standards: An abridgement of the ninth edition*. New York, NY: John Wiley & Sons.

International Code Council. (latest). *International building code*. Falls Church, VA: Author.

Koser, G., & Zirwas, D. (2011). *Workplace skills for success with AutoCAD 2011- basics*. Upper Saddle River, NJ: Prentice-Hall.

Liebling, R. W. (1999). *Architectural working drawings* (4th ed.). New York, NY: John Wiley & Sons.

Madsen, D. A., & Schumaker T. M. (2003). *Civil drafting technology* (5th ed.). Upper Saddle River, NJ: Prentice-Hall.

National Institute of Building Sciences. (2008). *US national CAD standards*. (ver.4.0). Washington, DC: Author.

Puerta, F. E. (2011). *AutoCAD 2011 in 3D: A modern perspective*. Upper Saddle, NJ: Prentice-Hall.

R. S. Means Co. (2011). *Means illustrated construction dictionary*. Kingston, MA: Author.

Stein, B. (1997). *Building technology, mechanical and electrical systems*. New York, NY: John Wiley & Sons.

Wolhers, T. T. (2010). *Applying AutoCAD 2011*. New York, NY: McGraw-Hill.

IX. Instructional Goals, Student Outcomes and Assessment Procedures:

A. Instructional Goal:

Introduce basic computer aided drafting and design (CADD) skills necessary in civil, architectural, structural, mechanical and electrical drafting in the design and construction industry.

B. Student Outcomes/Assessment Procedures:

Student Outcomes	Assessment Procedures
After successful completion of the course, the student will be able to do the following:	This outcome will be assessed by one or more of the following:
Explain the working relationships and primary roles of the participants in the construction process.	Written Exam Class participation
Describe how construction drawings and their accompanying written specifications are coordinated for a single project.	Written Exam
Explain construction drawing set organization including drawing subsets (civil/site, architectural, structural, mechanical, electrical, and others as required by the needs of the project), the information conveyed by each subset, and how the subsets are related.	Written Exam CADD project
Define the basic commands and techniques used with computer-aided design and drafting (CADD) software including file, draw, edit, modify, insert, format, dimension, and text commands.	Written Exam CADD project
Compute drawing scales for blocks, linetype, hatch, and plotting in CADD.	Written Exam CADD project
Produce civil/site development drawings, architectural drawings, mechanical drawings, structural drawings, and electrical drawings using CADD software.	CADD Project
Apply drafting conventions including: drawing sheet sizes, sheet-numbering, drawing sheet layout, line types, drawing views, dimensions, coordinate systems, scales, symbols, hatching, notation, basic terminology, and abbreviations used in architectural, civil, mechanical, electrical, and structural drawings.	Written Exam CADD project

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College CT CTC	1b. Division ACDT Division of Construction Design Technology	1c. Department CM

2. Course Prefix CM	3. Course Number A101	4. Previous Course Prefix & Number NA	5a. Credits/CEUs 4 cr.	5b. Contact Hours (Lecture + Lab) (2+4)

6. Complete Course Title
Fundamentals of CADD for Building Construction
Fund. of CADD for Bldg. Const.
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add or ☒ Change or ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions

9. Repeat Status No # of Repeats NA Max Credits NA

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2011 To: /9999

12. ☒ Cross Listed with AET A101
☐ Stacked with NA
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. See attached spreadsheet.			
2.			
3.			

Initiator Name (typed): Jeffrey C. Callahan Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: January 31, 2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: January 31, 2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduces basic CADD (computer-aided drafting and design) skills necessary in civil, architectural, structural, mechanical and electrical drafting within the construction industry. Defines the working relationship between design and construction professionals and drafters/technicians.

16a. Course Prerequisite(s) *(list prefix and number)*
MATH A105 with a minimum grade of C or concurrent enrollment.

16b. Test Score(s)
NA

16c. Co-requisite(s) *(concurrent enrollment required)*
NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Proof of eligibility for placement into ENGL A111. Appropriate SAT, ACT, or UAA-approved Math Placement Test scores may be used in lieu of MATH A105.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
To increase student success in the program by requiring them to understand intermediate algebra before they attempt classes that require CM A101 as a prerequisite. Update CCG.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved	Dean/Director of School/College	Date
Jeffrey C. Callahan Initiator (TYPE NAME)				
☐ Approved ☐ Disapproved Department Chairperson	Date	☐ Approved ☐ Disapproved	Undergraduate/Graduate Academic Board Chairperson	Date
☐ Approved ☐ Disapproved Curriculum Committee Chairperson	Date	☐ Approved ☐ Disapproved	Provost or Designee	Date

Course Being Changed:	CM A101				
	Type of Impact (course or program)				
Impacted Program or Course	**Course Impacts** ***examples:*** prerequisite, corequisite, recommended	**Program Impacts** ***examples:*** requirement, selective, program credit total	***Catalog Page***	***Type/Date of Notification***	***Chair/Coordinator Contacted*** (not listerve)
Associate of Applied Science, Architectural and Engineering Technology		Requirement (cross-listed with AET A101	166	Feb., 2011	Donald M. Ketner Jr.
Occupational Endorsement in CAD		Requirement (cross-listed with AET A101	164	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Architectural Drafting		Requirement (cross-listed with AET A101	164	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Civil Drafting		Requirement (cross-listed with AET A101	165	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Mechanical and Electrical Drafting		Requirement (cross-listed with AET A101	165	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Structural Drafting		Requirement (cross-listed with AET A101	165	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Welding		Requirement (cross-listed with AET A101	214	Jan., 2011	Lorraine Stewart
Undergraduate Certificate, Construction Technology		Requirement (cross-listed with AET A101	214	Jan., 2011	Lorraine Stewart
Associate of Applied Science, Technology		Requirement (cross-listed with AET A101	215	Jan., 2011	Lorraine Stewart
AET A123	Prerequisite (cross-listed with AET A101)		308	Feb., 2011	Donald M. Ketner Jr.
AET A131	Prerequisite (cross-listed with AET A101)		308	Feb., 2011	Donald M. Ketner Jr.
AET A142	Prerequisite (cross-listed with AET A101)		308	Feb., 2011	Donald M. Ketner Jr.
AET A181	Prerequisite (cross-listed with AET A101)		308	Feb., 2011	Donald M. Ketner Jr.
AET A213	Prerequisite (cross-listed with AET A101)		308	Feb., 2011	Donald M. Ketner Jr.
AET A231	Prerequisite (cross-listed with AET A101)		308	Feb., 2011	Donald M. Ketner Jr.
Associate of Applied Science, Construction Management		Requirement	184	Feb., 2011	Donald M. Ketner Jr.

Box 13a - CM A101

Bachelor of Science, Construction Management		Requirement	184	Feb., 2011	Donald M. Ketner Jr.
CM A123	Prerequisite		351	Feb., 2011	Donald M. Ketner Jr.
CM A142	Prerequisite		351	Feb., 2011	Donald M. Ketner Jr.
CM A163	Prerequisite		351	Feb., 2011	Donald M. Ketner Jr.
CM A201	Prerequisite		351	Feb., 2011	Donald M. Ketner Jr.
CM A213	Prerequisite		351	Feb., 2011	Donald M. Ketner Jr.
CM A231	Prerequisite		351	Feb., 2011	Donald M. Ketner Jr.

Course Content Guide
University of Alaska Anchorage
Community and Technical College

Department:	Construction Management	**Date**: March 30, 2011
Course Number:	CM A101	
Course Title:	Fundamentals of CADD for Building Construction	
Credits:	4	

I. Course Description:

Introduces basic CADD (computer-aided drafting and design) skills necessary in civil, architectural, structural, mechanical and electrical drafting within the construction industry. Defines the working relationship between design and construction professionals and drafters/technicians.

II. Course Design:

A. The course is designed for entry-level students and associate degree-seeking students where students will establish basic skills used to produce construction drawings with CADD software.

B. 4.0 credits. (2 + 4)

C. Total time of student involvement: 180 hours

1) Lecture: 30 hours
2) Lab: 60 hours
3) Outside: 90 hours

D. Required course for the AAS and BS in Construction Management.

E. Lab fees are assessed for this course.

F. Course may be taught in any time frame, but not less than four weeks.

G. This is a revised course.

H. Course coordinated with: AET, KO, MA, UAF and faculty listserve.

I. Course level justification: This course introduces a field of knowledge and develops basic skills.

III. Course Activities:

Class sessions will consist of lecture/discussions and individual projects completed using CADD software. Emphasis will be on realistic assignments that will introduce students to office procedures and terminology.

IV. **Course Prerequisites:** MATH A105 with a minimum grade of C or concurrent enrollment.

V. **Registration Restrictions:**

Proof of eligibility for placement into ENGL A111. Appropriate SAT, ACT, or UAA-approved Math Placement Test scores may be used in lieu of MATH A105.

VI. **Course Evaluation:**

Grades will be A – F.

VII. **Course Curriculum:**

1.0 Safety Procedures
  1.1 University policies
  1.2 Course and lab procedures
  1.3 Emergency egress review
2.0 Participants in Construction
  2.1 Owners
  2.2 Design team
  2.3 Construction team
  2.4 Regulatory agents
3.0 Construction Drawings
  3.1 Use and role
  3.2 National CAD standard
  3.3 Sheet sizes, layout and numbering
  3.4 Coordination with written specifications
  3.5 Drawing subsets
  3.6 Drawing views and orthographic projection
4.0 CADD Command Structure
  4.1 File commands
  4.2 Draw and edit commands
  4.3 Modify commands
  4.4 Insert and format commands
  4.5 Dimension and text commands
  4.6 Blocks
  4.7 Scaling
  4.8 Plotting
5.0 Civil/Site Development Drawings
  5.1 Use and role
  5.2 Reading/interpretation and line types
  5.3 Plats, plot plans, as-builts
  5.4 Topography
  5.5 Civil engineering dimensioning (English and ISO units)
  5.6 Terminology, symbols and abbreviations
6.0 Architectural Drawings
  6.1 Use and role
  6.2 Reading/interpretation and line types
  6.3 Schedules
  6.4 Architectural dimensioning (English and ISO units)

6.5 Terminology, symbols and abbreviations
7.0 Structural Drawings
    7.1 Use and role
    7.2 Reading/interpretation and line types
    7.3 Structural dimensioning (English and ISO units)
    7.4 Terminology, symbols and abbreviations
8.0 Mechanical Drawings
    8.1 Use and role
    8.2 Reading, interpretation and line types
    8.3 Plumbing
    8.4 HVAC
    8.5 Schedules
    8.6 Terminology, symbols and abbreviations
9.0 Electrical Drawings
    9.1 Use and role
    9.2 Reading, interpretation and line types
    9.3 Electrical system components
    9.4 Schematic and plan layouts
    9.5 Schedules
    9.6 Terminology, symbols, and abbreviations
10.0 Projection
    10.1 Projection theory: observer, projection plane, and object
    10.2 Projection types
11.0 Drawing sheet organization and schedules
    11.1 Drawing area and title blocks
    11.2 Production drawing area
    11.3 Drawing coordinate systems
    11.4 Cover sheets
    11.5 Schedule formats, heading, and content

VIII. Suggested Texts:

Omura, G. (2010). *Mastering AutoCAD 2011 and AutoCAD LT 2011*. San Francisco, CA: Sybex.

Schrock, C. R. (2010). *Beginning AutoCAD 2011 exercise workbook*. New York, NY: Industrial Press.

Schrock, C. R. (2010). *Advanced AutoCAD 2011 exercise workbook*. New York, NY: Industrial Press.

IX. References:

American Institute of Steel Construction. (2005). *Manual of steel construction* (13th ed.). Chicago, IL: Author.

Ching, F. D. K., & Winkel, S. R. (2001). *Building construction illustrated* (3rd ed.). New York, NY: Van Nostrand Reinhold.

Dix, M., & Riley, P. (2010). *Introduction to AutoCAD 2011*. Upper Saddle River, NJ: Prentice-Hall.

Hepler, D. E. (2011). *Architecture drafting and design* (7th ed.). New York, NY: Glencoe/McGraw-Hill.

Hoke, J. R. (Ed.). (2000). *Architectural graphics standards: An abridgement of the ninth edition*. New York, NY: John Wiley & Sons.

International Code Council. (latest). *International building code*. Falls Church, VA: Author.

Koser, G., & Zirwas, D. (2011). *Workplace skills for success with AutoCAD 2011-basics*. Upper Saddle River, NJ: Prentice-Hall.

Liebling, R. W. (1999). *Architectural working drawings* (4th ed.). New York, NY: John Wiley & Sons.

Madsen, D. A., & Schumaker T. M. (2003). *Civil drafting technology* (5th ed.). Upper Saddle River, NJ: Prentice-Hall.

National Institute of Building Sciences. (2008). *US national CAD standards*. (ver.4.0). Washington, DC: Author.

Omura, G. (2010). *Mastering AutoCAD 2011 and AutoCAD LT 2011*. San Francisco, CA: Sybex.

Puerta, F. E. (2011). *AutoCAD 2011 in 3D: A modern perspective*. Upper Saddle, NJ: Prentice-Hall.

R. S. Means Co. (2011). *Means illustrated construction dictionary*. Kingston, MA: Author.

Stein, B. (1997). *Building technology, mechanical and electrical systems*. New York, NY: John Wiley & Sons.

Wolhers, T. T. (2010). *Applying AutoCAD 2011*. New York, NY: McGraw-Hill.

X. Instructional Goals, Student Outcomes and Assessment Procedures:

A. Instructional Goal:

Introduce basic CADD (computer aided drafting and design) skills necessary in civil, architectural, structural, mechanical and electrical drafting in the design and construction industry.

B. Student Outcomes/Assessment Procedures:

Student Outcomes	Assessment Procedures
After successful completion of the course, the student will be able to do the following:	This outcome will be assessed by one or more of the following:
Examine the working relationships and primary roles of the participants in the construction process.	Written Exam Class participation
Describe how construction drawings and their accompanying written specifications are coordinated for a single project.	Written Exam
Explain construction drawing set organization including drawing subsets (civil/site, architectural, structural, mechanical, electrical, and others as required by the needs of the project), the information conveyed by each subset, and how the subsets are related.	Written Exam CADD project
Define the basic commands and techniques used with computer-aided design and drafting (CADD) software including file, draw, edit, modify, insert, format, dimension, and text commands.	Written Exam CADD project
Compute drawing scales for blocks, linetype, hatch, and plotting in CADD.	Written Exam CADD project
Produce civil/site development drawings, architectural drawings, mechanical drawings, structural drawings, and electrical drawings using CADD software.	CADD Project
Apply drafting conventions including: drawing sheet sizes, sheet-numbering, drawing sheet layout, line types, drawing views, dimensions, coordinate systems, scales, symbols, hatching, notation, basic terminology, and abbreviations used in architectural, civil, mechanical, electrical, and structural drawings.	Written Exam CADD project

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
CT CTC	ACDT Division of Construction Design Technology	AET

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
AET	A142	NA	4 cr.	(3+2)

6. Complete Course Title
Mechanical and Electrical Technology
Mechanical & Electrical Tech.
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions

9. Repeat Status No # of Repeats NA Max Credits NA

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2011 To: /9999

12. ☒ Cross Listed with CM A142
☐ Stacked with NA
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. See attached spreadsheet.			
2.			
3.			

Initiator Name (typed): Jeffrey C. Callahan Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: January 31, 2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: January 31, 2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduces the basic mechanical and electrical systems required in all buildings for the safety, health, comfort, and convenience of the occupants. Emphasizes design criteria, code requirements, interpretation of construction drawings and building energy usage.

16a. Course Prerequisite(s) *(list prefix and number)*
[AET A101 and AET A102 and MATH A105] with a minimum grade of C.

16b. Test Score(s)
NA

16c. Co-requisite(s) *(concurrent enrollment required)*
NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Appropriate SAT, ACT, or UAA-approved Math Placement Test scores may be used in lieu of the MATH A105 prerequisite.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
MATH A105 is being added as a prerequisite to increase student success in the course. Change course description to include building energy usage. Update CCG.

Initiator (faculty only) Date
Jeffrey C. Callahan
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Being Changed: AET A142					
	Type of Impact (course or program)				
Impacted Program or Course	**Course Impacts** ***examples:*** prerequisite, corequisite, recommended	**Program Impacts** ***examples:*** requirement, selective, program credit total	***Catalog Page***	***Type/Date of Notification***	***Chair/Coordinator Contacted*** (not listerve)
Associate of Applied Science, Architectural and Engineering Technology		Requirement	166	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Mechanical and Electrical Drafting		Requirement	165	Feb., 2011	Donald M. Ketner Jr.
Associate of Applied Science, Construction Management		Requirement (cross-listed with CM A142)	184	Feb., 2011	Donald M. Ketner Jr.
Bachelor of Science, Construction Management		Requirement (cross-listed with CM A142)	184	Feb., 2011	Donald M. Ketner Jr.
Associate of Applied Science, Technology: Construction Emphasis		Requirement (cross-listed with CM A142)	216	Jan, 2011	Lorraine Stewart

Course Content Guide
University of Alaska Anchorage
Community and Technical College

Department: Architectural and Engineering Technology **Date:** March 29, 2011
Course Number: AET A142
Course Title: Mechanical and Electrical Technology
Credits: 4

I. Course Description:

Introduces the basic mechanical and electrical systems required in all buildings for the safety, health, comfort, and convenience of the occupants. Emphasizes design criteria, code requirements, interpretation of construction drawings and building energy usage.

II. Course Design:

A. The course is designed to introduce students to the basic concepts, processes and fundamentals of the mechanical and electrical systems common to all buildings.

B. 4.0 credits. (3 + 2)

C. Total time of student involvement: 180 hours

1) Lecture: 45 hours
2) Lab: 30 hours
3) Outside: 105 hours

D. Required course for the AAS in Architectural and Engineering Technology and the Mechanical and Electrical Drafting Certificate.

E. Lab fees are assessed for this course.

F. Course may be taught in any time frame, but not less than four weeks.

G. This is a revised course.

H. Course coordinated with: CM, KO, MA, UAF and faculty listserve.

I. Course level justification: Introduces a field of knowledge and develops basic skills.

III. Course Activities

Class sessions will consist of lecture/discussions, individual projects, and group projects. Emphasis will be on realistic assignments that will introduce students to building systems concepts, design parameters, and terminology.

III. Course Prerequisites:

[AET A101 and AET A102 and MATH A105] with a minimum grade of C.

IV. Registration Restrictions:

Appropriate SAT, ACT, or UAA-approved Math Placement Tests scores may be used in lieu of the MATH A105 prerequisite.

V. Course Evaluation

Grades will be A - F.

VI. Course Outline

1.0 Safety and Procedures
   1.1 University policies
   1.2 Course and lab safety procedures
   1.3 Egress review
2.0 Water Supply and Design
   2.1 Water source and distribution
   2.2 Water systems
   2.3 Water demand
   2.4 Plumbing codes
   2.5 Pipe materials, fittings, valves
   2.6 Upfeed/downfeed systems
   2.7 Design calculations
3.0 Plumbing Drain, Waste, and Vent Systems
   3.1 Drainage and venting principles
   3.2 Water supply systems
   3.3 Terminology
   3.4 Piping materials and fittings
   3.5 Plumbing fixtures
   3.6 Drainage design
4.0 Basic Thermal Process and Human Comfort
   4.1 Heat transfer
   4.2 Temperature and humidity
   4.3 Ventilation
   4.4 Solar orientation and design
5.0 Building Heat Loss
   5.1 Calculation factors
   5.2 “R” and “U” values
   5.3 Infiltration losses
   5.4 Heating degree days
   5.5 Energy use and fuel costs
6.0 Heating, Ventilating, and Air Conditioning
   6.1 Hot water heating
   6.2 Heat plants and chillers
   6.3 Forced air systems
   6.4 Ducts, duct fittings, duct design
   6.5 Supply/return locations

        6.6 Interpret HVAC drawings
7.0 Fundamentals of Electricity
    7.1 AC/DC generation and circuits
    7.2 Ohm's Law
    7.3 Watt's Law
    7.4 Conductors and insulators
    7.5 Transformers
    7.6 Electrical distribution grids
8.0 Building Electrical Systems
    8.1 Overhead and lateral services
    8.2 Meters
    8.3 Building disconnect switches
    8.4 Panels
    8.5 Main distribution panels
    8.6 Branch panels
    8.7 Interpret electrical drawings
9.0 Branch Circuits
    9.1 Circuit breakers
    9.2 Conductors
    9.3 Devices
    9.4 Loading
10.0 Lighting
    10.1 Lighting levels and lighting efficiency
    10.2 Light fixtures types
    10.3 Switching
    10.4 Interpret lighting drawings

VII. Suggested Texts

Wujek, J. (2010). *Mechanical and electrical systems in architecture, engineering, and construction.* Upper Saddle River, NJ: Pearson Education.

VIII. References

Bradshaw, V. (2006). *The building environment: Active and passive control systems* (3rd ed.). Hoboken, NJ: John Wiley & Sons.

Burton, J.L. (2000). *Domestic plumbing design*. Upper Saddle River, NJ: Prentice Hall.

Cooper, W.B. (2002). *Warm air heating for climate control* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Holzman, H.N. (2008). *Modern commercial wiring* (4th ed.). Tinley Park, IL: Goodheart-Wilcox.

Holzman, H.N. (1999). *Modern residential wiring* (8th ed.). Tinley Park, IL: Goodheart-Wilcox.

International Code Council. (latest). *International mechanical code*. Falls Church, VA: Author.

International Code Council. (latest). *International plumbing code*. Falls Church, VA: Author.

National Fire Protection Association. (latest). *NFPA 70: The national electrical code.* Quincy, MA: Author.

Stein, B., Reynolds, J., Grondzik, W., & Kwok, A. (2005). *Building mechanical and electrical equipment* (10th ed.). Hoboken, NJ: John Wiley & Sons.

Tao, W.K., & Janis, R.R. (1997). *Mechanical and electrical systems in buildings* (4th ed.). Upper Saddle River, NJ: Prentice Hall.

Trost, J. (2003). *Design of mechanical and electrical systems in buildings.* Upper Saddle River, NJ: Prentice Hall.

Wentz, T. (1997). *Plumbing systems, analysis, design, and construction.* Upper Saddle River, NJ: Prentice Hall.

Woodson, R. (2009). *2009 international plumbing codes handbook.* New York, NY: McGraw-Hill.

IX. Instructional Goals, Student Outcomes and Assessment Procedures:

A. Instructional Goal:

Introduce basic knowledge of building mechanical and electrical systems to entry-level technicians and construction managers.

B. Student Outcomes/Assessment Procedures:

Student Outcomes	Assessment Procedures
After successful completion of the course, the student will be able to do the following:	This outcome will be assessed by one or more of the following:
Identify potable water systems, the regulatory codes for water system design and installation and calculate piping size based on demand.	Class Participation Project Written Exam
Identify the elements of drainage piping systems for buildings, the regulatory codes for drainage system design and installation, the purpose of system venting, and the installation methods and materials for drain, waste and vent systems for buildings.	Class Participation Project Written Exam
Summarize the effects of heat transfer, temperature and humidity, building solar design/orientation, and fresh air ventilation on human comfort and energy usage.	Class Participation Project Written Exam
Describe the effects that climate and building construction systems have on the building's heat loss/gain and energy usage.	Class Participation Project Written Exam

Identify the equipment and components of HVAC systems.	Class Participation Drawings Interpretation Written Exam
Describe methods of electrical power generation and distribution grids.	Class Participation Written Exercise Written Exam
Describe the properties of conductors and insulators.	Class Participation Written Exam
Describe the different types of electrical services and the electrical equipment used for power distribution in buildings.	Class Participation Project Written Exam
Examine branch circuitry for residential and commercial buildings, identify the materials and methods used, estimate branch circuit loads for lighting, appliances, and motors, and compute conductor and conduit sizes.	Class Participation Project Written Exam
Identify the requirements for low-voltage power systems such as building controls, communication, fire alarm, and TV.	Class Participation Written Exam
Define various types of interior lighting, lighting levels, energy use by lighting type and calculate the lumens required using software or the zonal cavity method.	Class Participation Project Written Exam

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: CT CTC

1b. Division: ACDT Division of Construction Design Technology

1c. Department: CM

2. Course Prefix: CM

3. Course Number: A142

4. Previous Course Prefix & Number: NA

5a. Credits/CEUs: 4 cr.

5b. Contact Hours (Lecture + Lab): (3+2)

6. Complete Course Title
Mechanical and Electrical Technology
Mechanical and Electrical Tech
Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☒ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
 ☐ Class ☐ Level
 ☐ College ☐ Major
☒ Other CCG (please specify)
☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☒ Course Prerequisites
☐ Co-requisites
☒ Registration Restrictions

9. Repeat Status No # of Repeats NA Max Credits NA

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2011 To: /9999

12. ☒ Cross Listed with AET A142
☐ Stacked with NA
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. See attached spreadsheet.			
2.			
3.			

Initiator Name (typed): Jeffrey C. Callahan Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: January 31, 2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: January 31, 2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduces the basic mechanical and electrical systems required in all buildings for the safety, health, comfort, and convenience of the occupants. Emphasizes design criteria, code requirements, interpretation of construction drawings and building energy usage.

16a. Course Prerequisite(s) *(list prefix and number)*
[CM A101 and CM A102 and MATH A105] with a minimum grade of C

16b. Test Score(s)
NA

16c. Co-requisite(s) *(concurrent enrollment required)*
NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Appropriate SAT, ACT, or UAA-approved Math Placement Tests scores may be used in lieu of the MATH A105 prerequisite.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
MATH A105 is being added as a prerequisite to increase student success in the course. Change course description to include building energy usage. Update CCG.

Initiator (faculty only) Date
Jeffrey C.Callahan
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Being Changed: CM A142					
	Type of Impact (course or program)				
Impacted Program or Course	**Course Impacts** ***examples:*** prerequisite, corequisite, recommended	**Program Impacts** ***examples:*** requirement, selective, program credit total	***Catalog Page***	***Type/Date of Notification***	***Chair/Coordinator Contacted*** (not listerve)
Associate of Applied Science, Architectural and Engineering Technology		Requirement (cross-listed with AET A142)	166	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Mechanical and Electrical Drafting		Requirement (cross-listed with AET A142)	165	Feb., 2011	Donald M. Ketner Jr.
Associate of Applied Science, Construction Management		Requirement	184	Feb., 2011	Donald M. Ketner Jr.
Bachelor of Science, Construction Management		Requirement	184	Feb., 2011	Donald M. Ketner Jr.
Associate of Applied Science, Technology: Construction Emphasis		Requirement	216	Jan., 2011	Lorraine Stewart

Course Content Guide
University of Alaska Anchorage
Community and Technical College

Department: Construction Management **Date:** March 30, 2011
Course Number: CM A142
Course Title: Mechanical and Electrical Technology
Credits: 4

I. Course Description:

Introduces the basic mechanical and electrical systems required in all buildings for the safety, health, comfort, and convenience of the occupants. Emphasizes design criteria, code requirements, interpretation of construction drawings and building energy usage.

II. Course Design:

A. Introduces students to the basic concepts, processes and fundamentals of the mechanical and electrical systems common to all buildings.

B. 4.0 credits. (3 + 2)

C. Total time of student involvement: 180 hours

1) Lecture: 45 hours
2) Lab: 30 hours
3) Outside: 105 hours

D. Required course for the AAS and BS degrees in Construction Management.

E. Lab fees are assessed for this course.

F. Course may be taught in any time frame, but not less than four weeks.

G. This is a revised course.

H. Course coordinated with: AET, KO, MA, UAF, and faculty listserve.

I. Course level justification: Introduces a field of knowledge and develops basic skills.

III. Course Activities

Class sessions will consist of lecture/discussions, individual projects, and group projects. Emphasis will be on realistic assignments that will introduce students to building systems concepts, design parameters, and terminology.

III. **Course Prerequisites:** [CM A101 and CM A102 and MATH A105] with a minimum grade of C.

IV. **Registration Restrictions:**

Appropriate SAT, ACT, or UAA-approved Math Placement Tests scores may be used in lieu of the MATH A105 prerequisite.

V. **Course Evaluation**

Grades will be A - F.

VI. **Course Outline**

1.0 Safety and Procedures
  - 1.1 University policies
  - 1.2 Course and lab safety procedures
  - 1.3 Egress review

2.0 Water Supply and Design
  - 2.1 Water source and distribution
  - 2.2 Water systems
  - 2.3 Water demand
  - 2.4 Plumbing codes
  - 2.5 Pipe materials, fittings, valves
  - 2.6 Upfeed/downfeed systems
  - 2.7 Design calculations

3.0 Plumbing Drain, Waste, and Vent Systems
  - 3.1 Drainage and venting principles
  - 3.2 Water supply systems
  - 3.3 Terminology
  - 3.4 Piping materials and fittings
  - 3.5 Plumbing fixtures
  - 3.6 Drainage design

4.0 Basic Thermal Process and Human Comfort
  - 4.1 Heat transfer
  - 4.2 Temperature and humidity
  - 4.3 Ventilation
  - 4.4 Solar orientation and design

5.0 Building Heat Loss
  - 5.1 Calculation factors
  - 5.2 “R” and “U” values
  - 5.3 Infiltration losses
  - 5.4 Heating degree days
  - 5.5 Energy use and heating fuel costs

6.0 Heating, Ventilating, and Air Conditioning
  - 6.1 Hot water heating
  - 6.2 Heat plants and chillers
  - 6.3 Forced air systems
  - 6.4 Ducts, duct fittings, duct design
  - 6.5 Supply/return locations
  - 6.6 Interpret HVAC drawings

7.0 Fundamentals of Electricity

7.1 AC/DC generation and circuits
7.2 Ohm's Law
7.3 Watt's Law
7.4 Conductors and insulators
7.5 Transformers
7.6 Electrical distribution grids

8.0 Building Electrical Systems
8.1 Overhead and lateral services
8.2 Meters
8.3 Building disconnect switches
8.4 Panels
8.5 Main distribution panels
8.6 Branch panels
8.7 Interpret electrical drawings

9.0 Branch Circuits
9.1 Circuit breakers
9.2 Conductors
9.3 Devices
9.4 Loading

10.0 Lighting
10.1 Lighting levels and lighting efficiency
10.2 Light fixtures types
10.3 Switching
10.4 Interpret lighting drawings

VII. Suggested Texts

Wujek, J. (2010). *Mechanical and electrical systems in architecture, engineering, and construction.* Upper Saddle River, NJ: Pearson Education.

VIII. References

Bradshaw, V. (2006). *The building environment: Active and passive control systems* (3rd ed.). Hoboken, NJ: John Wiley & Sons.

Burton, J.L. (2000). *Domestic plumbing design*. Upper Saddle River, NJ: Prentice Hall.

Cooper, W.B. (2002). *Warm air heating for climate control* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Holzman, H.N. (2008). *Modern commercial wiring* (4th ed.). Tinley Park, IL: Goodheart-Wilcox.

Holzman, H.N. (1999). *Modern residential wiring* (8th ed.). Tinley Park, IL: Goodheart-Wilcox.

International Code Council. (latest). *International mechanical code*. Falls Church, VA: Author.

International Code Council. (latest). *International plumbing code*. Falls Church, VA: Author.

National Fire Protection Association. (latest). *NFPA 70: The national electrical code.* Quincy, MA: Author.

Stein, B., Reynolds, J., Grondzik, W., & Kwok, A. (2005). *Building mechanical and electrical equipment* (10th ed.). Hoboken, NJ: John Wiley & Sons.

Tao, W.K., & Janis, R.R. (1997). *Mechanical and electrical systems in buildings* (4th ed.). Upper Saddle River, NJ: Prentice Hall.

Trost, J. (2003). *Design of mechanical and electrical systems in buildings.* Upper Saddle River, NJ: Prentice Hall.

Wentz, T. (1997). *Plumbing systems, analysis, design, and construction.* Upper Saddle River, NJ: Prentice Hall.

Woodson, R. (2009). *2009 international plumbing codes handbook.* New York, NY: McGraw-Hill.

IX. Instructional Goals, Student Outcomes and Assessment Procedures:

A. Instructional Goal:

Introduce basic knowledge of building mechanical and electrical systems to entry-level technicians and construction managers.

B. Student Outcomes/Assessment Procedures:

Student Outcomes	Assessment Procedures
After successful completion of the course, the student will be able to do the following:	This outcome will be assessed by one or more of the following:
Identify potable water systems, the regulatory codes for water system design and installation and calculate piping size based on demand.	Class Participation Project Written Exam
Identify the elements drainage piping system for buildings, the regulatory codes for drainage system design and installation, the purpose of system venting, and the installation methods and materials for drain, waste and vent systems for buildings.	Class Participation Project Written Exam
Summarize the effects of heat transfer, temperature and humidity, building solar design/orientation, and fresh air ventilation on human comfort and energy usage.	Class Participation Project Written Exam
Describe the effect that climate and building construction systems have on the building's heat loss/gain and energy usage.	Class Participation Project Written Exam
Identify the equipment and components of HVAC systems.	Class Participation Drawings Interpretation Written Exam

Describe methods of electrical power generation and distribution grids.	Class Participation Written Exercise Written Exam
Describe the properties of conductors and insulators.	Class Participation Written Exam
Describe the different types of electrical services and the electrical equipment used for power distribution in buildings.	Class Participation Project Written Exam
Examine branch circuitry for residential and commercial buildings, identify the materials and methods used, estimate branch circuit loads for lighting, appliances, and motors, and compute conductor and conduit sizes.	Class Participation Project Written Exam
Identify the requirements for low-voltage power systems such as building controls, communication, fire alarm, and TV.	Class Participation Written Exam
Define various types of interior lighting, lighting levels, energy use by lighting type and calculate the lumens required using software or the zonal cavity method.	Class Participation Project Written Exam

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: CT CTC
1b. Division: ACDT Division of Construction Design Technology
1c. Department: AET

2. Course Prefix: AET
3. Course Number: A213
4. Previous Course Prefix & Number: NA
5a. Credits/CEUs: 4 cr.
5b. Contact Hours (Lecture + Lab): (2+4)

6. Complete Course Title: Civil Technology
Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☒ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☒ Other CCG. Remove cross-listing with CM A213. (please specify)

9. Repeat Status No # of Repeats NA Max Credits NA

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2011 To: /9999

12. ☐ Cross Listed with NA
☐ Stacked with NA
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. See attached spreadsheet			
2.			
3.			

Initiator Name (typed): Jeffrey C. Callahan Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: January 31, 2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: January 31, 2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Outlines elements of civil design, including soils and soil mechanics, foundations, roads, and utilities using local, state and federal regulations. Introduces elements of construction surveying.

16a. Course Prerequisite(s) *(list prefix and number)*
[AET A101 and AET A102 and MATH A105] with a minimum grade of C

16b. Test Score(s)
NA

16c. Co-requisite(s) *(concurrent enrollment required)*
NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Appropriate SAT, ACT, or UAA-approved Math Placement Test scores may be used in lieu of the MATH A105 prerequisite.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course and CM A213 are being un-cross-listed due to revisions to CM A213. MATH A105 is being added as a course prerequisite to increase student success in the course. Update CCG.

Initiator (faculty only) Date
Jeffrey C. Callahan
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Being Changed:	**AET A213**				
	Type of Impact (course or program)				
Impacted Program or Course	**Course Impacts** ***examples:*** prerequisite, corequisite, recommended	**Program Impacts** ***examples:*** requirement, selective, program credit total	***Catalog Page***	***Type/Date of Notification***	***Chair/Coordinator Contacted*** (not listerve)
Associate of Applied Science, Architectural and Engineering Technology		Requirement	166	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Civil Drafting		Requirement	165	Feb., 2011	Donald M. Ketner Jr.
Associate of Applied Science, Construction Management		Requirement (remove cross-listing with CM A213)	184	Feb., 2011	Donald M. Ketner Jr.
Bachelor of Science, Construction Management		Requirement (remove cross-listing with CM A213)	184	Feb., 2011	Donald M. Ketner Jr.
CM A313	Prerequisite	Remove cross-listing with CM A213	352	Feb., 2011	Donald M. Ketner Jr.
Associate of Applied Science, Technology: Construction Emphasis		Requirement (remove cross-listing with CM A213)	216	Jan., 2011	Lorraine Stewart

Course Content Guide
University of Alaska Anchorage
Community and Technical College

Department:	Architectural & Engineering Technology	**Date:** March 30, 2011
Course Number:	AET A213	
Course Title:	Civil Technology	
Credits:	4	

I. **Course Description:**

Outlines elements of civil design, including soils and soil mechanics, foundations, roads, and utilities using local, state, and federal regulations. Introduces elements of construction surveying.

II. Course Design:

A. This course is designed to provide sophomore-level students with a well-rounded view of the civil technology field and the associated drawings used.

B. 4.0 credits. (2 + 4)

C. Total time of student involvement: 180 hours

1) Lecture: 30 hours
2) Lab: 60 hours
3) Outside: 90 hours

D. Required course for the AAS degree in Architecture & Engineering Technology and the AET Civil Drafting Certificate.

E. Lab fees are assessed for this course.

F. Course may be taught in any time frame, but not less than four weeks.

G. This is a revised course.

H. Course coordinated with: CM, KO, MA, UAF and faculty listserve

I. Course level justification: Builds upon a foundation of knowledge established in AET A101 and AET A102.

III. Course Activities

Class sessions will consist of lecture/discussions and individual projects. Emphasis will be on realistic assignments that will further the student's understanding of office procedures and terminology within the civil engineering and surveying fields.

III. **Course Prerequisites:** [AET A101 and AET A102 and MATH A105] with a minimum grade of C.

IV. **Registration Restrictions:**

Appropriate SAT, ACT, or UAA-approved Math Placement Tests scores may be used in lieu of the MATH A105 prerequisite.

V. **Course Evaluation:**

Grades will be A-F.

VI. **Course Curriculum:**

1.0 Safety Procedures
- 1.1 University policies
- 1.2 Course and lab procedures
- 1.3 Emergency egress review

2.0 Codes and Specifications
- 2.1 Local codes
- 2.2 Design criteria
- 2.3 Standard specifications
- 2.4 State and federal regulations

3.0 Soils
- 3.1 Sampling
- 3.2 Testing
- 3.3 Properties and characteristics
- 3.4 Compaction
- 3.5 Stabilization

4.0 Road Design
- 4.1 Horizontal curves
- 4.2 Vertical curves
- 4.3 Design speeds
- 4.4 Sight distances

5.0 Utility Design
- 5.1 Electric, telephone, cable
- 5.2 Water
- 5.3 Sewer
- 5.4 Gas

6.0 Earthwork
- 6.1 Grading
- 6.2 Cut & fill
- 6.3 Quantities

7.0 Construction Surveying
- 7.1 Building location and staking
- 7.2 Dimension control
- 7.3 Road layout
- 7.4 Utility layout

VII. **Suggested Text:**

Kavanagh, B. F. (2010). *Surveying with construction applications* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

VIII. References:

American Society of State Highway and Transportation Officials.(2004). *Geometric design of highways and streets* (5th ed.). Washington, DC: Author.

Atkins, H.N. (2003). *Highway materials, soils, and concretes* (4th ed.). Upper Saddle River, NJ: Prentice Hall.

Budhu, M. (2010). *Soil mechanics & foundations*. New York, NY: John Wiley and Sons.

Das, B. M. (2009). *Soil mechanics laboratory manual*. New York, NY: Oxford University Press.

Dewberry & Davis (firm). (2008). *Land development handbook*. New York, NY: McGraw Hill.

Kimerling, A. J., Muehrcke, P.C., & Muehrchke, J.O. (2005). *Map use: Reading, analysis, and interpretation* (3rd ed.). Madison, WI: JP Publications.

Liu, C. & Evett, J. (2008). *Soils and foundations* (7th ed.). Englewood Cliffs, New Jersey: Prentice-Hall.

Municipality of Anchorage. (2010). *Design criteria manual.* Anchorage, AK: Author. Retrieved from http://library1.municode.com/default-now/home.htm?infobase=12717&doc_action=whatsnew

Municipality of Anchorage. (2010). *Title 21 of the Anchorage municipal code: Land use regulations.* Anchorage, AK: Author. Retrieved from http://library1.municode.com/default-now/home.htm?infobase=12717&doc_action=whatsnew

Municipality of Anchorage. (2010). *Title 23 of the Anchorage municipal code: Building safety.* Anchorage, AK: Author. Retrieved from http://library1.municode.com/default-now/home.htm?infobase=12717&doc_action=whatsnew

Municipality of Anchorage. (2010). *Title 24 of the Anchorage municipal code: Streets and right-of-way.* Anchorage, AK: Author. Retrieved from http://library1.municode.com/default-now/home.htm?infobase=12717&doc_action=whatsnew

Municipality of Anchorage. (2010). *Municipality of Anchorage municipal code: Municipality of Anchorage standard specifications.* Anchorage, AK: Author. Retrieved from http://library1.municode.com/default-now/home.htm?infobase=12717&doc_action=whatsnew

Peurifoy, R.L., Schexnayder, C.J., Shapira, A., & Schmitt, R. (2010). *Construction planning equipment and methods* (8th ed.). New York, NY: McGraw Hill.

R.S. Means. (latest). *Means illustrated construction dictionary*. Kingston, MA: Author.

Roberts, J. (1995). *Construction surveying, layout, and dimension control*. New York, NY: Delmar Thomson Learning.

Somayaji, S. (2001). *Civil engineering materials* (2nd ed.). Upper Saddle River, NJ: Prentice-Hall.

Strom, S., & Nathan, K. (2004). *Site engineering for landscape architects* (3rd ed.). New York, NY: John Wiley and Sons.

Thompson, M.M. (latest). *Maps for America*. Reston, VA: U.S. Geological Survey.

Wedding, J., & McEachron, S. (2010). *Mastering AutoCAD Civil 3D*. New York, NY: John Wiley and Sons/Sybex.

IX. Instructional Goals and Student Outcomes and Assessment Procedures:

A. Instructional Goal:

Present elements of civil design, including soils and soil mechanics, foundations, roads, utilities, and construction surveying.

B. Student Outcomes/Assessment Procedures:

Student Outcomes	Assessment Procedures
After successful completion of the course, the student will be able to do the following:	This outcome will be assessed by one or more of the following:
Relate the various codes and specifications to the design of specific civil projects, including subdivision design, road design and the design of utilities.	Written Exam Class Project
Describe the importance of soils testing in the civil design process.	Written Exam Project
Define the properties and characteristics of soil types and how they relate to the construction process.	Written Exam
Describe how various street design code provisions apply to the actual design of streets and roads.	Written Exam Project
Utilize existing plan and profile construction drawings.	Written Exam Project
Apply the various utility design code provisions to the design of utilities.	Written Exam Project
Solve earthwork problems related to the design of construction projects.	Written Exam Project
Solve construction surveying problems related to the design of construction projects.	Written Exam Project

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
CT CTC	ACDT Division of Construction Design Technology	CM

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
CM	A213	NA	4 cr.	(2+4)

6. Complete Course Title
Construction Civil Technology

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☒ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☒ Other Remove cross-listing with AET A213. CCG. (please specify)

9. Repeat Status No # of Repeats NA Max Credits NA

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2011 To: /9999

12. ☐ Cross Listed with NA

☐ Stacked with NA

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. See attached spreadsheet.			
2.			
3.			

Initiator Name (typed): Alan B. Peabody Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: January 31, 2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: January 31, 2011

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Outlines elements of civil design and construction, including soils and soil properties, roads, earthwork and utilities using local, state, and federal regulations. Students will also be introduced to construction surveying.

16a. Course Prerequisite(s) *(list prefix and number)*
[CM A101 and CM A102 and MATH A105] with a minimum grade of C.

16b. Test Score(s)
NA

16c. Co-requisite(s) *(concurrent enrollment required)*
NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Appropriate SAT, ACT, or UAA-approved Math Placement Tests scores may be used in lieu of the MATH A105 prerequisite.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course is being revised to meet American Council of Construction Education accreditation criteria. MATH A105 is being added as a prerequisite to increase student success in the course. Remove cross listing with AET A213 and change course title. Revise CCG.

Initiator (faculty only) Date
Dr. Alan B. Peabody
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Being Changed: CM A213					
	Type of Impact (course or program)				
Impacted Program or Course	**Course Impacts** ***examples:*** prerequisite, corequisite, recommended	**Program Impacts** ***examples:*** requirement, selective, program credit total	***Catalog Page***	***Type/Date of Notification***	***Chair/Coordinator Contacted*** (not listerve)
Associate of Applied Science, Architectural and Engineering Technology		Requirement (remove cross-listing with AET A213)	166	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Civil Drafting		Requirement (remove cross-listing with AET A213)	165	Feb., 2011	Donald M. Ketner Jr.
Associate of Applied Science, Construction Management		Requirement	184	Feb., 2011	Donald M. Ketner Jr.
Bachelor of Science, Construction Management		Requirement	185	Feb., 2011	Donald M. Ketner Jr.
CM A313	Prerequisite		352	Feb., 2011	Donald M. Ketner Jr.
Associate of Applied Science, Technology: Construction Emphasis		Requirement	216	Jan., 2011	Lorraine Stewart

Course Content Guide
University of Alaska Anchorage
Community and Technical College

Department:	Construction Management	**Date:** March 30, 2011
Course Number:	CM A213	
Course Title:	Construction Civil Technology	
Credits:	4	

I. Course Description:

Outlines elements of civil design and construction, including soils and soil properties, roads, earthwork and utilities using local, state, and federal regulations. Students will also be introduced to construction surveying.

II. Course Design:

A. This course is designed for sophomore level students with a well-rounded view of the technology and regulations used for civil works and the surveying techniques used in general construction.

B. 4.0 credits. (2 + 4)

C. Total time of student involvement: 180 hours

1) Lecture: 30 hours
2) Lab: 60 hours
3) Outside: 90 hours

D. Required course for the BS and AAS degrees in Construction Management.

E. Lab fees are assessed for this course.

F. Course may be taught in any time frame, but not less than four weeks.

G. This is a revised course.

H. Course coordinated with: AET, KO, MA, SOE, UAF, and faculty listserve.

I. Course level justification: Builds upon a foundation of knowledge established in CM A101 and CM A102.

III. Course Activities

Class sessions will consist of lecture/discussions and individual projects. Emphasis will be on realistic assignments that will further student's understanding of procedures and terminology for civil works and general construction.

III. **Course Prerequisites:** [CM A101 and CM A102 and MATH A105] with a minimum grade of C.

IV. **Registration Restrictions:**

Appropriate SAT, ACT, or UAA-approved Math Placement Tests scores may be used in lieu of the MATH A105 prerequisite.

V. **Course Evaluation:**

Grades will be A-F.

VI. **Course Curriculum:**

1.0 Safety Procedures
- 1.1 University policies
- 1.2 Course and lab procedures
- 1.3 Emergency egress review

2.0 Codes and Specifications
- 2.1 Local codes
- 2.2 Design criteria
- 2.3 Standard specifications
- 2.4 State and federal regulations

3.0 Soil Materials
- 3.1 Sampling
- 3.2 Testing
- 3.3 Types, properties and characteristics
- 3.4 Compaction
- 3.5 Stabilization

4.0 Road Design
- 4.1 Horizontal curves
- 4.2 Vertical curves
- 4.3 Design speeds
- 4.4 Sight distances

5.0 Utility Design
- 5.1 Electric, telephone, cable
- 5.2 Water
- 5.3 Sewer
- 5.4 Gas

6.0 Earthwork
- 6.1 Grading
- 6.2 Cut & fill
- 6.3 Quantities

7.0 Construction Surveying
- 7.1 Level Circuits
- 7.2 Traverses
- 7.3 Building location and staking
- 7.4 Road and slope staking
- 7.5 Utility staking
- 7.6 GPS and laser control

VII. Suggested Text:

Kavanagh, B. F. (2010). *Surveying with construction applications* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

VIII. References:

American Society of State Highway and Transportation Officials. (2004). *Geometric design of highways and streets* (5th ed.). Washington, DC: Author.

Atkins, H.N. (2003). *Highway materials, soils, and concretes* (4th ed.). Upper Saddle River, NJ: Prentice Hall

Budhu, M. (2010). *Soil mechanics & foundations*. New York, NY: John Wiley and Sons.

Das, B. M. (2009). *Soil mechanics laboratory manual*. New York, NY: Oxford University Press.

Dewberry & Davis (firm). (2008). *Land development handbook*. New York, NY: McGraw Hill.

Kimerling, A. J., Muehrcke, P.C., & Muehrchke, J.O. (2005). *Map use: Reading, analysis, and interpretation* (3rd ed.). Madison, WI: JP Publications.

Liu, C., & Evett, J. (2008). *Soils and foundations* (7th ed.). Englewood Cliffs, New Jersey: Prentice-Hall.

Peurifoy, R.L., Schexnayder, C.J., Shapira, A., & Schmitt, R. (2010). *Construction planning equipment and methods* (8th ed.). New York, NY: McGraw Hill.

R.S. Means. (latest). *Means illustrated construction dictionary*. Kingston, MA: Author.

Municipality of Anchorage. (2010). *Design criteria manual.* Anchorage, AK: Author. Retrieved from http://library1.municode.com/default-now/home.htm?infobase=12717&doc_action=whatsnew

Municipality of Anchorage. (2010). *Title 21 of the Anchorage municipal code: Land use regulations.* Anchorage, AK: Author. Retrieved from http://library1.municode.com/default-now/home.htm?infobase=12717&doc_action=whatsnew

Municipality of Anchorage. (2010). *Title 23 of the Anchorage municipal code: Building safety.* Anchorage, AK: Author. Retrieved from http://library1.municode.com/default-now/home.htm?infobase=12717&doc_action=whatsnew

Municipality of Anchorage. (2010). *Title 24 of the Anchorage municipal code: Streets and right-of-way.* Anchorage, AK: Author. Retrieved from http://library1.municode.com/default-now/home.htm?infobase=12717&doc_action=whatsnew

Municipality of Anchorage. (2010). *Municipality of Anchorage municipal code: Municipality of Anchorage standard specifications.* Anchorage, AK: Author. Retrieved from http://library1.municode.com/default-now/home.htm?infobase=12717&doc_action=whatsnew

Roberts, J. (1995). *Construction surveying, layout, and dimension control*. New York, NY: Delmar Thomson Learning.

Somayaji, S. (2001). *Civil engineering materials* (2nd ed.). Upper Saddle River, NJ: Prentice-Hall.

Strom S., & Nathan, K. (2004). *Site Engineering for Landscape Architects* (3rd ed.). New York, NY: John Wiley and Sons.

Thompson, M.M. (latest). *Maps for America*. Reston, VA: U.S. Geological Survey.

Wedding, J., & McEachron, S. (2010). *Mastering AutoCAD Civil 3D*. New York, NY: John Wiley and Sons/Sybex.

IX. Instructional Goals and Student Outcomes and Assessment Procedures:

A. Instructional Goal:

Present elements of civil design, including soils, earthwork, roads, utilities, and construction surveying.

B. Student Outcomes/Assessment Procedures:

Student Outcomes:	Assessment Procedures:
After successful completion of the course, the student will be able to do the following:	This outcome will be assessed by one or more of the following:
Relate codes and specifications to the design and construction of civil projects, including site development, road design and the design of utilities.	Written Exam Project
Describe the importance of soils testing in the civil design and construction process.	Written Exam Project
Define the properties and characteristics of soil types and how they relate to design and construction.	Written Exam
Describe how design codes apply to the design of streets, roads, and highways.	Written Exam Project
Utilize existing plan and profile construction drawings.	Written Exam Project

Apply the utility design codes to the design of utilities.	Written Exam Project
Solve earthwork problems related to the design and construction of civil projects.	Written Exam Project
Solve construction surveying problems related to the design and layout of construction projects.	Written Exam Project
Calculate work quantities based on civil drawings	Project Written Exam

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College CT CTC	1b. Division ACDT Division of Construction Design Technology	1c. Department AET

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
AET	A231	NA	4 cr.	(2+4)

6. Complete Course Title
Structural Technology

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions

9. Repeat Status No # of Repeats NA Max Credits NA

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2011 To: /9999

12. ☒ Cross Listed with CM A231

☐ Stacked with NA

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. See attached spreadsheet.			
2.			
3.			

Initiator Name (typed): Jeffrey C. Callahan Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: January 31, 2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: January 31, 2011

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Examines structural theory and the physical principles that underlie structural behavior. Includes the use of materials in a manner to maintain structural stability against such natural forces as gravity, wind, snow, and earthquakes. Covers connection details and code requirements for wood, steel and reinforced concrete.

16a. Course Prerequisite(s) *(list prefix and number)*
[AET A101 and AET A102 and MATH A105] with a minimum grade of C.

16b. Test Score(s)
NA

16c. Co-requisite(s) *(concurrent enrollment required)*
NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Appropriate SAT, ACT, or UAA-approved Math Placement Test scores may be used in lieu of the MATH A105 prerequisite.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
MATH A105 is being added as a course prerequisite to increase student success in the course. Update CCG.

Initiator (faculty only) Date
Jeffrey C. Callahan
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Being Changed: AET A231					
	Type of Impact (course or program)				
Impacted Program or Course	**Course Impacts** ***examples:*** prerequisite, corequisite, recommended	**Program Impacts** ***examples:*** requirement, selective, program credit total	***Catalog Page***	***Type/Date of Notification***	***Chair/Coordinator Contacted*** (not listerve)
Associate of Applied Science, Architectural and Engineering Technology		Requirement	166	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Structural Drafting		Requirement	165	Feb., 2011	Donald M. Ketner Jr.
Associate of Applied Science, Construction Management		Requirement (cross-listed with CM A231)	184	Feb., 2011	Donald M. Ketner Jr.
Bachelor of Science, Construction Management		Requirement (cross-listed with CM A231)	184	Feb., 2011	Donald M. Ketner Jr.
CM A331	Prerequisite (cross-listed with CM A231)		352	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Construction Technology		Requirement (cross-listed with CM A231)	215	Jan., 2011	Lorraine Stewart
Associate of Applied Science, Technology: Construction Emphasis		Requirement (cross-listed with CM A231)	216	Jan., 2011	Lorraine Stewart

Course Content Guide
University of Alaska Anchorage
Community and Technical College

Department: Architectural & Engineering Technology **Date:** March 30, 2011
Course Number: AET A231
Course Title: Structural Technology
Credits: 4

I. Course Description:

Examines structural theory and the physical principles that underlie structural behavior. Includes the use of materials in a manner to maintain structural stability against such natural forces as gravity, wind, snow, and earthquakes. Covers connection details and code requirements for wood, steel and reinforced concrete.

II. Course Design:

A. This course is designed for sophomore level Architectural and Engineering Technology (AET) students.

B. 4.0 credits. (2 + 4)

C. Total time of student involvement: 180 hours

1) Lecture: 30 hours
2) Lab: 60 hours
3) Outside: 90 hours

D. Required course for the AAS degree in Architecture & Engineering Technology, and AET Structural Drafting Certificate.

E. Lab fees are assessed for this course.

F. Course may be taught in any time frame, but not less than four weeks.

G. This is a revised course.

H. Course coordinated with: CM, KO, MA, UAF, and faculty listserve.

I. Course level justification: Builds upon a foundation of knowledge established in AET A101 and AET A102. Connects completed course work or industry experience with advanced skill development.

III. Course Activities:

Class sessions will consist of lecture/discussions and individual projects completed using CADD software and manual techniques in sketching and lettering. Emphasis will be on realistic assignments that duplicate structural engineering office procedures and terminology.

IV. Course Prerequisites:

[AET A101 and AET A102 and MATH A105] with a minimum grade of C.

V. Registration Restrictions:

Appropriate SAT, ACT, or UAA-approved Math Placement Tests scores may be used in lieu of the MATH A105 prerequisite.

VI. Course Evaluation:

Grades will be A – F.

VII. Course Curriculum:

- 1.0 Safety Procedures
  - 1.1 University policies
  - 1.2 Course and lab procedures
  - 1.3 Emergency egress review
- 2.0 Statics
  - 2.1 Nature of forces
  - 2.2 Moment
  - 2.3 Equilibrium
  - 2.4 Free body diagrams
  - 2.5 Properties of areas
  - 2.6 Stress and strain
- 3.0 Beams and Columns
  - 3.1 Types of beams
  - 3.2 Loads
  - 3.3 Shear and moment
  - 3.4 Beam stress
  - 3.5 Columns
- 4.0 Wood Construction
  - 4.1 Allowable unit stress
  - 4.2 Lumber sizes
  - 4.3 Design of wood beams
  - 4.4 Glue laminated beams
  - 4.5 Wood columns
- 5.0 Steel Construction
  - 5.1 Properties of steel
  - 5.2 Allowable stress
  - 5.3 Steel beam design for flexure
  - 5.4 Lateral support
  - 5.5 Shear
  - 5.6 Deflection
  - 5.7 Composite design
  - 5.8 Steel columns
  - 5.9 Load and resistance factor design (LRFD)
- 6.0 Reinforced Concrete Construction
  - 6.1 Properties of concrete
  - 6.2 Reinforced concrete theory
  - 6.3 Design of reinforced concrete beams
  - 6.4 Continuity of reinforced concrete

6.5 Prestressed concrete
6.6 Reinforced concrete columns

7.0 Walls
7.1 Stud walls
7.2 Masonry walls
7.3 Reinforced concrete walls
7.4 Tilt-up walls
7.5 Retaining walls

8.0 Connections
8.1 Wood-to-wood connections
8.2 Wood-to-steel connections
8.3 Steel-to-steel connections

VIII. Suggested Text:

Gupta, R. (2011). *Principles of structural design.* Boca Raton, FL: Taylor and Francis.

Kaufman, H. (2010). *A structures primer.* Upper Saddle River, NJ: Prentice Hall.

IX. References:

Allen, E. (2004). *Fundamentals of building construction: Materials and methods* (4th ed.). New York, NY: John Wiley & Sons.

American Concrete Institute. (1994). *ACI Detailing manual. Publication* SP-66 (94). Detroit, MI: Author.

American Institute of Steel Construction. (2005). *Manual of steel construction* (13th ed.). Chicago, IL: Author.

American Institute of Timber Construction. (1999). *Manual of timber construction* (4th ed.). Vancouver, WA: Author.

Berg, D. M., & Marks, R. (1997). *Structural technology*. Los Angeles, CA: Architectural License Seminars.

Burns, T. (1995). *Structural steel design - LRFD*. Albany, NY: Delmar.

Goetsch, D. L. (1994*). Structural drafting* (2nd ed.). Albany, NY: Delmar.

International Code Council. (latest). *International building code*. Falls Church, VA: Author.

Jefferis, A., & Smith, K.D. (2010). *Commercial drafting and detailing* (3rd ed.). Albany, NY: Delmar.

Kirkpatrick, J. M. (2011). *The AutoCAD book, drawing, modeling, and applications using AutoCAD 2011*. Upper Saddle River, NJ: Prentice-Hall.

Krishnan, G. V., & Stellman, T. A. (2011). *Harnessing AutoCAD 2011*. Clifton Park, NY: Delmar.

R. S. Means Co. (2011). *Means illustrated construction dictionary*. Kingston, MA: Author.

Spence, W.P. (2011). *Construction materials, methods, and techniques* (3rd ed.). Albany, NY: Delmar.

Speigel, L., & Limbrunner, G. F. (2008). *Applied statics and strength of materials* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Underwood, R., & Chiuini, M. (2007). *Structural design: A practical guide for architects* (2nd ed.). New York, NY: John Wiley & Sons.

Zalwski, W., & Allen, E. (1998). *Shaping structures: Statics*. New York, NY: John Wiley & Sons.

X. Instructional Goals, Student Outcomes, and Assessment Procedures:

A. Instructional Goal

Present the elements of structural design, including structural theory, material behavior, detailing, and codes.

B. Student Outcomes/Assessment Procedures:

Student Outcomes	Assessment Procedures
After successful completion of the course, the student will be able to do the following:	This outcome will be assessed by one or more of the following:
Illustrate the nature of forces on a structural framework	Solutions Manual Written Exam
Apply the fundamentals of statics to solve simple problems of structural design.	Solutions Manual Written Exam
Calculate bending, shear, and deflection for various beam types.	Solutions Manual Written Exam
Identify the properties of columns.	Solutions Manual Written Exam
Describe how wood beams and columns are designed for given loading situations.	Solutions Manual Written Exam
Describe how steel beams and columns are designed for given loading situations	Solutions Manual Written Exam
Describe how reinforced concrete beams and columns are designed for given loading situations.	Solutions Manual Written Exam
Classify the various types of walls.	Solutions Manual Written Exam
Describe the advantages and disadvantages of each wall type.	Solutions Manual Written Exam
Identify the design issues involved with each wall type.	Solutions Manual Written Exam
Relate the forces placed on connections to the design of fastening systems for wood-to-wood connections, wood-to-steel connections, and steel-to-steel connections.	Solutions Manual Written Exam
Explain the role of soils and concrete reinforcement in the design of foundations	Solutions Manual Written Exam

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
CT CTC	ACDT Division of Construction Design Technology	CM

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
CM	A231	NA	4 cr.	(2+4)

6. Complete Course Title
Structural Technology

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions

9. Repeat Status No # of Repeats NA Max Credits NA

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2011 To: /9999

12. ☒ Cross Listed with AET A231
☐ Stacked with NA

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. See attached spreadsheet.			
2.			
3.			

Initiator Name (typed): Jeffrey C. Callahan Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: January 31, 2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: January 31, 2011

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Examines structural theory and the physical principles that underlie structural behavior. Includes the use of materials in a manner to maintain structural stability against such natural forces as gravity, wind, snow, and earthquakes. Covers connection details and code requirements for wood, steel and reinforced concrete.

16a. Course Prerequisite(s) *(list prefix and number)*
[CM A101 and CM A102 and MATH A105] with a minimum grade of C.

16b. Test Score(s)
NA

16c. Co-requisite(s) *(concurrent enrollment required)*
NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Appropriate SAT, ACT, or UAA-approved Math Placement Tests scores may be used in lieu of the MATH A105 prerequisite.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
MATH A105 is being added as a prerequisite to increase student success in the course. Update CCG.

Initiator (faculty only) Date
Jeffrey C. Callahan
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Being Changed: CM A231					
	Type of Impact (course or program)				
Impacted Program or Course	**Course Impacts** ***examples:*** prerequisite, corequisite, recommended	**Program Impacts** ***examples:*** requirement, selective, program credit total	***Catalog Page***	***Type/Date of Notification***	***Chair/Coordinator Contacted*** (not listerve)
Associate of Applied Science, Architectural and Engineering Technology		Requirement (cross listed with AET A231)	166	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Structural Drafting		Requirement (cross-listed with AET A231)	165	Feb., 2011	Donald M. Ketner Jr.
Associate of Applied Science, Construction Management		Requirement	184	Feb., 2011	Donald M. Ketner Jr.
Bachelor of Science, Construction Management		Requirement	184	Feb., 2011	Donald M. Ketner Jr.
CM A331	Prerequisite		352	Feb., 2011	Donald M. Ketner Jr.
Undergraduate Certificate, Construction Technology		Requirement	215	Jan., 2011	Lorraine Stewart
Associate of Applied Science, Technology: Construction Emphasis		Requirement	216	Jan., 2011	Lorraine Stewart

Course Content Guide
University of Alaska Anchorage
Community and Technical College

Department:	Construction Management	**Date:** March 30, 2011
Course Number:	CM A231	
Course Title:	Structural Technology	
Credits:	4	

I. Course Description:

Examines structural theory and the physical principles that underlie structural behavior. Includes the use of materials in a manner to maintain structural stability against such natural forces as gravity, wind, snow, and earthquakes. Covers connection details and code requirements for wood, steel and reinforced concrete.

II. Course Design:

A. This course is designed for sophomore level Construction Management (CM) students.

B. 4.0 credits. (2 + 4)

C. Total time of student involvement: 180 hours

1) Lecture: 30 hours
2) Lab: 60 hours
3) Outside: 90 hours

D. Required course for the AAS and BS degrees in Construction Management.

E. Lab fees are assessed for this course.

F. Course may be taught in any time frame, but not less than four weeks.

G. This is a revised course.

H. Course coordinated with: AET, KO, MA, UAF, and faculty listserve.

I. Course level justification: Builds upon a foundation of knowledge established in CM A101 and CM A102. Connects completed course work or industry experience with advanced skill development.

III. Course Activities:

Class sessions will consist of lecture/discussions and individual projects completed using CADD software and manual techniques in sketching and lettering. Emphasis will be on realistic assignments that duplicate structural engineering office procedures and terminology.

IV. **Course Prerequisites:** [CM A101 and CM A102 and MATH A105] with a minimum grade of C.

V. **Registration Restrictions:**

Appropriate SAT, ACT, or UAA-approved Math Placement Tests scores may be used in lieu of the MATH A105 prerequisite.

VI. **Course Evaluation:**

Grades will be A – F.

VII. **Course Curriculum:**

1.0 Safety Procedures
- 1.1 University policies
- 1.2 Course and lab procedures
- 1.3 Emergency egress review

2.0 Statics
- 2.1 Nature of forces
- 2.2 Moment
- 2.3 Equilibrium
- 2.4 Free body diagrams
- 2.5 Properties of areas
- 2.6 Stress and strain

3.0 Beams and Columns
- 3.1 Types of beams
- 3.2 Loads
- 3.3 Shear and moment
- 3.4 Beam stress
- 3.5 Columns

4.0 Wood Construction
- 4.1 Allowable unit stress
- 4.2 Lumber sizes
- 4.3 Design of wood beams
- 4.4 Glue laminated beams
- 4.5 Wood columns

5.0 Steel Construction
- 5.1 Properties of steel
- 5.2 Allowable stress
- 5.3 Steel beam design for flexure
- 5.4 Lateral support
- 5.5 Shear
- 5.6 Deflection
- 5.7 Composite design
- 5.8 Steel columns
- 5.9 Load and resistance factor design (LRFD)

6.0 Reinforced Concrete Construction
- 6.1 Properties of concrete
- 6.2 Reinforced concrete theory
- 6.3 Design of reinforced concrete beams
- 6.4 Continuity of reinforced concrete
- 6.5 Prestressed concrete

        6.6 Reinforced concrete columns
    7.0 Walls
        7.1 Stud walls
        7.2 Masonry walls
        7.3 Reinforced concrete walls
        7.4 Tilt-up walls
        7.5 Retaining walls
    8.0 Connections
        8.1 Wood-to-wood connections
        8.2 Wood-to-steel connections
        8.3 Steel-to-steel connections

VIII. Suggested Text:

Gupta, R. (2011). *Principles of structural design.* Boca Raton, FL: Taylor and Francis.

Kaufman, H. (2010). *A structures primer.* Upper Saddle River, NJ: Prentice Hall.

IX. References:

Allen, E. (2004). *Fundamentals of building construction: Materials and methods* (4th ed.). New York, NY: John Wiley & Sons.

American Concrete Institute. (1994). *ACI Detailing manual. Publication* SP-66 (94). Detroit, MI: Author.

American Institute of Steel Construction. (2005). *Manual of steel construction* (13th ed.). Chicago, IL: Author.

American Institute of Timber Construction. (1999). *Manual of timber construction* (4th ed.). Vancouver, WA: Author.

Berg, D. M., & Marks, R. (1997). *Structural technology*. Los Angeles, CA: Architectural License Seminars.

Burns, T. (1995). *Structural steel design - LRFD*. Albany, NY: Delmar.

Goetsch, D. L. (1994*). Structural drafting* (2nd ed.). Albany, NY: Delmar.

International Code Council. (latest). *International building code*. Falls Church, VA: Author.

Jefferis, A., & Smith, K.D. (2010). *Commercial drafting and detailing* (3rd ed.). Albany, NY: Delmar.

Kirkpatrick, J. M. (2011). *The AutoCAD book, drawing, modeling, and applications using AutoCAD 2011*. Upper Saddle River, NJ: Prentice-Hall.

Krishnan, G. V., & Stellman, T. A. (2011). *Harnessing AutoCAD 2011*. Clifton Park, NY: Delmar.

R. S. Means Co. (2011). *Means illustrated construction dictionary*. Kingston, MA: Author.

Spence, W.P. (2011). *Construction materials, methods, and techniques* (3rd ed.). Albany, NY: Delmar.

Speigel, L., & Limbrunner, G. F. (2008). *Applied statics and strength of materials* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Underwood, R., & Chiuini, M. (2007). *Structural design: A practical guide for architects* (2nd ed.). New York, NY: John Wiley & Sons.

Zalwski, W., & Allen, E. (1998). *Shaping structures: Statics*. New York, NY: John Wiley & Sons.

X. Instructional Goals, Student Outcomes, and Assessment Procedures:

A. Instructional Goal

Present the elements of structural design, including structural theory, material behavior, detailing, and codes.

B. Student Outcomes/Assessment Procedures:

Student Outcomes	Assessment Procedures
After successful completion of the course, the student will be able to do the following:	This outcome will be assessed by one or more of the following:
Illustrate the nature of forces on a structural framework.	Solutions Manual Written Exam
Apply the fundamentals of statics to solve simple problems of structural design.	Solutions Manual Written Exam
Calculate bending, shear, and deflection for various beam types.	Solutions Manual Written Exam
Identify the properties of columns.	Solutions Manual Written Exam
Describe how wood beams and columns are designed for given loading situations.	Solutions Manual Written Exam
Describe how steel beams and columns are designed for given loading situations.	Solutions Manual Written Exam
Describe how reinforced concrete beams and columns are designed for given loading situations.	Solutions Manual Written Exam
Classify the various types of walls.	Solutions Manual Written Exam
Describe the advantages and disadvantages of each wall type.	Solutions Manual Written Exam
Identify the design issues involved with each wall type.	Solutions Manual Written Exam
Relate the forces placed on connections to the design of fastening systems for wood-to-wood connections, wood-to-steel connections, and steel-to-steel connections.	Solutions Manual Written Exam
Explain the role of soils and concrete reinforcement in the design of foundations.	Solutions Manual Written Exam

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
CT CTC	ACDT Division of Construction Design Technology	CM

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
CM	A301	NA	3 cr.	(3+0)

6. Complete Course Title
Construction Project Management II
Const. Project Mgmt. II
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☐ Credits ☐ Contact Hours
☐ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☐ Course Description ☒ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☒ Other CCG (please specify)

9. Repeat Status No # of Repeats NA Max Credits NA

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2011 To: /9999

12. ☐ Cross Listed with NA
☐ Stacked with NA
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. See attached spreadsheet.			
2.			
3.			

Initiator Name (typed): Jeffrey C. Callahan Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: January 31, 2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: January 31, 2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Analyzes advanced subjects in construction project management. Includes project procurement, project delivery methodology, managing project change, quality control, claims and disputes, and labor relations.

16a. Course Prerequisite(s) *(list prefix and number)*
CM A163 and CM A202

16b. Test Score(s)
NA

16c. Co-requisite(s) *(concurrent enrollment required)*
NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
NA

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Prerequisites are being added to increase student success by requiring them to be familiar with construction cost estimating and project scheduling concepts before attempting this course. Update CCG.

Initiator (faculty only) Date
Jeffrey C. Callahan
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Being Changed:	**CM A301**					
Impacted Program or Course	***Type of Impact (course or program)*** **Course Impacts** ***examples:*** prerequisite, corequisite, recommended	**Program Impacts** ***examples:*** requirement, selective, program credit total	***Catalog Page***	***Type/Date of Notification***	***Chair/Coordinator Contacted*** (not listerve)
Bachelor of Science, Construction Management		Requirement	184	Feb., 2011	Donald M. Ketner Jr.
CM A401	Prerequisite		352	Feb., 2011	Donald M. Ketner Jr.
CM A440	Prerequisite		352	Feb., 2011	Donald M. Ketner Jr.
CM A450	Prerequisite		352	Feb., 2011	Donald M. Ketner Jr.

Course Content Guide
University of Alaska Anchorage
Community and Technical College

Program:	Construction Management	**Date:** March 30, 2011
Course Number:	CM A301	
Course Title:	Construction Project Management II	
Credits:	3	

I. Course Description:

Analyzes advanced subjects in construction project management. Includes project procurement, project delivery methodology, managing project change, quality control, claims and disputes, and labor relations.

II. Course Design:

A. This course is designed for construction management students with upper-division standing.

B. 3.0 credits. (3 + 0)

C. Total time of student involvement: 135 hours

   1) Lecture: 45 hours
   2) Lab: 0 hours
   3) Outside: 90 hours

D. This course is required for Bachelor of Science Construction Management degree.

E. Lab fees are assessed for this course.

F. Course may be taught in any time frame, but not less than three weeks.

G. This is a revised course.

H. Course coordinated with: AET, UAF, and faculty listserve.

I. Course level justification: Builds upon a foundation of knowledge established in CM A163 and CM A202.

III. Course Activities

Class sessions will consist of lecture/discussions, individual research and writing projects, team projects, and demonstrations.

IV. Course Prerequisites:

CM A163 and CM A202.

V. Course Evaluation

Grades will be A – F.

VI. Course Outline

- 1.0 Safety Procedures
  - 1.1 University policies
  - 1.2 Course and lab procedures
  - 1.3 Emergency egress review
- 2.0 Project Procurement
  - 2.1 Making the decision to bid
  - 2.2 Contractor selection
    - 2.2.1 Open bidding and invited bidding
    - 2.2.2 Best value selection
    - 2.2.3 Qualifications-based selection
  - 2.3 Prequalification
  - 2.4 Marketing
  - 2.5 Negotiation
- 3.0 Project Delivery Methodology
  - 3.1 Design-bid-build
  - 3.2 Design-negotiate-build
  - 3.3 Design-build
  - 3.4 Construction management
  - 3.5 Single and multiple-prime contracts
  - 3.6 Phased/fast-track delivery
- 4.0 Construction Contract Requirements
  - 4.1 Contract types
  - 4.2 General conditions
  - 4.3 Supplementary conditions
  - 4.4 Specifications
  - 4.5 Bonding and insurance
- 5.0 Managing Project Change
  - 5.1 Causes of project change
    - 5.1.1 Differing site conditions or concealed conditions
    - 5.1.2 Owner-initiated changes
    - 5.1.3 Contract document errors/omissions
  - 5.2 Change order procedures
  - 5.3 Contract modification types
    - 5.3.1 Minor changes
    - 5.3.2 Change directives
    - 5.3.3 Change orders
- 6.0 Quality Control (QC)
  - 6.1 Quality assurance/QC methodology
  - 6.2 QC techniques
- 7.0 Building Commissioning
- 8.0 Project Closeout and Warranties

9.0 Claims
  9.1 Causes of claims
  9.2 Claims administration
  9.3 Resolving claims
10.0 Disputes
  10.1 Dispute avoidance
  10.2 Dispute resolution methods
11.0 Labor Relations
  11.1 Labor-management relations laws
  11.2 Construction unions
  11.3 Collective bargaining
  11.4 Labor contract administration
  11.5 Open-shop labor

VII. Suggested Text

Fisk, Edward R. (2009). *Construction project administration* (9th ed.). Upper Saddle River, NJ: Prentice Hall.

VIII. Bibliography

American Institute of Architects. (latest). *Standard forms of contract agreements*. Washington DC: AIA Press.

American Institute of Architects California Council. (2000). *Handbook on project delivery.* Monterey, CA: Author.

Associated General Contractors. (2004). *Project delivery systems for construction.* Alexandria, VA: Author.

Coleman, J. (2004). *Construction documents and contracting.* Upper Saddle River, NJ: Pearson Prentice Hall.

Construction Specifications Institute. (2005). *The project resource manual: CSI manual of practice* (5th ed)*.* New York, NY: McGraw Hill.

Gould, F. E. (2011). *Managing the construction process: Estimating, scheduling and project control* (4th ed.)*.* Upper Saddle River, NJ: Pearson Education.

Gould, Frederick E. (2008). *Construction project management* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.

Halpin, D.W., & Senior, B. (2010) *Construction management* (4th ed.). New York, NY: John Wiley & Sons.

Jackson, B. J. (2010). *Construction management jump start: Construction management basics* (2nd ed.). Alameda, CA: Sybex

Knutson, K., Schexnayder, C.J., Fiori, C., & Mayo, R.E. (2008). *Construction management fundamentals* (2nd ed.). New York, NY: McGraw-Hill.

Levy, S. (2006). *Project management in construction* (5th ed.). New York, NY: McGraw Hill.

Liebing, R. (2001). *The construction industry*. Upper Saddle River, NJ: Prentice Hall.

Mincks, W.R., & Johnston, H. (2010). *Construction jobsite management* (3rd ed.). Albany, NY: Delmar.

Poage, Walter S. (1999). *The building professional's guide to contract documents.* Kingston, MA: RS Means

IX. Outcomes and Assessment

A. Instructional Goal:

Present construction management students with the advanced skills needed to select and bid projects, manage control quality, and manage changes and claims for construction projects.

Student Outcomes	Assessment Procedures
After the successful completion of the course, the student will be able to do the following:	This outcome will be assessed by one or more of the following:
Evaluate prospective projects for bidding or proposal and select projects based on internally established evaluative criteria and/or firm capability.	Class participation Project Written exam
Compare project delivery systems methodology for benefits, disadvantages, and risk to project participants.	Class participation Written exam
Evaluate the effect of the contract general conditions and supplementary conditions on contract performance requirements, administrative procedures, and risk.	Class participation Written exam
Develop processes and techniques for determining appropriate responses to changes in the project requirements, conditions, or environment.	Class participation Project Written exam
Assess quality requirements for projects through evaluation of the design documents and other program requirements to develop quality management procedures that will effectively control and assure project quality levels.	Class participation Team project Written exam
Analyze Building Commissioning methodology and prescribe administrative and work process procedures for appropriate implementation.	Class participation Project Written exam
Identify project changes and claims and the management methods used to process and/or resolve them.	Class participation Written exam
Identify contract requirements for project closeout and develop procedures for release of care, custody, and control of completed projects.	Class participation Written project Written exam

Analyze the causes of disputes and the methods used to avoid and resolve disputes.	Class participation Written project
Evaluate labor-management relations laws, construction union agreements and the effect of collective bargaining on construction management policies and procedures.	Class participation Written project Written exam

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College CT CTC	1b. Division ACDT Division of Construction Design Technology			1c. Department CM
2. Course Prefix CM	3. Course Number A440	4. Previous Course Prefix & Number NA	5a. Credits/CEUs 3 cr.	5b. Contact Hours (Lecture + Lab) (3+0)

6. Complete Course Title
Financial Management for Construction
Financial Mgmt. for Const.
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats NA Max Credits NA

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2011 To: /9999

12. ☐ Cross Listed with NA

☐ Stacked with NA

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Construction Management	184	February, 2011	Donald M. Ketner, Jr.
2.			
3.			

Initiator Name (typed): Jeffrey C. Callahan Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: January 31, 2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: January 31, 2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Analyzes financial management topics relevant to the construction management professional, including the interpretation of financial statements, financial ratios, applications of engineering economy, cash flow analysis, construction financing, and cost information systems.

16a. Course Prerequisite(s) *(list prefix and number)*
CM A301 and ACCT A202.

16b. Test Score(s)
NA

16c. Co-requisite(s) *(concurrent enrollment required)*
NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
NA

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
An additional prerequisite is being added to increase student success by requiring them to be familiar with managerial accounting principles before they attempt this course. Update CCG.

Initiator (faculty only) Date
Jeffrey C. Callahan
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
Community and Technical College

Program:	Construction Management	**Date:** March 30, 2011
Course Number:	CM A440	
Course Title:	Financial Management for Construction	
Credits:	3	

I. Course Description:

Analyzes financial management topics relevant to the construction management professional, including the interpretation of financial statements, financial ratios, applications of engineering economy, cash flow analysis, construction financing, and cost information systems.

II. Course Design:

A. This course is designed to analyze financial management topics in construction project management for bachelor's degree seeking construction management students.

B. 3.0 credits. (3 + 0)

C. Total time of student involvement: 135 hours

1) Lecture: 45 hours
2) Lab: 0 hours
3) Outside: 90 hours

D. This course is required for the Bachelor of Science in Construction Management degree.

E. Lab fees will not be assessed for this course.

F. Course may be taught in any time frame, but not less than three weeks.

G. This is a revised course.

H. Course coordinated with: UAF and faculty listserve.

I. Course level justification: Builds upon a foundation of knowledge established in CM A301 and ACCT A202.

III. Course Activities

Class sessions will consist of lecture/discussions, individual research and writing projects, team projects, and demonstrations.

IV. **Course Prerequisites:** CM A301 and ACCT A202.

V. Course Evaluation

Grades will be A – F.

VI. Course Outline

1.0 Safety Procedures
- 1.1 University policies
- 1.2 Course and lab procedures
- 1.3 Emergency egress review

2.0 Developing a Project Budget
- 2.1 Creating a budget based on the construction estimate
- 2.2 Schedule of values
- 2.3 Legal issues

3.0 Financial Statements
- 3.1 Balance sheet
- 3.2 Income statement
- 3.3 Financial indicator analysis
- 3.4 Margin analysis

4.0 Depreciation
- 4.1 Straight-line method
- 4.2 Sum-of-the-years method
- 4.3 Declining-balance method
- 4.4 Placing in service and disposing of an asset
- 4.5 IRS standard recovery periods & depreciation methods

5.0 Monitoring and Controlling Construction Costs
- 5.1 Cost reporting versus cost control
- 5.2 Material purchases, labor, subcontracts, & equipment
- 5.3 Monitoring and controlling general and jobsite overhead
- 5.4 Allocating overhead

6.0 Taxation
- 6.1 Corporate versus personal income tax
- 6.2 Taxable income and payments
- 6.3 Income tax rates and incremental tax rate
- 6.4 Tax consequences of depreciation
- 6.5 Tax credits

7.0 Cash Flows for Construction Projects and for Companies
- 7.1 Cash flow for different types of construction contracts
- 7.2 Cash flow diagrams

8.0 Value Engineering
- 8.1 Time value of money
- 8.2 Simple and compound interest
- 8.3 Rate of return
- 8.4 Comparing alternatives and projects
- 8.5 Decision making tools

9.0 Financing
- 9.1 The Construction Company
- 9.2 The Construction Project

VII. Suggested Text

Peterson, S. (2008). *Construction accounting and financial management* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

VIII. Bibliography

Barrie, D. S., & Paulson, B. (1992). *Professional construction management: Including CM, design-construct, and general contracting* (3rd ed.). New York, NY: McGraw-Hill.

Construction Specifications Institute. (2005). *The project resource manual: CSI manual of practice* (5th ed.). New York, NY: McGraw Hill.

Eschenbach, T. G. (2010). *Engineering economy: Applying theory to practice* (3rd ed.). New York, NY: Oxford University Press.

Fisk, E. R. (2009). *Construction project administration* (9th ed.). Upper Saddle River, NJ: Prentice Hall.

Gould, F. E. (2011). *Managing the construction process: Estimating, scheduling and project control* (4th ed.). Upper Saddle River, NJ: Pearson Education.

Holm, L., Schaufelberger, J. E., Griffin, D., & Cole, T. (2005). *Construction cost estimating: Process and practices.* Upper Saddle River, NJ: Pearson Education.

Jackson, B. J. (2010). *Construction management jump start: Construction management basics* (2nd ed.). Alameda, CA: Sybex.

Knutson, K., Schexnayder, C.J., Fiori, C., & Mayo, R. (2008). *Construction management fundamentals* (2nd ed.). New York, NY: McGraw-Hill.

Mincks, W.R., & Johnston, H. (2011). *Construction jobsite management* (3rd ed.). Albany, NY: Delmar.

Ostwald, P. F. (2001). *Construction cost analysis and estimating.* Upper Saddle River, NJ: Prentice Hall.

Ostwald, P. F., & McLaren, T. S. (2004). *Cost analysis and estimating for engineering and management.* Upper Saddle River, NJ: Pearson Education.

R. S. Means (Current Edition). *Building construction cost data.* Kingston, MA: Author.

IX. Outcomes and Assessment

A. Instructional Goal:

Present advanced skills needed to manage and control the financial aspects of construction projects and construction companies.

Student Outcomes	Assessment Procedures
After the successful completion of the course, the student will be able to do the following:	This outcome will be assessed by one or more of the following:
Create budgets for a construction project based on the project's parametric and detailed cost estimates.	Class participation Team project Written exam
Analyze and evaluate construction company financial statements at the project level and the corporate level.	Class participation Written exam
Evaluate methods of depreciation and determine the appropriate method for a given situation in the management of construction projects and companies.	Class participation Written project Written exam
Apply the principles of construction cost control to construction project control.	Class participation Team project Written exam
Estimate the tax liabilities for a construction company, and formulate a strategy to reduce tax liabilities.	Class participation Team project Written exam
Create and explain cash flow charts for a single construction project and for an entire construction company.	Class participation Witten project Written exam
Utilize value engineering principles to generate presentations and recommendations for making construction company financial decisions.	Class participation Witten projects Written exam
Critique options for construction company and project financing.	Class participation Written project Written exam

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College CT CTC	1b. Division ACDT Division of Construction Design Technology	1c. Department CM

2. Course Prefix CM	3. Course Number A495	4. Previous Course Prefix & Number NA	5a. Credits/CEUs 3 cr.	5b. Contact Hours (Lecture + Lab) (1+15)

6. Complete Course Title
Advanced Construction Management Internship
Adv. Const. Mgmt. Internship
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions

9. Repeat Status No # of Repeats NA Max Credits NA

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2011 To: /9999

12. ☐ Cross Listed with NA
☐ Stacked with NA
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Construction Management	184	February, 2011	Donald M. Ketner, Jr.
2. CM A450 - Construction Mgmt. Prof. Practice	352	February, 2011	Donald M. Ketner, Jr.
3.			

Initiator Name (typed): Jeffrey C. Callahan Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: January 31, 2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: January 31, 2011

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Provides career development and exploration through work experience in the field by placement in a construction management home or field office. Intern will perform duties directly related to construction management functions. Special Note: 400 hours of department-approved work experience may be substituted for the prerequisite.

16a. Course Prerequisite(s) *(list prefix and number)* CM A295	16b. Test Score(s) NA	16c. Co-requisite(s) *(concurrent enrollment required)* NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
NA

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Additional registration restrictions are being added to increase student success in advanced internship positions. This is in response to internship employer's requests for interns to have more construction-related field experience before beginning an advanced internship. Update CCG.

Initiator (faculty only) Date
Jeffrey C. Callahan
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
Community and Technical College

Department:	Construction Management	**Date:** March 30, 2011
Course Number:	CM A495	
Course Title:	Advanced Construction Management Internship	
Credits:	3	

I. **Course Description:**

Provides career development and exploration through work experience in the field by placement in a construction management home or field office. Intern will perform duties directly related to construction management functions.

II. Course Design:

A. This course is designed to provide career exploration and on-the-job work experience for baccalaureate degree-seeking students with junior or senior standing.

B. 3.0 credits. (1 + 15)

C. Total time of student involvement: 270 hours
1) Lecture: 15 hours
2) Internship: 225 hours
3) Outside: 30 hours
Note: Credits for the course are based on National Commission on Cooperative Education criteria (75 employment hours are equivalent to one credit).

D. Required course for the Bachelor of Science in Construction Management.

E. Lab fees are assessed for this course. Internship coordination fees will be assessed by the UAA Career Services Center.

F. Course may be taught in any time frame but internship hours are limited to 20 work hours per week during the spring and fall semesters per University Policy.

G. This is a revised course.

H. Course coordinated with: CSC, UAF and faculty listserve.

I. Course level justification: Develops advanced construction management skills by directly exposing students to construction management processes, techniques and settings.

III. Course Activities

Specific activities are developed and approved by student, faculty and employer. The Career Services Center coordinator monitors student progress with faculty guidance. The course requires the completion of an Internship Description form that includes internship activities and learning objectives and is approved by the internship employment supervisor.

IV. Course Prerequisites/Registration Restrictions:

CM A295. 400 hours of department-approved work experience may be substituted for the prerequisite CM A295.

V. Course Evaluation:

Grades are A – F.

VI. Course Curriculum:

1.0 Safety and Procedures
  - 1.1 University policies
  - 1.2 General work site rules and safety policies
  - 1.3 Professional conduct

2.0 Internship Description and Goals
  - 2.1 Student Internship Description
  - 2.2 Learning objectives

3.0 Learning Contract
  - 3.1 Create learning objectives
  - 3.2 Describe work activities that will be used to meet learning objectives.
  - 3.4 Develop on-the-job performance evaluation criteria

4.0 Writing Activities
  - 4.1 Student introduction and career goals
  - 4.2 Daily journal of work activities and hours
  - 4.3 Company description and background
  - 4.4 Weekly discussion board entries

5.0 Mid-term Evaluation
  - 5.1 Employer mid-term evaluation
  - 5.2 Contact visit by instructor and/or CSC representative

6.0 Final Summary Report
  - 6.1 Student written report
  - 6.2 Employer final evaluation

VII. Suggested Texts:

None.

VIII. Bibliography

American Institute of Architects. (latest). *Standard forms of contract agreements*. Washington DC: AIA Press.

Associated General Contractors. (2004). *Project delivery systems for construction.* Alexandria, VA: Author.

Andres, C.K., & Smith, R.C. (2008). *Principles and practices of commercial Construction* (8th ed.). Upper Saddle River, NJ: Prentice Hall.

Coleman, J. (2004). *Construction documents and contracting.* Upper Saddle River, NJ: Prentice Hall.

Construction Specifications Institute. (2005) *Project resource manual, CSI manual of practice*. New York, NY: McGraw-Hill.

Engineers Joint Contract Document Committee: (Latest). *Standard forms of contract agreements*. Alexandria, VA: National Society of Professional Engineers.

Fisk, E. (2009). *Construction project administration* (9th ed.). Upper Saddle River, NJ: Prentice Hall.

Gould, F.E. (2004). *Managing the construction process* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.

Gould, F. E. (2008). *Construction project management* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.

Halpin, D.W. (2011). *Construction management* (4th ed.). New York, NY: John Wiley & Sons.

International Code Council. (latest). *International building code*. Falls Church, VA: Author.

Jackson, B. (2010). *Construction management jump start* (2nd ed.). Indianapolis, IN: John Wiley & Sons.

Liebing, R. (2001). *The construction industry*. Upper Saddle River, NJ: Prentice Hall.

Mahoney, W. D. (1998). *Construction inspection manual*. New York, NY: McGraw-Hill.

National Commission for Cooperative Education. (Latest). *Co-op education*. Boston, MA: Author.

National Commission for Cooperative Education. (n.d.). *Developing comprehensive cooperative education programs*. Boston, MA: Author.

National Commission for Cooperative Education. (n.d.). *An employer's guide to cooperative education*. Boston, MA: Author.

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IX. Instructional Goals, Student Outcomes and Assessment Procedures:

A. Instructional Goal:

Expose students to the occupational work environment beyond the boundaries of the campus to enhance their self-confidence and career direction.

Student Outcomes	Assessment Procedures
After successful completion of the course, the student will be able to do the following:	This outcome will be assessed by one or more of the following:
Demonstrate workplace safety procedures.	Employer evaluations Discussion board Daily journal
Combine an understanding of the construction industry with the skills and concepts recall workplace rules and regulations.	Employer evaluations Discussion board Daily journal
Demonstrate professional conduct in the workplace.	Employer evaluations
Compare and contrast classroom knowledge with real world field experiences.	Discussion board Daily journal Final summary paper
Describe how workplace learning has improved the student's prospects for post-graduation employment.	Final summary paper
Demonstrate specific learning objectives as developed with employer.	Employer evaluations Final summary paper
Demonstrate how the relationship between college major and full-time permanent employment have been enhanced by the internship employment experience.	Discussion board Final summary paper

DATE: March 29, 2011

TO: Tom Miller, Vice Provost for Academic Affairs
University of Alaska Anchorage

THROUGH: Dr. Karen Schmitt, Dean
Community and Technical College

THROUGH: Donald M. Ketner, Jr., Chair
Division of Construction and Design Technology

FROM: Jeffrey C. Callahan, Assistant Professor
Construction and Design Technology Division

SUBJ: Construction Management Program Revisions

Attached you will find proposed program changes to the Associate of Applied Science Construction Management (AAS-CM) and Bachelor of Science Construction Management (BSCM) corrected and submitted for second reading to the Undergraduate Academic Board.

These program revisions are proposed primarily to satisfy the requirements of *Document 103 – Standards and Criteria for Accreditation of Postsecondary Construction Education Degree Programs* (2009) published by the American Council for Construction Education. (www.acce-hq.org) Additionally, minor changes to some courses that are primarily revisions to course prerequisites, are also included.

The program changes are summarized as follows:

AAS-CM

- Delete the requirement to complete ACCT A202 – Principles of Managerial Accounting (3).
- Add the requirement to complete BA/JUST A241 – Business Law I (3).
- Add a requirement to complete the new course GEO A181 – Construction Surveying (1).

BSCM

- Delete the requirement to complete GEO A155 – Fundamentals of Surveying (3).

- Add a requirement to complete the new course GEO A181 – Construction Surveying (1).
- Add a requirement to complete the course: BA A300 – Organizational Theory and Behavior (3).
- Delete the requirement to complete ES A411 – Northern Design (3).
- Add a requirement to complete either ES A411 – Northern Design (3) or CE A403 – Arctic Engineering (3).
- Delete the requirement to complete one course at the 100-level or above in CHEM, ENVI, GEOL, or PHYS (3 credits).
- Add a requirement to complete one course at the 100-level or above in CHEM, ENVI, GEOL, or PHYS, that includes a laboratory class (4 credits).
- Delete the requirement to complete MATH A107 – College Algebra (4) and MATH A108 Trigonometry (3) or MATH A109 – Precalculus (6).

Revisions to courses include:

- Revise AET/CM A101– Fundamentals of CADD for Building Construction (4) to include MATH A105 – Intermediate Algebra (3) as a prerequisite or to be concurrently enrolled in MATH A105.
- Revise AET/CM A142– Mechanical & Electrical Technology (4) and AET/CM A231 Structural Technology (4) to include MATH A105 as a prerequisite.
- Revise CM A213 – Civil Technology (4) to include additional construction surveying content. Rename the course to CM A213 – Construction Civil Technology (4) and remove the cross-listing with AET A213 – Civil Technology (4).
- CM A301 – Construction Project Management II (3), revise prerequisites: Delete CM A201 and ENGL A111 and add CM A202 – Planning and Scheduling (3) and CM A163 – Building Cost Estimating (3).
- CM A440 – Construction Financial Management (3), revise prerequisites to include CM A301 and ACCT A202.
- Revise the Registration Restrictions for CM A495 – Advanced Construction Management Internship (3) to include "Completion of CM A295 – Construction Management Internship (3) or 400 hours of approved work experience."

If you have any questions or need any additional information, please let me know. I can be reached at 907-786-6425 or e-mail at Callahan@uaa.alaska.edu.

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College CT CTC	1b. Division ACDT Division of Construction Design Technology	1c. Department CM

2. Complete Program Title/Prefix
Construction Management/CM

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: Associate of Applied Science or Graduate: CHOOSE ONE

4. Type of Action:

PROGRAM
- ☐ Add
- ☒ Change
- ☐ Delete

PREFIX
- ☐ Add
- ☐ Change
- ☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2011 To: /9999

6a. Coordination with Affected Units Department, School, or College: CBPP, CTC, KO, SOE, UAF

Initiator Name (typed): Jeffrey C. Callahan Initiator Signed Initials: _________
Date:_______________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: January 31, 2011

6c. Coordination with Library Liaison Date: January 31, 2011

7. Title and Program Description - Please attach the following:

☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
Revisions required to meet the American Council for Construction Education criteria for initial accreditation.

Initiator (faculty only) ______ Date	☐ Approved ☐ Disapproved Dean/Director of School/College ______ Date
Jeffrey C. Callahan Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved Department Chairperson ______ Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson ______ Date
☐ Approved ☐ Disapproved Curriculum Committee Chairperson ______ Date	☐ Approved ☐ Disapproved Provost or Designee ______ Date

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Division	1c. Department
CT CTC	ACDT Division of Construction Design Technology	CM

2. Complete Program Title/Prefix
Construction Management/CM

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: Bachelor of Science or Graduate: CHOOSE ONE

4. Type of Action:

PROGRAM
- ☐ Add
- ☒ Change
- ☐ Delete

PREFIX
- ☐ Add
- ☐ Change
- ☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2011 To: /9999

6a. Coordination with Affected Units Department, School, or College: CBPP, CTC, KO, SOE, UAF

Initiator Name (typed): Jeffrey C. Callahan Initiator Signed Initials: _________
Date:_______________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: January 31, 2011

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7. Title and Program Description - Please attach the following:

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8. Justification for Action
Revisions required to meet the American Council for Construction Education criteria for initial accreditation.

Initiator (faculty only) Date Jeffrey C. Callahan Initiator (TYPE NAME)	☐ Approved ☐ Disapproved Dean/Director of School/College Date
☐ Approved ☐ Disapproved Department Chairperson Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date
☐ Approved ☐ Disapproved Curriculum Committee Chairperson Date	☐ Approved ☐ Disapproved Provost or Designee Date

CONSTRUCTION MANAGEMENT

University Center (UC), Room 130, (907) 786-6465
www.uaa.alaska.edu/ctc/construction/cm

The Construction Management (CM) program provides comprehensive preparation and education to meet the growing need for highly trained and educated construction management professionals. Construction managers plan, direct, and are responsible for managerial oversight of construction projects. They are responsible for coordinating and managing people, materials, and equipment; budgets, schedules, and contracts; and for the safety of employees and the general public. Construction managers work closely with architects, engineers, owners, and the other contractors on a construction project. Construction managers determine construction means and methods and the most cost-effective plans and schedules. They control construction costs, administer project changes and monitor work progress while ensuring compliance with the project design. Construction managers work in all sectors of the construction industry, for both public and private owners, on projects that range from small multifamily projects to skyscrapers and from rural roads to major highways and bridges. The construction manager's duties are varied, challenging, and rewarding.

The Construction Management program at UAA was developed with input from Alaska contractors and professional industry organizations to provide students with a broad knowledge of construction processes and techniques. The curriculum has been designed in accordance with the requirements of the American Council for Construction Education (ACCE). CM graduates understand basic business principles and possess broad knowledge of the technical and operational aspects of the construction industry. Graduates are able to function both in the construction office and on the job site.

The wide diversity in the construction management profession creates a similar diversity of employment opportunities for graduates. Associate degree graduates are prepared for entry-level positions in varying construction management roles for contractors in both home office and project office/field situations. Bachelor's degree graduates are prepared for a wide variety of professional-level employment opportunities in construction companies, construction management consulting firms, and in the offices of government and project owner agencies. The Associate of Applied Science in Construction Management degree requires four to five semesters to complete. The Bachelor of Science in Construction Management degree requires eight to nine semesters to complete.

Advising

Students are encouraged to consult the faculty in the Construction Management program for assistance in designing their course of study to ensure all preparation requirements and prerequisites have been met and that university and major degree requirements are understood and followed.

All students are strongly encouraged to meet with their academic advisor each semester for the purpose of reviewing their academic progress and planning future courses. It is particularly important for students to meet with their advisor whenever academic difficulties arise. Please call (907) 786-6465 to arrange an appointment with an academic advisor.

Preparation

Students seeking a degree in Construction Management should prepare for entrance into the program by completing the following high school courses:

Mathematics	Algebra II (skill level as demonstrated by ACT, SAT, or UAA-approved placement test to qualify for enrollment in MATH A105 Intermediate Algebra or higher).
English	Composition (skill level as demonstrated by ACT, SAT, or UAA placement test to qualify for enrollment in ENGL A111 Fundamentals of Written Communication).

The university offers courses to help students without this preparation to meet the math and English skill levels required in the Construction Management program. Insufficient preparation will increase the number of semesters required to complete the degree.

Associate of Applied Science, Construction Management

Program Outcomes

Graduates will be able to:

- Explain the fundamental processes used to create project designs and construction documents.
- Define the roles, relationships and responsibilities of the participants in the design and construction process.
- Demonstrate basic knowledge of contract administration procedures and the communication methods used in their implementation.
- Define the methods, materials, and techniques used in the design and construction of buildings and civil works.
- Interpret construction documents to predict project costs, plan construction operations, develop project schedules and assign resources.
- Interpret and apply building codes in construction processes.
- Demonstrate a working knowledge of safety, health, and environmental issues related to construction activities.

Admission Requirements

1. Satisfy the requirements under Admission to Certificate and Associate Degree Programs in Chapter 7, Academic Standards and Regulations.
2. Certain courses require prerequisites or faculty permission. See an academic advisor for further information.

Graduation Requirements

In order to receive the Associate of Applied Science in Construction Management, students must achieve a grade of C or better in all courses required for the degree.

Course Requirements

1. Complete the General University Requirements for Associate of Applied Science Degrees located at the beginning of this chapter.
2. Complete the General Course Requirements for Associate of Applied Science degrees located at the beginning of this chapter (15 credits).

Required Support Courses

Complete the following required support courses (20-21 credits):

ACCT A201	Principles of Financial Accounting	3
BA/JUST A241	Business Law	3
*ENGL A212	Technical Writing	3
*MATH A107	College Algebra (4)	6/7
	and	
*MATH A108	Trigonometry (3)	
	or	
*MATH A109	Precalculus (6)	
*PHYS A123	Basic Physics I	3
	and	
*PHYS A123/L	Basic Physics I Laboratory	1

**Note: Required support courses may also be used to satisfy General Course Requirements.*

Major Requirements

1. Complete the following required courses (40 credits):

AET/CM A101	Fundamentals of CADD for Building Construction	4
AET/CM A102	Methods of Building Construction	3
AET/CM A123	Codes and Standards	3
AET/CM A142	Mechanical and Electrical Technology	4
AET/CM A231	Structural Technology	4
CM A163	Building Construction Cost Estimating	3

CM A201	Construction Project Management I	3
CM A202	Project Planning and Scheduling	3
CM A205	Construction Safety	3
CM A213	Construction Civil Technology	4
CM A263	Civil Construction Cost Estimating	3
CM A295	Construction Management Internship	3
	or	
CM A495	Advanced Construction Management Internship	3

2. A total of 65/66 credits is required for the degree.

Bachelor of Science, Construction Management

Program Outcomes

Graduates will be able to:

- Manage the principal resources of a construction industry organization including its workers, equipment, time, and budgets.
- Represent the role of the constructor in the multi-discipline team responsible for managing construction projects.
- Assess project risk and evaluate alternate project delivery systems for project procurement and construction.
- Communicate effectively with project design professionals during the planning phases of design-build projects and throughout the construction phase of all projects.
- Utilize knowledge of materials, methods, and equipment operations to plan, control, and analyze the results of construction processes.
- Manage construction operations in unique and changing conditions to produce measured results that meet stated quality criteria and overall project goals.

Admissions Requirements

1. Satisfy the requirements under Admission to Baccalaureate Programs in Chapter 7, Academic Standards and Regulations.
2. Certain courses require prerequisites or faculty permission. See an academic advisor for further information.

Graduation Requirements

In order to receive the Bachelor of Science in Construction Management, students must achieve a grade of C or better in all courses required for the degree.

General University Requirements

1. Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.
2. Complete the General Education Requirements for Baccalaureate Degrees at the beginning of this chapter.

Required Support Courses

1. Complete the following support courses:

ACCT A201	Principles of Financial Accounting	3
ACCT A202	Principles of Managerial Accounting	3
BA A300	Organizational Theory and Behavior	3
BA/JUST A241	Business Law I	3
*ECON A201	Principles of Macroeconomics	3
*ECON A202	Principles of Microeconomics	3
*ENGL A212	Technical Writing	3
ES A411	Northern Design (3)	3
	or	
CE A403	Arctic Engineering (3)	
*PHIL A301	Ethics	3
*PHYS A123/L	Basic Physics I with lab	4

2. Complete one of the following science courses:

*CHEM A105/L	General Chemistry I with lab (4)	4
	or	

*GEOL A111	Physical Geology (4)	

3. Complete one additional science course at or above the *100-level in CHEM, ENVI, GEOL, or PHYS, that includes a laboratory class. 4
4. Complete one of the following: 3-4

*MATH A200	Calculus I (4)	
*MATH A272	Applied Calculus (3)	
*STAT A253	Applied Statistics for the Sciences (4)	

**Note: Required Support Courses may also be used to satisfy General Education Requirements.*

Major Requirements

1. Complete the following required courses (64 credits):

AET/CM A101	Fundamentals of CADD for Building Construction	4
AET/CM A102	Methods of Building Construction	3
AET/CM A123	Codes and Standards	3
AET/CM A142	Mechanical and Electrical Technology	4
AET/CM A231	Structural Technology	4
CM A163	Building Construction Cost Estimating	3
CM A201	Construction Project Management I	3
CM A202	Project Planning and Scheduling	3
CM A205	Construction Safety	3
CM A213	Construction Civil Technology	4
CM A263	Civil Construction Cost Estimating	3
CM A301	Construction Project Management II	3
CM A313	Soils in Construction	3
CM A331	Statics and Strengths of Materials	3
CM A401	Construction Law	3
CM A422	Sustainability in the Built Environment*	3
CM A440	Financial Management for Construction	3
CM A450	Construction Management Professional Practice*	3
CM A460	Construction Equipment Management and Methods	3
CM A495	Advanced Construction Management Internship	3

**Tier 3 General Education Requirement, integrative capstone.*

2. A total of 121/122 credits is required for the degree of which 42 credits must be upper division.

Accreditation

All necessary steps will be taken for successful accreditation by the American Council for Construction Education (ACCE).

FACULTY

Jeffrey Callahan, Assistant Professor, callahan@uaa.alaska.edu
Peter Dedych, Assistant Professor, dedych@uaa.alaska.edu
Donald Ketner, Chair, Assistant Professor, afdmk@uaa.alaska.edu
Alan Peabody, Assistant Professor, afabp1@uaa.alaska.edu

CONSTRUCTION MANAGEMENT

University ~~-~~Center (UC), Room 130, (907) 786-6465
www.uaa.alaska.edu/ctc/construction/cm

The Construction Management (CM) program provides comprehensive preparation and ~~continuing~~ education to meet the growing need for highly trained and educated construction management professionals. Construction managers plan, direct, and are responsible for managerial oversight of construction projects. They are responsible for coordinating and managing people, materials, and equipment; budgets, schedules, and contracts; and for the safety of employees and the general public. Construction managers work closely with architects, engineers, owners, and the other contractors on a construction project. Construction managers determine construction means and methods and the most cost-effective plans and schedules. They control construction costs, administer project changes and monitor work progress while ensuring compliance with the project design. Construction managers work in all sectors of the construction industry, for both public and private owners, on projects that range from small multifamily projects to skyscrapers and from rural roads to major highways and bridges. The construction manager's duties are varied, challenging, and rewarding.

The Construction Management program at UAA was developed with input from Alaska contractors and professional industry organizations to provide students with a broad knowledge of construction processes and techniques. The curriculum has been designed in accordance with the requirements of the American Council for Construction Education (ACCE). CM graduates understand basic business principles and possess broad knowledge of the technical and operational aspects of the construction industry. Graduates are able to function both in the construction office and on the job site.

The wide diversity in the construction management profession creates a similar diversity of employment opportunities for graduates. Associate~~'s~~ degree graduates are prepared for entry-level positions in varying construction management roles for contractors in both home office and project office/field situations. Bachelor's degree graduates are prepared for a wide variety of professional-level employment opportunities in construction companies, construction management consulting firms, and in the offices of government and project owner agencies. The Associate of Applied Science in Construction Management~~(AAS-CM)~~ degree requires four to five semesters to complete. The Bachelor of Science in Construction Management~~(BSCM)~~ degree requires eight to nine semesters to complete.

Advising

Students are encouraged to consult the faculty in the Construction Management program for assistance in designing their course of study to ensure all preparation requirements and prerequisites have been met and that university and major degree requirements are understood and followed.

All students are strongly encouraged to meet with their academic advisor each semester for the purpose of reviewing their academic progress and planning future courses. It is particularly important for students to meet with their advisor whenever academic difficulties arise. Please call (907) 786-6465 to arrange an appointment with an academic advisor.

~~The recommended course sequence for the current semester and other advising information may be found on the program website: www.uaa.alaska.edu/ctc/construction/cm/sequence.~~

Preparation

Students seeking a degree in Construction Management should prepare for entrance into the program by completing the following high school courses:

Mathematics ~~-~~ Algebra II (skill level as demonstrated by ACT, SAT, or UAA-approved placement test to qualify for enrollment in MATH A105 Intermediate Algebra or higher).

English ~~-~~ Composition (skill level as demonstrated by ACT, SAT, or UAA placement test to qualify for enrollment in ENGL A111 Fundamentals of Written Communication).

The university offers courses to help students without this preparation to meet the math and English skill levels required in the

Construction Management program. Insufficient preparation will increase the number of semesters required to complete the degree.

Associate of Applied Science, Construction Management

Program Outcomes

Graduates will be able to:

- Explain ~~Analyze, interpret and understand~~ the fundamental processes used to create project designs and construction documents.
- Define the roles, relationships and responsibilities of the participants in the design and construction process.
- Demonstrate basic knowledge of contract administration procedures ~~Use clear~~ and the ~~effective written and oral~~ communication methods used in their implementation. ~~to facilitate interaction with all project team participants.~~
- Define the methods, materials, and techniques used in the design and construction of buildings and civil works.
- Interpret construction documents to ~~accurately~~ predict project costs, plan ~~and assign resources.~~
- ~~Utilize~~ construction operations, develop ~~planning methods to create accurate~~ project schedules and assign resources. ~~monitor productivity.~~
- Interpret and apply building codes in construction processes.
- Demonstrate ~~Proficiently operate industry-standard software for computer-aided design and drafting (CADD), project cost estimating, and project scheduling.~~
- ~~Utilize~~ a working knowledge of safety, health, and environmental issues related to construction activities.

Admission Requirements

1. Satisfy the requirements under Admission to Certificate and Associate Degree Programs in Chapter 7, Academic Standards and Regulations.
2. Certain courses require prerequisites or faculty permission. See an academic advisor for further information.

Graduation Requirements

In order to receive the Associate of Applied Science in Construction Management, students must achieve a grade of C or better in all courses required for the degree.

Course Requirements

1. Complete the General University Requirements for Associate of Applied Science Degrees located at the beginning of this chapter.
2. Complete the General Course Requirements for Associate of Applied Science degrees located at the beginning of this chapter (15 credits).

Required Support Courses

Complete the following required support courses (20-21 credits):~~:~~

ACCT A201	Principles of Financial Accounting	3
BA/JUST A241	Business Law	3
~~ACCT A202~~	~~Principles of Managerial Accounting~~	~~3~~
*ENGL A212	Technical Writing	3
*MATH A107	College Algebra (4)	6/7
	and	
*MATH A108	Trigonometry (3)	
	or	
*MATH A109	Precalculus (6)	
*PHYS A123	Basic Physics I	3
	and	
*PHYS A123/L	Basic Physics I Laboratory	1

**Note: Required support courses may also be used to satisfy General Course Requirements.*

Major Requirements

1. Complete the following required courses (40 credits):

AET/CM A101	Fundamentals of CADD for Building Construction	4
AET/CM A102	Methods of Building Construction	3
AET/CM A123	Codes and Standards	3
AET/CM A142	Mechanical and Electrical Technology	4
AET/CM A231	Structural Technology	4
CM A163	Building Construction Cost Estimating	3
CM A201	Construction Project Management I	3
CM A202	Project Planning and Scheduling	3
CM A205	Construction Safety	3
CM A213	Construction Civil Technology	4
~~CM A231~~	~~Structural Technology~~	~~4~~
CM A263	Civil Construction Cost Estimating	3
CM A295	Construction Management Internship	3
	or	
CM A495	Advanced Construction Management Internship	3

2. A total of 65/66 credits is required for the degree.

Bachelor of Science, Construction Management

Program Outcomes

Graduates will be able to:

- Manage the principal resources of a construction industry organization including its workers, equipment, time, and budgets.
- Represent the role of the constructor in the multi-discipline team responsible for managing construction projects.
- Assess project risk and evaluate alternate project delivery systems for project procurement and construction.
- Communicate effectively with project design professionals during the planning phases of design-build projects and throughout the construction phase of all projects.
- Utilize knowledge of materials, methods, and equipment operations to plan, control, and analyze the results of construction processes.
- Manage construction operations in unique and changing conditions to produce measured results that meet stated quality criteria and overall project goals.

Admissions Requirements

1. Satisfy the requirements under Admission to Baccalaureate Programs in Chapter 7, Academic Standards and Regulations.
2. Certain courses require prerequisites or faculty permission. See an academic advisor for further information.

Graduation Requirements

In order to receive the Bachelor of Science in Construction Management, students must achieve a grade of C or better in all courses required for the degree.

General University Requirements

1. Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.
2. Complete the General Education Requirements for Baccalaureate Degrees at the beginning of this chapter.

Required Support Courses

1. Complete the following support courses:

ACCT A201	Principles of Financial Accounting	3
ACCT A202	Principles of Managerial Accounting	3
BA A300	Organizational Theory and Behavior	3
BA/JUST A241	Business Law I	3
*ECON A201	Principles of Macroeconomics	3
*ECON A202	Principles of Microeconomics	3
*ENGL A212	Technical Writing	3

ES A411	Northern Design (3)	3
	or	
CE A403	Arctic Engineering(3)	
~~*MATH A109~~	~~Precalculus (6)~~	
*PHIL A301	Ethics	3
*PHYS A123/L	Basic Physics I with lab	4~~3~~

2. Complete one of the following science courses:

*CHEM A105/L	General Chemistry I with lab (4)	4
	or	
*GEOL A111	Physical Geology (4)	

3. Complete one additional science course at or above the *100-level in CHEM, ENVI, GEOL, or PHYS,that includes a laboratory class. 4 ~~(3 credits)~~

4. Complete one of the following: 3-4

*MATH A200	Calculus I (4)	
*MATH A272	Applied Calculus (3)	
*STAT A253	Applied Statistics for the Sciences (4)	

**Note: Required Support Courses may also be used to satisfy General Education Requirements. ~~Education Requirements.~~*

Major Requirements

1. Complete the following required courses (64 credits):~~:~~

AET/CM A101	Fundamentals of CADD for Building Construction	4
AET/CM A102	Methods of Building Construction	3
AET/CM A123	Codes and Standards	3
AET/CM A142	Mechanical and Electrical Technology	4
AET/CM A231	Structural Technology	4
CM A163	Building Construction Cost Estimating	3
CM A201	Construction Project Management I	3
CM A202	Project Planning and Scheduling	3
CM A205	Construction Safety	3
CM A213	ConstructionCivil~~Civil Technology~~	~~4~~
~~CM A231~~	~~Structural~~ Technology	4
CM A263	Civil Construction Cost Estimating	3
CM A301	Construction Project Management II	3
CM A313	Soils in Construction	3
CM A331	Statics and~~&~~ Strengths of Materials	3
CM A401	Construction Law	3
CM A422	Sustainability in the Built Environment*	3
CM A440	Financial Management for Construction	3
CM A450	Construction Management Professional Practice*	3
CM A460	Construction Equipment Management and Methods	3
CM A495	Advanced Construction Management Internship	3

**Tier 3 General Education Requirement, integrative capstone.*

2. A total of 121/122~~123/125~~ credits is required for the degree of which 42 credits must be upper division.

Accreditation

All necessary steps will be taken for successful accreditation by the American Council for Construction Education (ACCE).

FACULTY

Jeffrey Callahan, Assistant Professor, callahan@uaa.alaska.edu
Peter Dedych, Assistant Professor, dedych@uaa.alaska.edu

Donald Ketner, Chair, Assistant Professor, afdmk@uaa.alaska.edu~~AFDAK@uaa.alaska.edu~~
Alan Peabody, Assistant Professor, afabp1@uaa.alaska.edu~~AFABP1@uaa.alaska.edu~~

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
KP KPC	AAPT Division of Applied Technology	OSH

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
OSH	A111	OSH A210	3	(3+0)

6. Complete Course Title
Training Needs and Methods

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☒ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
  ☐ Class ☐ Level
  ☐ College ☐ Major
☒ Other Update CCG (please specify)

☒ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☒ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2011 To: /9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. OSH AAS	p. 206	01/28/11	Allen Houtz, KPC
2. Technology AAS	p.216	01/21/11	Lorraine Stewart, KOC
3.			

Initiator Name (typed): Don Weber Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 01/28/11
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 01/28/11

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Evaluates safety and health training needs in the workplace. Emphasizes regulatory compliance.

16a. Course Prerequisite(s) *(list prefix and number)*
none

16b. Test Score(s)
none

16c. Co-requisite(s) *(concurrent enrollment required)*
none

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
none

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Revise and update course as a foundational course. Revise course content to first year level.

Initiator (faculty only) Date
Don Weber
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
Kenai Peninsula College
Course Content Guide

I. Initiation Date: January 10, 2011

II. Course Information

a. College: KPC
b. Course Title: Training Needs and Methods
c. Course Subject/Number: OSH A111
d. Credit Hours: 3
e. Contact Time: 3 + 0
f. Grading Information A – F
g. Course Description: Evaluates safety and health training needs in the workplace. Emphasizes regulatory compliance.
h. Status of course relative to degree or certificate program
OSH A.A.S. requirement
Technology A.A.S., OSH emphasis requirement
i. Lab Fee: None
j. Coordination: Fac List-Serv & KOC
k. Course Prerequisite: None
l. Registration restrictions None

III. Course Level Justification

Foundational course in the field.

IV. Instructional Goals

The instructor will:

a. Introduce safety training needs in the workplace.
b. Compare different training methods.
c. Explain differences in learning styles and cultures.
d. Explain use of classroom equipment and techniques in safety training.

V. Student Learning Outcomes

Students will be able to:	**One or more of the following assessment methods will be used:**
a. Demonstrate safety training methods for workplace audiences.	Tests, written assignments, presentations
b. Demonstrate appropriate training methods for different cultures.	Tests, written assignments, presentations
c. Identify safety training needs.	Tests, written assignments
d. Identify different learning styles.	Tests, written assignments
e. Develop safety training lesson plans.	Tests, written assignments

VI. Course Content Outline

a. Class Introductions and Safety Issues
    1. Classroom design, resource inventories and equipment
    2. Campus
    3. Personal
    4. General rules
    5. Course procedures
    6. Class conduct and courtesies
b. Sources of Training Materials
    1. Federal OSHA
    2. State OSHA
    3. National Safety Council
    4. Industry Guidelines
    5. Compressed Gas Association (CGA)
    6. American Society for Testing and Materials (ASTM)
    7. National Fire Protection Association (NFPA)
c. OSHA Mandated Safety Training Programs
    1. Personal protective equipment (PPE)
    2. Respiratory protection
    3. Hazardous materials
    4. Mechanized vehicle
d. Assessing Training Effectiveness and Needs
    1. Worker feedback
    2. Accident rates
    3. Incident evaluations
    4. Near miss
    5. Site visits
    6. Random testing of workers
e. Adult Learning and Instruction
    1. Collaboration, collegial approach
    2. Learning styles
    3. Classroom participation
    4. Application to work situation
    5. Workplace assessments
    6. Analysis of target population
    7. Lesson planning
    8. Behaviorally measurable objectives
    9. Americans with Disabilities Act
    10. Multicultural diversity
f. Instructional Aids
    1. Overhead projection techniques
    2. Videos
    3. Chalkboards and flip charts
    4. Computer graphics
    5. Slide projectors
    6. Internet
    7. Self-paced modules
    8. Multimedia
g. Classroom Presentation Techniques

1. Setting
2. Lecture/discussion
3. Classroom participation
4. Classroom management techniques
5. Using humor
6. Small group discussion
7. Questioning
8. Summarizing
9. Demonstrating

h. Evaluation Design
   1. Outcomes for knowledge
   2. Outcomes for attitude
   3. Outcomes for performance
   4. Strategies
   5. Tools and supplies
   6. Test construction
   7. Observation techniques
   8. Behavior modification
   9. Recordkeeping for participants

VII. Suggested Text

Draves, W. A. (2011) *How to Teach Adults, 3rd Ed.* Learning Resources Network: River Falls, WI.

VIII. Bibliography

American Industrial Hygiene Association and the American Society of Safety Engineers. (2005). *American National Standards Association, ANSI/AIHA Z-10 Standard.* American Industrial Hygiene Association: Fairfax, VA.

Brauer, R. L. (2005). *Safety and Health for Engineers.* John Wiley & Sons: Hoboken, NJ.

Della-Giustina, D. E. (2000). *Developing a Safety and Health Program.* CRC Press, LLC: Boca Raton, FL.

Della-Giustina, D. E. (2007). *Safety and Environmental Management.* Rowman and Littlefield Publishing Group, Inc: Lanham, MD.

Geller, E. S. (2001). *The Psychology of Safety Handbook.* CRC Press, LLC: Boca Raton, FL.

Goetsch, D. L. (2010). *The Basics of Occupational Safety.* Pearson, Prentice Hall Education, Inc: Upper Saddle River, NJ.

Goetsch, D. L. (2010). *Quality Management for Organizational Excellence,* Pearson Prentice-Hall: Upper Saddle River, NJ.

Laing, P. M. (2007). *The Supervisor's Safety Manual.* National Safety Council: Itasca, IL.

Manuele, F. E. (2007). *Advanced Safety Management, Focusing on Z-10 and Serious Injury Prevention.* John Wiley & Sons, Inc: Hoboken, NJ.

Reese, C. D. (2009). *Occupational Health and Safety Management, 2nd Edition.* CRC Press & Taylor and Francis Group, LLC: Boca Raton, FL.

Swartz, G., & Dewey, P. M. (2000). *Safety Culture and Effective Safety Management.* National Safety Council: Itasca, IL.

Williams, J. (2010). *Keeping People Safe – The Human Dynamics of Injury Prevention.* Rowman and Littlefield Publishing Group: Lanham, MD.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College KP KPC	1b. Division AAPT Division of Applied Technology			1c. Department OSH
2. Course Prefix OSH	3. Course Number A180	4. Previous Course Prefix & Number none	5a. Credits/CEUs 4	5b. Contact Hours (Lecture + Lab) (4+0)

6. Complete Course Title
Introduction to Industrial Hygiene
Intro to Industrial Hygiene
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Update CCG (please specify)
- ☐ Course Number
- ☒ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. see attached			
2.			
3.			

Initiator Name (typed): Don Weber Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 01/28/11
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 01/28/11

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Identifies acute and chronic health effects of exposures to chemical, physical and biological agents in the workplace. Emphasizes types of exposures and their biological effects, guidelines and basic workplace monitoring.

16a. Course Prerequisite(s) *(list prefix and number)*
OSH A101 with grade of C or higher and ([MATH A105 or MATH A107 or MATH A108 or MATH A109] with grade of C or higher, or taken concurrently)

16b. Test Score(s)
]none

16c. Co-requisite(s) *(concurrent enrollment required)*
none

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
none

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update course bibliography, contact hours and course prerequisites

Initiator (faculty only) Date
Don Weber
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
Kenai Peninsula College
Course Content Guide

I. Initiation Date: January 10, 2011

II. Course Information

a.	College:	KPC
b.	Course Title:	Introduction to Industrial Hygiene
c.	Course Subject/Number:	OSH A180
d.	Credit Hours:	4
e.	Contact Time:	4+0
f.	Grading Information	A – F
g.	Course Description:	Identifies acute and chronic health effects of exposures to chemical, physical, and biological agents in the workplace. Emphasizes types of exposures and biological effects, exposure guidelines, and basic workplace monitoring.
h.	Status of course relative to degree or certificate programs:	OSH A.A.S. requirement Technology A.A.S. OSH emphasis requirement (Kodiak) Industrial Safety Program Support UC (Kodiak)
i.	Lab Fee	None
j.	Coordination:	Fac List-Serv, Lorraine Stewart (KOC) and KOC Director
k.	Course Prerequisite:	[MATH A105 or MATH A107 or MATH A108 or MATH A109] with grade of C or higher, or taken concurrently. OSH A101 with grade of C or higher.
l.	Registration Restrictions:	None

III. Course Level Justification

Foundational course in the field.

IV. Instructional Goals

The instructor will:

a. Discuss the role of industrial hygienists in the workplace.
b. Compare and contrast common physical, chemical and biological hazards.
c. Discuss regulatory standards that apply to chemical, physical and biological hazards.
d. Demonstrate engineering controls and personal protective equipment.
e. Discuss OSHA standards relative to each type of U.S. business.

V. Student Learning Outcomes

Students will be able to:	One or more of the following assessment methods will be used:
a. Identify the role of industrial hygienists in the occupational safety and health fields.	Tests, written assignments
b. Explain the health effects of exposure to common chemical and physical hazards.	Tests, written assignments
c. Explain the regulatory standards and recommended governmental guidelines for control of occupational health hazards.	Tests, written assignments
d. Demonstrate familiarity with engineering controls and personal protective equipment.	Tests, written assignments, presentations
e. Identify the OSHA standards necessary for building a quality safety and health program relative to each type of U.S. business.	Tests, written assignments
f. Explain how to monitor for leading and lagging indicators for accidents, for unsafe acts and for unsafe conditions in the workplace.	Tests, written assignments

VI. Course Content Outline

A. Class Introductions and Safety Issues
   1. Classroom design, resource inventories and equipment
   2. Campus
   3. Personal
   4. General rules
   5. Course procedures
   6. Class conduct and courtesies
B. Terminology of Industrial Hygiene
   1. Role of the industrial hygienist
   2. Alaska statutes on industrial hygiene
C. Review of Anatomy, Physiology, and Pathology
   1. The lungs
   2. The skin and occupational dermatoses
   3. The ears
   4. The eyes
D. Recognition of Hazards
   1. Industrial toxicology

2. Regulatory standards (OSHA and Alaska OSHA)
3. Recommended guidelines of the American Conference of Government and Industrial Hygienists (ACGIH), CDC and NIOSH.
4. Gases, vapors, and solvents
5. Particulates
6. Industrial noise
7. Thermal stress
8. Biological hazards

E. Evaluation of Hazards
   1. Evaluation
   2. Integrated air sampling
   3. Detector tubes and other direct reading instruments

F. Control of Hazards
   1. Methods of control, including personal protective equipment
   2. Dilution ventilation
   3. Local exhaust ventilation
   4. Respiratory protection

VII. Suggested Text

Plog, B. A. & Quinlan, P. J. (2002). *Fundamentals of Industrial Hygiene, 5th Ed.* National Safety Council Press: Des Plaines, IL.

VIII. Bibliography:

Anna, D. H. (2010). *The Occupational Environment: Its Evaluation, Control, and Management, 3rd Ed.* American Industrial Hygiene Association: Fairfax, VA.

American Conference of Governmental Industrial Hygienists. (2010). *Industrial Ventilation: A Manual of Recommended Practice for Design.* American Conference of Governmental Industrial Hygienists: Fairfax, VA.

Bisesi, M. S. & Kohn, J. P. (2003). *Industrial Hygiene Evaluation Methods.* Lewis Publishers: Boca Raton, FL.

CDC/NIOSH. (2005). *NIOSH Pocket Guide to Chemical Hazards,* National Technical Information Service: Alexandria, VA.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
KP KPC	AAPT Division of Applied Technology	OSH

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
OSH	A211	OSH A110	4	(3+2)

6. Complete Course Title
Safety Program Assessment, Development and Implementation
Safety Prog Asmt, Dev & Imp
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Update CCG (please specify)
- ☒ Course Number
- ☒ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. See attached			
2.			
3.			

Initiator Name (typed): Don Weber Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: 01/28/11
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 01/28/11

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Examines the role of safety programs in the workplace. Emphasizes safety program assessment, design, development, implementation, and evaluation.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
OSH A101 & OSH A120, with grade of C or higher	none	none

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
none

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Builds upon introductory courses and updates course content. Update course to 2nd year level.

Initiator (faculty only) Date	☐ Approved ☐ Disapproved Dean/Director of School/College Date
Don Weber Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved Department Chairperson Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date
☐ Approved ☐ Disapproved Curriculum Committee Chairperson Date	☐ Approved ☐ Disapproved Provost or Designee Date

Course Being Changed: OSH A211					
	Type of Impact (course or program)				
Impacted program or course	**Course impacts** ***Examples:*** prerequisite, corequisite, recommended	**Course impacts** ***Examples:*** requirement, selective, program credit total	***Catalog Page***	***Date of Notification***	***Chair/Coordinator Contacted***
AAS, OSH		requirement	p. 206	01/28/11	D. Weber & A. Houtz
AAS, Technology OSH emphasis (KOC)		requirement	p. 216	01/28/11	Loraine Stewart & Director Bolson
UC, Industrial Safety Program Support		requirement	p. 215	01/28/11	Loraine Stewart & Director Bolson
OSH A210	prerequisite		p. 439	01/28/11	D. Weber & A. Houtz

University of Alaska Anchorage
Kenai Peninsula College
Course Content Guide

I. Initiation Date: January 10, 2011

II. Course Information

a.	College:	KPC
b.	Course Title:	Safety Program Assessment, Development, and Implementation
c.	Course Subject/Number:	OSH A211
d.	Credit Hours:	4.0 Credits
e.	Contact Time:	3 + 2
f.	Grading Information	A – F
g.	Course Description:	Examines the role of safety programs in the workplace. Emphasizes safety program assessment, design, development, implementation, and evaluation.

h. Status of course relative to degree or certification program:

OSH A.A.S. requirement
Industrial Safety Program Support UC (Kodiak)
Technology A.A.S. , OSH emphasis (Kodiak)

i.	Lab Fee:	None
j.	Coordination:	Fac List-Serv, Technology (KOC)
k.	Course Prerequisite:	OSH A101 & OSH A120, with grade of C or higher
l.	Registration Restrictions:	None

III. Course Level Justification

Builds upon earlier course work.

IV. Instructional Goals

The instructor will:

a. Introduce current industry needs and OSHA compliance driven requirements.
b. Explore multiple and practical applications of previously learned professional skills and techniques for safety management systems.
c. Explain program assessment, design, implementation and program evaluation.

V. Student Learning Outcomes

Students will be able to:	**One or more of the following assessment methods will be used:**
a. Identify safety program assessment, design, development, implementation and evaluation techniques.	Tests, written assignments
b. Create safety program assessment, design, development, implementation and evaluation techniques.	Tests, written assignments
c. Demonstrate safety program assessment, design, development, implementation and evaluation techniques.	Tests, written assignments, project assignments, presentations

VI. Course Content Outline

a. Class Introductions and Safety Issues
    1. Classroom design, resource inventories and equipment
    2. Campus
    3. Personal
    4. General rules
    5. Course procedures
    6. Class conduct and courtesies
b. Program Assessment
    1. Comparison of program to the workplace
    2. Comparison of program to OSHA standards
    3. Comparison of program to industrial standards
    4. Documentation of findings
    5. Program effectiveness
c. Reviews
    1. Using prewritten safety and health audit/inspection programs
    2. Outside consultation
    3. In-house safety program/plan production
    4. Job safety analyses
d. Development
    1. Determining what to write to maintain compliance
    2. Determining what needs a rewrite or an amendment
    3. Collection of data and materials
    4. Budgeting for safety
    5. Development of safety training programs
    6. Worker and supervisor input
e. Implementation
    1. Implementation framework
    2. Training performance and parameters
    3. Implementation of schedules
    4. Documentation
f. Evaluation
    1. Assessing effectiveness
    2. Handling complaints
    3. Confusion of policies
    4. Worker knowledge
    5. Accidents and Incidents
    6. Near misses/close calls
g. The Safety Committee
    1. Requirements
    2. Principles
    3. Effective safety committees
    4. Union and non-union representation

VII. Suggested Text

Reese, C. D. (2008). *Occupational Health & Safety Management: A Practical Approach, 2nd Ed.* CRC Press & Taylor and Francis Group: Boca Raton, FL.

VIII. Bibliography

American Industrial Hygiene Association and the American Society of Safety Engineers. (2005). *American National Standards Association, ANSI/AIHA Z-10 Standard.* American Industrial Hygiene Association: Fairfax, VA.

Brauer, R. L. (2005). *Safety and Health for Engineers.* John Wiley & Sons, Hoboken, NJ.

Della-Giustina, D. E. (2000). *Developing a Safety and Health Program.* CRC Press: Boca Raton, FL.

Della-Giustina, D. E. (2007). *Safety and Environmental Management.* Rowman and Littlefield Publishing Group: Lanham, MD.

Geller, E. S. (2001). *The Psychology of Safety Handbook.* CRC Press, LLC: Boca Raton, FL.

Goetsch, D. L. (2010). *The Basics of Occupational Safety.* Pearson-Prentice Hall Education: Upper Saddle River, NJ.

Goetsch, D. L. (2010). *Quality Management for Organizational Excellene.* Pearson-Prentice Hall: Upper Saddle River, NJ.

Laing, P. M. (2007). *The Supervisor's Safety Manual.* National Safety Council: Itasca, IL.

Manuele, F. E. (2007). *Advanced Safety Management, Focusing on Z-10 and Serious Injury Prevention.* John Wiley & Sons: Hoboken, NJ.

Reese, C. D. (2009). *Occupational Health and Safety Management, 2nd Edition.* CRC Press & Taylor and Francis Group: Boca Raton, FL.

Swartz, G., & Dewey, P. M. (2000). *Safety Culture and Effective Safety Management.* National Safety Council: Itasca, IL.

Teeples, J. (2004). *What Every Supervisor Should Know About OSHA General Industry, 1st Ed*. We're Into Safety: Bloomington, IN.

Williams, J. (2010). *Keeping People Safe – The Human Dynamics of Injury Prevention.* Rowman and Littlefield Publishing Group: Lanham, MD.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
KP KPC	AAPT Division of Applied Technology	OSH

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
OSH	A240	None	3	(2+2)

6. Complete Course Title
Workplace Monitoring: Instrumentation and Calibration
Workplace Monitoring
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☐ Credits ☐ Contact Hours
☐ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☒ Course Description ☒ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☒ Other Update CCG (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. OSH AAS	p.206	01/28/11	Allen Houtz, Don Weber
2.			
3.			

Initiator Name (typed): Don Weber Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 01/28/11
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 01/28/11

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Examines the equipment used in performing measurements of environmental factors in the workplace, including noise, lighting, vibration, chemicals, and heat stress. Emphasizes equipment types, applications and calibration. Evaluates environmental factors found in Alaskan workplaces.

16a. Course Prerequisite(s) *(list prefix and number)*
OSH A180 and [MATH A105 or MATH A107 or MATH A108 or MATH A109], with grade of C or higher.

16b. Test Score(s)
none

16c. Co-requisite(s) *(concurrent enrollment required)*
none

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
none

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update bibliography and course prerequisites.

Initiator (faculty only) Date
Don Weber
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
Kenai Peninsula College
Course Content Guide

I. Initiation Date: January 10, 2011

II. Course Information

- a. College: KPC
- b. Course Title: Workplace Monitoring: Instrumentation & Calibration
- c. Course Subject/Number: OSH A240
- d. Credit Hours: 3
- e. Contact Time: 2 + 2
- f. Grading Information: A – F
- g. Course Description: Examines the equipment used in performing measurements of environmental factors in the workplace, including noise, lighting, vibration, chemicals and heat stress. Emphasizes equipment types, applications and calibration. Evaluates environmental factors found in Alaskan workplaces.
- h. Course status relative to degree and certificate programs: OSH A.A.S. requirements
- i. Lab Fee: None
- j. Coordination: Fac List-Serv
- k. Course Prerequisites: OSH A180 and [MATH A105 or MATH A107 or MATH A108 or MATH A109], with grade of C or higher
- l. Registration Restrictions: None

III. Course Level Justification

Builds upon earlier course work in the discipline.

IV. Instructional Goals

The instructor will:

- a. Explain the history of instrumentation in the industrial hygiene and safety professions and the need for measurement reproducibility: validating, monitoring methodology, and using direct reading instruments, laboratory analyses, and biological monitoring.
- b. Demonstrate the various ways to monitor for temperature, noise, heat stress, vibration, lighting, and how to provide for computer analysis, monitoring and report preparation.
- c. Explain the need for ongoing analysis and the presentation of data explanation for variations in results and measures of central tendency in the data findings.
- d. Explain the need for recordkeeping.

V. Student Learning Outcomes

Students will be able to:	**One or more of the following assessment methods will be used:**
a. Explain the need and methods for measurement reproducibility.	Tests, written assignments
b. Explain and demonstrate the operation, maintenance, troubleshooting and calibration of monitoring instruments.	Tests, written assignments, presentations
c. Describe the various ways to monitor temperature, noise, heat stress, vibration and lighting.	Tests, written assignments
d. Explain the analysis and the presentation of variations in results and measures using statistics.	Tests, written assignments, class group exercises
e. Define and explain administrative practices, training and standard maintenance issues required to maintain and upgrade equipment certifications, calibrations, operator/inspector training and equipment certifications.	Tests, written assignments

VI. Course Content Outline

A. Class Introductions and Safety Issues
   1. Classroom design, resource inventories and equipment
   2. Campus
   3. Personal
   4. General rules
   5. Course procedures
   6. Class conduct and courtesies
B. Workplace Measurements
   1. Need for measurement
   2. Reproducibility-validity
C. Monitoring Methods
   1. Direct reading instruments
   2. Laboratory analysis
   3. Biological monitoring
D. Instrumentation
   1. Instrumentation and controls
   2. Units of measure

3. Sensor measurement
4. Indicators
5. Controllers
6. Recorders
7. Integrators or totalizers
8. Operation of instruments
9. Routine maintenance, troubleshooting and calibration

E. Reading Instruments
1. Dials
2. Meters
3. Venniers
4. Length-of-stain
5. Charts and graphs

F. Monitoring
1. Temperature
2. Noise
3. Heat stress
4. Vibration
5. Lighting

G. Computer Analysis, Monitoring and Report Preparation
1. Time savings
2. Cautions

H. Analysis and Presentation of Data
1. Need for analyzing and presenting data
2. Causes of variation in results
3. Measures of central tendency

I. Recordkeeping
1. Need for records
2. Records
3. Reporting results
4. Typical reporting documents
5. Legal notices
6. Worker notification
7. Legal requirements

J. Administrative Issues
1. Equipment certification and calibration
2. Operator/inspector training and certification

VII. Suggested Text

Bisesi, M. S. (2011). *Industrial Hygiene Evaluation Methods, 2nd Ed.* Lewis Publishers: Boca Rotan, FL.

VIII. Bibliography

American Industrial Hygiene Association and the American Society of Safety Engineers. (2005). *American National Standards Association, ANSI/AIHA Z-10 Standard.* American Industrial Hygiene Association: Fairfax, VA.

Brauer, R. L. (2005). *Safety and Health for Engineers.* John Wiley & Sons: Hoboken, NJ.

Della-Giustina, D. E. (2000). *Developing a Safety and Health Program.* CRC Press, LLC: Boca Raton, FL.

Della-Giustina, D. E. (2007). *Safety and Environmental Management.* Rowman and Littlefield Publishing Group, Inc.: Lanham, MD.

Geller, E. S. (2001). *The Psychology of Safety Handbook.* CRC Press, LLC: Boca Raton, FL.

Goetsch, D. L. (2010). *The Basics of Occupational Safety.* Pearson, Prentice Hall Education, Inc.: Upper Saddle River, NJ.

Goetsch, D. L. (2010). *Quality Management for Organizational Excellence.* Pearson Prentice-Hall: Upper Saddle River, NJ.

Laing, P. M. (2007). *The Supervisor's Safety Manual.* National Safety Council: Itasca, IL.

Manuele, F. E. (2007). *Advanced Safety Management, Focusing on Z-10 and Serious Injury Prevention.* John Wiley & Sons, Inc.: Hoboken, NJ.

Reese, C. D. (2009). *Occupational Health and Safety Management, 2nd Edition.* CRC Press & Taylor and Francis Group, LLC: Boca Raton, FL.

Swartz, G. & Dewey, P.M. (2000). *Safety Culture and Effective Safety Management.* National Safety Council: Itasca, IL.

Williams, J. (2010). *Keeping People Safe – The Human Dynamics of Injury Prevention.* Rowman and Littlefield Publishing Group, Inc.: Lanham, MD.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division choose one			1c. Department Cvil Engineering
2. Course Prefix CE	3. Course Number A470	4. Previous Course Prefix & Number N/A	5a. Credits/CEUs 1	5b. Contact Hours (Lecture + Lab) (0+3)

6. Complete Course Title
Civil Engineering Internship

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☐ Change *or* ☒ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☐ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)
☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☐ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status choose one # of Repeats Max Credits

10. Grading Basis ☐ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall 2011/ To: 9999/

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Civil Engineering	223	3/21/2011	Thomas Ravens
2.			
3.			

Initiator Name (typed): Osama A. Abaza Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3-21-2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: _____

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Designed to give students the opportunity to investigate the practical workings of engineering organizations. Assignments individually arranged with cooperating organizations and agencies.

16a. Course Prerequisite(s) *(list prefix and number)*

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Senior standing or permission of department coordinator.

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Deleted from the requirements of the Civil Engineering program

Initiator (faculty only) Date
Osama A. Abaza
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: EN SOENGR
1b. Division: choose one
1c. Department: Civil Engineering

2. Course Prefix: ES
3. Course Number: A111
4. Previous Course Prefix & Number: N/A
5a. Credits/CEUs: 3
5b. Contact Hours (Lecture + Lab): (3+0)

6. Complete Course Title
Engineering Science

Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☐ Change *or* ☒ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status choose one # of Repeats Max Credits

10. Grading Basis ☐ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall2011/ To: 9999/

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. ES A208	page 387	3/21/2011	Thomas Ravens
2.			
3.			

Initiator Name (typed): Osama A. Abaza Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: 3/21/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: _____

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
A survey of engineering science and problem solving techniques, including static and dynamic equilibria, presentation of results, and engineering ethics. Students will be introduced to the use of computers and will participate in a design project.

16a. Course Prerequisite(s) *(list prefix and number)*

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
High school algebra and trigonometry or concurrent enrollment in MATH A200 required.

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Deleted from the requirements of the Civil Engineering program and substituted by ENGR A151

Initiator (faculty only) Date
Osama A. Abaza
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR		1b. Division choose one		1c. Department CE
2. Course Prefix ES	3. Course Number A201	4. Previous Course Prefix & Number N/A	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (3+0)

6. Complete Course Title
Computer Techniques

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☐ Change *or* ☒ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☐ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
  ☐ Class ☐ Level
  ☐ College ☐ Major
☐ Other (please specify)

☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☐ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status choose one # of Repeats Max Credits

10. Grading Basis ☐ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall 2011/ To: 9999/

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. CAS BS	Page 85		Sam Thiru
2. EE A408	Page 381		Jens Munk
3. ES A302	Page 387		Thomas Ravens

Initiator Name (typed): Osama A. Abaza Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 3-21-2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: _____

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
An introduction to programming using BASIC. Computer programming for solving problems in science and engineering, and applications using spreadsheets.

16a. Course Prerequisite(s) *(list prefix and number)*
[MATH A107 and MATH A108] or [MATH A200 or concurrent enrollment].

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Deleted from the requirements of the Civil Engineering program and substituted by ENGR A161

Initiator (faculty only) Date
Osama A. Abaza
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: AS CAS

1b. Division: AHUM Division of Humanities

1c. Department: Department of Journalism and Public Communications

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
JPC	A413	NA	3	(3+0)

6. Complete Course Title
Communications Law

Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Update to CCG to changes in law/industry (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: fall/2011 To: 9/9999

12. ☒ Cross Listed with JUST A413

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. JPC, BA Catalog	410, 413	2/22/2011	
2.			
3.			

Initiator Name (typed): Paola Banchero Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 11/19/2010
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 11/18/2010

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Legal rights, privileges, and regulations of press, radio, television, Internet and films; libel, contempt, copyright, rights of privacy; and decisions of regulatory bodies.

16a. Course Prerequisite(s) *(list prefix and number)*
JPC A202 or JUST A110 Special note: JPC A202 must be completed with a C or better.

16b. Test Score(s)
NA

16c. Co-requisite(s) *(concurrent enrollment required)*
NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
NA

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update CCG to include changes to law/industry. Added prerequisite.

Initiator (faculty only) Date
Paola Banchero
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date December 11, 2010

II. Course Information

A. College: College of Arts and Sciences
B. Course Subject/Number: JPC A413/JUST A413
C. Credits: 3
D. Contact Hours: 3+0
E. Course Title: Communications Law
F. Grading Information: A-F
G. Cross Listed: JPC A413
H. Course Description: Legal rights, privileges, and regulations of press, radio, television, internet and films; libel, contempt, copyright, rights of privacy; and decisions of regulatory bodies.
I. Course Prerequisites: JPC A202 or JUST A110 Special note: JPC A202 must be completed with a C or better.
J. Fees: No

III. Course Activities

A. Lecture
B. Discussion
C. Analysis

IV. Guidelines for Evaluation

A. Exams
B. Research paper
C. Structured discussion
D. Writing assignments

V. Course Level Justification

Course builds upon the analysis and research skills Justice and Journalism and Public Communications students receive in lower level courses. Students research and analyze legal processes, synthesize landmark and less significant court decisions, and relate rights and regulations to modern mass communication practices.

VI. Outline

A. Introduction to legal system
1. Sources of law
2. Federal and state jurisdiction
3. Judicial process

B. First Amendment
1. History and origins
2. Expression versus conduct
3. Prior restraints

4. Time, place, manner restrictions

C. Risk to public safety
   a. Clear and present danger
   b. National security

D. Libel/defamation
   1. Fault
   2. Negligence standards
   3. Libel tourism
   4. Damages
   5. Defenses and privileges
   6. Defamation in digital media

E. Privacy and emotional distress
   1. Origins
   2. Definitions
   3. Criminal statutes (trespassing, etc.)
   4. Privacy online

F. Access to information/reporter's privilege
   1. Federal Freedom of Information Act
   2. State FOIA and privilege

G. Copyright/intellectual property
   1. Infringement
   2. Fair use
   3. Copyright online

H. Commercial speech
   1. Advertising
   2. Trademark laws

I. FCC and broadcasting
   1. Broadcast regulation
   2. Agency jurisdiction and powers

J. Electronic media/Internet
   a. Political speech/Fairness Doctrine history and end
   b. Cable TV regulation

K. Obscenity/indecency/hate speech
   1. Definitions
   2. Attacks on obscenity and hate speech

VII. Suggested Texts

Carter, T. B., Franklin, M. A., & Wright, J. B. (2004). *The First Amendment and the Fourth Estate: The law of mass media* (9th ed.). New York, NY: Foundation Press.

Zelezny, J. (2010). *Communications law: Liberties, restraints and the modern media* (6th ed.). New York, NY: Wadsworth.

VIII. Bibliography and Resources

American Library Association. (n.d.). *First Amendment resources.* Retrieved from http://www.ala.org/ala/aboutala/offices/oif/firstamendment/faresources/resources.cfm

Cornell Legal Information Institute. (n.d.). *The Constitution of the United States of America*. Retrieved from http://www.law.cornell.edu/constitution/

The Reporters Committee for Freedom of the Press. (n.d.). Retrieved from http://www.rcfp.org/index.php

Krotoszynski, R. J., Gey, S., Barnett Lidsky, L. C., & Wells, C. E. (2008). *The First Amendment, cases and theory*. New York, NY: Aspen.

Lewis, A. (2010). *Freedom for the thought that we hate: A biography of the First Amendment*. New York, NY: Basic Books.

Overbeck, W., & Belmas, G. (2010). *Major principles of media law*. New York, NY: Wadsworth.

Sullivan, K., & Gunther, G. (2010). *First Amendment law* (4th ed.). New York, NY: Foundation Press.

IX. Instructional Goals and Student Outcomes

A. Instructional Goals **The instructor will:**
1. Present legal regulations of mass communications, including rationale for and limits to First Amendment protections of freedom of speech and press.
2. Describe significant court decisions affecting the legal rights and privileges of mass media practitioners.
3. Discuss the development of First Amendment media law, including prior restraints, libel, privacy, reporters' privilege, access to courts and to government information, and government regulation of electronic free speech.
4. Discuss federal and state agencies, such as the FCC and FTC, which have a role in regulating mass communications, and present information about constraints on enforcement power.

B. Student Outcomes **Students will be able to:**	**Assessment methods**
1. Analyze common legal issues facing mass media practitioners.	Exams, structured discussion, writing assignments and research paper

2. Articulate and evaluate different theories of the First Amendment.	Exams, structured discussion, writing assignments and research paper
3. Apply legal theories, principles and doctrines to hypothetical and real-world media issues.	Exams, structured discussion, writing assignments and research paper
4. Perform legal research.	Writing assignments, research paper

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College HW CHSW	1b. Division AJUS Division of Justice	1c. Department JUST

2. Course Prefix JUST	3. Course Number A413	4. Previous Course Prefix & Number NA	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (3+0)

6. Complete Course Title
Communications Law

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☒ Other Update to CCG to changes in law/industry (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: fall/2011 To: 9/9999

12. ☒ Cross Listed with JPC A413
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. JUST, BA Catalog	410, 413		
2.			
3.			

Initiator Name (typed): Deborah Periman Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 11/29/2010
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 11/29/2010

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Course examines the legal rights, privileges, and regulations of press, radio, television, Internet and films; libel, contempt, copyright, rights of privacy; and decisions of regulatory bodies.

16a. Course Prerequisite(s) *(list prefix and number)*
JUST 110

16b. Test Score(s)
NA

16c. Co-requisite(s) *(concurrent enrollment required)*
NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
NA

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update CCG to include changes to law/industry. Add prerequisite

Initiator (faculty only) Date
Deborah Periman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date December 11, 2010

II. Course Information

A. College: College of Arts and Sciences

B. Course Subject/Number: JPC/JUST A413

C. Credits: 3. 0

D. Contact Hours: 3

E. Course Title: Communications Law

F. Grading Information: A-F

G. Course Description: Course examines the legal rights, privileges, and regulations of press, radio, television, Internet and films; libel, contempt, copyright, rights of privacy; and decisions of regulatory bodies.

H. Course Prerequisites: JPC A202 for JPC majors and JUST A110 for Justice majors

I. Fees: No fees

III. Course Activities

A. Lecture
B. Discussion
C. Analysis

IV. Guidelines for Evaluation

A. Exams
B. Research paper

V. Grading criteria

Students' work will be evaluated according to its publishable quality. The criteria are as follows:

A = Outstanding. Publishable quality. Excellent content, ideas, writing, reporting, technical work and adherence to Associated Press style.

B = Very good. Publishable with minor changes. Good content, ideas, writing, reporting technical work and adherence to AP style.

C = Average work. Requires substantial changes (additional information gathering or major rewriting including correction of numerous style errors).

D = Poor quality. Assignment has fundamental problems -- weak content, serious writing flaws.

F = Unacceptable for these reasons: late, inaccurate, incomprehensible, factual errors or misspelled names. Plagiarism automatically results in an F and will warrant an F for the course.

VI. Course Level Justification

Advanced lecture and discussion course builds on foundations of JPC A202 for Journalism and Public Communications majors and JUST A110 for Justice majors.

VII. Outline

A. Introduction to legal system

B. First Amendment

C. Risk to public safety/libel

D. Privacy and emotional distress

E. Access to information/reporter's privilege

F. Copyright/Intellectual property

G. Commercial speech

H. FCC and broadcasting

I. Electronic media/Internet

J. Obscenity/indecency/hate speech

VIII. Suggested Texts

Carter, T.B., et al. (2004). *The First Amendment and the Fourth Estate: The Law of Mass Media 9th ed*. New York, N.Y.: Foundation Press.

Zelezny, J. (2010). *Communications Law: Liberties, Restraints and the Modern Media, 6th ed.* New York, N.Y.: Wadsworth Publishing.

IX. Bibliography and Resources

American Library Association. *First Amendment Resources*. (n.d.) http://www.ala.org/ala/aboutala/offices/oif/firstamendment/faresources/resources.cfm

Cornell Legal Information Institute. (n.d.) *The Constitution of the United States of America*. http://www.law.cornell.edu/constitution/

The Reporters Committee for Freedom of the Press. (n.d.) Retrived from http://www.rcfp.org/index.php

Krotoszynski, R., et al. (2008). *The First Amendment, Cases and Theory*. New York, N.Y.: Aspen Publishing.

Lewis, A. (2010). *Freedom for the Thought That We Hate: A Biography of the First Amendment*. New York, N.Y: Basic Books.

Overbeck, W. and Belmas, G. (2010). *Major Principles of Media Law*. New York, N.Y.: Wadsworth Publishing.

Sullivan, K. and Gunther, G. (2010). *First Amendment Law 4th ed.* New York, N.Y.: Foundation Press.

X. Instructional Goals and Student Outcomes

A. Instructional Goals **The instructor will:**
1. Present legal regulations of mass communications, including rationale for and limits to First Amendment protections of freedom of speech and press.
2. Explain significant court decisions affecting the legal rights and privileges of mass media practitioners.
3. Survey the development of First Amendment media law, including prior restraints, libel, privacy, reporters' privilege, access to courts and to government information, and government regulation of electronic free speech.

B. Student Outcomes **Students will be able to:**	**Assessment methods**
1. Recognize and address common legal issues facing mass media practitioners.	Exams and research paper
2. Articulate and evaluate different theories of the First Amendment.	Exams and research paper
3. Apply legal theories, principles and doctrines to hypothetical and	Exams and research paper

real-world media issues.	
4. Perform elementary legal research.	Research paper

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	CE

2. Complete Program Title/Prefix
Bachelor of Science Civil Engineering / BSCE

3. Type of Program
☐ OEC ☒ Undergrad Certificate ☐ AA/AAS ☐ Baccalaureate ☐ Minor
☐ Post Baccalaureate Certificate ☐ Graduate ☐ Graduate Certificate ☐ Doctoral ☐ Specialty

4. Type of Action:

PROGRAM
☐ Add
☒ Change
☐ Delete

PREFIX
☐ Add
☐ Change
☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2011 To: 9999/

6a. Coordination with Affected Units — Department, School, or College: Civil Engineering
Initiator Name (typed): Osama Abaza — Initiator Signed Initials: _________ Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 3/17/2011

6c. Coordination with Library Liaison Date: 3/17/2011

7. Title and Program Description - Please attach the following:
☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
BSCE is modifying its Program Objectives and statement on admisions. It is also adding 3 courses.

Initiator (faculty only) ____ Date	☐ Approved ☐ Disapproved ____ Dean/Director of School/College ____ Date
Osama Abaza Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved ____ Department Chairperson ____ Date	☐ Approved ☐ Disapproved ____ Undergraduate/Graduate Academic Board Chairperson ____ Date
☐ Approved ☐ Disapproved ____ Curriculum Committee Chairperson ____ Date	☐ Approved ☐ Disapproved ____ Provost or Designee ____ Date

SCHOOL OF ENGINEERING

Engineering embraces the wide range of cultural and technical subjects related to the planning, design and manufacture, or construction of objects necessary for civilization. An engineer is an innovator, a builder and a problem solver. Engineers turn scientific knowledge into useful goods and services and are responsible to society for their engineering design decisions. They are interested in working with people often as team members in positions of leadership. Engineers are concerned about people and ways to provide society with improved living standards.

The School of Engineering offers areas of study at the undergraduate level:

- A four-year program leading to a Bachelor of Science in Civil Engineering;
- A four-year program leading to a Bachelor of Science in Engineering with three specialty tracks:
    - Mechanical Engineering
    - Electrical Engineering
    - Computer Systems Engineering;
- A four-year program leading to a Bachelor of Science in Geomatics;
- A two-year program leading to an Associate of Applied Science in Geomatics; and
- Minors in Civil Engineering, Computers Systems Engineering, Electrical Engineering, General Engineering, Mechanical Engineering, and Geographic Information Systems (GIS).

The School of Engineering also offers several graduate degrees and graduate certificates including: Arctic Engineering, Civil Engineering, Engineering Management, Science Management, Applied Environmental Science and Technology, and Project Management. Detailed information about the graduate programs is in Chapter 12.

Accreditation

All Bachelor of Science programs are accredited by ABET (Accreditation Board for Engineering and Technology) and include the following:

1. Civil Engineering
2. Computer Systems Engineering
3. Electrical Engineering
4. Geomatics
5. Mechanical Engineering

Civil Engineering

The UAA School of Engineering offers a Bachelor of Science in Civil Engineering to prepare students for the profession. Knowledge of mathematical and physical sciences gained by study, experience and practice is applied with judgment to develop ways to utilize materials and forces of nature for the progressive well-being of humanity. Students are prepared for improving and protecting the environment; providing facilities for community living, industry and transportation; and providing structures for the use of humanity.

Engineering: Computer Systems Engineering, Electrical Engineering, Mechanical Engineering

The UAA School of Engineering offers a Bachelor of Science in Engineering (BSE) with specializations in Computer Systems Engineering, Electrical Engineering or Mechanical Engineering. Graduates with a BSE have a broad range of engineering skills that are necessary when serving the infrastructure needs of remote rural areas typical of many Alaskan communities. The program emphasizes fundamental engineering principles as a basis for interdisciplinary design, teamwork, and for lifelong learning. Graduates are in a position to take advantage of a wide variety of professional opportunities and are well prepared for an engineering career in a technologically changing world.

Geomatics

Geomatics embraces the traditional disciplines of land surveying, mapping, geodesy, photogrammetry, and hydrography, together with the newer disciplines of remote sensing, digital photogrammetry, and spatial or geographic information systems (GIS). Geomaticians help design, map and manage the natural and the man-made resources of the earth. Their skills and efforts are important in project development and environmental protection. They gather, analyze, and manipulate data; map results; and help design new developments. The disciplines used in geomatics are based on advancing technologies and use an integrated approach to the acquisition, analysis, storage, distribution, management, and application of spatially referenced data.

Minors in the School of Engineering

To meet a variety of student needs, the School of Engineering offers several minors. A choice of two types of Engineering minors are offered. The first is a minor in General Engineering which is designed for students who are majoring in a non-engineering baccalaureate degree. The second is an Engineering Specialty minor program which is designed for students majoring in an engineering baccalaureate degree who, therefore, have completed much of the coursework in the Bachelor of Science in Engineering (BSE) or Civil Engineering (CE) programs. Engineering Specialty minors are in Civil Engineering, Computer Systems Engineering, Electrical Engineering, or Mechanical Engineering. Additionally, a minor in Geographic Information Systems (GIS) is offered for students who are majoring in baccalaureate degrees in a variety of disciplines and seeking strong GIS knowledge and skills to enhance their specialty and support a sustainable professional career.

CIVIL ENGINEERING

Engineering Building (ENGR), Room 201, (907) 786-1900
www.alaska.edu/schoolofengineering

Civil engineering is a professional discipline recognized by licensure in each of the 50 states and many other countries. Civil engineering is a broad branch of engineering dedicated to providing civilization with essential infrastructure and services including bridges, buildings, ports, water resource development, waste disposal, dams, water power, irrigation and drainage works, roads, airports, railways, construction and management services; surveying; and providing city management and developmental planning. Civil Engineering students are introduced to principles of mathematics, chemistry, and physics during their first two years of study. The third year of study is largely devoted to courses in applied extensions of the basic sciences to form the foundation for more advanced engineering analysis and design. Students draw upon previous learning in their senior year to focus their studies on sophisticated analyses and creative designs. Throughout the four-year engineering program students take courses in communication, humanities, social sciences, and fine arts to improve their communication skills and to become more aware of their roles and responsibilities in modern society. The UAA Civil Engineering program emphasizes northern region design considerations and provides specialized training appropriate for an engineering career in Alaska and other cold regions of the world.

Civil Engineering Department Mission

The mission of the Civil Engineering Department, through its undergraduate and graduate education programs, its professional development programs, its research, and its service is to advance the civil engineering profession in Alaska and elsewhere for building a sustainable civilization with utmost respect for the well-being of its peoples and the environment.

Bachelor of Science, Civil Engineering

The Department of Civil Engineering offers an undergraduate curriculum leading to a Bachelor of Science in Civil Engineering. The first two years of the program have application to most other branches of engineering.

Program Objectives and Expected Outcomes

The curriculum of the UAA CE program is designed to produce graduates who, within five years of graduation, will:

1. Practice with "responsible charge" in the civil engineering sub-disciplines of water resources, geotechnical, structural, transportation, and environmental engineering; with emphasis on cold region issues. "Responsible charge" is as defined by the Alaska Professional Engineering licensing regulations.
2. Make contributions in project planning, preparation, implementation, design, and presentation in a team
3. environment in sub-discipline areas.
4. Demonstrate and update their competency via professional registration, continuing education, graduate study, and professional service to their communities.
5. Exemplify the ethical standards of the profession.

In keeping with the objectives, it is expected that graduates of the UAA Civil Engineering program will have:

1. An ability to apply knowledge of mathematics through differential equations, probability and statistics, calculus-based physics, and general chemistry;
2. An ability to apply knowledge in a minimum of four recognized major civil engineering areas;

3. An ability to design and conduct experiments, as well as to analyze and interpret data, in more than one of the recognized major civil engineering areas;
4. An ability to design a civil engineering system, component, or process to meet desired needs;
5. An ability to function on multidisciplinary teams;
6. An ability to identify, formulate, and solve engineering problems;
7. An understanding of professional and ethical responsibility;
8. An ability to communicate effectively;
9. The broad education necessary to understand the impact of engineering solutions in a global and societal context;
10. A recognition of the need for, and an ability to engage in, lifelong learning;
11. A knowledge of contemporary issues in professional practice; and
12. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Honors in Civil Engineering

Undergraduate Civil Engineering students may be recognized for exceptional performance by earning Departmental Honors in Civil Engineering. In order to receive honors in Civil Engineering, a student must meet each of the following requirements:

1. Complete all requirements for a BS degree in Civil Engineering. A minimum of 30 credits applicable to the Civil Engineering degree must be completed at UAA.
2. Be an active member for at least one year of both a national and an on-campus student chapter of a professional engineering society that addresses issues relevant to the civil engineering profession.
3. Have a GPA of 3.30 or higher in courses applicable to the Bachelor of Science in Civil Engineering degree.
4. Gain approval for a departmental honors design or research project prior to applying for graduation. Present an oral presentation and written report of project results eight weeks prior to scheduled graduation. The project proposal and final written report must be approved by the student's academic advisor and the chair of Civil Engineering Department.
5. Pass the Fundamentals of Engineering Examination in or prior to the fall semester of the senior year.
6. Document a minimum of eight weeks work experience in an engineering or engineering-related position.

Preparation

While in high school, students can prepare for entering and succeeding in the university engineering program. In order to be the best prepared, students should complete the following high school courses with grades of C or better:

Algebra	2 years
Chemistry	1 year
English	3 years
Physics	1 year
Trigonometry	1/2 year

Students successfully completing the above courses will be prepared to enroll in the first year of courses that count towards the engineering degree. Students without the above preparatory courses will need to take equivalent university courses before taking some of the first year of courses that count towards the engineering degree. Students are encouraged to work with their faculty advisors for developing a course plan.

Admission Requirements

Complete the Baccalaureate Degree Programs Admission Requirements described in Chapter 7 of this catalog.
Admission to the Civil Engineering program is to one of two levels: Pre- Engineering or Civil Engineering. Students admitted to either of the two levels are considered to be degree-seeking civil engineering students.

Pre-Engineering Level

Applicants for admission who have completed only the general Baccalaureate Degree Program Admission Requirements in Chapter 7 of this catalog are admitted to the Civil Engineering program at the Pre-Engineering level.

Civil Engineering Level

Applicants for admission who, in addition to the general Baccalaureate Degree Program Admission Requirements, have completed the high school Preparation courses listed above (or their university equivalents) with grades of C or better will be admitted to the Civil Engineering program at the Civil Engineering level:

Advancement

Pre-Engineering to Civil Engineering

Pre-Engineering students must work with their assigned advisor to develop a course plan to make up the high school course requirements for advancement to the Civil Engineering level. Once the Pre- Engineering coursework outlined in the student's course plan is completed, students must meet with their advisor to apply for advancement to the Civil Engineering level

Advising

All undergraduate students are strongly encouraged to meet with their faculty advisor each semester for the purpose of reviewing their academic progress and planning future courses. All civil engineering students are required to meet with their faculty advisors to be advanced within the program and to apply for graduation. It is particularly important for students to meet with their faculty advisor whenever academic difficulties arise.

Academic Progress

Any given CE or ES course may only be taken when all prerequisites for the course are met with a grade of C or higher. A student who is unable to earn a grade of C or better in a CE or ES prerequisite course may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt may result in removal from the Civil Engineering program. A student who has a semester GPA in engineering courses below 2.00 will be placed on academic warning by the School of Engineering. A student on academic warning that receives a semester GPA in engineering courses of at least 2.00 will be removed from academic warning status by the school. Otherwise, he or she will be removed from the Civil Engineering program and will not be permitted to enroll in CE and ES courses.

Graduation Requirements

In order to receive the Bachelor of Science degree in Civil Engineering, students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees (GER) listed at the beginning of this chapter with the additional requirement that one of the following criteria are met within the courses taken to meet the social sciences, humanities, and fine arts GER requirements:

1. Six credits are from courses that are at the 200 level or above.
2. Three credits are from courses that are at the 200 level or above and 6 credits are from a sequence of courses at the 100 level. For example, HIST A101 and HIST A102 is considered to be a 6-credit course sequence.

C. Civil Engineering Requirements

1. Satisfactorily complete these courses with a GPA of 2.00. Courses with an asterisk (*) must be completed with a grade of C or better (108 credits):

CE A334*	Properties of Materials	3
CE A344	Water Resources Engineering	3
CE A402	Transportation Engineering	3
CE A403	Arctic Engineering	3
CE A422	Foundation Engineering	3
CE A431*	Structural Analysis	4
CE A432	Steel Design (3)	3
	or	
CE A433	Reinforced Concrete Design (3)	
CE A435*	Soil Mechanics	3
CE A438	Design of Civil Engineering Systems	3
CE A441	Introduction to Environmental Engineering	3
CHEM A105*	General Chemistry I	3
CHEM A105L*	General Chemistry I Laboratory	1
CHEM A106*	General Chemistry II	3
CHEM A106L*	General Chemistry II Laboratory	1

COMM A111	Fundamentals of Oral Communications (3)	3
	or	
COMM A235	Small Group Communication (3)	
	or	
COMM A237	Interpersonal Communication (3)	
	or	
COMM A241	Public Speaking (3)	
ENGL A111*	Methods of Written Communications	3
ENGL A212	Technical Writing	3
ENGR A151*	Engineering Practices I	3
ENGR A161*	Engineering Practices II	3
ES A103	Engineering Graphics	3
ES A209*	Engineering Statics	3
ES A210*	Engineering Dynamics	3
ES A302 *	Engineering Data Analysis	3
ES A309	Elements of Electrical Engineering	3
ES A331*	Mechanics of Materials	3
ES A341*	Fluid Mechanics	3
ES A341L	Fluid Mechanics Laboratory	1
ES A346	Basic Thermodynamics	3
ESM A450	Economic Analysis and Operations	3
GEO A155*	Fundamentals of Surveying	3
MATH A200*	Calculus I	4
MATH A201*	Calculus II	4
MATH A202*	Calculus III	4
MATH A302*	Ordinary Differential Equations	3
PHYS A211*	General Physics I	3
PHYS A211L*	General Physics I Laboratory	1
PHYS A212*	General Physics II	3
PHYS A212L*	General Physics II Laboratory	1

2. A natural science elective (minimum 3 credits) must be taken in addition to the 7-credit natural science General Education Requirement and may be selected from the following list: 3

BIOL A115/L	Fundamentals of Biology I with Laboratory (4)
BIOL A271/L	Principles of Ecology with Laboratory (4)
CHEM A450	Environmental Chemistry (3)
GEOL A111	Physical Geology (4)
GEOL/ BIOL A178	Fundamentals of Oceanography (3)
PHYS A303	Modern Physics (3)
PHYS A314	Electromagnetics (3)
PHYS A320	Simulation of Physical Systems (3)
PHYS/BIOL/ CHEM A456	Nonlinear Dynamics and Chaos (3)

Note: GEOL A111 is the recommended course.

3. Six credits of technical elective courses are required that may be chosen from the following list of courses. These electives are intended to improve students' knowledge and skills relating to site characterization, problem identification, criteria development, and project design in the civil engineering sub-disciplines of water resources, geotechnical, structural, transportation, and environmental engineering. Graduate courses may not be applied to both a baccalaureate and master's degree. 6

Water Resources Engineering

CE A674	Waves, Tides, and Ocean Process for Engineers (3)
CE A677	Coastal Measurements and Analysis (3)
CE A682	Ice Engineering (3)
CE A683	Arctic Hydrology and Hydraulic Engineering (3)
CE A684	Arctic Utility Distribution (3)

Geotechnical Engineering

CE A611	Geotechnical Earthquake Engineering (3)
CE A612	Advanced Foundation Design (3)
CE A676	Coastal Engineering (3)
CE A681	Frozen Ground Engineering (3)

Structural Engineering

CE A432	Steel Design (3)
	or
CE A433	Reinforced Concrete Design (3)

Either CE A432 or CE A433 may be chosen as a technical elective, if not applied to satisfy the Civil Engineering Professional requirements described above.

CE A434	Timber Design (3)
CE A610	Engineering Seismology (3)
CE A631	Structural Finite Elements (3)
CE A633	Structural Dynamics (3)
CE A634	Structural Earthquake Engineering (3)
CE A636	Multi-Story Building Structural Design (3)
CE A637	Earthquake Resistant Structural Design (3)
CE A639	Loads on Structures (3)

Transportation Engineering

CE A423	Traffic Engineering (3)
CE A424	Pavement Design (3)
CE A425	Highway Engineering (3)
CE A675	Design of Ports and Harbors (3)
GEO A456	Geomatics and Civil Design (3)

Environmental Engineering

AEST A601	Aquatic Process Chemistry (3)
CE A442	Environmental Systems Design (3)
CE A605	Chemical and Physical Water and Wastewater Treatment Processes (3)
CE A606	Biological Treatment Processes (3)

4. A total of 132 credits is required for the degree, of which 42 credits must be upper division (300-, 400-, or 600-level).

5. All Civil Engineering students are strongly encouraged to take the Fundamentals of Engineering Examination in their senior year as an initial step toward professional registration. Civil Engineering students are also encouraged to consider minors in Mathematics or Physics and graduation with departmental honors.

FACULTY

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ENGINEERING: COMPUTER SYSTEMS, ELECTRICAL, AND MECHANICAL ENGINEERING

Engineering Building (ENGR), Room 201, (907) 786-1900
www.uaa.alaska.edu/schoolofengineering/programs/bse

Bachelor of Science, Engineering

The Bachelor of Science in Engineering (BSE) program is a design oriented curriculum that incorporates topics that span the foundations of engineering disciplines. BSE students select courses for a specialization track that best suits their needs. Thus, the BSE curriculum can custom fit a student's education with the needs of the community and industry. The three tracks of specialization are: 1) Computer Systems Engineering, 2) Electrical Engineering, and 3) Mechanical Engineering.

The Computer Systems Engineering (CSE) specialty track focuses on applied computer theory and networking. Students take courses such as signals, systems, computer hardware design, assembly programming, and electronic device design.

The Electrical Engineering (EE) specialty track focuses on applied circuit design and theory. Students take courses in electrical signals and systems, circuit design, and communication systems.

The Mechanical Engineering (ME) specialty track focuses on heat transfer and machine design. Students take courses in heat transfer, HVAC (heating, ventilation, and air conditioning), and machine design.

Program Objectives and Expected Outcomes

The curriculum of the BSE program has also been carefully designed to prepare students for the profession of engineering through study, experience and practice, with these objectives:

1. Produce graduates who are able to successfully practice engineering to serve the state of Alaska, and national and international industries and government agencies.
2. Produce graduates with the necessary background and technical skills to work professionally as individuals or in teams in engineering practice or in graduate schools.
3. Prepare graduates for personal and professional success with and understanding and appreciation of ethical behavior, social responsibility, and diversity, both as individuals and in team environments.
4. Prepare graduates to be interested, motivated, and capable of pursuing continued lifelong learning through further graduate education, short courses, or other training programs in engineering and related fields.

Knowing that all engineering programs must demonstrate that their students attain a level of proficiency in a number of important areas, the BSE program has chosen the following set of program outcomes. Students will have:

(a) an ability to apply knowledge of mathematics, science, and engineering
(b) an ability to design and conduct experiments, as well as analyze and interpret data
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health, and safety manufacturability, and sustainability
(d) an ability to function on multidisciplinary teams
(e) an ability to identify, formulate, and solve engineering problems
(f) an understanding of professional and ethical responsibility
(g) an ability to communicate effectively
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
(i) a recognition of the need for, and the ability to engage in, lifelong learning
(j) a knowledge of contemporary issues
(k) and an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Honors in Engineering

Undergraduate BSE students may be recognized for exceptional performance by earning Departmental Honors in each of the three specialty tracks: Mechanical Engineering, Electrical Engineering, or Computer Systems Engineering. The award will be noted on their permanent university transcript. In order to receive Honors in the BSE program, a student must meet each of the following requirements.

1. Complete all requirements for a BSE. A minimum of 30 credits applicable to the BSE must be completed at UAA.
2. Be an active member for at least one year of both a national and an on-campus student chapter of a professional engineering society that addresses issues relevant to the engineering profession.
3. Have a GPA of 3.30 or higher in courses applicable to the BSE.
4. Gain approval for and complete a design/research project prior to applying for graduation. An oral presentation of the project results to an appropriate audience will be required. The project proposal and final written report must be approved by the student's academic advisor and the chair of BSE Engineering program.
5. Take and Pass the Fundamentals of Engineering Examination in the senior year.
6. Document a minimum of eight weeks work experience in an engineering or engineering-related position.

Preparation

While in high school, students can prepare for entering and succeeding in the university engineering program. In order to be the best prepared, students should complete the following high school courses with grades of C or better:

Algebra	2 years
Chemistry	1 year
English	3 years
Physics	1 year
Trigonometry	1/2 year

Students successfully completing the above courses will be prepared to enroll in the first year of courses that count towards the engineering degree. Students without the above preparatory courses will need to take equivalent university courses before taking some of the first year of courses that count towards the engineering degree. Students are encouraged to work with their faculty advisors for developing a course plan.

Admission Requirements

Admission to the Bachelor of Science in Engineering program is to one of two levels: Pre- Engineering or Engineering. Students admitted to either of the two levels are considered to be degree-seeking engineering students majoring in engineering

Pre-Engineering Level

Applicants for admission who have completed only the general Baccalaureate Degree Program Admission Requirements in Chapter 7 of this catalog are admitted to the Engineering program at the Pre-Engineering level.

Engineering Level

Applicants for admission who, in addition to the general Baccalaureate Degree Program Admission Requirements, have completed the high school courses level listed above under Preparation (or their university equivalents) with grades of C or better will be admitted to the Engineering program at the Engineering level:

Advancement

Pre-Engineering to Engineering

Pre-Engineering students must work with their assigned advisor to develop a course plan to make up the high school course requirements for advancement to the Engineering level. Once the Pre- Engineering coursework outlined in the student's course plan is completed, students must meet with their advisor to apply for advancement to the Engineering level, or may also be advanced to the Engineering level by the department chair upon review of the students academic progress.

Curriculum

The total required credits for the BSE is 132 credits. There are five main categories of required credits.

Category	*Credits*
*General Education Requirements (GER)	15
Core Curriculum	59
Engineering Emphasis Track Courses	43

**Advanced Math Elective	3
Advanced Engineering/Science Electives	12
Total Credits	**132**

**Note: For rules and information about selecting courses to meet General Education Requirements, see the link on the main School of Engineering website at: www.engr.uaa.alaska.edu/.*

***Note: MATH A231 Discrete Mathematics is required for Computer Systems Engineering students.*

During the first two years (freshman and sophomore) of the BSE program, the student completes a set of core courses of 74 credits (59 Core Curriculum credits and 15 General Education Requirements). These courses cover basic sciences, mathematics, oral and written communications, and other General Education Requirement courses. This provides the student with a broad and solid background in the topics necessary to build a specialization in a field of engineering.

The engineering emphasis track courses are taken mostly in the third and fourth (junior and senior) years. Each track has a series of required courses totaling 43 credits. In addition, the student selects an additional 12 credits of advanced engineering or science electives, and a 3 credit advanced mathematics elective.

Engineering design is introduced early in the curriculum and is emphasized throughout the program. In addition to the seminar series, a three-course introductory Engineering Practices series is a required part of the curriculum. It is an outstanding customized coordination of courses that specifically teaches engineering students what they most need to know early in the curriculum. These courses help students become more successful in all of their subsequent courses and to be more effective as practicing engineers. Topics include applied mathematics, computer applications, experimental data gathering and analysis, collaborative teamwork, and report preparation and presentation. Also, a senior capstone design course is required.

Since the BSE program allows for the selection of more electives than the traditional BS engineering programs, students can custom design their curriculum to specialize in the areas of engineering most applicable for their plans. So, students can prepare themselves to specifically meet the needs of specific companies, and state and federal agencies.

Professional registration is emphasized throughout the program. Students attend three professional seminar courses that expose them to multiple experts from education and industry speaking about their field of expertise. All students are encouraged to take the Fundamentals of Engineering examination before graduation.

Advising

All undergraduate students are encouraged to meet with their faculty advisor each semester for the purpose of reviewing their academic progress and planning future courses. It is particularly important for students to meet with their advisor whenever academic difficulties arise.

Mathematics Minor

Upon completion of the BSE with the mechanical or electrical engineering specialization, the requirements for obtaining a minor in Mathematics are also satisfied. Students are encouraged to apply for the mathematics minor with the BSE when applying for graduation.

Academic Progress

All prerequisites for engineering courses must be completed with a grade of C or higher. A student who has a cumulative semester GPA in engineering courses below 2.00 will be placed on academic warning by the School of Engineering. If a student on academic warning status receives a semester GPA for engineering courses of at least 2.00, that student will be removed from academic warning status by the School of Engineering. Otherwise, the student will be dropped from the BSE program and must reapply in order to continue in the BSE program. Re-admittance requires a letter from the student requesting re-admittance with an explanation of the reasons why. Re-admittance is subject to approval by the department chair.

Graduation Requirements

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Every UAA baccalaureate degree requires a minimum of 37 credits of General Education Requirements in eight different categories. The specifically identified courses required for the BSE satisfies five of these categories. However, there are 15 GER credits in the remaining three categories (Social Sciences, Humanities, and Fine Arts) that the student selects:

Fine Arts	3
Humanities	6
Social Sciences	6

One of the following criteria must be met:

1. Six credits are from courses that are at the 200 level or above.
2. Three credits are from courses that are at the 200 level or above and 6 credits are from a sequence of courses at the 100-level. For example, HIST 101 and HIST 102 is considered to be a 6-credit course sequence.

In addition, the courses selected for Social Science must be from two different disciplines. It is very important that students see their faculty advisors and review the rules for selecting these 15 GER credits. A website with the rules is linked on the main School of Engineering website.

C. Major Requirements

1. Complete the following core courses (59 Credits):

CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1
COMM A111	Fundamentals of Oral Communications (3)	3
	or	
COMM A235	Small Group Communication (3)	
	or	
COMM A237	Interpersonal Communication (3)	
	or	
COMM A241	Public Speaking (3)	
ENGL A111	Methods of Written Communication	3
ENGL A212	Technical Writing	3
ENGR A105A	Engineering Computer-Aided Design I	1
ENGR A105B	Engineering Computer-Aided Design II	1
ENGR A151	Engineering Practices I	3
ENGR A161	Engineering Practices II	3
ENGR A192	Engineering Seminar I	1
ENGR A251	Engineering Practices III	3
ENGR A292	Engineering Seminar II	1
ES A208	Engineering Mechanics	4
ES A302	Engineering Data Analysis	3
ESM A450	Economic Analysis and Operations	3
MATH A200	Calculus I	4
MATH A201	Calculus II	4
MATH A202	Calculus III	4
MATH A302	Ordinary Differential Equations	3
PHYS A211	General Physics I	3
PHYS A211L	General Physics I Laboratory	1
PHYS A212	General Physics II	3
PHYS A212L	General Physics II Laboratory	1

2. Choose one of the following specializations:

Computer Systems Engineering (43 credits)

Complete the following required courses:

CS A330	Algorithms and Data Structures	3
CSE A205	Introduction to C Programming for Engineers	3
CSE A215	Object-Oriented Programming for Engineers	3
CSE A225	Assembly Language Programming for Engineers	

	Using Xilinx	3
CSE A335	Operating Systems Engineering	3
CSE A342	Digital Circuits Design	3
CSE A355	Computer Networking for Engineers	3
CSE A438	Design of Computer Engineering Systems	3
EE A203	Fundamentals of Electrical Engineering I	4
EE A204	Fundamentals of Electrical Engineering II	4
EE/CS A241	Computer Hardware Concepts	4
EE A314	Electromagnetics 3 EE A353 Circuit Theory	3
ENGR A105C	Engineering Computer-Aided Design III	1

Electrical Engineering (43 credits)

Complete the following required courses:

CSE A205	Introduction to C Programming for Engineers	3
CSE A215	Object-Oriented Programming for Engineers	3
CSE A225	Assembly Language Programming for Engineers	
	Using Xilinx	3
EE A203	Fundamentals of Electrical Engineering I	4
EE A204	Fundamentals of Electrical Engineering II	4
EE/CS A241	Computer Hardware Concepts	4
EE/PHYS A314	Electromagnetics	3
EE/PHYS A324	Electromagnetics II	3
EE A324L	Electromagnetics Laboratory II	1
EE A353	Circuit Theory	3
EE A354	Engineering Signal Analysis	3
EE A438	Design of Electrical Engineering Systems	3
EE A441	Integrated Circuit Design	3
EE A465	Telecommunications	3

Mechanical Engineering (43 credits)

Complete the following required courses:

CHEM A106	General Chemistry II	3
CHEM A106L	General Chemistry II Laboratory	1
ENGR A105C	Engineering Computer-Aided Design III	1
ES A309	Elements of Electrical Engineering	3
ES A331	Mechanics of Materials	3
ES A341	Fluid Mechanics	3
ES A341L	Fluid Mechanics Laboratory	1
ES A346	Basic Thermodynamics	3
ME A302	Mechanical Design I	4
ME/EE A308	Instrumentation and Measurement	3
ME A313	Mechanical Engineering Thermodynamics	3
ME A334	Elements of Material Science	3
ME A403	Mechanical Design II	3
ME A414	Thermal Systems Design	3
ME A438	Design of Mechanical Engineering Systems	3
ME A441	Heat and Mass Transfer	3

3. Advanced Electives

BSE students are required to take 12 credits of advanced engineering/science electives from an approved list of electives for the particular emphasis area. Also, a 3-credit advanced mathematics elective is required that is selected from a single list common for all emphasis areas. Many elective courses require prerequisite courses that are also elective courses. Thus, in selecting elective courses students are strongly advised to work with their advisor to develop a cohesive set of elective courses. Choice of engineering electives is subject to approval by the student's advisor and the department head.

Advanced Mathematics Electives (3 credits)

BSE Computer Systems Engineering students are required to take the following:

MATH A231	Introduction to Discrete Mathematics	3

BSE Electrical Engineering and BSE Mechanical Engineering students are required to take one course from the following list of advanced mathematical elective courses: 3

MATH A314	Linear Algebra (3)
MATH A321	Analysis of Several Variables (3)
MATH A371	Stochastic Processes (3)
MATH A407	Mathematical Statistics I (3)
MATH A410	Introduction to Complex Analysis (3)
MATH A422	Partial Differential Equations (3)
MATH A423	Advanced Engineering Mathematics (3)
MATH A426	Numerical Methods (3)

Advanced Engineering & Science Electives (12 credits)

BSE students are required to take 12 credits from one of the following lists of approved advanced engineering and science elective courses. Students should meet with their faculty advisor for selection of courses.

I. Computer Systems Engineering Specialty Electives 12

BIOL/CHEM/PHYS A456 Nonlinear Dynamics and Chaos (3)

CE A403	Arctic Engineering (3)
	or
ES A411	Northern Design (3)

Note: Either CE A403 or ES A411 can be taken but not both for the degree.

CS A304	Object-Oriented Analysis and Modeling (3)
CS A331	Programming Language Concepts (3)
CS A351	Automata, Algorithms, and Complexity (3)
CS A360	Database Systems (3)
CS A385	Computer Graphics (3)
CS A401	Software Engineering (3)
CS A405	Artificial Intelligence (3)
CS A413	Computer and Data Security (3)
CSE A442	VLSI Circuit Design (3)
CSE A445	Computer Design and Interfacing (4)
CSE A451	Digital Signal Processing (3)
CSE A465	Network Security (3)
EE/ME A308	Instrumentation and Measurement (3)
EE/PHYS A324	Electromagnetics II (3)
EE A324L	Electromagnetics Laboratory II (1)
EE A354	Engineering Signal Analysis (3)
EE A407	Power Distribution (3)
EE A441	Integrated Circuit Design (3)
EE/ME A471	Automatic Control (3)
EE A453	Introduction to Wi-Fi (1)
EE A454	Systems Reliability Engineering (1)
EE A456	Fiber Optic Communications (1)
EE A458	Antenna Theory (3)
EE A462	Communication Systems (3)
EE A465	Telecommunications (3)
PHYS A303	Modern Physics (3)

II. Electrical Engineering Specialty Electives 12

CE A403	Arctic Engineering (3)
	or
ES A411	Northern Design (3)

Note: Either CE A403 or ES A411 can be taken but not both for the degree.

CS A330	Algorithms and Data Structures (3)
CS A401	Software Engineering (3)
CS A413	Computer and Data Security (3)
CSE A445	Computer Design and Interfacing (4)
CSE A451	Digital Signal Processing (3)
CSE A465	Network Security (3)
EE/ME A308	Instrumentation and Measurement (3)

EE A407	Power Distribution (3)
EE A453	Introduction to Wi-Fi (1)
EE A454	Systems Reliability Engineering (1)
EE A456	Fiber Optic Communications (1)
EE A458	Antenna Theory (3)
EE A462	Communication Systems (3)
EE/ME A471	Automatic Control (3)
PHYS A303	Modern Physics (3)

III. Mechanical Engineering Specialty Electives 12

CE A403	Arctic Engineering (3)
	or
ES A411	Northern Design (3)

Note: Either CE A403 or ES A411 can be taken but not both for the degree.

CE A442	Environmental Systems Design (3)
CE A600	Fundamentals of Environmental Science and Engineering (3)
EE/ME A408	Dynamics of Systems (3)
EE/ME A471	Automatic Control (3)
ME A664	Corrosion Processes and Engineering (3)
ME A685	Arctic Heat and Mass Transfer (3)

4. A total of 132 credits is required for the degree, of which 42 credits must be upper division.

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GEOMATICS

Engineering Building (ENGR), Room 213, (907) 786-1972 www.uaa.alaska.edu/schoolofengineering/programs/geomatics

The Department of Geomatics offers a two-year Associate of Applied Science in Geomatics, a four-year Bachelor of Science in Geomatics, a minor in Geographic Information Systems (GIS), and an Undergraduate Certificate in Geographic Information Systems (GIS). Students seeking the baccalaureate degree may graduate in one of two emphasis areas: Surveying or GIS. Students seeking continuing education for technical or professional enhancement or a concentrated area of study in GIS should consider either the minor in GIS or the Undergraduate Certificate in GIS. The Geomatics program is science-based and includes:

- Land surveying using global positioning systems and conventional techniques
- Automated mapping
- Computational analysis and adjustment
- Geodesy
- Principles of boundary law
- Geographic Information Systems (GIS)
- Digital photogrammetry
- Remote sensing and image analysis.

The wide diversity in the profession creates a similar diversity of employment opportunities. The Undergraduate Certificate in GIS educates students with a broad base of concepts and theory, provides them with hands-on training in real world problems that are relevant to Alaska's environment, and allows them to explore several thematic areas in GIS applications, such as facilities management, transportation, marine environments, and natural resources.

The minor in GIS is designed for students to enhance their knowledge of GIS and remote sensing to complement a major baccalaureate degree in a variety of disciplines including science, art, business management and engineering. GIS, as a part of geospatial science and information technologies, is widely used in many industries important to Alaska (e.g. oil, gas), governance and administrations (municipalities and the state), statewide and federal agencies and departments (transportation, natural resources, land management, parks and recreation, etc.), research (sustainability, biodiversity, ecology, geology, anthropology, socioeconomics, etc.), homeland security, military applications and non-profit organizations.

The Associate of Applied Science in Geomatics prepares students for technician-level employment as land survey technicians or as automated mapping technicians. Those working as survey technicians frequently work outdoors, travel to various job locations, and enjoy an independent lifestyle. Automated mapping technicians work with the latest cartographic techniques and equipment and easily transfer skills learned in geomatics courses to other disciplines.

The Bachelor of Science prepares students for a wide variety of professionallevel opportunities. Since Alaska poses unique geomatic challenges, the curriculum emphasizes northern principles and practices. UAA graduates are highly employable in the Alaska marketplace and worldwide. Employment opportunities are found in private industry, government, and municipal agencies. Geomaticians working at the professional level enjoy responsibility and a choice of indoor and outdoor employment with many opportunities for advancement and diversification.

The new high-tech fields open employment in GIS, photogrammetry, remote sensing, land surveying, automated mapping, land design and planning, survey engineering, and resource management positions. In Alaska, geomaticians work on state and Native land claims, mining claims, fishing leases, petroleum reserves, forest selections, transportation corridors, private developments, and government and military projects. In Alaska and elsewhere, geomaticians work in land surveying, land development and design, mapping and tax assessment, the defense industry, environmental engineering assessment and management, public safety and welfare, medicine, transportation, agriculture, business, and natural sciences.

Professional predictors indicate that employment opportunities will be strong for the various geomatics specialties in Alaska and the Pacific Rim well into the 21st century. While enrolled in the program, students are eligible for cooperative employment programs with government agencies and with private industry during the summer and for intern programs during the school year.

The Department of Geomatics accommodates a wide variety of student objectives from entry level to professional preparation and encourages the nontraditional student to return for training in current practices and principles.

Students seeking professional licensing as registered land surveyors and those who are interested in specializing in surveying or geographic information systems should enroll in the Bachelor of Science program. For the most effective planning, bachelor's degree candidates should declare their intent by the second semester of their geomatics studies.

Accreditation

The Bachelor of Science program in Geomatics at UAA is accredited by the Applied Science Accreditation Commission (ASAC) of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202.

Program Educational Objectives and Program Outcomes

Program Educational Objectives

The curriculum of the UAA Geomatics program is designed to produce graduates who:

1. Have a basic knowledge of the principles and skills relating to the geomatics disciplines of land surveying, surveying boundary law, surveying computations and adjustments, mapping, geodesy, and photogrammetry, together with the newer disciplines of remote sensing, digital photogrammetry, global positioning systems (GPS), and spatial or geographic information systems (GIS);
2. Have an understanding of the principles related to project delivery;
3. Have sufficient technical competence to obtain employment as an entry-level geomatics professional and to be able to progress professionally within the discipline, and to be prepared for advanced studies;
4. Have a fundamental understanding of the issues relating to geomatics practice in GIS;
5. Are able to communicate their ideas;
6. Are able to work within a team environment; and
7. Are prepared for and understand the need for continued professional development throughout their careers.

Program Outcomes

In keeping with the program educational objectives, it is expected that graduates of the UAA Geomatics program will have:

1. An ability to apply knowledge of mathematics through calculus III and either linear algebra or differential equations or probability and statistics, and general physics;
2. An ability to collect, analyze and interpret data in all of the recognized surveying and mapping areas;
3. An ability to identify, formulate, and design a geomatics system, component or process to meet desired needs;
4. An ability to function on multidisciplinary as well as on interdisciplinary teams;
5. An ability to think critically and to creatively solve geomatics problems;
6. An understanding of professional and ethical responsibility;
7. An ability to communicate effectively;
8. The broad education necessary to understand the impact of geomatics solutions in a global and societal context;
9. A recognition of the need for, and ability to engage in, lifelong learning;
10. A knowledge of contemporary issues in professional practice;
11. An ability to use the techniques, skills and modern geomatics tools necessary for geomatics practice; and
12. An ability to apply knowledge in all six areas of surveying and mapping:
    - i. Field surveying and methods;
    - ii. Photogrammetric mapping and image interpretation and remote sensing;
    - iii. Surveying calculation and data adjustment;
    - iv. Geodetic coordinates and astronomy;
    - v. Cartographic representation, projections, and map production;
    - vi. Computer-based multipurpose cadastre, geographic information systems.

Honors in Geomatics

Undergraduate students may be recognized for exceptional performance by earning Departmental Honors in Geomatics. In order to receive honors in Geomatics, a student must meet each of the following requirements:

1. Complete all requirements for a BS in Geomatics.
2. Be an active member for at least one year of both a national and an on-campus student chapter of a professional geomatics society that addresses issues relevant to the geomatics profession.
3. Have a GPA of 3.50 or higher in their Geomatics and Geographic Information System courses of their catalog year. Have a GPA of 3.30 or higher for their overall cumulative GPA.
4. Pass the Fundamentals of Surveying Examination prior to the completion of the first semester of their senior year.
5. Document a minimum of eight weeks work experience while a student at the University of Alaska in a geomatics or geomatics related position.

Advising

All undergraduate students are encouraged to meet with their academic advisor each semester for the purpose of reviewing their academic progress and planning future courses. It is particularly important for students to meet with their advisor whenever academic difficulties arise. Students are encouraged to consult the faculty in the Department of Geomatics for assistance in designing their course of study to ensure that all prerequisites have been met and that university and major degree requirements are understood and followed.

Prerequisites

All prerequisites for geomatics courses must be completed with a grade of C or higher.

Preparation

The university offers courses to help students without this preparation to meet the skill level required in the Geomatics program. Insufficient preparation will increase the number of semesters required to complete either degree. Students seeking the Undergraduate Certificate in Geographic Information Systems, the Associate of Applied Science or Bachelor of Science in Geomatics should prepare for entrance into the program by completing the following high school courses:

Mathematics	Algebra II
	Trigonometry
Science	Physics

English Composition	Skill level as demonstrated by ACT, SAT or approved placement test to qualify for enrollment in ENGL A111

Undergraduate Certificate, Geographic Information Systems (GIS)

Admission Requirements

Satisfy the Admission to Certificate and Associate's Degree Programs Requirements in Chapter 7, Academic Standards and Regulations.

Course Requirements

Certain courses require prerequisites or faculty permission. Call (907) 786-1972 for further information.

Major Requirements

In order to receive an Undergraduate Certificate in GIS, students must achieve a grade of C or higher in all courses applied to the certificate.

1. Complete the following required courses (23 credits):

GEO A137	Principles of Mapping	3
GEO A167	Remote Sensing and Image Analysis	4
GIS A268	Elements of Geographic Information Systems (GIS)	4
GIS A366	Spatial Information Analysis and Modeling	3
GIS A367	GIS and Remote Sensing	3
GIS A458	Design and Management of Spatial Data	3
GIS A460 GIS	Senior Project	3

2. Complete 9 credits from the following elective courses: 9

GEO A490	Selected Advanced Topics in Geomatics (3)
GIS A295	Internship in Geographic Information Systems I (3)
	or
GIS A495	Internship in Geographic Information Systems II (3)
GIS A369	Land Information Systems (3)
GIS A370	GIS and Remote Sensing for Natural Resources (3)
GIS A375	GIS and Public Health (3)
GIS A433	GIS and the Marine Environment (3)
GIS A468	Integration of Geomatic Technologies (3)
GIS A470	GIS for Facility Management and Transportation Systems (3)
GIS A490	Selected Advanced Topics in GIS (3)

3. A maximum of 3 credits of Internship (GIS A295 or GIS A495) and 3 credits of Advanced Topics in Geomatics (GEO A490) or Advanced Topics in GIS (GIS A490) can be counted toward the Certificate in GIS. Faculty approval of the GEO A490 or GIS A490 topic is necessary for application of the course to the certificate program.

4. A total of 32 credits is required for the Certificate in GIS.

Associate of Applied Science, Geomatics

Admission Requirements

Satisfy the Admission to Undergraduate Certificate and Associate's Degree Programs Requirements in Chapter 7, Academic Standards and Regulations.

General University Requirements

Complete the Associate of Applied Science General Degree Requirements located at the beginning of this chapter. Some of the major requirements will also fulfill Associate of Applied Science degree general requirements. Students should coordinate choices carefully with their academic advisor in the Department of Geomatics.

Academic Progress

Students must complete all major requirement courses with a grade of C or higher. A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt will result in removal from the Geomatics program.

Major Requirements

1. Complete 4 credits in physics: 4

PHYS A123	Basic Physics I (3)	
PHYS A123L	Basic Physics I Laboratory (1)	
	or	
PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	

2. Complete the following required courses (48 credits):

ENGL A212	Technical Writing	3
GEO A137	Principles of Mapping	3
GEO A146	Surveying Computations	3
GEO A155	Fundamentals of Surveying	3
GEO A157	Analytical and Digital Cartography	3
GEO A158	Geomatics Computer Fundamentals	3
GEO A166	Advanced Surveying	4
GEO A167	Remote Sensing and Image Analysis	4
GEO A248	Digital Terrain Cartography	3
GEO A256	Municipal and Civil Geomatics	4
GEO A257	Elements of Photogrammetry	3
GEO A267	Boundary Law I	4
GIS A268	Elements of Geographic Information Systems (GIS)	4
MATH A200	Calculus I	4

3. Electives to total of 60 credits.

Bachelor of Science, Geomatics

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Graduation Requirements

A. General University Requirements

Complete the General University Requirements for all Baccalaureate Degrees at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees at the beginning of this chapter.

Academic Progress

Students must complete all courses under major requirements with a grade of C or higher. A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt will result in removal from the Geomatics program.

C. Major Requirements

1. Complete 8 credits in physics from one of the following sequences: 8

PHYS A123	Basic Physics I (3)	
PHYS A123L	Basic Physics I Laboratory (1)	
PHYS A124	Basic Physics II (3)	
PHYS A124L	Basic Physics II Laboratory (1)	
	or	

PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	
PHYS A212	General Physics II (3)	
PHYS A212L	General Physics II Laboratory (1)	

These credits must be in addition to the 7 Natural Sciences credits taken to complete the General Education Requirement.

2. Complete the following (18 credits):

ENGL A212	Technical Writing	3
GEO A158	Geomatics Computer Fundamentals	3
MATH A200	Calculus I	4
MATH A201	Calculus II	4
MATH A202	Calculus III	4

3. Complete one of the following: 3

MATH A302	Ordinary Differential Equations (3)	
MATH A314	Linear Algebra (3)	
STAT A307	Probability (3)	

4. Complete all of the following (62 credits):

GEO A137	Principles of Mapping	3
GEO A146	Surveying Computations	3
GEO A155	Fundamentals of Surveying	3
GEO A157	Analytical and Digital Cartography	3
GEO A166	Advanced Surveying	4
GEO A167	Remote Sensing and Image Analysis	4
GEO A248	Digital Terrain Cartography	3
GEO A256	Municipal and Civil Geomatics	4
GEO A257	Elements of Photogrammetry	3
GEO A267	Boundary Law I	4
GEO A355	Land Development and Design	3
GEO A359	Geodesy and Map Projections	3
GEO A365	Geomatic Adjustment and Analysis	4
GEO A457	Boundary Law II	4
GEO A460	Geomatics Design Project	3
GEO A466	Geopositioning	4
GIS A268	Elements of Geographic Information Systems (GIS)	4
GIS A366	Spatial Information Analysis and Modeling	3

5. Complete at least 12 credits in one of the emphasis areas.

Surveying Emphasis

a. Complete the following (6 credits):

GEO A358	Programming for Digital Cartography	3
GEO A433	Hydrographic Surveying	3

b. Complete 6 credits from the following: 6

GEO A456	Geomatics and Civil Design (3)	
GEO A459	Geodetic Geomatics (3)	
GEO A467	Analytical and Digital Photogrammetry (3)	
GEO A490	Selected Advanced Topics in Geomatics (1-6)	
GIS A369	Land Information Systems (3)	

Geographic Information Systems (GIS) Emphasis

a. Complete the following (3 credits):

GIS A458	Design and Management of Spatial Data	3

b. Complete 9 credits from the following: 9

GIS A367	GIS and Remote Sensing (3)	
GIS A369	Land Information Systems (3)	
GIS A370	GIS and Remote Sensing for Natural Resources (3)	
GIS A375	GIS and Public Health (3)	
GIS A433	GIS and the Marine Environment (3)	
GIS A468	Integration of Geomatic Technologies (3)	
GIS A470	GIS for Facility Management and Transportation Systems (3)	
GIS A490	Selected Advanced Topics in GIS (1-6)	

6. A total of 131 credits is required for the degree of which 42 must be upper division.

FACULTY

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Minors in the School of Engineering

To meet a variety of student needs, the School of Engineering offers several minors.

A choice of two types of engineering minors are offered. The first is a minor in General Engineering, which is for students who are majoring in a non-engineering baccalaureate degree. This program offers foundation coursework in core engineering topics.

The second is an Engineering Specialty minor which is for students majoring in an engineering baccalaureate degree who, therefore, have completed much of the coursework in the Bachelor of Science in Engineering (BSE) or Civil Engineering (CE) program. Students within the engineering program may choose to pursue an Engineering Specialty minor in Civil Engineering, Computer Systems Engineering, Electrical Engineering, or Mechanical Engineering.

Students enrolling in either engineering minor must satisfy all prerequisite requirements for the courses required for the chosen minor. Non-engineering majors, such as students in the sciences or mathematics, will likely be better positioned to meet the prerequisite requirements in the General Engineering minor. Students majoring in engineering disciplines will likely be better positioned to meet the prerequisite requirements for courses in the Engineering Specialty minor.

Additionally, a minor in Geographic Information Systems (GIS) is offered for students who are majoring in baccalaureate degrees in a variety of disciplines and who are seeking strong GIS knowledge and skills to enhance their specialty and further their professional career.

Course Requirements for Minors

A minor of study must consist of a minimum of 18 credit hours. At least 6 credits must be upper division. Students must earn a cumulative GPA of at least 2.00 (C) in the minor. A minor may only be issued simultaneously with a baccalaureate degree. For general information about minor requirements, see the minors section at the beginning of this chapter. The course requirements for each of the minors are listed below. In cases where students have unique backgrounds or interests, course selection may be adapted accordingly through consultation with the School of Engineering faculty advisors.

A. General Engineering, Minor

The following courses are required: 10

ENGR A151	Engineering Practices I	3
ENGR A161	Engineering Practices II	3
ES A208	Engineering Mechanics	4

In addition, at least three courses must be selected from the following list: 9

EE/ME A308	Instrumentation and Measurement (3)
ES A309 *	Elements of Electrical Engineering (3)
ES A331	Mechanics of Materials (3)

ES A341 *	Fluids Mechanics (3)
ES A346 *	Basic Thermodynamics (3)
SM A450	Economic Analysis and Operations (3)
ME A334	Elements of Material Science (3)

B. Engineering Specialty Minors

Minor, Civil Engineering

A minimum of 18 credits must be selected from: 18

CE A334 *	Properties of Materials (3)
CE A344 *	Water Resources Engineering (3)
CE A402	Transportation Engineering (3)
CE A422 *	Foundation Engineering (3)
CE A425	Highway Engineering (3)
CE A431	Structural Analysis (4)
CE A432 *	Steel Design (3)
CE A433 *	Reinforced Concrete Design (3)
CE A434	Timber Design (3)
CE A435/L	Soil Mechanics with Laboratory (3)
CE A441 *	Introduction to Environmental Engineering (3)
CE A442	Environmental Systems Design (3)

Minor, Computer Systems Engineering

A minimum of 18 credits must be selected from: 18

CS A330	Algorithms and Data Structures (3)
CS A331	Programming Language Concepts (3)
CS A401	Software Engineering (3)
CS A405	Artificial Intelligence (3)
CS A413 *	Computer and Data Security (3)
CSE A335*	Operating Systems Engineering (3)
CSE A342	Digital Circuits Design (3)
CSE A355 *	Computer Networking for Engineers (3)
CSE A442	Computer Design and Interfacing (4)
CSE A451 *	Digital Signal Processing (3)
CSE A465 *	Network Security (3)

Minor, Electrical Engineering

A minimum of 18 credits must be selected from: 18

EE A203 *	Fundamentals of Electrical Engineering I (4)
EE A204 *	Fundamentals of Electrical Engineering II (4)
EE/CS A241	Computer Hardware Concepts (4)
EE/ME A308	Instrumentation and Measurement (3)
EE A314 *	Electromagnetics (3)
EE A324	Electromagnetics II (3)
EE A324L*	Electromagnetics Laboratory II (1)
EE A353 *	Circuit Theory (3)
EE A407	Power Distribution (3)
EE A441	Integrated Circuit Design (3)
EE A465 *	Telecommunications (3)
EE/ME A471	Automatic Control (3)

Minor, Mechanical Engineering

A minimum of 18 credits must be selected from: 18

ES A341 *	Fluid Mechanics (3)
ES A341L *	Fluid Mechanics Laboratory (1)
ES A346 *	Basic Thermodynamics (3)
ME A302 *	Mechanical Design I (4)
ME/EE A308 *	Instrumentation and Measurement (3)

ME A313	Mechanical Engineering Thermodynamics (3)
ME A334 *	Elements of Material Science (3)
ME A403	Mechanical Design II (3)
ME A408	Dynamics of Systems (3)
ME A414	Thermal System Design (3)
ME A441 *	Heat and Mass Transfer (3)
ME/EE A471	Automatic Control (3)
ME A664	Corrosion Processes and Engineering (3)
ME A685	Arctic Heat and Mass Transfer (3)

C. Geographic Information Systems (GIS), Minor

A minimum of 18 credits must be selected from: 18

GEO A167	Remote Sensing and Image Analysis (4)
GIS A268	Elements of Geographic Information Systems (GIS) (4)
GIS A366	Spatial Information Analysis and Modeling (3)
GIS A367	GIS and Remote Sensing (3)
GIS A369	Land Information Systems (3)
GIS A370	GIS and Remote Sensing for Natural Resources (3)
GIS A375	GIS and Public Health (3)
GIS A433	GIS and the Marine Environment (3)
GIS A458	Design and Management of Spatial Data (3)
GIS A468	Integration of Geomatic Technologies (3)
GIS A470	GIS for Facility Management and Transportation Systems (3)
GIS A490	Selected Advanced Topics in GIS (1-6)

Note #1: MATH A200, MATH A201, MATH A202, MATH A302, PHYS A211, PHYS A212, CHEM A105, and CHEM A106 are prerequisites for most of the Engineering minor listed. Students should plan and review the requirements for their specific minor to determine exactly what prerequisites will be required.

Note #2: An "" indicates a recommended set of courses for the minor.*

Note #3: BSE or CE majors may pursue a BSE Engineering Specialty minor but may not pursue the BSE General Engineering minor.

Collaborative Programs With Other UA Campuses

Two-Year (2+2) Programs of Electrical or Mechanical Engineering with UAF

The School of Engineering offers a program that allows the completion of the first two years of a four-year program leading to the Bachelor of Science in Electrical Engineering or a Bachelor of Science in Mechanical Engineering. The program is coordinated with the University of Alaska Fairbanks (UAF) College of Engineering and Mines so that students may transfer from UAF to UAA, or from UAA to UAF, with little or no loss of credit. For more information, please contact the UAA School of Engineering at (907) 786-1900.

One-Year (1+3) Engineering Program with UAS

The University of Alaska Southeast in Juneau offers a 1+3 engineering program. Juneau students earn a Pre-Engineering Certificate while completing the first-year of an engineering degree at UAA. The programs at UAA and UAS are coordinated so that students may transfer to UAA with no loss of credit. For more information, please contact the UAA School of Engineering at (907) 786-1900.

SCHOOL OF ENGINEERING

Engineering embraces the wide range of cultural and technical subjects related to the planning, design and manufacture, or construction of objects necessary for civilization. An engineer is an innovator, a builder and a problem solver. Engineers turn scientific knowledge into useful goods and services and are responsible to society for their engineering design decisions. They are interested in working with people often as team members in positions of leadership. Engineers are concerned about people and ways to provide society with improved living standards.

The School of Engineering offers areas of study at the undergraduate level:

- A four-year program leading to a Bachelor of Science in Civil Engineering;
- A four-year program leading to a Bachelor of Science in Engineering with three special~~i~~ty tracks:
  - Mechanical Engineering
  - Electrical Engineering
  - Computer Systems Engineering;
- A four-year program leading to a Bachelor of Science in Geomatics;
- A two-year program leading to an Associate of Applied Science in Geomatics; and
- Minors in Civil Engineering, Computers Systems Engineering, Electrical Engineering, General Engineering, Mechanical Engineering, and~~or~~ Geographic Information Systems (GIS).

The School of Engineering also offers several graduate degrees and graduate certificates including: Arctic Engineering, Civil Engineering, Engineering Management, Science Management, Applied Environmental Science and Technology, and Project Management. Detailed information about the graduate programs is in Chapter 12.

Accreditation

All Bachelor of Science programs are accredited by ABET (Accreditation Board for Engineering and Technology) and include the following:

1. Civil Engineering
2. Computer Systems Engineering
3. Electrical Engineering
4. Geomatics
5. Mechanical Engineering

Civil Engineering

The UAA School of Engineering offers a Bachelor of Science in Civil Engineering to prepare students for the profession. Knowledge of mathematical and physical sciences gained by study, experience and practice is applied with judgment to develop ways to utilize materials and forces of nature for the progressive well-being of humanity. Students are prepared for improving and protecting the environment; providing facilities for community living, industry and transportation; and providing structures for the use of humanity.

Engineering: Computer Systems Engineering, Electrical Engineering, Mechanical Engineering

The UAA School of Engineering offers a Bachelor of Science in Engineering (BSE) with specializations in Computer Systems Engineering, Electrical Engineering or Mechanical Engineering. Graduates with a BSE have a broad range of engineering skills that are necessary when serving the infrastructure needs of remote rural areas typical of many Alaskan communities. The program emphasizes fundamental engineering principles as a basis for interdisciplinary design, teamwork, and for lifelong learning. Graduates are in a position to take advantage of a wide variety of professional opportunities and are well prepared for an engineering career in a technologically changing world.

Geomatics

Geomatics embraces the traditional disciplines of land surveying, mapping, geodesy, photogrammetry, and hydrography, together with the newer disciplines of remote sensing, digital photogrammetry, and spatial or geographic information systems (GIS). Geomaticians help design, map and manage the natural and the man-made resources of the earth. Their skills and efforts are important in project development and environmental protection. They gather, analyze, and manipulate data; map results; and help design new developments. The disciplines used in geomatics are based on advancing technologies and use an integrated approach to the acquisition, analysis, storage, distribution, management, and application of spatially referenced data.

Minors in the School of Engineering

To meet a variety of student needs, the School of Engineering offers several minors. A choice of two types of Engineering minors are offered. The first is a minor in General Engineering which is designed for students who are majoring in a non-engineering baccalaureate degree. The second is an Engineering Specialty minor program which is designed for students majoring in an engineering baccalaureate degree who, therefore, have completed much of the coursework in the Bachelor of Science in Engineering (BSE) or Civil Engineering (CE) programs. Engineering Specialty minors are in Civil Engineering, Computer Systems Engineering, Electrical Engineering, or Mechanical Engineering. Additionally, a minor in Geographic Information Systems (GIS) is offered for students who are majoring in baccalaureate degrees in a variety of disciplines and seeking strong GIS knowledge and skills to enhance their specialty and support a sustainable professional career.

CIVIL ENGINEERING

Engineering Building (ENGR), Room 201, (907) 786-1900
~~www.engr.uaa.alaska.edu~~www.alaska.edu/schoolofengineering

Civil engineering is a professional discipline recognized by licensure in each of the 50 states and many other countries. Civil engineering is a broad branch of engineering dedicated to providing civilization with essential infrastructure and services including bridges, buildings, ports, water resource development, waste disposal, dams, water power, irrigation and drainage works, roads, airports, railways, construction and management services; surveying; and providing city management and developmental planning. Civil Engineering students are introduced to principles of mathematics, chemistry, and physics during their first two years of study. The third year of study is largely devoted to courses in applied extensions of the basic sciences to form the foundation for more advanced engineering analysis and design. Students draw upon previous learning in their senior year to focus their studies on sophisticated analyses and creative designs. Throughout the four-year engineering program students take courses in communication, humanities, social sciences, and fine arts to improve their communication skills and to become more aware of their roles and responsibilities in modern society. The UAA Civil Engineering program emphasizes northern region design considerations and provides specialized training appropriate for an engineering career in Alaska and other cold regions of the world.

Civil Engineering Department Mission

The mission of the Civil Engineering Department, through its undergraduate and graduate education programs, its professional development programs, its research, and its service is to advance the civil engineering profession in Alaska and elsewhere for building a sustainable civilization with utmost respect for the well-being of its peoples and the environment.

Bachelor of Science, Civil Engineering

The Department of Civil Engineering offers an undergraduate curriculum leading to a Bachelor of Science in Civil Engineering. The first two years of the program have application to most other branches of engineering.

~~Accreditation~~

~~The Bachelor of Science program in Civil Engineering at UAA is accredited by the ABET which is the only accreditor of engineering programs and related fields of study in the US.~~

Program Objectives and Expected Outcomes

~~The curriculum of the UAA civil engineering program is designed to produce graduates who:~~

1. ~~Have a basic knowledge of the principles and skills relating to the civil engineering sub-disciplines of water resources, geotechnical, structural, transportation, and environmental engineering;~~
2. ~~Have an understanding of the principles related to project delivery;~~
3. ~~Have sufficient technical competence to obtain employment as an entry-level engineer and to be able to progress professionally within the discipline, and are prepared for advanced study;~~
4. ~~Have a fundamental understanding of the issues related to civil engineering practice in cold regions;~~
5. ~~Are able to communicate their ideas;~~
6. ~~Are able to work within a team environment; and~~

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~~7. Are prepared for and understand the need for continued professional development throughout their careers.~~

The curriculum of the UAA CE program is designed to produce graduates who, within five years of graduation, will:

1. Practice with "responsible charge" in the civil engineering sub-disciplines of water resources, geotechnical, structural, transportation, and environmental engineering; with emphasis on cold region issues. "Responsible charge" is as defined by the Alaska Professional Engineering licensing regulations.
2. Make contributions in project planning, preparation, implementation, design, and presentation in a team
3. environment in sub-discipline areas.
4. Demonstrate and update their competency via professional registration, continuing education, graduate study, and professional service to their communities.
5. Exemplify the ethical standards of the profession.

In keeping with the objectives, it is expected that graduates of the UAA Civil Engineering program will have:

1. An ability to apply knowledge of mathematics through differential equations, probability and statistics, calculus-based physics, and general chemistry;
2. An ability to apply knowledge in a minimum of four recognized major civil engineering areas;
3. An ability to design and conduct experiments, as well as to analyze and interpret data, in more than one of the recognized major civil engineering areas;
4. An ability to design a civil engineering system, component, or process to meet desired needs;
5. An ability to function on multidisciplinary teams;
6. An ability to identify, formulate, and solve engineering problems;
7. An understanding of professional and ethical responsibility;
8. An ability to communicate effectively;
9. The broad education necessary to understand the impact of engineering solutions in a global and societal context;
10. A recognition of the need for, and an ability to engage in, lifelong learning;
11. A knowledge of contemporary issues in professional practice; and
12. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Honors in Civil Engineering

Undergraduate Civil Engineering students may be recognized for exceptional performance by earning Departmental Honors in Civil Engineering. In order to receive honors in Civil Engineering, a student must meet each of the following requirements:

1. Complete all requirements for a BS degree in Civil Engineering. A minimum of 30 credits applicable to the Civil Engineering degree must be completed at UAA.
2. Be an active member for at least one year of both a national and an on-campus student chapter of a professional engineering society that addresses issues relevant to the civil engineering profession.
3. Have a GPA of 3.30 or higher in courses applicable to the Bachelor of Science in Civil Engineering degree.
4. Gain approval for a departmental honors design or research project prior to applying for graduation. Present an oral presentation and written report of project results eight weeks prior to scheduled graduation. The project proposal and final written report must be approved by the student's academic advisor and the chair of Civil Engineering Department.
5. Pass the Fundamentals of Engineering Examination in or prior to the fall semester of the senior year.
6. Document a minimum of eight weeks work experience in an engineering or engineering-related position.

Preparation

While in high school, students can prepare for entering and succeeding in the university engineering program. In order to be the best prepared, students should complete the following high school courses with grades of C or better:

Algebra	2 years
Chemistry	1 year
English	3 years
Physics	1 year
Trigonometry	1/2 year

Students successfully completing the above courses will be prepared to enroll in the first year of courses that count towards the engineering degree. Students without the above preparatory courses will need to take equivalent university courses before taking some of the first year of courses that count towards the engineering degree. Students are encouraged to work with their faculty advisors for developing a course plan.

Comment [OA1]: Tom,
Please enter the final version of the objectives proposed by the CE curriculum Committee

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Admission Requirements

Complete the Baccalaureate Degree Programs Admission Requirements described in Chapter 7 of this catalog.

Admission to the Civil Engineering program is to one of two levels: Pre- Engineering or Civil Engineering. Students admitted to either of the two levels are considered to be degree-seeking civil engineering students. ~~Pre- Engineering students are classified within the university system as premajors. Civil Engineering students are classified within the university system as full majors.~~

Pre-Engineering Level

Applicants for admission who have completed only the general Baccalaureate Degree Program Admission Requirements in Chapter 7 of this catalog are admitted ~~as pre-majors~~ to the Civil Engineering program at the Pre-Engineering level.

Civil Engineering Level

Applicants for admission who, in addition to the general Baccalaureate Degree Program Admission Requirements, have completed the ~~following list of~~ high school Preparation courses listed above (or their university equivalents) with grades of C or better will be admitted ~~as full majors~~ to the Civil Engineering program at the Civil Engineering level: ~~program at the Engineering Fundamentals level:~~

~~Algebra~~	~~2 years~~
~~Chemistry~~	~~1 year~~
~~English~~	~~3 years~~
~~Physics~~	~~1 year~~
~~Trigonometry~~	~~1/2 year~~

Advancement

Pre-Engineering to Civil Engineering

Pre-Engineering students must work with their assigned advisor to develop a course plan to make up the high school course requirements for advancement to the Civil Engineering ~~full major~~level. Once the Pre- Engineering coursework outlined in the student's course plan is completed, students must meet with their advisor to apply for advancement to the Civil Engineering ~~full-major status~~level. ~~, or may also be advanced to Civil Engineering level by the department chair upon review of the students academic progress.~~

Advising

All undergraduate students are strongly encouraged to meet with their faculty advisor each semester for the purpose of reviewing their academic progress and planning future courses. All civil engineering students are required to meet with their faculty advisors to be advanced within the program and to apply for graduation. It is particularly important for students to meet with their faculty advisor whenever academic difficulties arise.

Academic Progress

Any given CE or ES course may only be taken when all prerequisites for the course are met with a grade of C or higher. A student who is unable to earn a grade of C or better in a CE or ES prerequisite course may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt may result in removal from the Civil Engineering program. A student who has a semester GPA in engineering courses below 2.00 will be placed on academic warning by the School of Engineering. A student on academic warning that receives a semester GPA in engineering courses of at least 2.00 will be removed from academic warning status by the school. Otherwise, he or she will be removed from the Civil Engineering program and will not be permitted to enroll in CE and ES courses.

Graduation Requirements

In order to receive the Bachelor of Science degree in Civil Engineering, students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees (GER) listed at the beginning of this chapter with the additional requirement that one of the following criteria are met within the courses taken to meet the social sciences, humanities, and fine arts GER requirements:

1. Six credits are from courses that are at the 200 level or above.
2. Three credits are from courses that are at the 200 level or above and 6 credits are from a sequence of courses at the 100 level. For example, HIST A101 and HIST A102 is considered to be a 6-credit course sequence.

C. Civil Engineering Requirements

1. Satisfactorily complete these courses with a GPA of 2.00. Courses with an asterisk (*) must be completed with a grade of C or better (108 credits):

CE A334*	Properties of Materials	3
CE A344	Water Resources Engineering	3
CE A402	Transportation Engineering	3
CE A403	Arctic Engineering	3
CE A422	Foundation Engineering	3
CE A431*	Structural Analysis	4
CE A432	Steel Design (3)	3
	or	
CE A433	Reinforced Concrete Design (3)	
CE A435*	Soil Mechanics	3
CE A438	Design of Civil Engineering Systems	3
CE A441	Introduction to Environmental Engineering	3
CHEM A105*	General Chemistry I	3
CHEM A105L*	General Chemistry I Laboratory	1
CHEM A106*	General Chemistry II	3
CHEM A106L*	General Chemistry II Laboratory	1
COMM A111	Fundamentals of Oral Communications (3)	3
	or	
COMM A235	Small Group Communication (3)	
	or	
COMM A237	Interpersonal Communication (3)	
	or	
COMM A241	Public Speaking (3)	
ENGL A111*	Methods of Written Communications	3
ENGL A212	Technical Writing	3
ENGR A151*	Engineering Practices I	3
ENGR A161*	Engineering Practices II	3
ES A103	Engineering Graphics	3
ES A209*	Engineering Statics	3
ES A210*	Engineering Dynamics	3
ES A302 *	Engineering Data Analysis	3
ES A309	Elements of Electrical Engineering	3
ES A331*	Mechanics of Materials	3
ES A341*	Fluid Mechanics	3
ES A341L	Fluid Mechanics Laboratory	1
ES A346	Basic Thermodynamics	3
ESM A450	Economic Analysis and Operations	3
GEO A155*	Fundamentals of Surveying	3
MATH A200*	Calculus I	4
MATH A201*	Calculus II	4
MATH A202*	Calculus III	4
MATH A302*	Ordinary Differential Equations	3
PHYS A211*	General Physics I	3
PHYS A211L*	General Physics I Laboratory	1
PHYS A212*	General Physics II	3
PHYS A212L*	General Physics II Laboratory	1

2. A natural science elective (minimum 3 credits) must be taken in addition to the 7-credit natural science General Education Requirement and may be selected from the following list: 3

BIOL A115/L	Fundamentals of Biology I with Laboratory (4)
BIOL A271/L	Principles of Ecology with Laboratory (4)
CHEM A450	Environmental Chemistry (3)
GEOL A111	Physical Geology (4)
GEOL/ BIOL A178	Fundamentals of Oceanography (3)
PHYS A303	Modern Physics (3)
PHYS A314	Electromagnetics (3)
PHYS A320	Simulation of Physical Systems (3)
PHYS/BIOL/ CHEM A456	Nonlinear Dynamics and Chaos (3)

Note: GEOL A111 is the recommended course.

3. Six credits of technical elective courses are required that may be chosen from the following list of courses. These electives are intended to improve students' knowledge and skills relating to site characterization, problem identification, criteria development, and project design in the civil engineering sub-disciplines of water resources, geotechnical, structural, transportation, and environmental engineering. Graduate courses may not be applied to both a baccalaureate and master's degree. 6

Water Resources Engineering

~~CE A662~~	~~Surface Water Dynamics (3)~~
~~CE A663~~	~~Ground Water Dynamics (3)~~
CE A674	Waves, Tides, and Ocean Process for Engineers (3)
CE A677	Coastal Measurements and Analysis (3)
CE A682	Ice Engineering (3)
CE A683	Arctic Hydrology and Hydraulic Engineering (3)
CE A684	Arctic Utility Distribution (3)

Geotechnical Engineering

CE A611	Geotechnical Earthquake Engineering (3)
CE A612	Advanced Foundation Design (3)
CE A676	Coastal Engineering (3)
CE A681	Frozen Ground Engineering (3)

Structural Engineering

CE A432	Steel Design (3)
	or
CE A433	Reinforced Concrete Design (3)

Either CE A432 or CE A433 may be chosen as a technical elective, if not applied to satisfy the Civil Engineering Professional requirements described above.

CE A434	Timber Design (3)
CE A610	Engineering Seismology (3)
~~CE A611~~	~~Geotechnical Earthquake Engineering (3)~~
~~CE A612~~	~~Advanced Foundation Design (3)~~
CE A631	Structural Finite Elements (3)
CE A633	Structural Dynamics (3)
CE A634	Structural Earthquake Engineering (3)
CE A636	Multi-Story Building Structural Design (3)
CE A637	Earthquake Resistant Structural Design (3)
CE A639	Loads on Structures (3)

Transportation Engineering

CE A423	Traffic Engineering (3)
CE A424	Pavement Design (3)
CE A425	Highway Engineering (3)
CE A675	Design of Ports and Harbors (3)
GEO A456	Geomatics and Civil Design (3)

6

Environmental Engineering

AEST A601	Aquatic Process Chemistry (3)
~~AEST A602~~	~~Water Quality Management (3)~~
~~AEST A603~~	~~Solid Waste Management (3)~~
~~AEST A604~~	~~Environmental Law, Regulations and Permitting (3)~~
~~AEST A605~~	~~National Environmental Policy Act (3)~~
~~AEST A606~~	~~Clean Water Act (3)~~
~~AEST A608~~	~~Fundamentals of Air Pollution (3)~~
~~AEST A613~~	~~Remediation (3)~~
CE A442	Environmental Systems Design (3)
~~CE A600~~	~~Fundamentals of Environmental Science and Engineering (3)~~
CE A605	Chemical and Physical Water and Wastewater Treatment Processes (3)
CE A606	Biological Treatment Processes (3)

Comment [A2]: Grant, we discussed those courses thoroughly in the CE department meeting and recommended a different list based a prescribed criteria. Please check with Tom Ravens to reflect those changes.
Osama

4. A total of 132 credits is required for the degree, of which 42 credits must be upper division (300-, 400-, or 600-level).

5. All Civil Engineering students are strongly encouraged to take the Fundamentals of Engineering Examination in their senior year as an initial step toward professional registration. Civil Engineering students are also encouraged to consider minors in Mathematics or Physics and graduation with departmental honors.

FACULTY

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ENGINEERING: COMPUTER SYSTEMS, ELECTRICAL, AND MECHANICAL ENGINEERING

Engineering Building (ENGR), Room 201, (907) 786-1900
www.uaa.alaska.edu/schoolofengineering/programs/bse~~www.engr.uaa.alaska.edu/programs/bse~~

Bachelor of Science, Engineering

The Bachelor of Science in Engineering (BSE) program is a design oriented curriculum that incorporates topics that span the foundations of engineering disciplines. BSE students select courses for a specialization track that best suits their needs. Thus, the BSE curriculum can custom fit a student's education with the needs of the community and industry. The three tracks of specialization are: 1) Computer Systems Engineering, 2) Electrical Engineering, and 3) Mechanical Engineering.

The Computer Systems Engineering (CSE) specialty track focuses on applied computer theory and networking. Students take courses such as signals, systems, computer hardware design, assembly programming, and electronic device design.

The Electrical Engineering (EE) specialty track focuses on applied circuit design and theory. Students take courses in electrical signals and systems, circuit design, and communication systems.

The Mechanical Engineering (ME) specialty track focuses on heat transfer and machine design. Students take courses in heat transfer, HVAC (heating, ventilation, and air conditioning), and machine design.

~~Accreditation~~

~~All BSE programs are separately accredited by the ABET, which is the only accreditor of engineering programs and related fields of study in the US. The accredited BSE programs include: 1) Computer Systems Engineering, 2) Electrical Engineering, and 3) Mechanical Engineering.~~

Program Objectives and Expected Outcomes

The curriculum of the BSE program has also been carefully designed to prepare students for the profession of engineering through study, experience and practice, with these objectives:

1. Produce graduates who are able to successfully practice engineering to serve the state of Alaska, and national and international industries and government agencies.
2. Produce graduates with the necessary background and technical skills to work professionally as individuals or in teams in engineering practice or in graduate schools.
3. Prepare graduates for personal and professional success with and understanding and appreciation of ethical behavior, social responsibility, and diversity, both as individuals and in team environments.
4. Prepare graduates to be interested, motivated, and capable of pursuing continued lifelong learning through further graduate education, short courses, or other training programs in engineering and related fields.

Knowing that all engineering programs must demonstrate that their students attain a level of proficiency in a number of important areas, the BSE program has chosen the following set of program outcomes. Students will have:

(a) an ability to apply knowledge of mathematics, science, and engineering
(b) an ability to design and conduct experiments, as well as analyze and interpret data
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health, and safety manufacturability, and sustainability
(d) an ability to function on multidisciplinary teams
(e) an ability to identify, formulate, and solve engineering problems
(f) an understanding of professional and ethical responsibility
(g) an ability to communicate effectively
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
(i) a recognition of the need for, and the ability to engage in, lifelong learning
(j) a knowledge of contemporary issues
(k) and an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Honors in Engineering

Undergraduate BSE students may be recognized for exceptional performance by earning Departmental Honors in each of the three specialty tracks: Mechanical Engineering, Electrical Engineering, or Computer Systems Engineering. The award will be noted on their permanent university transcript. In order to receive Honors in the BSE program, a student must meet each of the following requirements.

1. Complete all requirements for a BSE. A minimum of 30 credits applicable to the BSE must be completed at UAA.
2. Be an active member for at least one year of both a national and an on-campus student chapter of a professional engineering society that addresses issues relevant to the engineering profession.
3. Have a GPA of 3.30 or higher in courses applicable to the BSE.
4. Gain approval for and complete a design/research project prior to applying for graduation. An oral presentation of the project results to an appropriate audience will be required. The project proposal and final written report must be approved by the student's academic advisor and the chair of BSE Engineering program.
5. Take and Pass the Fundamentals of Engineering Examination in the senior year.
6. Document a minimum of eight weeks work experience in an engineering or engineering-related position.

Preparation

While in high school, students can prepare for entering and succeeding in the university engineering program. In order to be the best prepared, students should complete the following high school courses with grades of C or better:

Algebra	2 years
Chemistry	1 year
English	3 years
Physics	1 year

Trigonometry 1/2 year

Students successfully completing the above courses will be prepared to enroll in the first year of courses that count towards the engineering degree. Students without the above preparatory courses will need to take equivalent university courses before taking some of the first year of courses that count towards the engineering degree. Students are encouraged to work with their faculty advisors for developing a course plan.

Admission Requirements

Admission to the Bachelor of Science in Engineering program is to one of two levels: Pre- Engineering or Engineering. Students admitted to either of the two levels are considered to be degree-seeking engineering students majoring in engineering

Pre-Engineering Level

Applicants for admission who have completed only the general Baccalaureate Degree Program Admission Requirements in Chapter 7 of this catalog are admitted to the Engineering program at the Pre-Engineering level.

Engineering Level

Applicants for admission who, in addition to the general Baccalaureate Degree Program Admission Requirements, have completed the high school courses level listed above under Preparation (or their university equivalents) with grades of C or better will be admitted to the Engineering program at the Engineering level:

Advancement

Pre-Engineering to Engineering

Pre-Engineering students must work with their assigned advisor to develop a course plan to make up the high school course requirements for advancement to the Engineering level. Once the Pre- Engineering coursework outlined in the student's course plan is completed, students must meet with their advisor to apply for advancement to the Engineering level, or may also be advanced to the Engineering level by the department chair upon review of the students academic progress.

~~Admission Requirements~~

~~Complete the Baccalaureate Degree Programs Admission Requirements described in Chapter 7 of this catalog. In addition, in order to be prepared for first-year courses in the BSE program, students should have completed the following high school courses with grades of C or better:~~

~~Algebra~~	~~2 years~~
~~Chemistry~~	~~1 year~~
~~English~~	~~3 years~~
~~Physics~~	~~1 year~~
~~Trigonometry~~	~~1/2 year~~

~~Students successfully completing the above courses qualify to be accepted into the BSE program with major status. If an applicant to the School of Engineering BSE program does not satisfy one or more of the above requirements, the student may be accepted into the BSE with major or pre-major status depending upon the courses that were successfully completed. Students with either pre-major or major status are considered enrolled in the BSE program. Acceptance into the pre-major or major status is determined by the department chair.~~

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~~Advancement from Pre-Major to Major Status~~

~~Pre-major BSE students must work with their assigned faculty advisor to develop a course plan to make up the high school course requirements for advancement to major status in the BSE program. Once the coursework outlined in the student's course plan for advancement is completed, the student meets with their faculty advisor to request advancement to major status, or may also be advanced to major status by the department chair upon review of the students academic progress. Advancement to major status is subject to approval by the department chair.~~

Curriculum

The total required credits for the BSE is 132 credits. There are five main categories of required credits.

Category	*Credits*
*General Education Requirements (GER)	15
Core Curriculum	59
Engineering Emphasis Track Courses	43
**Advanced Math Elective	3
Advanced Engineering/Science Electives	12
Total Credits	**132**

**Note: For rules and information about selecting courses to meet General Education Requirements, see the link on the main School of Engineering website at: www.engr.uaa.alaska.edu/.*

***Note: MATH A231 Discrete Mathematics is required for Computer Systems Engineering students.*

During the first two years (freshman and sophomore) of the BSE program, the student completes a set of core courses of 74 credits (59 Core Curriculum credits and 15 General Education Requirements). These courses cover basic sciences, mathematics, oral and written communications, and other General Education Requirement courses. This provides the student with a broad and solid background in the topics necessary to build a specialization in a field of engineering.

The engineering emphasis track courses are taken mostly in the third and fourth (junior and senior) years. Each track has a series of required courses totaling 43 credits. In addition, the student selects an additional 12 credits of advanced engineering or science electives, and a 3 credit advanced mathematics elective.

Engineering design is introduced early in the curriculum and is emphasized throughout the program. In addition to the seminar series, a three-course introductory Engineering Practices series is a required part of the curriculum. It is an outstanding customized coordination of courses that specifically teaches engineering students what they most need to know early in the curriculum. These courses help students become more successful in all of their subsequent courses and to be more effective as practicing engineers. Topics include applied mathematics, computer applications, experimental data gathering and analysis, collaborative teamwork, and report preparation and presentation. Also, a senior capstone design course is required.

Since the BSE program allows for the selection of more electives than the traditional BS engineering programs, students can custom design their curriculum to specialize in the areas of engineering most applicable for their plans. So, students can prepare themselves to specifically meet the needs of specific companies, and state and federal agencies.

Professional registration is emphasized throughout the program. Students attend three professional seminar courses that expose them to multiple experts from education and industry speaking about their field of expertise. All students are encouraged to take the Fundamentals of Engineering examination before graduation.

Advising

All undergraduate students are encouraged to meet with their faculty advisor each semester for the purpose of reviewing their academic progress and planning future courses. It is particularly important for students to meet with their advisor whenever academic difficulties arise.

Mathematics Minor

Upon completion of the BSE with the mechanical or electrical engineering specialization, the requirements for obtaining a minor in Mathematics are also satisfied. Students are encouraged to apply for the mathematics minor with the BSE when applying for graduation.

Academic Progress

All prerequisites for engineering courses must be completed with a grade of C or higher. A student who has a cumulative semester GPA in engineering courses below 2.00 will be placed on academic warning by the School of Engineering. If a student on academic warning status receives a semester GPA for engineering courses of at least 2.00, that student will be removed from academic warning status by the School of Engineering. Otherwise, the student will be dropped from the BSE program and must reapply in order to continue in the BSE program. Re-admittance requires a letter from the student requesting re-admittance with an explanation of the reasons why. Re-admittance is subject to approval by the department chair.

Graduation Requirements

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Every UAA baccalaureate degree requires a minimum of 37 credits of General Education Requirements in eight different categories. The specifically identified courses required for the BSE satisfies five of these categories. However, there are 15 GER credits in the remaining three categories (Social Sciences, Humanities, and Fine Arts) that the student selects:

Fine Arts	3
Humanities	6
Social Sciences	6

One of the following criteria must be met:

1. Six credits are from courses that are at the 200 level or above.
2. Three credits are from courses that are at the 200 level or above and 6 credits are from a sequence of courses at the 100-level. For example, HIST 101 and HIST 102 is considered to be a 6-credit course sequence.

In addition, the courses selected for Social Science must be from two different disciplines. It is very important that students see their faculty advisors and review the rules for selecting these 15 GER credits. A website with the rules is linked on the main School of Engineering website.

C. Major Requirements

1. Complete the following core courses (59 Credits):

CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1
COMM A111	Fundamentals of Oral Communications (3)	3
	or	
COMM A235	Small Group Communication (3)	
	or	
COMM A237	Interpersonal Communication (3)	
	or	
COMM A241	Public Speaking (3)	
ENGL A111	Methods of Written Communication	3
ENGL A212	Technical Writing	3
ENGR A105A	Engineering Computer-Aided Design I	1
ENGR A105B	Engineering Computer-Aided Design II	1
ENGR A151	Engineering Practices I	3
ENGR A161	Engineering Practices II	3
ENGR A192	Engineering Seminar I	1
ENGR A251	Engineering Practices III	3
ENGR A292	Engineering Seminar II	1
ES A208	Engineering Mechanics	4
ES A302	Engineering Data Analysis	3
ESM A450	Economic Analysis and Operations	3
MATH A200	Calculus I	4
MATH A201	Calculus II	4
MATH A202	Calculus III	4
MATH A302	Ordinary Differential Equations	3
PHYS A211	General Physics I	3
PHYS A211L	General Physics I Laboratory	1
PHYS A212	General Physics II	3
PHYS A212L	General Physics II Laboratory	1

2. Choose one of the following specializations:

Computer Systems Engineering (43 credits)
Complete the following required courses:

CS A330	Algorithms and Data Structures	3
CSE A205	Introduction to C Programming for Engineers	3
CSE A215	Object-Oriented Programming for Engineers	3
CSE A225	Assembly Language Programming for Engineers Using Xilinx	3
CSE A335	Operating Systems Engineering	3
CSE A342	Digital Circuits Design	3
CSE A355	Computer Networking for Engineers	3
CSE A438	Design of Computer Engineering Systems	3
EE A203	Fundamentals of Electrical Engineering I	4
EE A204	Fundamentals of Electrical Engineering II	4
EE/CS A241	Computer Hardware Concepts	4
EE A314	Electromagnetics 3 EE A353 Circuit Theory	3
ENGR A105C	Engineering Computer-Aided Design III	1

Electrical Engineering (43 credits)

Complete the following required courses:

CSE A205	Introduction to C Programming for Engineers	3
CSE A215	Object-Oriented Programming for Engineers	3
CSE A225	Assembly Language Programming for Engineers Using Xilinx	3
EE A203	Fundamentals of Electrical Engineering I	4
EE A204	Fundamentals of Electrical Engineering II	4
EE/CS A241	Computer Hardware Concepts	4
EE/PHYS A314	Electromagnetics	3
EE/PHYS A324	Electromagnetics II	3
EE A324L	Electromagnetics Laboratory II	1
EE A353	Circuit Theory	3
EE A354	Engineering Signal Analysis	3
EE A438	Design of Electrical Engineering Systems	3
EE A441	Integrated Circuit Design	3
EE A465	Telecommunications	3

Mechanical Engineering (43 credits)

Complete the following required courses:

CHEM A106	General Chemistry II	3
CHEM A106L	General Chemistry II Laboratory	1
ENGR A105C	Engineering Computer-Aided Design III	1
ES A309	Elements of Electrical Engineering	3
ES A331	Mechanics of Materials	3
ES A341	Fluid Mechanics	3
ES A341L	Fluid Mechanics Laboratory	1
ES A346	Basic Thermodynamics	3
ME A302	Mechanical Design I	4
ME/EE A308	Instrumentation and Measurement	3
ME A313	Mechanical Engineering Thermodynamics	3
ME A334	Elements of Material Science	3
ME A403	Mechanical Design II	3
ME A414	Thermal Systems Design	3
ME A438	Design of Mechanical Engineering Systems	3
ME A441	Heat and Mass Transfer	3

3. Advanced Electives

   BSE students are required to take 12 credits of advanced engineering/science electives from an approved list of electives for the particular emphasis area. Also, a 3-credit advanced mathematics elective is required that is selected from a single list common for all emphasis areas. Many elective courses require prerequisite courses that are also elective courses. Thus, in selecting elective courses students are strongly advised to work with their advisor to develop a cohesive set of elective courses. Choice of engineering electives is subject to approval by the student's advisor and the department head.

Advanced Mathematics Electives (3 credits)

BSE Computer Systems Engineering students are required to take the following:

MATH A231	Introduction to Discrete Mathematics	3

BSE Electrical Engineering and BSE Mechanical Engineering students are required to take one course from the following list of advanced mathematical elective courses: 3

MATH A314	Linear Algebra (3)
MATH A321	Analysis of Several Variables (3)
MATH A371	Stochastic Processes (3)
MATH A407	Mathematical Statistics I (3)
MATH A410	Introduction to Complex Analysis (3)
MATH A422	Partial Differential Equations (3)
MATH A423	Advanced Engineering Mathematics (3)
MATH A426	Numerical Methods (3)

Advanced Engineering & Science Electives (12 credits)

BSE students are required to take 12 credits from one of the following lists of approved advanced engineering and science elective courses. Students should meet with their faculty advisor for selection of courses.

I. Computer Systems Engineering Specialty Electives 12

BIOL/CHEM/PHYS A456 Nonlinear Dynamics and Chaos (3)

CE A403	Arctic Engineering (3)
	or
ES A411	Northern Design (3)

Note: Either CE A403 or ES A411 can be taken but not both for the degree.

CS A304	Object-Oriented Analysis and Modeling (3)
CS A331	Programming Language Concepts (3)
CS A351	Automata, Algorithms, and Complexity (3)
CS A360	Database Systems (3)
CS A385	Computer Graphics (3)
CS A401	Software Engineering (3)
CS A405	Artificial Intelligence (3)
CS A413	Computer and Data Security (3)
CSE A442	VLSI Circuit Design (3)
CSE A445	Computer Design and Interfacing (4)
CSE A451	Digital Signal Processing (3)
CSE A465	Network Security (3)
EE/ME A308	Instrumentation and Measurement (3)
EE/PHYS A324	Electromagnetics II (3)
EE A324L	Electromagnetics Laboratory II (1)
EE A354	Engineering Signal Analysis (3)
EE A407	Power Distribution (3)
EE A441	Integrated Circuit Design (3)
EE/ME A471	Automatic Control (3)
EE A453	Introduction to Wi-Fi (1)
EE A454	Systems Reliability Engineering (1)
EE A456	Fiber Optic Communications (1)
EE A458	Antenna Theory (3)
EE A462	Communication Systems (3)
EE A465	Telecommunications (3)
PHYS A303	Modern Physics (3)

II. Electrical Engineering Specialty Electives 12

CE A403	Arctic Engineering (3)
	or
ES A411	Northern Design (3)

Note: Either CE A403 or ES A411 can be taken but not both for the degree.

CS A330	Algorithms and Data Structures (3)
CS A401	Software Engineering (3)
CS A413	Computer and Data Security (3)

CSE A445	Computer Design and Interfacing (4)
CSE A451	Digital Signal Processing (3)
CSE A465	Network Security (3)
EE/ME A308	Instrumentation and Measurement (3)
EE A407	Power Distribution (3)
EE A453	Introduction to Wi-Fi (1)
EE A454	Systems Reliability Engineering (1)
EE A456	Fiber Optic Communications (1)
EE A458	Antenna Theory (3)
EE A462	Communication Systems (3)
EE/ME A471	Automatic Control (3)
PHYS A303	Modern Physics (3)

III. Mechanical Engineering Specialty Electives 12

CE A403	Arctic Engineering (3)
	or
ES A411	Northern Design (3)

Note: Either CE A403 or ES A411 can be taken but not both for the degree.

CE A442	Environmental Systems Design (3)
CE A600	Fundamentals of Environmental Science and Engineering (3)
EE/ME A408	Dynamics of Systems (3)
EE/ME A471	Automatic Control (3)
ME A664	Corrosion Processes and Engineering (3)
ME A685	Arctic Heat and Mass Transfer (3)

4. A total of 132 credits is required for the degree, of which 42 credits must be upper division.

FACULTY

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GEOMATICS

Engineering Building (ENGR), Room 213, (907) 786-1972
www.uaa.alaska.edu/schoolofengineering/programs/geomatics~~www.engr.uaa.alaska.edu~~

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The Department of Geomatics offers a two-year Associate of Applied Science in Geomatics, a four-year Bachelor of Science in Geomatics, a minor in Geographic Information Systems (GIS), and an Undergraduate Certificate in Geographic Information Systems (GIS). Students seeking the baccalaureate degree may graduate in one of two emphasis areas: Surveying or GIS. Students seeking continuing education for technical or professional enhancement or a concentrated area of study in GIS should consider either the minor in GIS or the Undergraduate Certificate in GIS. The Geomatics program is science-based and includes:

- Land surveying using global positioning systems and conventional techniques
- Automated mapping
- Computational analysis and adjustment
- Geodesy
- Principles of boundary law
- Geographic Information Systems (GIS)

- Digital photogrammetry
- Remote sensing and image analysis.

The wide diversity in the profession creates a similar diversity of employment opportunities. The Undergraduate Certificate in GIS educates students with a broad base of concepts and theory, provides them with hands-on training in real world problems that are relevant to Alaska's environment, and allows them to explore several thematic areas in GIS applications, such as facilities management, transportation, marine environments, and natural resources.

The minor in GIS is designed for students to enhance their knowledge of GIS and remote sensing to complement a major baccalaureate degree in a variety of disciplines including science, art, business management and engineering. GIS, as a part of geospatial science and information technologies, is widely used in many industries important to Alaska (e.g. oil, gas), governance and administrations (municipalities and the state), statewide and federal agencies and departments (transportation, natural resources, land management, parks and recreation, etc.), research (sustainability, biodiversity, ecology, geology, anthropology, socioeconomics, etc.), homeland security, military applications and non-profit organizations.

The Associate of Applied Science in Geomatics prepares students for technician-level employment as land survey technicians or as automated mapping technicians. Those working as survey technicians frequently work outdoors, travel to various job locations, and enjoy an independent lifestyle. Automated mapping technicians work with the latest cartographic techniques and equipment and easily transfer skills learned in geomatics courses to other disciplines.

The Bachelor of Science prepares students for a wide variety of professionallevel opportunities. Since Alaska poses unique geomatic challenges, the curriculum emphasizes northern principles and practices. UAA graduates are highly employable in the Alaska marketplace and worldwide. Employment opportunities are found in private industry, government, and municipal agencies. Geomaticians working at the professional level enjoy responsibility and a choice of indoor and outdoor employment with many opportunities for advancement and diversification.

The new high-tech fields open employment in GIS, photogrammetry, remote sensing, land surveying, automated mapping, land design and planning, survey engineering, and resource management positions. In Alaska, geomaticians work on state and Native land claims, mining claims, fishing leases, petroleum reserves, forest selections, transportation corridors, private developments, and government and military projects. In Alaska and elsewhere, geomaticians work in land surveying, land development and design, mapping and tax assessment, the defense industry, environmental engineering assessment and management, public safety and welfare, medicine, transportation, agriculture, business, and natural sciences.

Professional predictors indicate that employment opportunities will be strong for the various geomatics specialties in Alaska and the Pacific Rim well into the 21st century. While enrolled in the program, students are eligible for cooperative employment programs with government agencies and with private industry during the summer and for intern programs during the school year.

The Department of Geomatics accommodates a wide variety of student objectives from entry level to professional preparation and encourages the nontraditional student to return for training in current practices and principles.

Students seeking professional licensing as registered land surveyors and those who are interested in specializing in surveying or geographic information systems should enroll in the Bachelor of Science program. For the most effective planning, bachelor's degree candidates should declare their intent by the second semester of their geomatics studies.

Accreditation

The Bachelor of Science program in Geomatics at UAA is accredited by the Applied Science Accreditation Commission (ASAC) of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202.

Program Educational Objectives and Program Outcomes

Program Educational Objectives

The curriculum of the UAA Geomatics program is designed to produce graduates who:

1. Have a basic knowledge of the principles and skills relating to the geomatics disciplines of land surveying, surveying boundary law, surveying computations and adjustments, mapping, geodesy, and photogrammetry, together with the newer disciplines of remote sensing, digital photogrammetry, global positioning systems (GPS), and spatial or geographic information systems (GIS);
2. Have an understanding of the principles related to project delivery;

3. Have sufficient technical competence to obtain employment as an entry-level geomatics professional and to be able to progress professionally within the discipline, and to be prepared for advanced studies;
4. Have a fundamental understanding of the issues relating to geomatics practice in GIS;
5. Are able to communicate their ideas;
6. Are able to work within a team environment; and
7. Are prepared for and understand the need for continued professional development throughout their careers.

Program Outcomes

In keeping with the program educational objectives, it is expected that graduates of the UAA Geomatics program will have:

1. An ability to apply knowledge of mathematics through calculus III and either linear algebra or differential equations or probability and statistics, and general physics;
2. An ability to collect, analyze and interpret data in all of the recognized surveying and mapping areas;
3. An ability to identify, formulate, and design a geomatics system, component or process to meet desired needs;
4. An ability to function on multidisciplinary as well as on interdisciplinary teams;
5. An ability to think critically and to creatively solve geomatics problems;
6. An understanding of professional and ethical responsibility;
7. An ability to communicate effectively;
8. The broad education necessary to understand the impact of geomatics solutions in a global and societal context;
9. A recognition of the need for, and ability to engage in, lifelong learning;
10. A knowledge of contemporary issues in professional practice;
11. An ability to use the techniques, skills and modern geomatics tools necessary for geomatics practice; and
12. An ability to apply knowledge in all six areas of surveying and mapping:
    i. Field surveying and methods;
    ii. Photogrammetric mapping and image interpretation and remote sensing;
    iii. Surveying calculation and data adjustment;
    iv. Geodetic coordinates and astronomy;
    v. Cartographic representation, projections, and map production;
    vi. Computer-based multipurpose cadastre, geographic information systems.

Honors in Geomatics

Undergraduate students may be recognized for exceptional performance by earning Departmental Honors in Geomatics. In order to receive honors in Geomatics, a student must meet each of the following requirements:

1. Complete all requirements for a BS in Geomatics.
2. Be an active member for at least one year of both a national and an on-campus student chapter of a professional geomatics society that addresses issues relevant to the geomatics profession.
3. Have a GPA of 3.50 or higher in their Geomatics and Geographic Information System courses of their catalog year. Have a GPA of 3.30 or higher for their overall cumulative GPA.
4. Pass the Fundamentals of Surveying Examination prior to the completion of the first semester of their senior year.
5. Document a minimum of eight weeks work experience while a student at the University of Alaska in a geomatics or geomatics related position.

Advising

All undergraduate students are encouraged to meet with their academic advisor each semester for the purpose of reviewing their academic progress and planning future courses. It is particularly important for students to meet with their advisor whenever academic difficulties arise. Students are encouraged to consult the faculty in the Department of Geomatics for assistance in designing their course of study to ensure that all prerequisites have been met and that university and major degree requirements are understood and followed.

Prerequisites

All prerequisites for geomatics courses must be completed with a grade of C or higher.

Preparation

The university offers courses to help students without this preparation to meet the skill level required in the Geomatics program. Insufficient preparation will increase the number of semesters required to complete either degree. Students seeking the

Undergraduate Certificate in Geographic Information Systems, the Associate of Applied Science or Bachelor of Science in Geomatics should prepare for entrance into the program by completing the following high school courses:

Mathematics	Algebra II
	Trigonometry
Science	Physics
English Composition	Skill level as demonstrated by ACT, SAT or approved placement test to qualify for enrollment in ENGL A111

Undergraduate Certificate, Geographic Information Systems (GIS)
Admission Requirements

Satisfy the Admission to Certificate and Associate's Degree Programs Requirements in Chapter 7, Academic Standards and Regulations.

Course Requirements

Certain courses require prerequisites or faculty permission. Call (907) 786-1972 for further information.

Major Requirements

In order to receive an Undergraduate Certificate in GIS, students must achieve a grade of C or higher in all courses applied to the certificate.

1. Complete the following required courses (23 credits):

GEO A137	Principles of Mapping	3
GEO A167	Remote Sensing and Image Analysis	4
GIS A268	Elements of Geographic Information Systems (GIS)	4
GIS A366	Spatial Information Analysis and Modeling	3
GIS A367	GIS and Remote Sensing	3
GIS A458	Design and Management of Spatial Data	3
GIS A460 GIS	Senior Project	3

2. Complete 9 credits from the following elective courses: 9

GEO A490	Selected Advanced Topics in Geomatics (3)
GIS A295	Internship in Geographic Information Systems I (3)
	or
GIS A495	Internship in Geographic Information Systems II (3)
GIS A369	Land Information Systems (3)
GIS A370	GIS and Remote Sensing for Natural Resources (3)
GIS A375	GIS and Public Health (3)
GIS A433	GIS and the Marine Environment (3)
GIS A468	Integration of Geomatic Technologies (3)
GIS A470	GIS for Facility Management and Transportation Systems (3)
GIS A490	Selected Advanced Topics in GIS (3)

3. A maximum of 3 credits of Internship (GIS A295 or GIS A495) and 3 credits of Advanced Topics in Geomatics (GEO A490) or Advanced Topics in GIS (GIS A490) can be counted toward the Certificate in GIS. Faculty approval of the GEO A490 or GIS A490 topic is necessary for application of the course to the certificate program.

4. A total of 32 credits is required for the Certificate in GIS.

Associate of Applied Science, Geomatics
Admission Requirements

Satisfy the Admission to Undergraduate Certificate and Associate's Degree Programs Requirements in Chapter 7, Academic Standards and Regulations.

General University Requirements

Complete the Associate of Applied Science General Degree Requirements located at the beginning of this chapter. Some of the major requirements will also fulfill Associate of Applied Science degree general requirements. Students should coordinate choices carefully with their academic advisor in the Department of Geomatics.

Academic Progress

Students must complete all major requirement courses with a grade of C or higher. A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt will result in removal from the Geomatics program.

Major Requirements

1. Complete 4 credits in physics: 4

PHYS A123	Basic Physics I (3)	
PHYS A123L	Basic Physics I Laboratory (1)	
	or	
PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	

2. Complete the following required courses (48 credits):

ENGL A212	Technical Writing	3
GEO A137	Principles of Mapping	3
GEO A146	Surveying Computations	3
GEO A155	Fundamentals of Surveying	3
GEO A157	Analytical and Digital Cartography	3
GEO A158	Geomatics Computer Fundamentals	3
GEO A166	Advanced Surveying	4
GEO A167	Remote Sensing and Image Analysis	4
GEO A248	Digital Terrain Cartography	3
GEO A256	Municipal and Civil Geomatics	4
GEO A257	Elements of Photogrammetry	3
GEO A267	Boundary Law I	4
GIS A268	Elements of Geographic Information Systems (GIS)	4
MATH A200	Calculus I	4

3. Electives to total of 60 credits.

Bachelor of Science, Geomatics

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Graduation Requirements

A. General University Requirements

Complete the General University Requirements for ~~All~~ all Baccalaureate Degrees at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees at the beginning of this chapter.

Academic Progress

Students must complete all courses under major requirements with a grade of C or higher. A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt will result in removal from the Geomatics program.

C. Major Requirements

1. Complete 8 credits in physics from one of the following sequences: 8

PHYS A123	Basic Physics I (3)	
PHYS A123L	Basic Physics I Laboratory (1)	
PHYS A124	Basic Physics II (3)	
PHYS A124L	Basic Physics II Laboratory (1)	
	or	
PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	
PHYS A212	General Physics II (3)	
PHYS A212L	General Physics II Laboratory (1)	

These credits must be in addition to the 7 Natural Sciences credits taken to complete the General Education Requirement.

2. Complete the following (18 credits):

ENGL A212	Technical Writing	3
GEO A158	Geomatics Computer Fundamentals	3
MATH A200	Calculus I	4
MATH A201	Calculus II	4
MATH A202	Calculus III	4

3. Complete one of the following: 3

MATH A302	Ordinary Differential Equations (3)	
MATH A314	Linear Algebra (3)	
STAT A307	Probability (3)	

4. Complete all of the following (62 credits):

GEO A137	Principles of Mapping	3
GEO A146	Surveying Computations	3
GEO A155	Fundamentals of Surveying	3
GEO A157	Analytical and Digital Cartography	3
GEO A166	Advanced Surveying	4
GEO A167	Remote Sensing and Image Analysis	4
GEO A248	Digital Terrain Cartography	3
GEO A256	Municipal and Civil Geomatics	4
GEO A257	Elements of Photogrammetry	3
GEO A267	Boundary Law I	4
GEO A355	Land Development and Design	3
GEO A359	Geodesy and Map Projections	3
GEO A365	Geomatic Adjustment and Analysis	4
GEO A457	Boundary Law II	4
GEO A460	Geomatics Design Project	3
GEO A466	Geopositioning	4
GIS A268	Elements of Geographic Information Systems (GIS)	4
GIS A366	Spatial Information Analysis and Modeling	3

5. Complete at least 12 credits in one of the emphasis areas.

Surveying Emphasis

a. Complete the following (6 credits):

GEO A358	Programming for Digital Cartography	3
GEO A433	Hydrographic Surveying	3

b. Complete 6 credits from the following: 6

GEO A456	Geomatics and Civil Design (3)	
GEO A459	Geodetic Geomatics (3)	
GEO A467	Analytical and Digital Photogrammetry (3)	
GEO A490	Selected Advanced Topics in Geomatics (1-6)	

GIS A369	Land Information Systems (3)

Geographic Information Systems (GIS) Emphasis

a. Complete the following (3 credits):

GIS A458	Design and Management of Spatial Data	3

b. Complete 9 credits from the following: 9

GIS A367	GIS and Remote Sensing (3)
GIS A369	Land Information Systems (3)
GIS A370	GIS and Remote Sensing for Natural Resources (3)
GIS A375	GIS and Public Health (3)
GIS A433	GIS and the Marine Environment (3)
GIS A468	Integration of Geomatic Technologies (3)
GIS A470	GIS for Facility Management and Transportation Systems (3)
GIS A490	Selected Advanced Topics in GIS (1-6)

6. A total of 131 credits is required for the degree of which 42 must be upper division.

FACULTY

John Bean, Associate Professor, AFJB2@uaa.alaska.edu
Don Davis Jr., Professor/Chair, AFDD@uaa.alaska.edu
Gennady Gienko, Associate Professor, AFGG@uaa.alaska.edu
Bill Hazelton, Associate Professor, AFBH3@uaa.alaska.edu

Minors in the School of Engineering

To meet a variety of student needs, the School of Engineering offers several minors.

A choice of two types of engineering minors are offered. The first is a minor in General Engineering, which is for students who are majoring in a non-engineering baccalaureate degree. This program offers foundation coursework in core engineering topics.

The second is an Engineering Specialty minor which is for students majoring in an engineering baccalaureate degree who, therefore, have completed much of the coursework in the Bachelor of Science in Engineering (BSE) or Civil Engineering (CE) program. Students within the engineering program may choose to pursue an Engineering Specialty minor in Civil Engineering, Computer Systems Engineering, Electrical Engineering, or Mechanical Engineering.

Students enrolling in either engineering minor must satisfy all prerequisite requirements for the courses required for the chosen minor. Non-engineering majors, such as students in the sciences or mathematics, will likely be better positioned to meet the prerequisite requirements in the General Engineering minor. Students majoring in engineering disciplines will likely be better positioned to meet the prerequisite requirements for courses in the Engineering Specialty minor.

Additionally, a minor in Geographic Information Systems (GIS) is offered for students who are majoring in baccalaureate degrees in a variety of disciplines and who are seeking strong GIS knowledge and skills to enhance their specialty and further their professional career.

Course Requirements for Minors

A minor of study must consist of a minimum of 18 credit hours. At least 6 credits must be upper division. Students must earn a cumulative GPA of at least 2.00 (C) in the minor. A minor may only be issued simultaneously with a baccalaureate degree. For general information about minor requirements, see the minors section at the beginning of this chapter. The course requirements for each of the minors are listed below. In cases where students have unique backgrounds or interests, course selection may be adapted accordingly through consultation with the School of Engineering faculty advisors.

A. General Engineering, Minor

The following courses are required: 10

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ENGR A151	Engineering Practices I	3
ENGR A161	Engineering Practices II	3
ES A208	Engineering Mechanics	4

In addition, at least three courses must be selected from the following list: 9

EE/ME A308	Instrumentation and Measurement (3)	
ES A309 *	Elements of Electrical Engineering (3)	
ES A331	Mechanics of Materials (3)	
ES A341 *	Fluids Mechanics (3)	
~~ES A341L~~	~~Fluid Mechanics Laboratory (1)~~	
ES A346 *	Basic Thermodynamics (3)	
SM A450	Economic Analysis and Operations (3)	
ME A334	Elements of Material Science (3)	

B. Engineering Specialty Minors

Minor, Civil Engineering

A minimum of 18 credits must be selected from: 18

CE A334 *	Properties of Materials (3)
CE A344 *	Water Resources Engineering (3)
CE A402	Transportation Engineering (3)
CE A422 *	Foundation Engineering (3)
CE A425	Highway Engineering (3)
CE A431	Structural Analysis (4)
CE A432 *	Steel Design (3)
CE A433 *	Reinforced Concrete Design (3)
CE A434	Timber Design (3)
CE A435/L	Soil Mechanics with Laboratory (3)
CE A441 *	Introduction to Environmental Engineering (3)
CE A442	Environmental Systems Design (3)

Minor, Computer Systems Engineering

A minimum of 18 credits must be selected from: 18

CS A330	Algorithms and Data Structures (3)
CS A331	Programming Language Concepts (3)
CS A401	Software Engineering (3)
CS A405	Artificial Intelligence (3)
CS A413 *	Computer and Data Security (3)
CSE A335*	Operating Systems Engineering (3)
CSE A342	Digital Circuits Design (3)
CSE A355 *	Computer Networking for Engineers (3)
CSE A442	Computer Design and Interfacing (4)
CSE A451 *	Digital Signal Processing (3)
CSE A465 *	Network Security (3)

Minor, Electrical Engineering

A minimum of 18 credits must be selected from: 18

EE A203 *	Fundamentals of Electrical Engineering I (4)
EE A204 *	Fundamentals of Electrical Engineering II (4)
EE/CS A241	Computer Hardware Concepts (4)
EE/ME A308	Instrumentation and Measurement (3)
EE A314 *	Electromagnetics (3)
EE A324	Electromagnetics II (3)
EE A324L*	Electromagnetics Laboratory II (1)
EE A353 *	Circuit Theory (3)
EE A407	Power Distribution (3)
EE A441	Integrated Circuit Design (3)
EE A465 *	Telecommunications (3)
EE/ME A471	Automatic Control (3)

Minor, Mechanical Engineering

A minimum of 18 credits must be selected from:		18
ES A341 *	Fluid Mechanics (3)	
ES A341L *	Fluid Mechanics Laboratory (1)	
ES A346 *	Basic Thermodynamics (3)	
ME A302 *	Mechanical Design I (4)	
ME/EE A308 *	Instrumentation and Measurement (3)	
ME A313	Mechanical Engineering Thermodynamics (3)	
ME A334 *	Elements of Material Science (3)	
ME A403	Mechanical Design II (3)	
ME A408	Dynamics of Systems (3)	
ME A414	Thermal System Design (3)	
ME A441 *	Heat and Mass Transfer (3)	
ME/EE A471	Automatic Control (3)	
ME A664	Corrosion Processes and Engineering (3)	
ME A685	Arctic Heat and Mass Transfer (3)	

C. Geographic Information Systems (GIS), Minor

A minimum of 18 credits must be selected from:		18
GEO A167	Remote Sensing and Image Analysis (4)	
GIS A268	Elements of Geographic Information Systems (GIS) (4)	
GIS A366	Spatial Information Analysis and Modeling (3)	
GIS A367	GIS and Remote Sensing (3)	
GIS A369	Land Information Systems (3)	
GIS A370	GIS and Remote Sensing for Natural Resources (3)	
GIS A375	GIS and Public Health (3)	
GIS A433	GIS and the Marine Environment (3)	
GIS A458	Design and Management of Spatial Data (3)	
GIS A468	Integration of Geomatic Technologies (3)	
GIS A470	GIS for Facility Management and Transportation Systems (3)	
GIS A490	Selected Advanced Topics in GIS (1-6)	

Note #1: MATH A200, MATH A201, MATH A202, MATH A302, PHYS A211, PHYS A212, CHEM A105, and CHEM A106 are prerequisites for most of the Engineering minor listed. Students should plan and review the requirements for their specific minor to determine exactly what prerequisites will be required.

Note #2: An "" indicates a recommended set of courses for the minor.*

Note #3: BSE or CE majors may pursue a BSE Engineering Specialty minor but may not pursue the BSE General Engineering minor.

Collaborative Programs With Other UA Campuses

Two-Year (2+2) Programs of Electrical or Mechanical Engineering with UAF

The School of Engineering offers a program that allows the completion of the first two years of a four-year program leading to the Bachelor of Science in Electrical Engineering or a Bachelor of Science in Mechanical Engineering. The program is coordinated with the University of Alaska Fairbanks (UAF) College of Engineering and Mines so that students may transfer from UAF to UAA, or from UAA to UAF, with little or no loss of credit. For more information, please contact the UAA School of Engineering at (907) 786-1900.

One-Year (1+3) Engineering Program with UAS~~.~~

The University of Alaska Southeast in Juneau offers a 1+3 engineering program. Juneau students earn a Pre-Engineering Certificate while completing the first-year of an engineering degree at UAA. The programs at UAA and UAS are coordinated so that students may transfer to UAA with no loss of credit. For more information, please contact the UAA School of Engineering at (907) 786-1900.

Date: February 11, 2011

To: Chair, Undergraduate Academic Board, Faculty Senate

From: Dr. Minnie Yen, Chair, CBPP CIS Department

Subject: Bachelor of Business Administration Program, Management Information Systems

In 2009-2010, the CIS Department identified a need within the BBA MIS Program to include BA A241 Business Law as a major requirement. The catalog copy that was submitted added BA A241 to the CBPP upper division admission requirements instead of the BBA MIS core course requirement list. The attached PAR and catalog copy should correct the error.

In addition, the department is requesting to change the minor in Computer Information Systems to clarify and update the course requirements. Separate PAR is attached.

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College CB CBPP	1b. Division ADBP Division of Business Programs	1c. Department Computer Information Systems

2. Complete Program Title/Prefix
Minor, Computer Information Systems

3. Type of Program
☐ OEC ☐ Undergrad Certificate ☐ AA/AAS ☐ Baccalaureate ☒ Minor
☐ Post Baccalaureate Certificate ☐ Graduate ☐ Graduate Certificate ☐ Doctoral ☐ Specialty

4. Type of Action:

PROGRAM
☐ Add
☒ Change
☐ Delete

PREFIX
☐ Add
☐ Change
☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2011 To: 9999/9999

6a. Coordination with Affected Units
Department, School, or College: Computer Information Systems
Initiator Name (typed): Dr. Minnie Yen
Initiator Signed Initials: _________ Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: _____

6c. Coordination with Library Liaison Date: _____

7. Title and Program Description - Please attach the following:
☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
The department is requesting to make a revision to the minor in Computer Information Systems to clarify and update the course requirements list.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved Dean/Director of School/College	Date
Dr. Minnie Yen Initiator (TYPE NAME)			
☐ Approved ☐ Disapproved Department Chairperson	Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson	Date
☐ Approved ☐ Disapproved Curriculum Committee Chairperson	Date	☐ Approved ☐ Disapproved Provost or Designee	Date

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Division	1c. Department
CB CBPP	ADBP Division of Business Programs	Computer Information Systems

2. Complete Program Title/Prefix
Bachelor of Business Administration: Management Information Systems

3. Type of Program
☐ OEC ☐ Undergrad Certificate ☐ AA/AAS ☒ Baccalaureate ☐ Minor
☐ Post Baccalaureate Certificate ☐ Graduate ☐ Graduate Certificate ☐ Doctoral ☐ Specialty

4. Type of Action:

PROGRAM	PREFIX
☐ Add	☐ Add
☒ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2011 To: 9999/9999

6a. Coordination with Affected Units
Department, School, or College: Computer Information Systems
Initiator Name (typed): Dr. Minnie Yen
Initiator Signed Initials: _________ Date:_______________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: _____

6c. Coordination with Library Liaison Date: _____

7. Title and Program Description - Please attach the following:
☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
The revision covered by this Program Action Request (PAR) is a minor change to the Bachelor of Business Administration, Management Information Systems Program. The Computer Information Systems Department determined that BA A241 Business Law should be integrated into the BBA program. The catalog copy that was previously submitted added BA A241 to the CBPP upper division admission requirements instead of in the BBA MIS core course requirement list. This request moves BA A241 from the CBPP upper division admission requirements to the BBA MIS core course requirement list.

______________________________ Date
Initiator (faculty only)
Dr. Minnie Yen
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved ______________________________ Date
Dean/Director of School/College

☐ Approved
☐ Disapproved ______________________________ Date
Department Chairperson

☐ Approved
☐ Disapproved ______________________________ Date
Undergraduate/Graduate Academic Board Chairperson

☐ Approved
☐ Disapproved ______________________________ Date
Curriculum Committee Chairperson

☐ Approved
☐ Disapproved ______________________________ Date
Provost or Designee

COMPUTER INFORMATION SYSTEMS

Edward & Cathryn Rasmuson Hall (RH), Room 203, (907) 786-4100
www.cbpp.uaa.alaska.edu

The Computer Information Systems Department provides educational opportunities in computer information systems through degree programs, courses for all students, and career-enrichment opportunities.

Courses involving computer instruction, as well as many other business school courses, are supported by seven computerized classrooms and state-of-the-art open laboratory facilities. These computer classrooms and labs provide students with hands-on learning experiences using the latest Intel workstations supported by state-of-the-art network servers. Our computer environment features several state-of-the-art sof tware and tools for business information systems integration, development, and management.

College of Business and Public Policy students have the opportunity to use the computer facilities to help them with their coursework. Laboratories include special business presentation facilities, and an experimental multimedia and a decision-support room.

Computer courses are taught using both structured instructor-led and self-guided tutorial approaches in the traditional classroom as well as online discussions.

Computer Information Systems Degree Programs

The College of Business and Public Policy prepares students for computer careers in computer programming and systems design, network administration and database administration through our Associate of Applied Science in Business Computer Information Systems (BCIS). Students are prepared for computer careers in systems analysis and design, e-commerce, web design, end-user computing, managing information systems, databases and networks, and associated occupations through the Management Information Systems (MIS) major in the Bachelor of Business Administration. Both degrees are based on the Association of Information Technology Professionals (AITP) model curriculum and are linked so that the diligent student can move from the two-year to the four-year degree without losing credits.

Both degrees emphasize using computers within business and public sector settings through hands-on teaching methods. The student is prepared for the technical and security aspects of the computer environment as well as the techniques and issues of managing information resources through the introduction of the theories followed by hands-on experience with the associated application.

Computer career education in the College of Business and Public Policy is enhanced by work and internship opportunities both within our own laboratories and with business and government facilities.

Associate of Applied Science, Business Computer Information Systems

Admission Requirements

Satisfy the Admission to Certificate and Associate Degree Program Requirements in Chapter 7, Academic Standards and Regulations. English and math placement tests are given by the Advising and Testing Center. A faculty advisor can assist students by recommending the proper levels of entry and appropriate CIS course plan. Students who are not proficient in typing (a minimum of 30 words per minute) should enroll in CIOS A101A Keyboarding A: Basic Keyboarding. Students must be able to read and comprehend technical manuals and texts.

Academic Progress

A grade of C or better is required to continue in each higher CIS course. To take upper division Information Systems program courses, students must complete lower division degree requirements and apply for upper division standing.

General University Requirements

1. Complete the General University Requirements for Associate Degrees located at the beginning of this chapter.
2. Complete the Associate of Applied Science General Course Requirements (15 credits) located at the beginning of this

chapter. ENGL A212 is recommended. For the General Course Requirements, it is strongly recommended that students select 6 credits from humanities, math and natural sciences or social sciences that meet both the AAS and the baccalaureate General Education Requirements.

Major Requirements

1. Complete the breadth requirements:

ACCT A201*	Principles of Financial Accounting	3
ACCT A202	Principles of Managerial Accounting	3
CIS A110	Computer Concepts in Business	3
ECON A201	Principles of Macroeconomics	3
ECON A202	Principles of Microeconomics	3
MATH A107	College Algebra (4)	3-4
	or	
MATH A172	Applied Finite Mathematics (3)	
General Education Requirement elective**		3

**The ACCT A101 Principles of Financial Accounting I and ACCT A102 Principles of Financial Accounting II sequence may be used to satisfy the ACCT A201 requirement for this degree.*

***Choose humanities or natural sciences course that meets both AAS and General Education Requirements for baccalaureate degrees.*

2. Complete the Business core requirement:

BA A273	Introduction to Statistics for Business and Economics	3

3. Complete CIS required courses:

CIS A210	Contemporary Business Applications Development	3
CIS A310	Analysis of Business Systems	3
CIS A330	Database Management Systems	3
CIS A345	Managing Data Communications and Computer Networks	3

4. Complete elective credits approved by a CIS Department advisor. 9

No more than 3 credits of internship can be used to fulfill program electives.

5. A minimum of 12 credits from Major Requirements, items 3 and 4 above, must be earned at the University of Alaska Anchorage.
6. A total of 60-61 credits is required for the degree.

Bachelor of Business Administration, Management Information Systems

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Admission Requirements to Upper Division Courses

1. Completion of at least 39-40 credits with a cumulative GPA of 2.25 or higher.
2. Completion of each of the following courses with a grade of C or better:

ACCT A201	Principles of Financial Accounting	3
ACCT A202	Principles of Managerial Accounting	3
BA A273	Introduction to Statistics for Business and Economics3	
CIS A110	Computer Concepts in Business	3
CIS A280	Managerial Communications	3
ECON A201	Principles of Macroeconomics	3
ECON A202	Principles of Microeconomics	3
ENGL A111	Methods of Written Communication	3
ENGL A212	Technical Writing	3

MATH A107	College Algebra (4)	3-4
	or	
MATH A172	Applied Finite Mathematics (3)	
Oral Communication Skills GER		3
COMM A111	Fundamentals of Oral Communications (3)	
	or	
COMM A241	Public Speaking (3)	

3. Completion of any combination of at least 9 credits in the following General Education disciplinary areas: 9
   Fine Arts
   Humanities
   Natural Sciences

Admission to Upper Division Status

BBA students in Management Information Systems who do not meet the above standards may not take upper division courses in ACCT, BA, CIS, or LOG.

Other students who meet course prerequisites may take up to 15 upper division ACCT, BA, CIS, and LOG credits without being formally admitted to a BBA program. All students must apply for admission to a BBA program before accumulating more than 15 such credits. Please contact the Student Information Office for assistance in applying for admission to upper division standing within the College of Business and Public Policy.

Conditional Admission to Upper Division Status

A student classified as being conditionally admitted to upper division status may take upper division ACCT, BA, CIS and LOG courses for one semester only, while completing lower division deficiencies.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. College of Business and Public Policy Requirements: Management Information Systems Major

Students earning a BBA degree must complete at least 50 percent of their required business credits at the University of Alaska Anchorage. All ACCT, BA, CIS, ECON, LGOP, and LOG courses are considered business credits for the purpose of this requirement.

1. Complete the Business core requirements with a grade of C or better:

ACCT A201*	Principles of Financial Accounting	3
ACCT A202	Principles of Managerial Accounting	3
BA/JUST A241	Business Law I	3
BA A273	Introduction to Statistics for Business and Economics	3
CIS A110	Computer Concepts in Business	3
CIS A280	Managerial Communications	3
ECON A201	Principles of Macroeconomics	3
ECON A202	Principles of Microeconomics	3
ENGL A212	Technical Writing	3
MATH A107	College Algebra (4)	3-4
	or	
MATH A172	Applied Finite Mathematics (3)	
MATH A200	Calculus I (4)	3-4
	or	
MATH A272	Applied Calculus (3)	

**The ACCT A101 and ACCT A102 sequence may be used to satisfy the ACCT A201 requirement for this degree.*

Note: Students who plan to attend graduate school are encouraged to take MATH A107 and MATH A200, MATH A201 Calculus II, MATH A202 Calculus III instead of MATH A172 and MATH A272. MATH A108 Trigonometry is a prerequisite for MATH A200.

2. Complete the following requirements. The following courses must be completed with a grade of C or better prior to graduating:

BA A300	Organizational Theory and Behavior	3
BA A325	Corporate Finance	3
BA A343	Principles of Marketing	3
BA A377	Operations Management	3
BA A462	Strategic Management	3
CIS A376	Management Information Systems (GER Integrative Capstone)	3

D. Major Requirements

1. Complete the following required courses with a grade of C or better:

CIS A210	Contemporary Business Applications Development	3
CIS A310	Analysis of Business Systems	3
CIS A330	Database Management Systems	3
CIS A345	Managing Data Communications and Computer Networks	3
CIS A410	Project Management	3
CIS A489	Systems Design, Development and Implementation	3

2. Complete 12 credits of upper division program electives approved by the department with a grade of C or better. These may include, but are not limited to: 12

CIS A360	Object-Oriented Programming in .Net (3)
CIS A361	Advanced Programming for Business Applications (3)
CIS A365	Object-Oriented Programming (3)
CIS A390	Selected Topics in Management Information Systems (1-6)
CIS A395	Programmer/Analyst Internship (3)
CIS A420	Consulting and Training End Users (3)
CIS A421	Multimedia Authoring (3)
CIS A430	Client-Server Programming for Business Applications (3)
CIS A445	Advanced Network Management (3)
CIS A460	Web Development in the .Net Environment (3)
CIS A495	Systems Analyst/User Support Internship (3)
CIS A498	Individual Research Project (1-6)
ECON A312	Econometrics for Business and Economics (3)
ECON A429	Business Forecasting (3)

3. A minimum of CIS A489 Systems Design, Development, and Implementation and 9 credits from Major Requirements, items 1 and 2, must be earned at the University of Alaska Anchorage.

1. A total of 120 credits is required for the degree, of which a minimum of 45 credits must be upper division.

Minor, Computer Information Systems*

Students majoring in another subject who wish to minor in Computer Information Systems (CIS) must complete the following requirements. A total of 18 credits is required for the minor, 12 of which must be upper division.

CIS A110	Computer Concepts in Business	3
CIS A210	Contemporary Business Applications Development	3
CIS A330	Database Management Systems	3
CIS A376**	Management Information Systems (GER Integrative Capstone)	3
Upper division CIS electives**		6

***BBA Economics, Finance, Global Logistics, Management, and Marketing degree students must take CIS A310 Analysis of Business Systems, instead of CIS A376 for the minor and 6 credits of upper division CIS electives from the following list:*

CIS A360	CIS A375	CIS A395	CIS A460
CIS A361	CIS A385	CIS A430	CIS A495
CIS A365	CIS A390	CIS A445	CIS A498
ECON A312	ECON A429 and other approved electives		

All students pursuing a minor in CIS must apply to the College of Business and Public Policy for upper division standing prior to taking any upper division course in CIS. Students pursuing a baccalaureate degree outside the College of Business and Public Policy with a minor in CIS can establish upper division standing by going to the College of Business and Public Policy Student Information Office and certifying they have completed at least 54 credits in their degree program and have completed the General Education Requirements of 6 credits of written communications, 3 credits of oral communication, 3 credits of college algebra (MATH A107 College Algebra or MATH A172 Applied Finite Mathematics or equivalent), and 12 credits in GER courses in fine arts, humanities, social sciences, or natural sciences.

FACULTY

Alpana Desai, Associate Professor, AFAMD@uaa.alaska.edu
Dennis Drinka, Associate Professor, AFDED@uaa.alaska.edu
David Fitzgerald, Associate Professor, AFDAF@uaa.alaska.edu
Bogdan Hoanca, Associate Professor, AFBH@uaa.alaska.edu
Yoshito Kanamori, Assistant Professor, AFYK@uaa.alaska.edu
John Pauli, Associate Professor, AFJTP1@uaa.alaska.edu
Cherie Shrader, Professor, AFCLS1@uaa.alaska.edu
Kathleen L. Voge, Associate Professor, AFKLV@uaa.alaska.edu
Minnie Yen, Professor, AFMYY@uaa.alaska.edu

COMPUTER INFORMATION SYSTEMS

Edward & Cathryn Rasmuson Hall (RH), Room 203, (907) 786-4100
www.cbpp.uaa.alaska.edu

The Computer Information Systems Department provides educational opportunities in computer information systems through degree programs, courses for all students, and career-enrichment opportunities.

Courses involving computer instruction, as well as many other business school courses, are supported by seven computerized classrooms and state-of-the-art open laboratory facilities. These computer classrooms and labs provide students with hands-on learning experiences using the latest Intel workstations supported by state-of-the-art network servers. Our computer environment features several state-of-the-art sof tware and tools for business information systems integration, development, and management.

College of Business and Public Policy students have the opportunity to use the computer facilities to help them with their coursework. Laboratories include special business presentation facilities, and an experimental multimedia and a decision-support room.

Computer courses are taught using both structured instructor-led and self-guided tutorial approaches in the traditional classroom as well as online discussions.

Computer Information Systems Degree Programs

The College of Business and Public Policy prepares students for computer careers in computer programming and systems design, network administration and database administration through our Associate of Applied Science in Business Computer Information Systems (BCIS). Students are prepared for computer careers in systems analysis and design, e-commerce, web design, end-user computing, managing information systems, databases and networks, and associated occupations through the Management Information Systems (MIS) major in the Bachelor of Business Administration. Both degrees are based on the Association of Information Technology Professionals (AITP) model curriculum and are linked so that the diligent student can move from the two-year to the four-year degree without losing credits.

Both degrees emphasize using computers within business and public sector settings through hands-on teaching methods. The student is prepared for the technical and security aspects of the computer environment as well as the techniques and issues of managing information resources through the introduction of the theories followed by hands-on experience with the associated application.

Computer career education in the College of Business and Public Policy is enhanced by work and internship opportunities both within our own laboratories and with business and government facilities.

Associate of Applied Science, Business Computer Information Systems

Admission Requirements

Satisfy the Admission to Certificate and Associate Degree Program Requirements in Chapter 7, Academic Standards and Regulations. English and math placement tests are given by the Advising and Testing Center. A faculty advisor can assist students by recommending the proper levels of entry and appropriate CIS course plan. Students who are not proficient in typing (a minimum of 30 words per minute) should enroll in CIOS A101A Keyboarding A: Basic Keyboarding. Students must be able to read and comprehend technical manuals and texts.

Academic Progress

A grade of C or better is required to continue in each higher CIS course. To take upper division Information Systems program courses, students must complete lower division degree requirements and apply for upper division standing.

General University Requirements

1. Complete the General University Requirements for Associate Degrees located at the beginning of this chapter.
2. Complete the Associate of Applied Science General Course Requirements (15 credits) located at the beginning of this

chapter. ENGL A212 is recommended. For the General Course Requirements, it is strongly recommended that students select 6 credits from humanities, math and natural sciences or social sciences that meet both the AAS and the baccalaureate General Education Requirements.

Major Requirements

1. Complete the breadth requirements:

ACCT A201*	Principles of Financial Accounting	3
ACCT A202	Principles of Managerial Accounting	3
CIS A110	Computer Concepts in Business	3
ECON A201	Principles of Macroeconomics	3
ECON A202	Principles of Microeconomics	3
MATH A107	College Algebra (4)	3-4
	or	
MATH A172	Applied Finite Mathematics (3)	
General Education Requirement elective**		3

**The ACCT A101 Principles of Financial Accounting I and ACCT A102 Principles of Financial Accounting II sequence may be used to satisfy the ACCT A201 requirement for this degree.*

***Choose humanities or natural sciences course that meets both AAS and General Education Requirements for baccalaureate degrees.*

2. Complete the Business core requirement:

BA A273	Introduction to Statistics for Business and Economics	3

3. Complete CIS required courses:

CIS A210	Contemporary Business Applications Development	3
CIS A310	Analysis of Business Systems	3
CIS A330	Database Management Systems	3
CIS A345	Managing Data Communications and Computer Networks	3

4. Complete elective credits approved by a CIS Department advisor. 9

   No more than 3 credits of internship can be used to fulfill program electives.

5. A minimum of 12 credits from Major Requirements, items 3 and 4 above, must be earned at the University of Alaska Anchorage.
6. A total of 60-61 credits is required for the degree.

Bachelor of Business Administration, Management Information Systems

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Admission Requirements to Upper Division Courses

1. Completion of at least 39-40 credits with a cumulative GPA of 2.25 or higher.
2. Completion of each of the following courses with a grade of C or better:

ACCT A201	Principles of Financial Accounting	3
ACCT A202	Principles of Managerial Accounting	3
~~BA/JUST A241~~	~~Business Law I3~~	
BA A273	Introduction to Statistics for Business and Economics3	
CIS A110	Computer Concepts in Business	3
CIS A280	Managerial Communications	3
ECON A201	Principles of Macroeconomics	3
ECON A202	Principles of Microeconomics	3
ENGL A111	Methods of Written Communication	3

ENGL A212	Technical Writing	3
MATH A107	College Algebra (4)	3-4
	or	
MATH A172	Applied Finite Mathematics (3)	
Oral Communication Skills GER		3
COMM A111	Fundamentals of Oral Communications (3)	
	or	
COMM A241	Public Speaking (3)	

3. Completion of any combination of at least 9 credits in the following General Education disciplinary areas: 9
   Fine Arts
   Humanities
   Natural Sciences

Admission to Upper Division Status

BBA students in Management Information Systems who do not meet the above standards may not take upper division courses in ACCT, BA, CIS, or LOG.

Other students who meet course prerequisites may take up to 15 upper division ACCT, BA, CIS, and LOG credits without being formally admitted to a BBA program. All students must apply for admission to a BBA program before accumulating more than 15 such credits. Please contact the Student Information Office for assistance in applying for admission to upper division standing within the College of Business and Public Policy.

Conditional Admission to Upper Division Status

A student classified as being conditionally admitted to upper division status may take upper division ACCT, BA, CIS and LOG courses for one semester only, while completing lower division deficiencies.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. College of Business and Public Policy Requirements: Management Information Systems Major

Students earning a BBA degree must complete at least 50 percent of their required business credits at the University of Alaska Anchorage. All ACCT, BA, CIS, ECON, LGOP, and LOG courses are considered business credits for the purpose of this requirement.

1. Complete the Business core requirements with a grade of C or better:

ACCT A201*	Principles of Financial Accounting	3
ACCT A202	Principles of Managerial Accounting	3
BA/JUST A241	Business Law I	3
BA A273	Introduction to Statistics for Business and Economics	3
CIS A110	Computer Concepts in Business	3
CIS A280	Managerial Communications	3
ECON A201	Principles of Macroeconomics	3
ECON A202	Principles of Microeconomics	3
ENGL A212	Technical Writing	3
MATH A107	College Algebra (4)	3-4
	or	
MATH A172	Applied Finite Mathematics (3)	
MATH A200	Calculus I (4)	3-4
	or	

MATH A272	Applied Calculus (3)	

**The ACCT A101 and ACCT A102 sequence may be used to satisfy the ACCT A201 requirement for this degree.*

Note: Students who plan to attend graduate school are encouraged to take MATH A107 and MATH A200, MATH A201 Calculus II, MATH A202 Calculus III instead of MATH A172 and MATH A272. MATH A108 Trigonometry is a prerequisite for MATH A200.

2. Complete the following requirements. The following courses must be completed with a grade of C or better prior to graduating:

BA A300	Organizational Theory and Behavior	3
BA A325	Corporate Finance	3
BA A343	Principles of Marketing	3
BA A377	Operations Management	3
BA A462	Strategic Management	3
CIS A376	Management Information Systems (GER Integrative Capstone)	3

D. Major Requirements

1. Complete the following required courses with a grade of C or better:

CIS A210	Contemporary Business Applications Development	3
CIS A310	Analysis of Business Systems	3
CIS A330	Database Management Systems	3
CIS A345	Managing Data Communications and Computer Networks	3
CIS A410	Project Management	3
CIS A489	Systems Design, Development and Implementation	3

2. Complete 12 credits of upper division program electives approved by the department with a grade of C or better. These may include, but are not limited to: 12

CIS A360	Object-Oriented Programming in .Net (3)
CIS A361	Advanced Programming for Business Applications (3)
CIS A365	Object-Oriented Programming (3)
CIS A390	Selected Topics in Management Information Systems (1-6)
CIS A395	Programmer/Analyst Internship (3)
CIS A420	Consulting and Training End Users (3)
CIS A421	Multimedia Authoring (3)
CIS A430	Client-Server Programming for Business Applications (3)
CIS A445	Advanced Network Management (3)
CIS A460	Web Development in the .Net Environment (3)
CIS A495	Systems Analyst/User Support Internship (3)
CIS A498	Individual Research Project (1-6)
ECON A312	Econometrics for Business and Economics (3)
ECON A429	Business Forecasting (3)

3. A minimum of CIS A489 Systems Design, Development, and Implementation and 9 credits from Major Requirements, items 1 and 2, must be earned at the University of Alaska Anchorage.

1. A total of 120 credits is required for the degree, of which a minimum of 45 credits must be upper division.

Minor, Computer Information Systems*

Students majoring in another subject who wish to minor in Computer Information Systems (CIS) must complete the following requirements. A total of 18 credits is required for the minor, 12 of which must be upper division.

CIS A110	Computer Concepts in Business	3
CIS A210	Contemporary Business Applications Development	3
CIS A330	Database Management Systems	3
CIS A376**	Management Information Systems (GER Integrative Capstone)	3
Upper division CIS electives**		6

~~*Not available to BBA Management Information Systems majors.~~

***BBA Economics, Finance, Global Logistics, Management, and Marketing degree students must take CIS A310 Analysis of Business Systems, instead of CIS A376 for the minor and 6 credits of upper division CIS electives from the following list:*

~~*and 3 credits of upper division CIS electives instead of CIS A376 and*~~

~~*CIS A305 Managerial Presentations to meet the requirements for the minor*~~

~~(CIS A376 and CIS A305 are already required in the business core).~~

CIS A360	CIS A375	CIS A395	CIS A460
CIS A361	CIS A385	CIS A430	CIS A495
CIS A365	CIS A390	CIS A445	CIS A498
ECON A312	ECON A429 and other approved electives		

All students pursuing a minor in CIS must apply to the College of Business and Public Policy for upper division standing prior to taking any upper division course in CIS. Students pursuing a baccalaureate degree outside the College of Business and Public Policy with a minor in CIS can establish upper division standing by going to the College of Business and Public Policy Student Information Office and certifying they have completed at least 54 credits in their degree program and have completed the General Education Requirements of 6 credits of written communications, 3 credits of oral communication, 3 credits of college algebra (MATH A107 College Algebra or MATH A172 Applied Finite Mathematics or equivalent), and 12 credits in GER courses in fine arts, humanities, social sciences, or natural sciences.

FACULTY

Alpana Desai, Associate Professor, AFAMD@uaa.alaska.edu
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Date: February 11, 2011

To: Chair, Undergraduate Academic Board, Faculty Senate

From: Lynn Koshiyama, Chair, CBPP Accounting Department

Subject: Bachelor of Business Administration Program, Accounting

In 2009-2010, the CBPP Assessment Program identified a need within the BBA programs for an increased emphasis on business strategy and written managerial communications. CIS A280 Managerial Communications replaced CIS A305 Managerial Presentations as a major requirement. CIS A280 was inadvertently omitted from the major requirement section in the 2010-2011 catalog copy. The attached PAR and catalog copy should correct the error.

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Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Division	1c. Department
CB CBPP	ADBP Division of Business Programs	Accounting

2. Complete Program Title/Prefix
Bachelor of Business Administration: Accounting

3. Type of Program
- ☐ OEC
- ☐ Undergrad Certificate
- ☐ AA/AAS
- ☒ Baccalaureate
- ☐ Minor
- ☐ Post Baccalaureate Certificate
- ☐ Graduate
- ☐ Graduate Certificate
- ☐ Doctoral
- ☐ Specialty

4. Type of Action:

PROGRAM
- ☐ Add
- ☒ Change
- ☐ Delete

PREFIX
- ☐ Add
- ☐ Change
- ☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2011 To: 9999/9999

6a. Coordination with Affected Units — Department, School, or College: Accounting

Initiator Name (typed): Lynn Koshiyama — Initiator Signed Initials: _________
Date:_______________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: _____

6c. Coordination with Library Liaison Date: _____

7. Title and Program Description - Please attach the following:

☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
The revision covered by this Program Action Request (PAR) is a minor change to the Bachelor of Business Administration, Accounting Program. The CBPP Assessment Program identified a need within the BBA programs for an increased emphasis on business strategy and written managerial communications. CIS A280 Managerial Communications replaced CIS A305 Managerial Presentations as a major requirement. When the 2010-2011 catalog copy was submitted CIS 280 was included in the CBPP upper division admission requirements, but was not included in the BBA Accounting core course requirements list.

Initiator (faculty only) ____________ Date Lynn Koshiyama Initiator (TYPE NAME)	☐ Approved ☐ Disapproved Dean/Director of School/College ____________ Date
☐ Approved ☐ Disapproved Department Chairperson ____________ Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson ____________ Date
☐ Approved ☐ Disapproved Curriculum Committee Chairperson ____________ Date	☐ Approved ☐ Disapproved Provost or Designee ____________ Date

ACCOUNTING

Edward & Cathryn Rasmuson Hall (RH), Room 203, (907) 786-4100
www.cbpp.uaa.alaska.edu

The Department of Accounting offers two programs: an Associate of Applied Science (AAS) degree with a major in Accounting and the Bachelor of Business Administration (BBA) degree with a major in Accounting. The programs are designed to prepare students for a career in business, government, or other types of organizations. BBA graduates will generally pursue professional accounting careers, while AAS graduates will be qualified for vocationally oriented accounting positions. The Department of Accounting is also committed to enhancing the lifelong learning opportunities for responsible citizenship and personal satisfaction where accounting and business dimensions are critical ingredients. The AAS degree in Accounting is available at UAA, Kenai Peninsula College, Kodiak College, and Matanuska-Susitna College campuses.

Associate of Applied Science, Accounting

Admission Requirements

Satisfy the Admission to Certificate and Associate Degree Programs Requirements in Chapter 7, Academic Standards and Regulations.

General University Requirements

1. Complete the General University Requirements for Associate Degrees located at the beginning of this chapter.
2. Complete the Associate of Applied Science General Degree Requirements (15 credits) located at the beginning of this chapter. To provide maximum transferability to the BBA in Accounting, it is recommended that students consider the Bachelor of Business Administration General Education Requirements and business core requirements when selecting courses to fulfill the Associate of Applied Science General Course Requirements and business electives.

Major Requirements

1. Complete the following required courses (36 credits) with a grade of C or better:

ACCT A101	Principles of Financial Accounting I	3
ACCT A102	Principles of Financial Accounting II	3
ACCT A202	Principles of Managerial Accounting	3
ACCT A210	Income Tax Preparation	3
ACCT A222	Introduction to Computerized Accounting	3
ACCT A225	Payroll Accounting	3
ACCT A230	Workpaper Preparation and Presentation	3
BA A151	Introduction to Business	3
BA/JUST A241	Business Law I	3
CIS A110	Computer Concepts in Business	3
ECON A201	Principles of Macroeconomics	3
MATH A105	Intermediate Algebra	3

2. Complete 9 credits of electives. Students may choose any course at the 100 level or above in ACCT, BA, CIS, CIOS, ECON, or LOG but may not use more than 6 credits from one discipline. 9
3. Students using CIOS A260A to meet an AAS Written Communication Skills General Course Requirement may not also apply it as an elective course for this major.
4. Students using an ECON course to meet an AAS General Course Requirement in the Social Sciences discipline may not also apply it as an elective course for this major.
5. Students must complete 6 credits selected from Humanities, Mathematics and Natural Sciences, or Social Sciences from the AAS General Course Requirement Classification List, other than BA A151, ECON A201, and MATH A105.
6. A total of 60 credits is required for the degree.

Bachelor of Business Administration, Accounting

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Admission Requirements to Upper Division Courses

1. Completion of at least 39-40 credits with a cumulative GPA of 2.25 or higher.
2. Completion of each of the following courses with a grade of C or better:

ACCT A201	Principles of Financial Accounting	3
ACCT A202	Principles of Managerial Accounting	3
BA A273	Introduction to Statistics for Business and Economics	3
CIS A110	Computer Concepts in Business	3
CIS A280	Managerial Communications	3
ECON A201	Principles of Macroeconomics	3
ECON A202	Principles of Microeconomics	3
ENGL A111	Methods of Written Communication	3
ENGL A212	Technical Writing	3
MATH A107	College Algebra (4)	3-4
	or	
MATH A172	Applied Finite Mathematics (3)	
Oral communication skills GER		3
COMM A111	Fundamentals of Oral Communications (3)	
	or	
COMM A241	Public Speaking (3)	

3. Completion of any combination of at least 9 credits in the following General Education disciplinary areas: 9
   Fine Arts
   Humanities
   Natural Sciences

Admission to Upper Division Status

BBA students in Accounting who do not meet the above standards may not take upper division courses in ACCT, BA, CIS, or LOG.

Other students who meet course prerequisites may take up to 15 upper division ACCT, BA, CIS and LOG credits without being formally admitted to a BBA program. All students must apply for admission to a BBA program before accumulating more than 15 such credits. Please contact the Student Information Office for assistance in applying for admission to upper division standing within the College of Business and Public Policy.

Conditional Admission to Upper Division Status

A student classified as being conditionally admitted to upper division status may take upper division ACCT, BA, CIS, and LOG courses for one semester only, while completing lower division deficiencies.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. College of Business and Public Policy Requirements for Accounting Majors

Students earning a BBA degree must complete at least 50 percent of their required business credits at the University of

Alaska Anchorage. All ACCT, BA, CIS, ECON, LGOP, and LOG courses are considered business credits for the purpose of this requirement.

1. Complete the BBA core requirements:
   The following courses must be completed with a grade of C or better.

ACCT A201*	Principles of Financial Accounting	3
ACCT A202	Principles of Managerial Accounting	3
BA A273	Introduction to Statistics for Business and Economics	3
CIS A110	Computer Concepts in Business	3
CIS A280	Managerial Communications	3
ECON A201	Principles of Macroeconomics	3
ECON A202	Principles of Microeconomics	3
ENGL A212	Technical Writing	3
MATH A107	College Algebra (4)	3-4
	or	
MATH A172	Applied Finite Mathematics (3)	
MATH A200	Calculus I (4)	3-4
	or	
MATH A272	Applied Calculus (3)	

**The ACCT A101 Principles of Financial Accounting I and ACCT A102 Principles Financial Accounting II sequence may be used to satisfy the ACCT A201 requirement for this degree.*

Note: Students who plan to attend graduate school are encouraged to take MATH A107, MATH A200, MATH A201 Calculus II, MATH A202 Calculus III instead of MATH A172 and MATH A272. MATH A108 Trigonometry is a prerequisite for MATH A200.

2. Complete these upper division core courses with a grade of C or better:

ACCT A316	Accounting Information Systems II	3
BA A300	Organizational Theory and Behavior	3
BA A325	Corporate Finance	3
BA A343	Principles of Marketing	3
BA A377	Operations Management	3
BA A462	Strategic Management	3

D. Major Requirements

1. Complete the following requirements with a grade of C or better:

ACCT A216	Accounting Information Systems I	3
ACCT A301	Intermediate Accounting I	3
ACCT A302	Intermediate Accounting II	3
ACCT A310	Income Tax	3
ACCT A342	Managerial Cost Accounting	3
ACCT A452	Auditing (GER Integrative Capstone)	3
BA/JUST A241	Business Law I	3
Accounting electives		6

   Approved Accounting electives (6 credits) must be selected from the following courses and passed with a C or better:

ACCT A401	Advanced Accounting (3)
ACCT A410	Advanced Income Tax (3)
ACCT A420	Fraud Examination (3)
ACCT A430	Governmental and Non-Profit Accounting (3)

Upper division ECON elective (3)		3
	or	
BA A375	Statistics for Business and Economics (3)	

2. A total of 120 credits is required for the degree, of which 42 credits must be upper division.

Minor, Accounting*

Students who wish to minor in Accounting must complete the following requirements. A total of 18 credits is required for the minor.

ACCT A201	Principles of Financial Accounting	3
ACCT A202	Principles of Managerial Accounting	3
Upper division Accounting electives		12

**Not available to BBA Accounting majors.*

FACULTY

Ken Boze, Professor, AFKMB@uaa.alaska.edu
Kevin Dow, Assistant Professor, AFKD2@uaa.alaska.edu
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ACCOUNTING

Edward & Cathryn Rasmuson Hall (RH), Room 203, (907) 786-4100
www.cbpp.uaa.alaska.edu

The Department of Accounting offers two programs: an Associate of Applied Science (AAS) degree with a major in Accounting and the Bachelor of Business Administration (BBA) degree with a major in Accounting. The programs are designed to prepare students for a career in business, government, or other types of organizations. BBA graduates will generally pursue professional accounting careers, while AAS graduates will be qualified for vocationally oriented accounting positions. The Department of Accounting is also committed to enhancing the lifelong learning opportunities for responsible citizenship and personal satisfaction where accounting and business dimensions are critical ingredients. The AAS degree in Accounting is available at UAA, Kenai Peninsula College, Kodiak College, and Matanuska-Susitna College campuses.

Associate of Applied Science, Accounting

Admission Requirements

Satisfy the Admission to Certificate and Associate Degree Programs Requirements in Chapter 7, Academic Standards and Regulations.

General University Requirements

1. Complete the General University Requirements for Associate Degrees located at the beginning of this chapter.
2. Complete the Associate of Applied Science General Degree Requirements (15 credits) located at the beginning of this chapter. To provide maximum transferability to the BBA in Accounting, it is recommended that students consider the Bachelor of Business Administration General Education Requirements and business core requirements when selecting courses to fulfill the Associate of Applied Science General Course Requirements and business electives.

Major Requirements

1. Complete the following required courses (36 credits) with a grade of C or better:

ACCT A101	Principles of Financial Accounting I	3
ACCT A102	Principles of Financial Accounting II	3
ACCT A202	Principles of Managerial Accounting	3
ACCT A210	Income Tax Preparation	3
ACCT A222	Introduction to Computerized Accounting	3
ACCT A225	Payroll Accounting	3
ACCT A230	Workpaper Preparation and Presentation	3
BA A151	Introduction to Business	3
BA/JUST A241	Business Law I	3
CIS A110	Computer Concepts in Business	3
ECON A201	Principles of Macroeconomics	3
MATH A105	Intermediate Algebra	3

2. Complete 9 credits of electives. Students may choose any course at the 100 level or above in ACCT, BA, CIS, CIOS, ECON, or LOG but may not use more than 6 credits from one discipline. 9
3. Students using CIOS A260A to meet an AAS Written Communication Skills General Course Requirement may not also apply it as an elective course for this major.
4. Students using an ECON course to meet an AAS General Course Requirement in the Social Sciences discipline may not also apply it as an elective course for this major.
5. Students must complete 6 credits selected from Humanities, Mathematics and Natural Sciences, or Social Sciences from the AAS General Course Requirement Classification List, other than BA A151, ECON A201, and MATH A105.
6. A total of 60 credits is required for the degree.

Bachelor of Business Administration, Accounting

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Admission Requirements to Upper Division Courses

1. Completion of at least 39-40 credits with a cumulative GPA of 2.25 or higher.
2. Completion of each of the following courses with a grade of C or better:

ACCT A201	Principles of Financial Accounting	3
ACCT A202	Principles of Managerial Accounting	3
BA A273	Introduction to Statistics for Business and Economics	3
CIS A110	Computer Concepts in Business	3
CIS A280	Managerial Communications	3
ECON A201	Principles of Macroeconomics	3
ECON A202	Principles of Microeconomics	3
ENGL A111	Methods of Written Communication	3
ENGL A212	Technical Writing	3
MATH A107	College Algebra (4)	3-4
	or	
MATH A172	Applied Finite Mathematics (3)	
Oral communication skills GER		3
COMM A111	Fundamentals of Oral Communications (3)	
	or	
COMM A241	Public Speaking (3)	

3. Completion of any combination of at least 9 credits in the following General Education disciplinary areas: 9
   Fine Arts
   Humanities
   Natural Sciences

Admission to Upper Division Status

BBA students in Accounting who do not meet the above standards may not take upper division courses in ACCT, BA, CIS, or LOG.

Other students who meet course prerequisites may take up to 15 upper division ACCT, BA, CIS and LOG credits without being formally admitted to a BBA program. All students must apply for admission to a BBA program before accumulating more than 15 such credits. Please contact the Student Information Office for assistance in applying for admission to upper division standing within the College of Business and Public Policy.

Conditional Admission to Upper Division Status

A student classified as being conditionally admitted to upper division status may take upper division ACCT, BA, CIS, and LOG courses for one semester only, while completing lower division deficiencies.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. College of Business and Public Policy Requirements for Accounting Majors

Students earning a BBA degree must complete at least 50 percent of their required business credits at the University of

Alaska Anchorage. All ACCT, BA, CIS, ECON, LGOP, and LOG courses are considered business credits for the purpose of this requirement.

1. Complete the BBA core requirements:
   The following courses must be completed with a grade of C or better.

ACCT A201*	Principles of Financial Accounting	3
ACCT A202	Principles of Managerial Accounting	3
BA A273	Introduction to Statistics for Business and Economics	3
CIS A110	Computer Concepts in Business	3
CIS A280	Managerial Communications	3
ECON A201	Principles of Macroeconomics	3
ECON A202	Principles of Microeconomics	3
ENGL A212	Technical Writing	3
MATH A107	College Algebra (4)	3-4
	or	
MATH A172	Applied Finite Mathematics (3)	
MATH A200	Calculus I (4)	3-4
	or	
MATH A272	Applied Calculus (3)	

**The ACCT A101 Principles of Financial Accounting I and ACCT A102 Principles Financial Accounting II sequence may be used to satisfy the ACCT A201 requirement for this degree.*

Note: Students who plan to attend graduate school are encouraged to take MATH A107, MATH A200, MATH A201 Calculus II, MATH A202 Calculus III instead of MATH A172 and MATH A272. MATH A108 Trigonometry is a prerequisite for MATH A200.

2. Complete these upper division core courses with a grade of C or better:

ACCT A316	Accounting Information Systems II	3
BA A300	Organizational Theory and Behavior	3
BA A325	Corporate Finance	3
BA A343	Principles of Marketing	3
BA A377	Operations Management	3
BA A462	Strategic Management	3

D. Major Requirements

1. Complete the following requirements with a grade of C or better:

ACCT A216	Accounting Information Systems I	3
ACCT A301	Intermediate Accounting I	3
ACCT A302	Intermediate Accounting II	3
ACCT A310	Income Tax	3
ACCT A342	Managerial Cost Accounting	3
ACCT A452	Auditing (GER ~~i~~Integrative ~~c~~Capstone)	3
BA/JUST A241	Business Law I	3
Accounting electives		6

Approved Accounting electives (6 credits) must be selected from the following courses and passed with a C or better:

ACCT A401	Advanced Accounting (3)
ACCT A410	Advanced Income Tax (3)
ACCT A420	Fraud Examination (3)
ACCT A430	Governmental and Non-Profit Accounting (3)

Upper division ECON elective (3)		3
	or	
BA A375	Statistics for Business and Economics (3)	

2. A total of 120 credits is required for the degree, of which 42 credits must be upper division.

Minor, Accounting*

Students who wish to minor in Accounting must complete the following requirements. A total of 18 credits is required for the minor.

ACCT A201	Principles of Financial Accounting	3
ACCT A202	Principles of Managerial Accounting	3
Upper division Accounting electives		12

**Not available to BBA Accounting majors.*

FACULTY

Ken Boze, Professor, AFKMB@uaa.alaska.edu
Kevin Dow, Assistant Professor, AFKD2@uaa.alaska.edu
Rudy Fernandez, Associate Professor/Chair, AFRFF@uaa.alaska.edu
C. Patrick Fort, Professor, AFCPF@uaa.alaska.edu
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Soren Orley, Assistant Professor, ANSEO@uaa.alaska.edu
Stasia Straley, ~~Term Instructor~~Assistant Professor, AFSS5@uaa.alaska.edu

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Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
AS CAS	AHUM Division of Humanities	Languages

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
FREN	A310	N/A	3	(3+0)

6. Complete Course Title
Selected Topics: Literary Trends and Traditions
ST: Lit Trends and Trads
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status Yes # of Repeats unlimited Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: 9999/9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. International Studies	p.107	February 27, 2011	Susan Kalina, Chair of International Studies
2.			
3.			

Initiator Name (typed): Patricia Fagan Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: November 15, 2010
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: November 15, 2010

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Focuses on diverse literary traditions of multiple French-speaking communities. Critical analysis through a variety of disciplinary methodologies (e.g. historical, cultural, artistic); terminology also explored and developed. Enhances French language skills in writing, reading, speaking, listening, and cultural literacy. Course may be repeated for credit with change of subtitle.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
FREN A302 with a grade of "C" or better	N/A	N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☒ Mark if course is a selected topic course

19. Justification for Action
Course update to reflect current Course Description, Instructional Goals, Student Outcomes, and Bibliography.

Initiator (faculty only) Date
Patricia Fagan
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

University of Alaska Anchorage

Course Content Guide

Department of Languages

FREN A310

Selected Topics: Literary Trends and Traditions

I. Initiation Date: Fall 2011

II. Course Information:

A. College: College of Arts and Sciences

B. Course Title: Selected Topics: Literary Trends and Traditions

C. Course Subject/Number FREN A310

D. Credit Hours: 3.0

E. Contact Time: 3 + 0 hours per week

F. Grading Information: A-F

G. Course Description: Focuses on diverse literary traditions of multiple French-speaking communities. Critical analysis through a variety of disciplinary methodologies (e.g. historical, cultural, artistic); terminology also explored and developed. Enhances French language skills in writing, reading, speaking, listening, and cultural literacy.
Special note: Course may be repeated for credit with change of subtitle.

H. Status of Course Relative to Degree or Certificate Programs:
Course may be used as an elective to satisfy the upper-division component of a French major or minor.

I. Course Attributes: Applies toward the upper-division requirement for French majors and minors.

J. Lab Fees: Yes

K. Coordination: UAA Faculty List Serve

L. Course Prerequisite: FREN A302 with a grade of “C” or better.

III. Instructional Goals and Defined Student Outcomes:

Instructional Goals: The instructor will

1. Conduct the class in French, soliciting student collaboration via discussion of course material.
2. Present representative literary works and relate them to the historical and cultural contexts in which they were composed.
3. Enhance stylistic and rhetorical skills through engagement with literary texts.
4. Guide students in critically analyzing and interpreting literary works, using appropriate disciplinary approaches and terminology.

Defined Student Outcomes:	**Assessment Methods:**
Demonstrate comprehension of class instruction.	Performance in class participation and discussion
Identify representative literary works and relate them to the historical and cultural context in which they were composed.	Performance on a variety of quizzes, exams, oral presentations, and papers
Demonstrate analytical skills in French through engagement with literary texts.	Performance on a variety of quizzes, exams, oral presentations, and papers
Apply appropriate disciplinary approaches and terminology in investigative analyses executed in the target language.	Performance on final term papers and oral presentations

IV. Course Activities:
This course reflects a balance of learner-centered, small-group collaboration as well as instructor-delivered lesson format.

V. Methods of Assessment:
A student's grade will be based according to the syllabus of the individual instructor.

VI. Course-level Justification:
Course requires prior formal study of college French grammar at the upper-division level to ensure student success.

VII. Course Outline:

The following is a possible version of the course:

"Literature and Culture of Francophone Africa"

A. Introduction to Modern Language Association Style Manual
B. Introduction to Literature and Culture of various African Countries: Senegal, Ivory Coast, Mali, and Cameroon
C. The Négritude Movement
D. Colonialism
E. Post-Colonialism
F. Expression through Literary Genres : the Novel, Short Story, Poem, and Essay

VIII. Suggested texts

Bâ, Mariamma. *Une si longue lettre*. Paris: Privat Le Rocher, 2005.

Balzac, Honoré de. *Le Chef-d'oeuvre inconnu*. Paris: Flammarion, 2008.

---. *Le Père Goriot.* Paris: Larousse, 2006.

Bessette, Gérard. *Le Libraire*. Ottawa: Le Cercle du Livre de France, 1968.

Camus, Albert. *L'Etranger*. Paris: Gallimard, 1990.

Césaire, Aimé. *Cahier d'un retour au pays natal*. Ibadan (Nigeria): New Horn Press, 1994.

Flaubert, Gustave. *Trois contes*. Paris: Pocket, 2007.

Gide, André. *La Symphonie pastorale*. Paris: Gallimard, 1925.

Hémon, Louis. *Maria Chapdelaine*. Montreal: Bibliothèque Québécoise, 1990.

Laye, Camara. *L'Enfant noir*. Paris: Plon, 2007.

Oyono, Ferdinand. *Une vie de boy*. Paris: Julliard, 1956.

Proulx, Monique. *Les Aurores montréales*. Montreal: Boréal, 1997.

Voltaire. *Candide.* Paris: Larousse, 2003.

IX. Bibliography

Baker, Mary J. and Jean-Pierre Cauvin. *Panaché littéraire*. Boston: Heinle and Heinle, 1995.

Bishop, Morris and Kenneth T. Rivers. *A Survey of French Literature*. Vols. I-V. Third Edition. Newburyport, MA: Focus Publishing, 2006.

Bouty, Michel. *Dictionnaire des oeuvres et des thèmes de la littérature française*. Paris: Hachette, 1990.

France, Peter. *The New Oxford Companion to Literature in French*. Oxford: Clarendon Press, 1995.

Leggewie, Robert. *Anthologie de la littérature française.* Tomes I et II. New York: Oxford UP, 1990.

Rouch, Alain and Gérard Clavreuil. *Littératures nationales d'écriture française. Afrique noire, Caraïbes et Océan Indien*. *Histoire littéraire et Anthologie*. Paris: Bordas, 1987.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
AS CAS	AHUM Division of Humanities	Languages

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GER	A310	N/A	3	(3+0)

6. Complete Course Title
Selected Topics: Literary Trends and Traditions
ST: Lit Trends and Trads
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status Yes # of Repeats unlimited Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: 9999/9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. International Studies	p.107	February 27, 2011	Susan Kalina, Chair of International Studies
2.			
3.			

Initiator Name (typed): Patricia Fagan Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: November 15, 2010
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: November 15, 2010

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Focuses on diverse literary traditions of multiple German-speaking communities. Critical analysis through a variety of disciplinary methodologies (e.g. historical, cultural, artistic); terminology also explored and developed. Enhances German language skills in writing, reading, speaking, listening, and cultural literacy. Special note: Course may be repeated for credit with change of subtitle.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
GER A302 with a grade of "C" or better	N/A	N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☒ Mark if course is a selected topic course

19. Justification for Action
Course update to reflect current Course Description, Instructional Goals, Student Outcomes, and Bibliography.

______________________________ Date
Initiator (faculty only)
Patricia Fagan
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved ______________________________ Date
Dean/Director of School/College

☐ Approved
☐ Disapproved ______________________________ Date
Department Chairperson

☐ Approved
☐ Disapproved ______________________________ Date
Undergraduate/Graduate Academic Board Chairperson

☐ Approved
☐ Disapproved ______________________________ Date
Curriculum Committee Chairperson

☐ Approved
☐ Disapproved ______________________________ Date
Provost or Designee

University of Alaska Anchorage

Course Content Guide

Department of Languages

GER A310

Selected Topics: Literary Trends and Traditions

I. Initiation Date: Fall 2011

II. Course Information:

A. College: College of Arts and Sciences

B. Course Title: Selected Topics: Literary Trends and Traditions

C. Course Subject/Number GER A310

D. Credit Hours: 3.0

E. Contact Time: 3 + 0 hours per week

F. Grading Information: A-F

G. Course Description: Focuses on diverse literary traditions of multiple German-speaking communities. Critical analysis through a variety of disciplinary methodologies (e.g. historical, cultural, artistic); terminology also explored and developed. Enhances German language skills in writing, reading, speaking, listening, and cultural literacy.
Special note: Course may be repeated for credit with change of subtitle.

H. Status of Course Relative to Degree or Certificate Programs:
Course may be used as an elective to satisfy the upper-division component of a German major or minor.

I. Course Attributes: Applies toward the upper-division requirement for German majors and minors.

J. Lab Fees: Yes

K. Coordination: UAA Faculty List Serve

L. Course Prerequisite: GER A302 with a grade of "C" or better.

III. Instructional Goals and Defined Student Outcomes:

Instructional Goals: The instructor will

1. Conduct the class in German, soliciting student collaboration via discussion of course material.
2. Present representative literary works and relate them to the historical and cultural contexts in which they were composed.
3. Enhance stylistic and rhetorical skills through engagement with literary texts.
4. Guide students in critically analyzing and interpreting literary works, using appropriate disciplinary approaches and terminology.

Defined Student Outcomes:	**Assessment Methods:**
Demonstrate comprehension of class instruction.	Performance in class participation and discussion
Identify representative literary works and relate them to the historical and cultural context in which they were composed.	Performance on a variety of quizzes, exams, oral presentations, and papers
Demonstrate analytical skills in German through engagement with literary texts.	Performance on a variety of quizzes, exams, oral presentations, and papers
Apply appropriate disciplinary approaches and terminology in investigative analyses executed in the target language.	Performance on final term papers and oral presentations

IV. Course Activities:
This course reflects a balance of learner-centered, small-group collaboration as well as instructor-delivered lesson format.

V. Methods of Assessment:
A student's grade will be based according to the syllabus of the individual instructor.

VI. Course-level Justification:
Course requires prior formal study of college German grammar at the upper-division level to ensure student success.

VII. Course Outline:

The following is a possible version of the course:

A. Introduction to Modern Language Association Style Manual
B. Weimar Classicism
C. German Romanticism
D. Sturm und Drang
E. Bildungsroman
F. Magic Realism and Kafka
G. Novelle
H. Short Prose
I. Expressionism
J. German Modernism
K. Post-1945 Poetry
L. Prose in the Unified Germany

VIII. Suggested texts

Baumann-Eisenach, Barbara, and Birgita Oberle. *Deutsche Literatur in Epochen.* Ismaning: Max Hueber Verlag, 2008.

Elm, Theo. *Lyrik der neunzigen Jahre.* Stuttgart: Philipp Reclam, 2000.

Gelfert, Hans-Dieter. *Wie interpretiert man ein Gedicht?* Stuttgart: Philipp Reclam, 1990.

---. *Wie interpretiert man ein Drama?* Stuttgart: Philipp Reclam, 2005.

---. *Wie interpretiert man eine Novelle und eine Kurzgeschichte?* Stuttgart: Philipp Reclam, 2004.

Peter, Klaus, ed. *Die politische Romantik in Deutschland.* Stuttgart: Philipp Reclam, 1990.

IX. Bibliography

Bekes, Peter. *Deutsche Autorinnen des 20. Jahrhunderts.* Stuttgart: Philipp Reclam, 2003.

Beutin, Wolfgang, Ehlert Klaus, Emmerich Wolfgang, and Chritine Kanz, eds. *Von den Anfängen bis zur Gegenwart.* Stuttgart: Verlag J. B. Metzler, 2001.

Gigl, Claus J. *Abitur-Wissen Deutsch. Deutsche Literaturgeschichte.* Freising: Stark Verlagsgesellschaft, 2008.

Gnüg, Hiltrud, and Renate Möhrmann, eds. *Frauen Literatur Geschichte. Schreibende Frauen vom Mittelalter bis zur Gegenwart.* Stuttgart: Suhrkamp Taschenbuch, 2003.

Grabert, Willy, Mulot Arno, and Helmut Nürnberger. *Geschichte der deutschen Literatur.* München: Bayrischer Schulbuch-Verlag, 2004.

Kaiser, Gerhard R. *Die deutsche Literatur in Text und Darstellung. Gegenwart.* Philipp Stuttgart: Reclam, 2004.

Kelling, Hans-Wilhelm. *Deutsche Kulturgeschichte.* Boston: McGraw Hill, 2005.

Klausnitzer, Ralf. *Literaturwissenschaft. Begriffe-Verfahren-Arbeitstechniken.* Berlin: Gruyter Studienbuch Verlag, 2004.

Lutz, Bernd, and Benedikt Jessing, eds. *Metzler Autoren Lexikon. Deutschsprachige Dichter und Schriftsteller vom Mittelalter bis zur Gegenwart.* Stuttgart: Verlag J. B. Metzler, 2004.

Marx, Leonie. *Die deutsche Kurzgeschichte.* Stuttgart: Verlag J. B. Metzler, 2004.

Mieder, Wolfgang. *Deutsche Sprichwörter und Redensarten.* Stuttgart: Philipp Reclam, 2004.

Neubauer, Martin. *Poetik in Stichworten. Literaturwissenschaftliche Grundbegriffe.* Berlin: Gebrüder Bortraeger Verlagsbuchhandlung, 2007.

Nünning, Ansgar. *Literatur-und Kulturtheorie. Ansätze-Personen-Grundbegriffe.* Stuttgart: Verlag J. B. Metzler, 2004.

Pasche, Wolfgang. *Abitur-Training Deutsch. Dramen analysieren und interpretieren.* Hallbergmoss: Stark Verlagsgesellschaft, 2006.

Rothmann, Kurt. *Kleine Geschichte der deutschen Literatur.* Stuttgart. Philipp Reclam, 2009.

Rötz, Hans Gerd. *Geschichte der deutschen Literatur. Epochen. Autoren. Werke.* Bamberg: C. C. Buchners Verlag, 2010.

Schalk, Alex. *Das moderne Drama.* Stuttgart: Philipp Reclam, 2004.

Völker, Ludwig, ed. *Lyriktheorie. Texte vom Barock bis zur Gegenwart.* Stuttgart: Philipp Reclam, 1990.

Wolff, Gerhart. *Deutsche Sprachgeschichte.* Stuttgart: Philipp Reclam, 2002.

Zeyringer, Klaus. *Österreichische Literatur seit 1945. Überblicke, Einschnitte, Wegmarken.* Innsbruck: Studienverlag, 2008.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
AS CAS	AHUM Division of Humanities	Languages

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
CHIN	A201	N/A	4	(4+0)

6. Complete Course Title
Second Year Chinese I

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☐ Credits ☐ Contact Hours
☐ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☐ Course Description ☐ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status No # of Repeats N/A Max Credits N/A

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: Fall/9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. B.A., International Studies: Northeast Asia Track	p.107	November 23, 2010	Susan Kalina, Chair
2. GER, Tier 2: Humanities	p.81	November 23, 2010	Sue Fallon, GERC Chair
3.			

Initiator Name (typed): Patricia Fagan Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: November 23, 2010
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: November 23, 2010

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☒ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Intermediate course for students with basic knowledge of Chinese. Enhances listening, speaking, reading, and writing skills for effective communication at the second year level. Students critically examine diverse cultural perspectives. Course conducted in Chinese.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
CHIN A102	N/A	N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Addition of second year Chinese language study meets student demand and can be applied to B.A. in Languages, Option II: Dual Languages, and to the B.A. in International Studies: Northeast Asia Track.

Initiator (faculty only) Date
Patricia Fagan
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE
Second Year Chinese I
CHIN A201

I. Initiation Date: Fall 2011

II. Course Information:

A. College	College of Arts & Sciences
B. Course Title:	Second Year Chinese I
C. Course Subject/Number:	CHIN A201
D. Credit Hours:	4.0
E. Contact Time:	4 + 0 hours per week
F. Grading Information:	A-F
G. Course Description:	Intermediate course for students with basic knowledge of Chinese. Enhances listening, speaking, reading, and writing skills for effective communication at the second year level. Students critically examine diverse cultural perspectives. Course conducted in Chinese.
H. Status of course relative to degree or certificate programs:	Required for B.A. degree in Languages with a secondary emphasis in Chinese.
I. Course Attributes:	Applies toward GER Tier II Humanities and toward CAS Languages/Humanities two-semester sequence.
J. Lab Fees:	Yes
K. Coordination:	UAA Faculty List Serve
L. Course Prerequisite:	CHIN A102
M. Registration Restriction:	None

III. Instructional Goals and Defined Student Outcomes:

Instructional Goals: The instructor will:

1) Create course assignments and class activities which continue to enhance listening, speaking, reading, and writing proficiency in Chinese.
2) Develop approaches in identifying the variety of ways in which cultural objects and belief systems of Chinese-speaking communities acquire value and significance.
3) Provide tools with which students can critically examine values, customs and institutions that differ from their own.

Defined Student Outcomes:	Assessment Procedures:
Demonstrate second year proficiency in listening in Chinese: Comprehend simple, yet connected discourse relating to generally predictable topics, personal environment, and social demands.	Tests
Demonstrate second year proficiency in speaking in Chinese: Communicate to satisfy simple personal needs and social demands as well as narrate or describe basic information in major time frames. Expand upon the vocabulary, grammar, and communicative functions acquired in CHIN A102.	Interviews and dialogues
Demonstrate second year proficiency in reading in Chinese: Comprehend simple, yet connected discourse relating to generally predictable topics and daily environment.	Tests
Demonstrate second year proficiency in writing in Chinese: Present uncomplicated creative language pertaining to familiar topics or relating to major aspects of life.	Writing samples and tests
Demonstrate cultural knowledge of new topics addressed. Adopt critical perspectives for understanding diversity.	Tests

IV. Course Activities:

This course reflects a balance of learner-centered, small-group collaboration as well as instructor-delivered lesson format.

V. Methods of Assessment:

A student's grade will be based upon individual performance in class-session preparedness and participation in Chinese; listening, speaking, reading, and writing assignments; oral presentations or aural/oral evaluations; written quizzes and exams.

VI. Course-level Justification:

This class is appropriate at the 200-level because it requires two semesters of previous study in Chinese.

VII. Course Outline:

A. Listening in Chinese at the second year level:

Comprehension of simple, yet connected discourse relating to generally predictable topics, personal environment, and social demands. Expansion upon the vocabulary, grammar, and communicative functions of CHIN A102.

B. Speaking in Chinese at the second year level:

Oral communication to satisfy simple personal needs and social demands as well as narrate or describe basic information in major time frames. Expansion upon the vocabulary, grammar, communicative functions of CHIN A102.

C. Reading in Chinese at the second year level:

Comprehension of simple, yet connected discourse relating to generally predictable topics and daily environment. Expansion upon the vocabulary, grammar, and communicative functions of CHIN A102.

D. Writing in Chinese at the second year level:

Presentation of uncomplicated creative language pertaining to familiar topics or relating to major aspects of life. Expansion upon the vocabulary, grammar, and communicative functions of CHIN A102.

E. Cultural knowledge of the communities which speak Chinese:

Critical examination of diverse cultural perspectives.

VIII. Required texts:

Liu Y., Yao, T., *Integrated Chinese Textbook: Simplified Character Edition, Level I, Part II*. 3rd Edition. Boston: Cheng & Tsui, 2009.

Liu Y., Yao, T., *Integrated Chinese Workbook: Simplified Character Edition, Level I, Part II*. 3rd Edition. Boston: Cheng & Tsui, 2009.

Liu Y., Yao, T., *Integrated Chinese Character Workbook, Simplified Character Edition, Level I, Part II*. 3rd Edition. Boston: Cheng & Tsui, 2009.

Liu Y., Yao, T., *Integrated Chinese Character Audio CDs, Level I, Part II*. 3rd Edition. Boston: Cheng & Tsui, 2009.

Recommended:

Concise English-Chinese Chinese-English Dictionary. New York: Oxford University Press, 2004.

IX. Bibliography and Resources:

Barme, Geremie R. *In the Red: On Contemporary Chinese Culture*. New York: Columbia University Press, 2000.

Bean, John C. *Engaging Ideas. The Professor's Guide to Integrating Writing, Critical Thinking, and Active Learning in the Classroom*. San Francisco: Jossey-Bass, 2001.

Besio, Kimberly. *Three Kingdoms and Chinese Culture*. New York: State University of New York Press, 2008.

Brown, H. Douglas. *Teaching by Principles: An Interactive Approach to Language Pedagogy.* New Jersey: Prentice Hall, 1994.

Chang, Raymond. *Speaking of Chinese: A Cultural History of the Chinese Language*. New York: W. W. Norton & Company, 2001.

Chastain, Kenneth. *Developing Second-Language Skills. Theory and Practice*. San Diego: Harcourt, Brace, Jovanovich, 1988.

Cook, V, J. *Second Language Learning and Language Teaching*. London: Arnold, 2001.
Davis, Edward. *Encyclopedia of Contemporary Chinese Culture*. London: Routledge, 2005.
Gass, Susan and Larry Selinker. *Second Language Acquisition: An Introductory Course*. New Jersey: L. Erlbaum Associates, 2001.
Gernet, Jacques. *A History of Chinese Civilization*. Cambridge: Cambridge University Press, 1996.
Huang, C–T James. *New Horizons in Chinese Linguistics*. New York: Springer, 1996.
Huang, Po-Fei. *Twenty Lectures on Chinese Culture: An Intermediary Chinese Textbook*. New Haven: Yale University Press, 1967.
Hucker, Charles O. *China's Imperial Past: An Introduction to Chinese History and Culture.* Palo Alto: Stanford University Press, 1995.
Johnson, Karen E. *Understanding Communication in Second Language Classrooms.* New York: Cambridge University Press, 1995.
_____. *Principles and Practice in Second Language Acquisition*. New York: Pergamon, 1982.
Kane, Daniel. *The Chinese Language: Its History and Current Usage.* Vermont: Tuttle Publishing, 2006.
Kasper, Gabriele. *Pragmatics of Chinese as Native and Target Language*. Honolulu: University of Hawaii Press, 1995.
Kirk, Delaney J. *Taking Back the Classroom: Tips for the College Professor on Becoming a More Effective Teacher*. Iowa: Tiberius Publications, 2005.
Krashen, Stephen. *Explorations in Language Acquisition and Use*. New Hampshire: Heinemann, 2003.
Lee, J. and Bill Van Patten. *Making Communicative Language Teaching Happen*. New York: McGraw Hill, 2003.
Lightbown, Patsy M. and Nina Spada. *How Languages are Learned*. Oxford: Oxford University Press, 2003.
Lomicka, Lara and Jessamine Cooke-Plagwitz, eds. *The Heinle Professional Series in Language Instruction. Teaching with Technology.* Boston: Heinle, 2004.
Ma, Jing-Heng Sheng. *Keys to Chinese Language: Textbook I*. New York: Columbia University Press, 2006.
McKeachie, Wilbert J. *Teaching Tips. Strategies, Research, and Theory for College and University Teachers.* New York: Houghton Mifflin Company, 1999.
Omaggio-Hadley, Alice. *Teaching Language in Context*. Boston: Heinle and Heinle Publishers, 1987.
Prabhu, N. S. *Teaching and Learning in the Language Classroom*. Oxford: Oxford University Press, 1987.
Richards, Jack C. and Willy A. Renandya. *Methodology in Language Teaching: An Anthology of Current Practice*. New York: Oxford University Press, 2002.

Saville-Troike, Muriel. *Introducing Second Language Acquisition*. Cambridge: Cambridge University Press, 2006.

Sun, Chaofen. *Chinese: A Linguistic Introduction*. Cambridge: Cambridge University Press, 2006.

Van Patten, Bill. *From Input to Output: A Teacher's Guide to Second Language Acquisition*. New York: McGraw Hill, 2003.

Wilkinson, Endymion. *Chinese History: A Manual.* Cambridge: Harvard University Press, 2000.

Recommended websites:

http://www.usc.edu/dept/ealc/chinese/newweb/character_page.html
http://www.language.berkeley.edu/ic/gb/toc.html

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
AS CAS	AHUM Division of Humanities	Languages

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
CHIN	A202	N/A	4	(4+0)

6. Complete Course Title
Second Year Chinese II

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☐ Credits ☐ Contact Hours
☐ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☐ Course Description ☐ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status No # of Repeats N/A Max Credits N/A

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: Fall/9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. B.A., International Studies: Northeast Asia Track	p.107	November 23, 2010	Susan Kalina, Chair
2. GER, Tier 2: Humanities	p81	November 23, 2010	Sue Fallon, GERC Chair
3.			

Initiator Name (typed): Patricia Fagan Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: November 23, 2010
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: November 23, 2010

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☒ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Continuation of first semester in second year Chinese. Further develops listening, speaking, reading and writing proficiency for effective communication and in preparation for advanced study of Chinese. Students interpret diverse cultural perspectives. Course conducted in Chinese.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
CHIN A201	N/A	N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Addition of second year Chinese language study meets student demand and can be applied to B.A. in Languages, Option II: Dual Languages, and to the B.A. in International Studies: Northeast Asia Track.

Initiator (faculty only) Date
Patricia Fagan
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE
Second Year Chinese II
CHIN A202

I. Initiation Date: Fall 2011

II. Course Information:

A. College	College of Arts & Sciences
B. Course Title:	Second Year Chinese II
C. Course Subject/Number:	CHIN A202
D. Credit Hours:	4.0
E. Contact Time:	4 + 0 hours per week
F. Grading Information:	A-F
G. Course Description:	Continuation of first semester in second year Chinese. Further develops listening, speaking, reading and writing proficiency for effective communication and in preparation for advanced study of Chinese. Students interpret diverse cultural perspectives. Course conducted in Chinese.

H. Status of course relative to degree or certificate programs:
Required for B.A. degree in Languages with a secondary emphasis in Chinese.

I. Course Attributes:	Applies toward GER Tier II Humanities and toward CAS Languages/Humanities two-semester sequence.
J. Lab Fees:	Yes
K. Coordination:	UAA Faculty List Serve
L. Course Prerequisite:	CHIN A201
M. Registration Restriction:	None

III. Instructional Goals and Defined Student Outcomes:

Instructional Goals: The instructor will:

1) Create course assignments and class activities which continue to advance listening, speaking, reading, and writing skills in Chinese.
2) Develop approaches in analyzing the variety of ways in which cultural objects and belief systems of Chinese-speaking communities acquire value and significance.
3) Provide tools with which students can interpret the values, customs, and institutions that differ from their own.

Defined Student Outcomes:	**Assessment Procedures:**
Demonstrate second year proficiency in listening in Chinese: Comprehend simple, yet sustained discourse built upon the vocabulary, grammar, and communicative functions acquired in CHIN A201.	Tests
Demonstrate second year proficiency in speaking in Chinese: Communicate to satisfy personal needs and work/school demands or to convey information which is built upon the vocabulary, grammar, and communicative functions acquired in CHIN A201.	Interviews and dialogues
Demonstrate second year proficiency in reading in Chinese: Comprehend simple, yet sustained discourse built upon the vocabulary, grammar, and communicative functions acquired in CHIN A201.	Tests
Demonstrate second year proficiency in writing in Chinese: Present creative language built upon the vocabulary, grammar, and communicative functions acquired in CHIN A201.	Writing samples and tests
Demonstrate cultural knowledge of new topics addressed. Integrate this knowledge with previously acquired analytical skills for interpreting diverse perspectives and practices.	Tests

IV. Course Activities:

This course reflects a balance of learner-centered, small-group collaboration as well as instructor-delivered lesson format.

V. Methods of Assessment:

A student's grade will be based upon individual performance in class-session preparedness and participation in Chinese; listening, speaking, reading, and writing assignments; oral presentations or aural/oral evaluations; written quizzes and exams.

VI. Course-level Justification:

This class is appropriate at the 200-level because it requires three semesters of previous study in Chinese.

VII. Course Outline:

A. Listening in Chinese at the second year level:

Comprehension of simple, yet sustained discourse building upon the vocabulary, grammar, and communicative functions of CHIN A201.

B. Speaking in Chinese at the second year level:

Oral communication building upon the vocabulary, grammar, and communicative functions of CHIN A201.

C. Reading in Chinese at the second year level:
Comprehension of simple, yet sustained discourse building upon the vocabulary, grammar, and communicative functions of CHIN A201.

D. Writing in Chinese at the second year level:
Presentation of creative language building upon the vocabulary, grammar, and communicative functions of CHIN A201.

E. Cultural knowledge of the communities which speak Chinese:
Interpretation of diverse cultural perspectives.

VIII. Required Texts:

Liu Y., Yao, T., *Integrated Chinese Textbook: Simplified Character Edition, Level I, Part II*. 3rd Edition. Boston: Cheng & Tsui, 2009.

Liu Y., Yao, T., *Integrated Chinese Workbook: Simplified Character Edition, Level I, Part II*. 3rd Edition. Boston: Cheng & Tsui, 2009.

Liu Y., Yao, T., *Integrated Chinese Character Workbook, Simplified Character Edition, Level I, Part II*. 3rd Edition. Boston: Cheng & Tsui, 2009.

Liu Y., Yao, T., *Integrated Chinese Character Audio CDs, Level I, Part II*. 3rd Edition. Boston: Cheng & Tsui, 2009.

Recommended:

Concise English-Chinese Chinese-English Dictionary. New York: Oxford University Press, 2004.

IX. Bibliography and Resources:

Barme, Geremie R. *In the Red: On Contemporary Chinese Culture*. New York: Columbia University Press, 2000.

Bean, John C. *Engaging Ideas. The Professor's Guide to Integrating Writing, Critical Thinking, and Active Learning in the Classroom*. San Francisco: Jossey-Bass, 2001.

Besio, Kimberly. *Three Kingdoms and Chinese Culture*. New York: State University of New York Press, 2008.

Brown, H. Douglas. *Teaching by Principles: An Interactive Approach to Language Pedagogy.* New Jersey: Prentice Hall, 1994.

Chang, Raymond. *Speaking of Chinese: A Cultural History of the Chinese Language*. New York: W. W. Norton & Company, 2001.

Chastain, Kenneth. *Developing Second-Language Skills. Theory and Practice*. San Diego: Harcourt, Brace, Jovanovich, 1988.

Cook, V, J. *Second Language Learning and Language Teaching*. London: Arnold, 2001.

Davis, Edward. *Encyclopedia of Contemporary Chinese Culture*. London: Routledge, 2005.

Gass, Susan and Larry Selinker. *Second Language Acquisition: An Introductory Course*. New Jersey: L. Erlbaum Associates, 2001.

Gernet, Jacques. *A History of Chinese Civilization*. Cambridge: Cambridge University Press, 1996.

Huang, C–T James. *New Horizons in Chinese Linguistics*. New York: Springer, 1996.

Huang, Po-Fei. *Twenty Lectures on Chinese Culture: An Intermediary Chinese Textbook*. New Haven: Yale University Press, 1967.

Hucker, Charles O. *China's Imperial Past: An Introduction to Chinese History and Culture.* Palo Alto: Stanford University Press, 1995.

Johnson, Karen E. *Understanding Communication in Second Language Classrooms.* New York: Cambridge University Press, 1995.

_____. *Principles and Practice in Second Language Acquisition*. New York: Pergamon, 1982.

Kane, Daniel. *The Chinese Language: Its History and Current Usage.* Vermont: Tuttle Publishing, 2006.

Kasper, Gabriele. *Pragmatics of Chinese as Native and Target Language*. Honolulu: University of Hawaii Press, 1995.

Kirk, Delaney J. *Taking Back the Classroom: Tips for the College Professor on Becoming a More Effective Teacher*. Iowa: Tiberius Publications, 2005.

Krashen, Stephen. *Explorations in Language Acquisition and Use*. New Hampshire: Heinemann, 2003.

Lee, J. and Bill Van Patten. *Making Communicative Language Teaching Happen*. New York: McGraw Hill, 2003.

Lightbown, Patsy M. and Nina Spada. *How Languages are Learned*. Oxford: Oxford University Press, 2003.

Lomicka, Lara and Jessamine Cooke-Plagwitz, eds. *The Heinle Professional Series in Language Instruction. Teaching with Technology.* Boston: Heinle, 2004.

Ma, Jing-Heng Sheng. *Keys to Chinese Language: Textbook I*. New York: Columbia University Press, 2006.

McKeachie, Wilbert J. *Teaching Tips. Strategies, Research, and Theory for College and University Teachers.* New York: Houghton Mifflin Company, 1999.

Omaggio-Hadley, Alice. *Teaching Language in Context*. Boston: Heinle and Heinle Publishers, 1987.

Prabhu, N. S. *Teaching and Learning in the Language Classroom*. Oxford: Oxford University Press, 1987.

Richards, Jack C. and Willy A. Renandya. *Methodology in Language Teaching: An Anthology of Current Practice*. New York: Oxford University Press, 2002.

Saville-Troike, Muriel. *Introducing Second Language Acquisition*. Cambridge: Cambridge University Press, 2006.

Sun, Chaofen. *Chinese: A Linguistic Introduction*. Cambridge: Cambridge University Press, 2006.
Van Patten, Bill. *From Input to Output: A Teacher's Guide to Second Language Acquisition*. New York: McGraw Hill, 2003.
Wilkinson, Endymion. *Chinese History: A Manual.* Cambridge: Harvard University Press, 2000.

Recommended websites:

http://www.usc.edu/dept/ealc/chinese/newweb/character_page.html
http://www.language.berkeley.edu/ic/gb/toc.html

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
AS CAS	AHUM Division of Humanities	Languages

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
SPAN	A320	N/A	4	(4+0)

6. Complete Course Title
Studies in Contemporary Cultures

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☐ Credits ☐ Contact Hours
☐ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☐ Course Description ☐ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status Yes # of Repeats 1 Max Credits 8

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: 9999/9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. International Studies	p.107	February 27, 2011	Susan Kalina, Chair
2.			
3.			

Initiator Name (typed): Patricia Fagan Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: November 15, 2010
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: November 15, 2010

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Examines contemporary works through various media (printed, electronic, and audiovisual) of multiple Spanish-speaking communities. Critical analysis through a variety of disciplinary methodologies (e.g. historical, cultural, artistic); terminology also explored and developed. Enhances Spanish language skills in writing, reading, speaking, listening, and cultural literacy.
Special note: Course may be repeated once for credit with change of subtitle.

16a. Course Prerequisite(s) *(list prefix and number)*
SPAN A302 with a grade of "C" or better

16b. Test Score(s)
N/A

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☒ Mark if course is a selected topic course

19. Justification for Action
Course created to meet the growing student and community demand in contemporary Hispanic Cultural Studies.

Initiator (faculty only) Date
Patricia Fagan
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

University of Alaska Anchorage

Course Content Guide

Department of Languages

SPAN A320

Studies in Contemporary Cultures

I. Initiation Date: Fall 2011

II. Course Information:

A.	College:	College of Arts and Sciences
B.	Course Title:	Studies in Contemporary Cultures
C.	Course Subject/Number	SPAN A320
D.	Credit Hours:	4.0
E.	Contact Time:	4 + 0 hours per week
F.	Grading Information:	A-F
G.	Course Description:	Examines contemporary works through various media (printed, electronic, and audiovisual) of multiple Spanish-speaking communities. Critical analysis through a variety of disciplinary methodologies (e.g. historical, cultural, artistic); terminology also explored and developed. Enhances Spanish language skills in writing, reading, speaking, listening, and cultural literacy. Special note: Course may be repeated once for credit with change of subtitle.
H.	Status of Course Relative to Degree or Certificate Programs:	Course may be used as an elective to satisfy the upper-division component of a Spanish major or minor.
I.	Course Attributes:	Applies toward the upper-division requirement for Spanish majors and minors.
J.	Lab Fees:	Yes
K.	Coordination:	UAA Faculty List Serve
L.	Course Prerequisite:	SPAN A302 with a grade of "C" or better.

III. Instructional Goals and Defined Student Outcomes:

Instructional Goals: The instructor will

1. Conduct the class in Spanish, soliciting student collaboration via discussion of course material.

2. Present representative authentic media and relate them to the cultural contexts in which they were composed.
3. Enhance stylistic and rhetorical skills through engagement with contemporary works.
4. Guide students in critically analyzing and interpreting cultural artifacts, using appropriate disciplinary approaches and terminology.

Defined Student Outcomes:	**Assessment Methods:**
Demonstrate comprehension of class instruction.	Performance in class participation and discussion
Identify representative contemporary works and relate them to the cultural context in which they were composed.	Performance on a variety of quizzes, exams, oral presentations, and papers
Demonstrate analytical skills in Spanish through engagement with cultural artifacts.	Performance on a variety of quizzes, exams, oral presentations, and papers
Apply appropriate disciplinary approaches and terminology in investigative analyses executed in the target language.	Performance on final term papers and oral presentations

IV. Course Activities:

This course reflects a balance of learner-centered, small-group collaboration as well as instructor-delivered lesson format.

V. Methods of Assessment:

A student's grade will be based according to the syllabus of the individual instructor.

VI. Course-level Justification:

Course requires prior formal study of college Spanish grammar at the upper-division level.

VII. Course Outline:

The following is a possible version of the course: "Reality Bytes"

In this class the student will work each week with real-life media (radio, T.V, newspapers, magazines articles, etc.) that presents different aspects of culture and traditions of the Spanish-speaking world. Students will learn the specific linguistic and semantic characteristics—and particular lexicon—of press, personal ads (from the Internet), horoscopes (magazine), cooking recipes (magazine), events calendar (brochures), three ads (T.V, radio and press), comic strip (Sunday newspaper), Interview (radio and press), Poem (song-writer song and poem), travel section (Sunday newspaper), movie review (film and magazine), literary review (short story and magazine), news article (online article, newspaper and personal interview with a Chilean journalist). Students have to produce their own magazine with corresponding sections.

VIII. Suggested texts

Azevedo, Milton M. *Lecturas periodísticas*. 5ª ed. Boston: Heinle, 1996. Print.

Quino. *Todo Mafalda*. Buenos Aires: Editorial Lumen, 1998. Print.

Tullio, Ángela Di. *Manual de gramática del español*. Buenos Aires: Edicial Universidad, 1997. Print.

IX. Bibliography

Amenós Pons, José. "Cine y literatura. Paralelismos y diferencias para el aula de E/LE." *Frecuencia L: Revista de didáctica español como segunda lengua* 7 (1998): 25-6. Print.

Bonet, Pilar y Lourdes Melción. "La importancia del parámetro sociocultural en la enseñanza del español para fines específicos." *Actas del VIII Congreso Internacional de ASALE* (1998): 175-180. Print.

Bravo Bosch, M.C. "Lava más blanco, o la publicidad en la clase de E/LE." *Actas del Quinto Congreso Internacional de ASALE* (1996): 79-88. Print.

Castelee, Ana V. "Los documentos auténticos en una enseñanza comunicativa del español para fines específicos." *Boletín de ASELE* May (2006): 51-6. Print.

Díaz Pérez, Juan Carlos. "Del cine y los medios tecnológicos en la enseñanza de E/LE." *Actas del XII Congreso Internacional de ASELE* (2002): 263-72. Print.

Estaire, Sheila, and Javier Zanón. *Planning Classwork. A Task-Based Approach*. Oxford: Macmillan Heinemann, 1994. Print.

Fernández Pinto, Jimena. *E/LE con internet! Internet paso a paso para las clases de E/LE*. Madrid: Edinumen, 2002. Print.

Ferráez Martínez, Antonio. *El lenguaje de la publicidad*. 4ª ed. Madrid: Arcos Libros, 2000. Print.

García González, Javier. "Métodos de enseñanza de lenguas segundas y su aplicación a la enseñanza del español como lengua extranjera a inmigrantes." *Didáctica* 7 (1995): 439-44. Print.

Garnacho López, Pilar. "¡De cine en la red!" *Cuadernos Cervantes de la Lengua Española* 7 (2002): 62-73. Print.

Henning, Sylvia Debevec. "The Integration of Language, Literature, and Culture: Goals and Curriculum Design." *ADFL Bulletin* 24.2 (1993): 51-5. Print.

Kramsch, Claire. "The Cultural Components of Language Teaching." *Language, Culture and Curriculum* 8.2 (1995): 83-92. Print.

Ministerio de Educación, Cultura y Deporte, and Consejo de Europa. *Marco común europeo ee referencia para las lenguas: aprendizaje, enseñanza, evaluación*. Tran. Ministerio de Educación, Cultura y Deporte. Madrid: http://cvc.cervantes.es/ensenanza/biblioteca_ele/marco/cvc_mer.pdf. Web. 09/22/10.

Pieffer, V. "El cine y las nuevas tecnologías educativas en la clase de E/LE: Resultados de una experiencia." *Actas del XII Congreso Internacional de ASELE* (2002): 37-44. Print.

Robles Ávila, Sara. "Lengua en la cultura y cultura en la lengua: La publicidad como herramienta didáctica en la clase de E/LE". *El español, lengua del mestizaje y la interculturalidad, Actas del XIII Congreso de ASELE.* 2-5 de octubre, Eds. M. Pérez Gutiérrez and Coloma Maestre, J., eds.,. Murcia. 2004. 720-730. Print.

Stephens, Julie L. "Teaching Culture and Improving Language Skills through a Cinematic Lens: A Course on Spanish Film in the Undergraduate Spanish Curriculum." *ADFL Bulletin* 33.1 (2001): 22-5. Print.

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College AS CAS	1b. Division AHUM Division of Humanities	1c. Department Languages

2. Complete Program Title/Prefix
Languages/LANG

3. Type of Program
- ☐ OEC
- ☐ Undergrad Certificate
- ☐ AA/AAS
- ☒ Baccalaureate
- ☐ Minor
- ☐ Post Baccalaureate Certificate
- ☐ Graduate
- ☐ Graduate Certificate
- ☐ Doctoral
- ☐ Specialty

4. Type of Action:

PROGRAM
- ☐ Add
- ☒ Change
- ☐ Delete

PREFIX
- ☐ Add
- ☐ Change
- ☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2011 To: Fall/9999

6a. Coordination with Affected Units
Department, School, or College: Languages
Initiator Name (typed): Patricia Fagan
Initiator Signed Initials: _________ Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: February 27, 2011

6c. Coordination with Library Liaison Date: February 27, 2011

7. Title and Program Description - Please attach the following:
☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
With the addition of CHIN A201 and CHIN A202 (Second Year Chinese I-II), the Department of Languages is able to offer Chinese as a secondary emphasis language within the existing Dual Language Option for a B.A. in Languages.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved	Dean/Director of School/College	Date
Patricia Fagan Initiator (TYPE NAME)				
☐ Approved ☐ Disapproved	Department Chairperson — Date	☐ Approved ☐ Disapproved	Undergraduate/Graduate Academic Board Chairperson	Date
☐ Approved ☐ Disapproved	Curriculum Committee Chairperson — Date	☐ Approved ☐ Disapproved	Provost or Designee	Date

LANGUAGES

Administration/Humanities Building (ADM), Room 287, (907) 786-4037
www.uaa.alaska.edu/languages/

Studying languages prepares a student to live and work in an increasingly interdependent world in which contact with other cultures is frequent and the appreciation and respect for linguistic and cultural diversity is important. The Department of Languages offers a Bachelor of Arts degree, a minor in a single language, and courses that fulfill CAS and GER requirements.

The Bachelor of Arts in Languages affords students the option of concentrating on one emphasis language (Option I), or of studying an emphasis language in combination with a second language (Option II). These options, and the degree's use of courses from outside the department to fulfill major requirements, reflect the diverse context in which students live and work, and recognize the inherent multidisciplinary nature of language study. This flexibility also allows students to select a program most suited to their educational and career goals.

The Department of Languages offers French, German, Japanese, Russian, and Spanish as emphasis languages, with additional lower division courses in American Sign Language (ASL), Chinese, Korean, and Latin. First-year courses begin building the foundations of language learning: listening, speaking, reading, and writing. Since language can only be understood within a cultural context, studying culture is included from the first semester. In courses beyond the first year, students expand and refine their language skills and further develop their cultural knowledge.

As an integral part of their education, the department recommends that all students majoring in Languages study abroad in a country of their target language(s). UAA offers a variety of opportunities for study abroad. For a full description of study abroad opportunities through UAA, students should refer to the International Study Abroad Coordinator in the Office of International Affairs. Students wishing to apply study abroad credit toward a Languages degree must petition to satisfy major and/or minor requirements with study abroad experience. The department may require post-program examinations. The department highly recommends that students discuss their study abroad plans with their academic advisor prior to participation.

Honors in Languages

The Department of Languages recognizes exceptional undergraduate students by awarding them Departmental Honors in Languages. To graduate with departmental honors, students must be declared Languages majors and meet the following requirements:

1. Meet the requirements for Graduation with Honors as listed in Chapter 7, Academic Standards and Regulations;
2. Satisfy all requirements for a BA degree in Languages;
3. Maintain an overall UAA GPA of 3.50 with a 3.85 in the major;
4. Notify their departmental advisor in writing at least two semesters prior to graduation of intent to graduate with departmental honors;
5. Receive an honors score (90 percent) (based upon criteria established by the department) on a comprehensive examination in the language(s) of focus; the comprehensive examination must be completed at least one semester prior to graduation.

Bachelor of Arts, Languages

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Academic Progress

No course in which a grade below C has been received will count toward the major or minor.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section.

D. Major Requirements

1. Students working toward a degree in Languages may choose from two options:

Option I: Single Language

a. Choose an emphasis language from French, German, Japanese, Russian, or Spanish.

b. Complete one of the following four courses: 3

ENGL A311	Advanced Composition (3)	
ENGL A435	History of Criticism (3)	
LING A101	The Nature of Language (3)	
LSSS A111	Cultural Foundations of Human Behavior (3)	

c. Complete the following four courses in the emphasis language (16 credits):

A201	Intermediate I*	4
A202	Intermediate II*	4
A301	Advanced I	4
A302	Advanced II	4

**Japanese courses have the same course number but different titles: JPN A201 Second Year Japanese I and JPN A202 Second Year Japanese II.*

d. Complete 12 credits of approved upper division electives in or related to the emphasis language or culture, at least 9 of which must be taught in the emphasis language (contact Language Program Coordinator for list of approved courses taught in English). 12

e. Complete an additional 6 credits of emphasis language approved electives in or related to the emphasis language or culture, but which must be upper division if taught in the emphasis language (contact department for list of approved courses taught in English). 6

Option II: Dual Languages

a. Choose an emphasis language from French, German, Japanese, Russian, or Spanish; and a second language from among those, or ASL, or Chinese.

b. Complete one of the following four courses: 3

ENGL A311	Advanced Composition (3)	
ENGL A435	History of Criticism (3)	
LING A101	The Nature of Language (3)	
LSSS A111	Cultural Foundations of Human Behavior (3)	

c. Complete the following four courses in the emphasis language (16 credits):

A201	Intermediate I*	4
A202	Intermediate II*	4
A301	Advanced I	4

A302	Advanced II	4

**Japanese courses have the same course number but different titles: JPN A201 Second Year Japanese I and JPN A202 Second Year Japanese II.*

d. Complete 9 credits of approved upper division electives in or related to the emphasis language or culture, at least 6 of which must be taught in the emphasis language (contact Language Program Coordinator see department for list of approved courses taught in English). 9

e. Complete 8 credits (6 credits for ASL) beyond A102 in the second language. 8

2. Students must petition to substitute study abroad language courses for certain major requirements.
3. Students may not earn a major and a minor in the same language.
4. Students must take at least 6 upper division credits, in the respective emphasis language, in courses numbered higher than A302 physically in residence at UAA.
5. A total of 120 credits is required for the degree, of which 42 credits must be upper division.

Language Credit by Placement

An accepted, degree-seeking UAA student who has completed in residence one of the Department of Languages UAA catalog courses (A102-A301) with a grade of B or better is eligible to receive credit for the two immediately preceding courses, if any, up to a total of 8 credits not to exceed the level of A202. Language Credit by Placement is limited to one time per language. This policy does not apply to credit earned through Credit by Examination, the College Board Advanced Placement Examination Program, nor to special topics (-93), independent study (-97), the course A302, or Department of Languages literature or culture courses. In order to receive credit the student must complete the appropriate form in the Office of the Registrar and pay an administrative fee.

Minor, Languages

Students who wish to minor in languages must complete the following requirements: a total of 19 credits taught in the target language at or above the 200 level with at least 11 credits being upper division. Credits must be in one discipline chosen from the following languages:

French
German
Japanese
Russian
Spanish

FACULTY

Michihiro Ama, Assistant Professor, Japanese, AFAM6@uaa.alaska.edu
Margritt Engel, Professor Emerita, German, AFMAE@uaa.alaska.edu
Patricia Fagan, Associate Professor, Spanish, AFPCF@uaa.alaska.edu
Hiroko Harada, Professor, Japanese, AFHH@uaa.alaska.edu
Susan Kalina, Professor, Russian, AFSMK@uaa.alaska.edu
Theodore Kassier, Professor, Spanish, AFTLK@uaa.alaska.edu
Nataşa Masanoviç, Associate Professor, German, AFNM@uaa.alaska.edu
Rebeca Maseda García, Assistant Professor, Spanish, AFRMG@uaa.alaska.edu
Francisco Miranda, Associate Professor, Spanish, AFFM1@uaa.alaska.edu
Sudarsan Rangarajan, Associate Professor, French, sudarsan@uaa.alaska.edu
Dave Robertson, Coordinator, American Sign Language, AFDER@uaa.alaska.edu

LANGUAGES

Administration/Humanities Building (ADM), Room 287, (907) 786-4037
www.uaa.alaska.edu/languages/

Studying languages prepares a student to live and work in an increasingly interdependent world in which contact with other cultures is frequent and the appreciation and respect for linguistic and cultural diversity is important. The Department of Languages offers a Bachelor of Arts degree, a minor in a single language, and courses that fulfill CAS and GER requirements.

The Bachelor of Arts in Languages affords students the option of concentrating on one emphasis language (Option I), or of studying an emphasis language in combination with a second language (Option II). These options, and the degree's use of courses from outside the department to fulfill major requirements, reflect the diverse context in which students live and work, and recognize the inherent multidisciplinary nature of language study. This flexibility also allows students to select a program most suited to their educational and career goals.

The Department of Languages offers French, German, Japanese, Russian, and Spanish as emphasis languages, with additional lower division courses in American Sign Language (ASL), Chinese, Korean, and Latin. First-year courses begin building the foundations of language learning: listening, speaking, reading, and writing. Since language can only be understood within a cultural context, studying culture is included from the first semester. In courses beyond the first year, students expand and refine their language skills and further develop their cultural knowledge.

As an integral part of their education, the department recommends that all students majoring in Languages study abroad in a country of their target language(s). UAA offers a variety of opportunities for study abroad. For a full description of study abroad opportunities through UAA, students should refer to the International Study Abroad Coordinator in the Office of International Affairs. Students wishing to apply study abroad credit toward a Languages degree must petition to satisfy major and/or minor requirements with study abroad experience. The department may require post-program examinations. The department highly recommends that students discuss their study abroad plans with their academic advisor prior to participation.

Honors in Languages

The Department of Languages recognizes exceptional undergraduate students by awarding them Departmental Honors in Languages. To graduate with departmental honors, students must be declared Languages majors and meet the following requirements:

1. Meet the requirements for Graduation with Honors as listed in Chapter 7, Academic Standards and Regulations;
2. Satisfy all requirements for a BA degree in Languages;
3. Maintain an overall UAA GPA of 3.50 with a 3.85 in the major;
4. Notify their departmental advisor in writing at least two semesters prior to graduation of intent to graduate with departmental honors;
5. Receive an honors score (90 percent) (based upon criteria established by the department) on a comprehensive examination in the language(s) of focus; the comprehensive examination must be completed at least one semester prior to graduation.

Bachelor of Arts, Languages

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Academic Progress

No course in which a grade below C has been received will count toward the major or minor.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section.

D. Major Requirements

1. Students working toward a degree in Languages may choose from two options:

Option I: Single Language

a. Choose an emphasis language from French, German, Japanese, Russian, or Spanish.

b. Complete one of the following four courses: 3

ENGL A311	Advanced Composition (3)	
ENGL A435	History of Criticism (3)	
LING A101	The Nature of Language (3)	
LSSS A111	Cultural Foundations of Human Behavior (3)	

c. Complete the following four courses in the emphasis language (16 credits):

A201	Intermediate I*	4
A202	Intermediate II*	4
A301	Advanced I	4
A302	Advanced II	4

**Japanese courses have the same course number but different titles: JPN A201 Second Year Japanese I and JPN A202 Second Year Japanese II.*

d. Complete 12 credits of approved upper division electives in or related to the emphasis language or culture, at least 9 of which must be taught in the emphasis language (contact Language Program Coordinator for list of approved courses taught in English). 12

e. Complete an additional 6 credits of emphasis language approved electives in or related to the emphasis language or culture, but which must be upper division if taught in the emphasis language (contact department for list of approved courses taught in English). 6

Option II: Dual Languages

a. Choose an emphasis language from French, German, Japanese, Russian, or Spanish; and a second language from among those, ~~or~~ ASL, or Chinese.

b. Complete one of the following four courses: 3

ENGL A311	Advanced Composition (3)	
ENGL A435	History of Criticism (3)	
LING A101	The Nature of Language (3)	
LSSS A111	Cultural Foundations of Human Behavior (3)	

c. Complete the following four courses in the emphasis language (16 credits):

A201	Intermediate I*	4
A202	Intermediate II*	4
A301	Advanced I	4

A302	Advanced II	4

**Japanese courses have the same course number but different titles: JPN A201 Second Year Japanese I and JPN A202 Second Year Japanese II.*

d. Complete 9 credits of approved upper division electives in or related to the emphasis language or culture, at least 6 of which must be taught in the emphasis language (contact Language Program Coordinator see department for list of approved courses taught in English). 9

e. Complete 8 credits ~~(6 credits for ASL)~~ beyond A102 in the second language. 8

2. Students must petition to substitute study abroad language courses for certain major requirements.
3. Students may not earn a major and a minor in the same language.
4. Students must take at least 6 upper division credits, in the respective emphasis language, in courses numbered higher than A302 physically in residence at UAA.
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Japanese
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Spanish

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Sudarsan Rangarajan, Associate Professor, French, sudarsan@uaa.alaska.edu
Dave Robertson, Coordinator, American Sign Language, AFDER@uaa.alaska.edu

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College AS CAS		1b. Division ASSC Division of Social Science		1c. Department Political Science	
2. Course Prefix PS	3. Course Number A312	4. Previous Course Prefix & Number NA	5a. Credits/CEUs 3.0	5b. Contact Hours (Lecture + Lab) (3+0)	

6. Complete Course Title
Comparative Northern Politics
Comparative Northern Politics
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Update CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: SPRING/2012 To: 9999/9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Political Science, BA	121	1/13/11	James Muller
2.			
3.			

Initiator Name (typed): Dalee Sambo Dorough
Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 2/25/11
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 2/25/11

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Detailed comparative analysis of political systems, political actors, and political institutions across the northern region, to contrast such entities, and evaluate the complex range of issues relevant to the region and the international community.

16a. Course Prerequisite(s) *(list prefix and number)*
PS A311

16b. Test Score(s)
N/A

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update course description, CCG, and elective nature of course

Initiator (faculty only) Date
Dalee Sambo Dorough
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

<u>Course Content Guide</u>

Comparative Northern Politics

PS A312

Date: **February 25, 2011**

College: **College of Arts and Sciences**

Course Number: **PS A312**

Number of Credits: **3**

Contact Hours: **3 + 0**

Course Program Title: **Comparative Northern Politics**

Grading Basis: **A - F**

Course Description:

Detailed comparative analysis of political systems, political actors, and political institutions across the northern region, to contrast such entities, and evaluate the complex range of issues relevant to the region and the international community.

Course Prerequisites/Test Scores/Corequisite(s)/ Other Restriction(s)/Registration Restriction(s): PS A311

Status of Course: Political Science major elective

1. **Instructional Goals and Student Outcomes:**

   a. **Instructors will**

      1. Examine the evolution of politics and political development throughout the northern region.
      2. Examine and compare northern political systems and institutions at the international, nation-state, regional and local level.
      3. Examine the general contours of intergovernmental organization, nation-state, regional, and local behavior as well as the traditional and alternative structures for furthering political interactions.
      4. Develop student communication skills, both written and oral applicable to the study of northern political development.

5. Develop student research skills relevant to the process and methods of the field of political science, particularly comparative politics.

b. Student will be able to

1. Discuss the linkages between northern political development and institutions, domestic politics, and international affairs.
2. Compare political systems across the northern region.
3. Analyze and demonstrate an understanding of northern-specific issues and politics using a comparative approach.
4. Analyze issues relating to structures and mechanisms specific to the northern region, including human rights, security, development, economics, and environmental issues
5. Demonstrate research and analytical skills as well as written and oral skills.

2. Guidelines for Evaluation:

Student evaluation is based on regular course attendance and participation in class discussion and debate; analytical essays; assigned readings; and an assessment of the student knowledge of the basic theories and specific content of contemporary northern political issues and institutions through performance on a midterm and a final examination. Letter grades correspond to current University grading criteria.

3. Course Level Justification:

This course has traditionally been at the 300-level, which is appropriate to the challenges of its subject matter and to the challenges posed by level of content introduced by the text and supplementary materials. It is a comparative course, which offers an introduction to a unique body of knowledge and literature. Because of the requirements in the course, the prerequisite of PS A311 ensures that students taking the course will have basic competence in concepts of the study of comparative political science.

4. Topical Course Outline:

- Definition of and Introduction to the Northern Region
- History and Emergence of the North as a Distinct Region
- Political Actors in the North
- Political Systems in the North: A Comparative Analysis
- Nation-States, Nationalism and their Traditional and Alternative Orientations
- Indigenous Governance: A Comparative Analysis
- Relevant International Law and Organizations in the North
- Economic, Social, and Cultural Development
- Environment and Development

- Human Rights
- Security Issues
- Globalization and its Impacts on the Arctic and Northern Region
- Contemporary Issues and Challenges

5. Suggested Texts:

Loukacheva, Natalia, Ed., *Polar Law Textbook*, 2010. Copenhagen: TemaNord.

6. Bibliography

Arctic Council available at http://www.arctic-council.org/

Government of Canada available at http://canada.gc.ca/home.html

Government of Denmark available at http://www.denmark.dk/en/menu/About-Denmark/Government-Politics/

Government of Greenland available at http://uk.nanoq.gl/

Government of Iceland available at http://www.government.is/

Government Norway available at http://www.norway.org/aboutnorway/society/political/government/

Government of Nunavut available at http://www.gov.nu.ca/en/

Government of Russian Federation available at http://www.government.ru/eng/gov/base/51.html

Government of Sweden available at http://www.sweden.gov.se/

Government of the United States of America available at http://www.usa.gov/

Inuit Circumpolar Conference available at http://inuit.org

Sami Council available at http://www.saamicouncil.net/?deptid=1113

United Nations Convention on the Law of the Sea available at http://www.un.org/Depts/los/index.htm

United Nations Declaration on the Rights of Indigenous Peoples available at http://www.un.org/esa/socdev/unpfii/en/drip.html

Vidas, Davor and Willy Østreng, Eds., *Order for the Oceans at the Turn of the Century*, 1999. The Hague: Kluwer Law International.

MEMO

TO: Curriculum Committee

FROM: Dalee Sambo Dorough, Department of Political Science

DATE: February 23, 2011

RE: PAR for PS A312

Please see the attached Program/Prefix Action Request concerning PS A312 Comparative Politics: Case Studies. The faculty of the Political Science Department met this past January to discuss course offerings and determined that we should be offering a course specifically addressing Northern Politics. Our intent is to provide students with an opportunity to learn more about the political institutions, structures, and developments specific to our Northern political environment. Therefore, we are transmitting the necessary forms (including CCG, CAR, PAR, impacted catalog pages, and this memo) for review and approval by the Committee. If you have any questions concerning this information, please contact me at 786 4993.

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College AS CAS	1b. Division ASSC Division of Social Science	1c. Department Political Science

2. Complete Program Title/Prefix
Bachelor of Arts, Political Science

3. Type of Program
☐ OEC ☐ Undergrad Certificate ☐ AA/AAS ☒ Baccalaureate ☐ Minor
☐ Post Baccalaureate Certificate ☐ Graduate ☐ Graduate Certificate ☐ Doctoral ☐ Specialty

4. Type of Action:

PROGRAM
☐ Add
☒ Change
☐ Delete

PREFIX
☐ Add
☐ Change
☐ Inactivate

5. Implementation Date (semester/year)
From: Spring/2012 To: 9999/9999

6a. Coordination with Affected Units
Department, School, or College: Political Science
Initiator Name (typed): DSD
Initiator Signed Initials: _________ Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 2/25/11

6c. Coordination with Library Liaison Date: 2/25/11

7. Title and Program Description - Please attach the following:
☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
Change of course title, content, description

Initiator (faculty only) Date
Dalee Sambo Dorough
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

POLITICAL SCIENCE

Social Sciences Building (SSB), Room 367, (907) 786-4897
http://polsci.uaa.alaska.edu

In its oldest definition, political science was called the master science. More modern definitions are less comprehensive, but of the social sciences, political science has perhaps the least definite boundaries and the widest concerns. Consequently, political science covers many different subjects, uses several diverse methods, and appeals to a variety of students.

Students come to political science because they are interested in politics: some of them with an eye to a political career, some with a scholarly intent, and many wishing to know more about this central, inescapable human concern. The Department of Political Science aims to make all students aware and critical of their first opinions (since human beings are at their most opinionated in politics), to open up the possibilities of politics, to reveal the permanent political problems, to impart an intellectual discipline, and to supply a guide for choice.

The Political Science program is divided into five areas: comparative politics, international relations, political philosophy, American politics, and political behavior. Majors in Political Science are required to take at least one course in each of these areas, to specialize in one of them, and to complete introductory courses in political science.

The department also offers minors in Political Science and Public Administration. Students selecting the Political Science minor take two introductory courses and four additional, upper division Political Science electives. Students selecting the Public Administration minor take two introductory courses; courses in public administration, public policy, and organization theory; and one additional starred (*) course in Political Science.

The department welcomes all students who want to learn more about politics. It reserves its honors for majors who earn qualifying marks both in a senior seminar and on a comprehensive examination.

Honors in Political Science

Students majoring in Political Science are eligible to graduate with departmental honors if they satisfy all of the following requirements:

1. Meet the requirements for a BA degree in Political Science.
2. Maintain a grade point average of 3.50 or above in courses applicable to the degree requirements.
3. Complete PS A492 Senior Seminar in Politics in the final spring term of study with an honor grade (A or B).
4. Receive an honors score (based upon criteria established by the department) on a comprehensive examination for majors.

   Note: Departmental honors are awarded by the Political Science faculty.

Bachelor of Arts, Political Science

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section.

D. Major Requirements

Note: Courses required for Political Science minors which may be used to meet General Education Requirements and/or College of Arts and Sciences BA requirements are designated by a section mark (§) after their titles.

1. Complete the following core courses:

PS A101	Introduction to American Government §	3
PS A102	Introduction to Political Science §	3
PS A301	Comparative Political Economy	3
PS A330	The American Political Tradition	3
PS/SOC A361	Social Science Research Methods	3
PS A492	Senior Seminar in Politics §	3

2. Complete one starred (*) course from each of the five areas below: 15

Comparative Politics

*PS A311	Comparative Politics § (3)
*PS A312	Comparative Northern Politics (3)
PS/AKNS A411	Tribes, Nations, and Peoples (3)
PS A490	Studies in Politics (1-3)

International Relations

*PS A321	International Relations § (3)
*PS A322	United States Foreign Policy (3)
PS A324	Model United Nations (3)
PS A424	International Law and Organizations (3)
PS A490	Studies in Politics (1-3)

Political Philosophy

*PS A331	Political Philosophy § (3)
*PS A332	History of Political Philosophy I: Classical § (3)
*PS A333	History of Political Philosophy II: Modern § (3)
PS A490	Studies in Politics (1-3)

American Politics

*PS A341	The United States Congress (3)
*PS A342	The American Presidency (3)
PS/JUST A343	Constitutional Law (3)
PS A344	State and Local Politics (3)
PS A345	Alaska Government and Politics (3)
PS/AKNS A346	Alaska Native Politics (3)
PS A347	Public Administration (3)
PS A348	Public Policy (3)
PS A490	Studies in Politics (1-3)

Political Behavior

*PS/SOC A351	Political Sociology § (3)
*PS A353	Political Behavior, Participation, and Democracy (3)
PS A453	Organization Theory (3)
PS A490	Studies in Politics (1-3)
PS A495	Internship in Political Science (3)

3. Complete 6 credits in additional upper division Political Science courses from one of the five areas listed above. PS A490 may be repeated with different subtitle.
4. A total of 120 credits is required for the degree, of which 42 credits must be upper division, and a minimum of 39 Political Science credits.

Minors

The Department of Political Science offers two minors, one in Political Science and one in Public Administration. A minor requires

18 credits earned according to the following rules.

Note: Courses required for Political Science minors which may be used to meet General Education Requirements and/or College of Arts and Sciences BA requirements are designated by an section mark (§) after their titles.

Political Science Minor

Introductory courses:

PS A101	Introduction to American Government §	3
PS A102	Introduction to Political Science §	3
Upper division Political Science courses		12

Public Administration Minor

Introductory courses:

PS A101	Introduction to American Government §	3
PS A102	Introduction to Political Science §	3

Additional courses, as follows:

PS A347	Public Administration	3
PS A348	Public Policy	3
PS A453	Organization Theory	3
One additional starred (*) course from one of the areas listed in item 2 above under major requirements.		3

Note: Political Science majors who earn a minor in Public Administration may not count upper division courses required for the minor (i.e., PS A347, PS A348, or PS A453) toward the major requirements in item 3 above for additional upper division credits in Political Science.

FACULTY

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James W. Muller/Chair, Professor, AFJWM@uaa.alaska.edu
Kimberly J. Pace, Term Assistant Professor, AFKJP@uaa.alaska.edu
Dalee Sambo-Dorough, Assistant Professor, AFDSD@gci.net
Carl E. Shepro, Professor, AFCES1@uaa.alaska.edu
April D. Wilson, Term Assistant Professor, AFAWS2@uaa.alaska.edu

POLITICAL SCIENCE

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Students majoring in Political Science are eligible to graduate with departmental honors if they satisfy all of the following requirements:

1. Meet the requirements for a BA degree in Political Science.
2. Maintain a grade point average of 3.50 or above in courses applicable to the degree requirements.
3. Complete PS A492 Senior Seminar in Politics in the final spring term of study with an honor grade (A or B).
4. Receive an honors score (based upon criteria established by the department) on a comprehensive examination for majors.

   Note: Departmental honors are awarded by the Political Science faculty.

Bachelor of Arts, Political Science

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section.

D. Major Requirements

Note: Courses required for Political Science minors which may be used to meet General Education Requirements and/or College of Arts and Sciences BA requirements are designated by a section mark (§) after their titles.

1. Complete the following core courses:

PS A101	Introduction to American Government §	3
PS A102	Introduction to Political Science §	3
PS A301	Comparative Political Economy	3
PS A330	The American Political Tradition	3
PS/SOC A361	Social Science Research Methods	3
PS A492	Senior Seminar in Politics §	3

2. Complete one starred (*) course from each of the five areas below: 15

Comparative Politics

*PS A311	Comparative Politics § (3)
*PS A312	Comparative Northern Politics~~: Case Studies~~ (3)
PS/AKNS A411	Tribes, Nations, and Peoples (3)
PS A490	Studies in Politics (1-3)

International Relations

*PS A321	International Relations § (3)
*PS A322	United States Foreign Policy (3)
PS A324	Model United Nations (3)
PS A424	International Law and Organizations (3)
PS A490	Studies in Politics (1-3)

Political Philosophy

*PS A331	Political Philosophy § (3)
*PS A332	History of Political Philosophy I: Classical § (3)
*PS A333	History of Political Philosophy II: Modern § (3)
PS A490	Studies in Politics (1-3)

American Politics

*PS A341	The United States Congress (3)
*PS A342	The American Presidency (3)
PS/JUST A343	Constitutional Law (3)
PS A344	State and Local Politics (3)
PS A345	Alaska Government and Politics (3)
PS/AKNS A346	Alaska Native Politics (3)
PS A347	Public Administration (3)
PS A348	Public Policy (3)
PS A490	Studies in Politics (1-3)

Political Behavior

*PS/SOC A351	Political Sociology § (3)
*PS A353	Political Behavior, Participation, and Democracy (3)
PS A453	Organization Theory (3)
PS A490	Studies in Politics (1-3)
PS A495	Internship in Political Science (3)

3. Complete 6 credits in additional upper division Political Science courses from one of the five areas listed above. PS A490 may be repeated with different subtitle.
4. A total of 120 credits is required for the degree, of which 42 credits must be upper division, and a minimum of 39 Political Science credits.

Minors

The Department of Political Science offers two minors, one in Political Science and one in Public Administration. A minor requires

18 credits earned according to the following rules.

Note: Courses required for Political Science minors which may be used to meet General Education Requirements and/or College of Arts and Sciences BA requirements are designated by an section mark (§) after their titles.

Political Science Minor

Introductory courses:

PS A101	Introduction to American Government §	3
PS A102	Introduction to Political Science §	3
Upper division Political Science courses		12

Public Administration Minor

Introductory courses:

PS A101	Introduction to American Government §	3
PS A102	Introduction to Political Science §	3

Additional courses, as follows:

PS A347	Public Administration	3
PS A348	Public Policy	3
PS A453	Organization Theory	3
One additional starred (*) course from one of the areas listed in item 2 above under major requirements.		3

Note: Political Science majors who earn a minor in Public Administration may not count upper division courses required for the minor (i.e., PS A347, PS A348, or PS A453) toward the major requirements in item 3 above for additional upper division credits in Political Science.

FACULTY

Akihiro Aoki, Affiliate Instructor, aokiakihiro@hotmail.com
Diddy R. M. Hitchins, Professor Emerita, AFDH1@uaa.alaska.edu
William A. Jacobs, Professor Emeritus, AFWAJ@uaa.alaska.edu
Mara E. Kimmel, Term Assistant Professor, AFMEK1@uaa.alaska.edu
David C. Maas, Professor Emeritus, AFDCM@uaa.alaska.edu
James W. Muller/Chair, Professor, AFJWM@uaa.alaska.edu
Kimberly J. Pace, Term Assistant Professor, AFKJP@uaa.alaska.edu
Dalee Sambo-Dorough, Assistant Professor, AFDSD@gci.net
Carl E. Shepro, Professor, AFCES1@uaa.alaska.edu
April D. Wilson, Term Assistant Professor, AFAWS2@uaa.alaska.edu

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: AS CAS
1b. Division: AHUM Division of Humanities
1c. Department: English

2. Course Prefix: ENGL
3. Course Number: A444
4. Previous Course Prefix & Number:
5a. Credits/CEUs: 3
5b. Contact Hours (Lecture + Lab): (3+0)

6. Complete Course Title: Topics in Native Literatures

Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Update CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status Yes # of Repeats 1 Max Credits 6

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: 9999/9999

12. ☐ Cross Listed with
☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. BA English (literature and education option)	100-101; 385	2/18/2011	Genie Babb, Chair, Dept. of English
2. Honors in English	100; 385	2/18/2011	Genie Babb, Chair, Dept. of English
3.			

Initiator Name (typed): Jeane Breinig Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 02/21/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 02/18/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
In-depth studies of particular topics in Native literatures. Primary emphasis on American Indian and Alaska Native literatures, but may sometimes focus upon other indigenous world literatures. Special Note: Applies once towards requirement for English majors; may be repeated once for elective credit with a change of subtitle.

16a. Course Prerequisite(s) *(list prefix and number)*
[ENGL A211, or ENGL A212,or ENGL A213, or ENGL A214] with a minimum grade of C

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☐ Mark if course has fees

18. ☒ Mark if course is a selected topic course

19. Justification for Action
Updating CCG to reflect current standards. Deleting "Offered Spring Semesters" from Special Note for scheduling flexibility.

Initiator (faculty only) Date
Jeane Breinig
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
College of Arts and Sciences
Department of English

I. Initiation Date: February 14, 2011

II. Course Information

A.	College:	College of Arts and Sciences
B.	Course Title:	Topics in Native Literatures
C.	Course Number:	ENGL A444
D.	Credit Hours:	3 credits
E.	Contact Time:	3+0
F.	Grading Information:	A-F
G.	Course Description:	In-depth studies of particular topics in Native literatures. Primary emphasis on American Indian and Alaska Native literatures, but may sometimes focus upon other indigenous world literatures. Special Note: Applies once towards requirement for English majors; may be repeated once for elective credit with a change of subtitle.
H.	Status of Course:	The course fulfills a selective requirement for BA in English (literature and education option), and is a selective requirement for Honors in English.
I.	Lab Fees:	None
J.	Coordination:	UAA Faculty Listserv
K.	Prerequisites:	[ENGL A211, or ENGL A212, or ENGL A213, or ENGL A214] with minimum grade of C
L.	Registration Restrictions:	N/A

III. Course Level Justification

This course offers an in-depth examination of a specialized subject matter and is appropriately placed at the 400 level. Students benefit from exposure to Native literatures in lower-level courses such as English 306, 307, and 343. This course is best suited to students in their junior or senior years. It is also appropriate for graduate students.

IV. Instructional Goals and Defined Outcomes

Instructional Goals *The instructor will:*	**Student Outcomes** *Students will be able to:*	**Assessment Methods**
Provide an overview of historical, political, and literary contexts of Native oral and written traditions as they relate to selected topic.	Identify and explain the historical, political, and literary contexts of Native oral and written traditions.	Class discussion, quizzes, papers.
Articulate the historical, political, and literary contexts of the selected topic.	Reconstruct and evaluate the history and critical issues of a selected topic.	Class discussion, papers.
Articulate and define terminology, theories, and interpretive strategies appropriate to the selected topic.	Demonstrate ability to use the appropriate terminology, and to synthesize and distinguish among various theories and interpretive strategies.	Class discussion, papers, and exam.
Demonstrate applicable literary/rhetorical approaches to the selected topic.	Analyze representative texts using applicable methods and evaluate their merit.	Class discussion, papers, and final exam.

V. Topical Course Outline

Because this course focuses on a selected topic, the outline and format may vary from semester to semester. The following information provides an example focusing on the study of Alaska Native and American Indian Women Writers.

A. Critical Issues: Historical Background, and Political/Literary Context
   1. Oral Traditions in Native languages
   2. English language literacy
   3. Historical and political background: contact, colonization, decolonization
   4. Literary history of American Indian and Alaska Native women writing in their indigenous languages and in English: production, reception, and interpretation
   5. Contemporary Native women writing in English: representation and gender, representation and stereotypes, and representation and identity.

B. Theoretical/Critical Approaches
   1. Western feminism
   2. Third and fourth world feminisms
   3. Eco-feminism
   4. Indigenous feminism

C. Analysis of Selected Texts
   1. Application of theoretical approaches
   2. Evaluation of theoretical approaches

VI: Suggested Texts: (Varies from semester to semester)

Primary texts:

Allen, Paula Gunn. *Spider Woman's Granddaughters: Traditional Tales and Contemporary Writing by Native American Women.* New York: Fawcett Columbine, 1989. Print.
Dauenhauer, Nora. *Life Woven with Song.* Tucson: U of Arizona P, 2000. Print.
Davidson, Cathy, and Ada Norris, eds. *Zitkala-Ša American Indian Stories, Legends and Other Writings.* New York: Penguin, 2003. Print.
Erdrich, Heid. E. and Laura Tohe, eds. *Sister Nations: Native American Women Writers on Community.* St. Paul: Minnesota Historical Society Press, 2002. Print.
Hayes, Ernestine. *Blonde Indian.* Tucson: U of Arizona P, 2005. Print.
Harjo, Joy and Gloria Bird, eds. *Reinventing the Enemy's Language: Contemporary Native Women's Writing of North America.* New York: WW Norton, 1998. Print.
Kilcup, Karen L, ed. *Native American Women's Writing 1800 - 1924 An Anthology.* Malden, Mass: Blackwell Publishers, 2005. Print.
Maracle, Lee. *Daughters are Forever.* Vancouver: Polestar, 2002. Print.
Wallis, Velma. *Raising Ourselves.* Kenmore, WA: Epicenter Press, 2002. Print.

Secondary texts:

Anderson, Kim and Bonita Lawrence, eds. *Strong Women Stories: Native Vision and Community Survival.* Toronto: Sumach Press, 2006. Print.
Green, Joyce, ed. *Making Space for Indigenous Feminism.* London: Zed Books Ltd., 2007. Print.
Mihesuah, Devon. *Indigenous American Women: Decolonization, Empowerment, Activism.* Lincoln: U of Nebraska P, 2003. Print.
Mohanty, Chandra Talpade. *Feminism without Borders: Decolonizing Theory, Practicing Solidarity.* Durham: Duke University P, 2003. Print.

VII: Bibliography:

Note: This is a selective list of references for teaching.

Berry Brill de Ramírez, Susan. *Contemporary American Indian Literatures and the Oral Tradition.* Tucson: U of Arizona P, 1999. Print.
Breinig, Jeane. "*Wahligidouk* Giver of Gifts." Atlantis*: A Women's Studies Journal.* Volume 29.2 Spring 2005. Print.
Denzin, Norman K., Yvonna S. Lincoln, and Linda Tuhiwai Smith. *Handbook of Critical and Indigenous Methodologies.* Los Angeles: Sage, 2007. Print.
Glynis Carr, ed. *New Essays in Ecofeminist Literary Criticism*. Lewisburg: Bucknell UP, 2000. Print.
Klein, Laura, F. and Lillian A. Ackerman, eds. *Women and Power in Native North America.* Norman: U of Oklahoma P, 1995. Print.
Hernández-Avila, Inés. *Reading Native American Women.* Lanham, MD: Altamira Press, 2005. Print.
Hollrah, Patrice. *"The Old Lady Trill, the Victory Yell." The Power of Women in Native American Literature.* New York: Routledge, 2004. Print.

Million, Dion. “Felt Theory: An Indigenous Feminist Approach to Affect and History.” *American Quarterly* 60 (2008): 267-272. Print.

Fast, Phyllis Ann. *Northern Athabascan Survival: Women, Community and the Future.* Lincoln: U of Nebraska P, 2002. Print.

Gilbert, Sandra M. and Susan Gubar, eds. *Feminist Literary Theory and Criticism*. New York: W.W. Norton, 2007. Print.

Goeman, Mishuana. “(Re)Mapping Indigenous Presence on the Land in Native Women’s Literature.” *American Quarterly* 60 (2008): 295-301. Print.

Gunn Allen, Paula. *The Sacred Hoop: Recovering the Feminine in American Indian Traditions.* Boston: Beacon Press, 1986. Print.

Jackson Stevi and Jackie Jones, eds. *Contemporary Feminist Theories.* New York: New York UP, 1998. Print.

Mankiller, Wilma. *Everyday is a Good Day: Reflections by Contemporary Indigenous Women.* Golden, CO: Fulcrum Publishing, 2005. Print.

Moore, MariJo, ed. *Genocide of the Mind: New Native American Writing.* New York: Thunder Mountain Press, 2003. Print.

Smith, Andrea and J. Kēhauliani Kauanui. “Native Feminisms Engage American Studies.” *American Quarterly* 60 (2008): 241-249. Print.

Suzak, Cheryl, et al. *Indigenous Women and Feminism: Politics, Activism, Culture*. Vancouver: U of British Columbia P, 2010. Print.

Warhol, Robyn R. “Guilty Cravings: What Feminist Narratology can do for Cultural Studies.” *Narratologies: New Perspectives on Narrative Analysis*. Ed. David Herman. Columbus: Ohio State University P, 1999. Print.

Warren, Karen J. and Nisvan Erkel, eds. *Ecofeminism: Women, Culture, Nature*. Bloomington: Indiana UP, 2001. Print.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College
CB CBPP

1b. Division
ADBP Division of Business Programs

1c. Department
CIS

2. Course Prefix
CIS

3. Course Number
A460

4. Previous Course Prefix & Number
N/A

5a. Credits/CEUs
3

5b. Contact Hours (Lecture + Lab)
(3+0)

6. Complete Course Title
Web Development in the .Net Environment
Web Development in .NET
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☒ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
  ☐ Class ☐ Level
  ☐ College ☐ Major
☒ Other Update CCG (please specify)

☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☒ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Business Administration, Management Information Systems	135	03/25/2011	Minnie Yen
2. CIS A489	350	03/25/2011	Minnie Yen
3.			

Initiator Name (typed): Dennis Drinka
Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 03/25/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/25/2011

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Development of data-driven web applications within the .Net environment. Uses ASP.Net and C# as the development environment. Special note: Assumes previous programming experience with XHTML and CSS.

16a. Course Prerequisite(s) *(list prefix and number)*
(CIS A210 and CIS A376) with a minimum grade of C

16b. Test Score(s)
N/A

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
College of Business and Public Policy majors must be admitted to upper-division standing

17. ☒ Mark if course has fees Standard CBPP computer lab fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Changed prerequisite, course description, and updated bibliography and recommended texts.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved Dean/Director of School/College — Date
Dennis Drinka Initiator (TYPE NAME)		
☐ Approved ☐ Disapproved Department Chairperson	Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson — Date
☐ Approved ☐ Disapproved Curriculum Committee Chairperson	Date	☐ Approved ☐ Disapproved Provost or Designee — Date

COURSE CONTENT GUIDE
UNIVERSITY OF ALASKA ANCHORAGE
COLLEGE OF BUSINESS AND PUBLIC POLICY

I. Date Initiated April 6, 2011

II. Course Information

College/School: College of Business and Public Policy
Department: Computer Information Systems
Program: Bachelor of Business Administration, Management Information Systems
Course Title: Web Development in the .Net Environment
Course Number: CIS A460
Credits: 3.0
Contact Hours: 3 per week x 15 weeks = 45 hours
0 lab hours
Approximately 6-10 hours outside of class per week x 15 weeks = 90 - 150 hours
Grading Basis: A - F
Course Description: Development of data-driven web applications within the .Net environment. Uses ASP.Net and C# as the development environment. Special note: Assumes previous programming experience with XHTML and CSS.
Course Prerequisites: (CIS A210 and CIS A376) with a minimum grade of C.
Registration Restrictions: College of Business and Public Policy majors must be admitted to upper-division standing
Fees: Standard CBPP computer lab fee

III. Course Activities

A. Lectures
B. Programming exercises
C. Project walk-throughs

IV. Guidelines for Evaluation

A. Exams
B. Cases
C. Independent research project

V. Course Level Justification

Builds on knowledge and skills learned in 200-level courses. Integrates this knowledge with new tools and web development concepts.

VI. Outline

A. Overview of the ASP.Net Framework

B. Basic Controls
   1. Standard controls
   2. Validation controls
   3. Rich controls

C. Navigation
   1. Master Pages
   2. Navigation controls
   3. Site Maps
   4. Menus

D. Database
   1. ADO.Net
   2. Data binding
   3. Data sources
      a) XmlDataSource
      b) SqlDataSource
   4. Database Controls
      a) List controls
      b) GridView control
      c) DetailsView and FormView controls
      d) Repeater and DataList controls
      e) ListView and DataPager controls

E. Security
   1. Login controls
   2. ASP.Net Membership

F. Maintaining Application State
   1. Cookies
   2. Session variables and Application variables
   3. Profiles

G. AJAX

VII. Suggested Texts

MacDonald, M., Freeman, A., Szpuszta, M., Ferracchiati, F., & Meister, T. (2010). *Pro ASP.NET 4 in C# 2010* (4th ed.). Berkeley, CA: Apress.

Randolph, N. & Bennett, J. (2010). *Professional Visual Studio 2010*. Indianapolis, IN: [Wrox]/Wiley Pub.

Walther, S., Hoffman, K., & Dudek, N. (2011). *ASP.NET 4.0 unleashed* . Indianapolis, IN: Sams.

VIII. Bibliography

Egan, D. & Valenzuela, S. (2009). Professional ASP.NET design patterns. Indianapolis, IN: Wrox.

MacDonald, M. (2010). *Pro WPF in C# 2010: Windows presentation foundation in .NET 4*. New York, N.Y: Apress.

Muhammad, F. & Milner, M. (2003). *Real world ASP.NET best practices.* Berkeley, CA: Apress.

Nathan, A. & Lehenbauer, D. (2008). *Windows presentation foundation unleashed* ([Nachdr.] ed.). Indianapolis, IN: Sams.

Sanderson, S., Turalski, S., Skowronski, J., & Avery, B. (2010). *Pro ASP.NET MVC 2 framework* (2nd ed.). Berkeley, CA: Apres.

Wenz, C. (2007). *Programming ASP.NET AJAX* . Beijing: O'Reilly.

IX. Instructional Goals and Student Outcomes

A. Instructional Goals. The instructor will:
1. Introduce students to the ASP.Net development environment
2. Prepare students for developing data-driven web applications using ASP.Net controls
3. Guide students through the development of a comprehensive web application project

B. Student Outcomes. Students will be able to:	**Assessment Method**
1. Build static web forms	Cases and exams
2. Validate data entry values	Cases and exams
3. Design and development web page navigation	Cases and exams
4. Connect controls to data sources	Cases and exams
5. Design and develop data-driven web pages	Cases and exams
6. Design and develop database administration web pages	Cases and exams
7. Preserve session state values	Cases and exams

8. Development authentication and authorization security for resource access	Cases and exams
9. Demonstrate the use of AJAX tools	Independent research project

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
AS CAS	AHUM Division of Humanities	PHIL

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
PHIL	A320	NA	3	(3+0)

6. Complete Course Title
Philosophy of Religion

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☐ Credits ☐ Contact Hours
☐ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☐ Course Description ☐ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status No # of Repeats NA Max Credits NA

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: 9999/9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1.			
2.			
3.			

Initiator Name (typed): _____ Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: 2/22/10
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 2/28/10

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
An advanced study of current issues in philosophy of religion including topics such as the existence of God, the nature of divine attributes, the problem of evil, science and religion, the meaningfulness of religious language, the epistemology of religious experience, and non-western perspectives on religion with an emphasis on critical reasoning, argument evaluation, and analysis.

16a. Course Prerequisite(s) *(list prefix and number)*
PHIL A101 or PHIL A201 or PHIL A211 or PHIL A212 or PHIL A301 with a minimum grade of C

16b. Test Score(s)
NA

16c. Co-requisite(s) *(concurrent enrollment required)*
NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
NA

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Students have expressed great interest in a course of this type. Also, this course is a key component to the new religious studies track within the philosophy BA program.

Initiator (faculty only) Date

Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE

I. Date of course initiation August 29, 2011

II.

A. College: College of Arts and Sciences

B. Course Subject: Philosophy

C. Course Number: PHIL A320

D. 3 credits/3 lecture hours per week

E. Course Program: CAS Bachelor of Arts

F. Course Title: Philosophy of Religion

G. Grading Basis: A-F

H. Course Description: An advanced study of current issues in philosophy of religion including topics such as the existence of God, the nature of divine attributes, the problem of evil, science and religion, the meaningfulness of religious language, the epistemology of religious experience, and non-western perspectives on religion with an emphasis on critical reasoning, argument evaluation, and analysis.

I. Prerequisites: PHIL A101 or PHIL A201 or PHIL A211 or PHIL A212 or PHIL A301 with a minimum grade of C.

Registration Restriction: none

J. Course Fee: No.

III. Instructional Goals and Student Outcomes

Instructional Goals. The instructor will:

- Provide instruction in and background to central problems in philosophy of religion.
- Provide meaningful connections between philosophy of religion and other fields of inquiry.
- Provide techniques and methodologies for critical thinking in philosophy of religion including some informal instruction in logic.

Student Outcomes. Students will be able to:

- Participate in the scholarly debate on issues in philosophy of religion.
- Draw connections between scholarship in philosophy of religion and fields of study in philosophy and elsewhere.

- Critically evaluate positions and arguments on religious topics.

IV. Guidelines for Evaluation:

Evaluation procedures are at the discretion of the faculty member teaching the course; however, evaluation will include, but not be limited to, exams, papers, presentations, argument analyses, and quizzes.

V. Course Level Justification:

a. The course satisfies all of the criteria for an upper division course. This course includes knowledge integration of GER Basic College-Level skills (Tier 1) and Disciplinary Areas (Tier 2) as part of its design (UAA GER Humanities requirement).

PHIL 320
Philosophy of Religion
Course Outline

I. Existence of God
    a. Arguments
        i. Ontological
        ii. Cosmological
        iii. Teleological
            1. Intelligent design
        iv. Pascal's Wager
II. Divine attributes
    a. Omniscience
        i. Foreknowledge and freedom
    b. Omnipotence
    c. Impassibility
    d. Moral perfection
    e. The Openness of God
III. Religious Epistemology
    a. Religious experience
    b. Mysticism
    c. Social and cultural knowledge
IV. The Problem of Evil
    a. Logical version
    b. Evidential version
    c. Existential version
    d. Defense and theodicy
V. Non-Western or non-traditional concepts of God
    a. Impersonal conceptions of God
    b. Materialist conceptions of God
    c. Feminist critique of traditional theology
    d. God and nature

Selected Textbooks:

Gale, Richard. (2006) *On the Philosophy of Religion*. Boston, MA: Wadsworth.

Peterson, Michael et al. (eds.) (2001) *Philosophy of Religion: Selected Readings*. Oxford: Oxford University Press.

Schellenberg, J., (2005) *Prolegomena to Philosophy of Religion*, Ithaca, NY: Cornell University Press.

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Beaty, M. (ed.) 1990, *Christian Theism and the Problems of Philosophy*, Notre Dame: University of Notre Dame Press.
Brown, D., 1987, *Continental Philosophy and Modern Theology*, Oxford: Blackwell.
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Craig, W.L. and Smith, Q. 1993, *Theism, Atheism, and Big Bang Cosmology*, Oxford: Clarendon Press.
Creel, R., 1995, *Divine Impassibility*, Cambridge: Cambridge University Press.
Davis, C., 1989, *The Evidential Force of Religious Experience,* Oxford: Oxford University Press.
Dombrowski, D. 2006. Rethinking the Ontological Argument. Cambridge: Cambridge University Press.
Dore, R., 1984, *Theism*, Dordrecht: D. Reidel.
Earmon, J., *Hume's Abject Failure*, Oxford: Oxford University Press.
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Flew, A. and MacIntyre (eds.), 1995, *New Essays in Philosophical Theology,* New York: Macmillan.
Forrest, P., 1996, *God without the Supernatural*: A *Defense of Scientific Theism*, Ithaca: Cornell University Press.
Geivett, R. and Sweetman, B. (eds.), 1992: *Contemporary Perspectives on Religious Epistemology,* Oxford: Oxford University Press.
Gellman, J., 1997, *Experience of God and the Rationality of Theistic Belief*, Ithaca: Cornell University Press.
–––, 2001, *Mystical Experience of God: A Philosophical Inquiry*. London: Ashgate.
Griffiths, P., 1994, *On Being Buddha*, Albany: State University of New York Press.
Hasker, W., 1989, *God*, *Time*, *and Knowledge*, Ithaca: Cornell University Press.
Helm, P., 1988: *Eternal God*, Oxford: Oxford University Press.
–––, 2000, *Faith and Reason*, Oxford: Oxford University Press.
Hepburn, R.W., 1963, "From World to God", *Mind*, 72, 40–50.
Hick, J., 1978, *Evil and the God of Love*, New York: Harper and Row.
–––, 1973, *God and the Universe of Faiths*, London: Macmillan.
–––, 1989, *An Interpretation of Religion: Human Responses to the Transcendent*, New Haven, CT: Yale University Press.
–––, 1990, *Philosophy of Religion* (4th ed), Englewood Cliffs, NJ: Prentice-Hall.
–––, 1966, *Rational Theistic Belief without Proof*, London and Basingstoke: Macmillan.
–––, (ed.) 1970, *Classical and Contemporary Readings in the Philosophy of Religion*, Englewood Cliffs, NJ: Prentice-Hall.
Hick, J. and McGill, A. (eds.), 1967, *The Many Faced Argument*, New York: Macmillan.
Hill, D., 2005, *Divinity and Maximal Greatness*, London: Routledge.
Howard-Snyder, D. (ed.), 1996, *The Evidential Argument from Evil*, Bloomington: Indiana University Press.
Howard-Snyder, D. and Moser, P. (eds.), 2001, *Divine Hiddenness*, Cambridge: Cambridge University Press.
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Kvanvig, J., 1986, *The Possibility of an All-Knowing God*, London: Macmillan.
Kwan, Kai-man., 2003. "Is the Critical Trust Approach to Religious Experience Incompatible with Religious Particularism? *Faith and Philosophy* 20:2, 152-169
Mackie, J., 1985, *The Miracle of Theism*, Oxford: Clarendon Press.
Malcolm, N., 1975, "The Groundlessness of Religious Beliefs", in S. Brown (ed.), *Reason and Religion*, Ithaca: Cornell University Press, 143–157.
Martin, M., 1990, *Atheism*, Philadelphia: Temple University Press.
Meynell, H., 1982, *The Intelligible Universe*, New York: Barnes and Noble.
Mitchell, B. (ed.), 1971, *The Philosophy of Religion*, Oxford: Oxford University Press.

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Morris, T.V., 1991, *Our Idea of God*, Downers Grove: InterVarsity.
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Morris, T. V. (ed.), 1987, *The Concept of God*, Oxford: Oxford University Press.
Nielsen, K., 1996, *Naturalism Without Foundations*, Buffalo: Prometheus Press.
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——, 1995, *Ontological Arguments and Belief in God*, Cambridge: Cambridge University Press.
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Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
AS CAS	AHUM Division of Humanities	Philosophy

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
PHIL	A350	NA	3	(3+0)

6. Complete Course Title
Contemporary Social and Political Philosophy
Cont Social and Political Phil
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☐ Credits ☐ Contact Hours
☐ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☐ Course Description ☐ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: 9999/9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1.			
2.			
3.			

Initiator Name (typed): _____ Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 2/22/2010
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/4/2010

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Evaluates the philosophical merits of contemporary (20th Century to Present) theories of justice, government, citizenship, culture, and society. Theories are explored in light of their foundations in ethics, epistemology, metaphysics, philosophy of language, and theories of rationality. Topics include, but are not limited to, the justification of human rights, democracy, economic social structures; and critical theories of society.

16a. Course Prerequisite(s) *(list prefix and number)*

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Completion of GER Tier 1

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Department and College currently has no course devoted to contemporary social and political philosophy. Social and political philosophy is a key area of the discipline and for students in the program's law track.

Initiator (faculty only) Date	☐ Approved ☐ Disapproved Dean/Director of School/College Date
Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved Department Chairperson Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date
☐ Approved ☐ Disapproved Curriculum Committee Chairperson Date	☐ Approved ☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE

I. Date of course initiation August 29, 2011

II.

A. College: College of Arts and Sciences

B. Course Subject: Philosophy

C. Course Number: PHIL A350

D. 3 credits/3 lecture hours per week

E. Course Program: CAS Bachelor of Arts in Philosophy

F. Course Title: Contemporary Social and Political Philosophy

G. Grading Basis: A-F

H. Course Description: Evaluates the philosophical merits of contemporary (20th Century to Present) theories of justice, government, citizenship, culture, and society. Theories are explored in light of their foundations in ethics, epistemology, metaphysics, philosophy of language, and theories of rationality. Topics include, but are not limited to, the justification of human rights, democracy, economic social structures; and critical theories of society.

I. Prerequisites: Completion of Tier 1 GER

J. Course Fee: No.

III**.** Instructional Goals and Student Outcomes

Instructional Goals. The instructor will:

- Provide a theoretical context for understanding the leading philosophical debates in social and political philosophy.
- Explore the foundations of political and social philosophy in ethics, epistemology, metaphysics, and theories of rationality.
- Promote the techniques and methodologies important for critical thinking and civic reasoning.
- .

Student Outcomes. Students will be able to:

- Analyze the critical debates in social and political philosophy through critical discussion and thesis-driven writing assignments.

- Articulate the philosophical foundations for various theories in social and political philosophy.
- Provide a rational critique, both written and oral, of theories and positions held by contemporary political and social philosophers.

IV. Guidelines for Evaluation and Assessment

Evaluation procedures are at the discretion of the faculty member teaching the course; however, evaluation will include, but not be limited to, exams, papers, presentations, argument analyses, and quizzes.

V. Course Level Justification

The course satisfies all of the criteria for an upper division course. This course includes knowledge integration of GER Basic College-Level skills (Tier 1) and Disciplinary Areas (Tier 2) as part of its design (UAA GER Humanities requirement).

VI. Course Outline

Social and Political Philosophy

1. Introduction
    1.1 Historical overview
    1.2 Theoretical background
    1.3 Philosophical nature of social and political philosophy
2. State and Society
    2.1. Skinner on the state
    2.2. Gauthier on the social contract as ideologue
    2.3. Taylor on civil society
3. Democracy
    3.1. Habermas on the public sphere
    3.2. Dahl on procedural democracy
    3.3. Cohen on deliberation and democratic legitimacy
4. Justice
    4.1. Rawls on justice as fairness
    4.2. Nozick on distributive justice
    4.3. Young on policy and group difference
    4.4 Waldron on historic injustice
5. Rights
    5.1. Hart, "Are There any Natural Rights?"
    5.2. Dworkin, "Taking Rights Seriously"
    5.3. Kymlicka, "Justice and Minority Rights"

6. Liberty
    6.1. Different conceptions of liberty
    6.2. Taylor on negative liberty
    6.3. Cohen on liberty and equality
    6.4. Galston on liberty in a pluralistic society
7. Equality
    7.1. Williams, "The Idea of Equality"
    7.2. Parfit, "Equality and Priority"
    7.3. Sen, "Equality of What?"
    7.4. Arneson, "Egalitarianism and the Undeserving Poor"

VII. Suggested Texts

Christiano, Thomas and Christman, John, eds., 2009, *Contemporary Debates in Political Philosophy*. Blackwell: Oxford. 2009.

Delanty, Gerard and Turner, Stephen P. eds., 2011, *Routledge International Handbook Of Contemporary Social and Political Theory*. Routledge: London.

Goodin, Robert E. and Pettit, Phillip, 2006, *Contemporary Political Philosophy*. Blackwell: Oxford.

VIII. Bibliography

Appiah, K. A., 1996, "Race, Culture, Identity: Misunderstood Connections," in Color Conscious, Anthony Appiah and Amy Gutmann, Princeton, NJ: Princeton University Press.

Adorno, Theodore & Horkheimer, Max, 2002, Dialectic of Enlightenment: Philosophical Fragments (1947), ed. G. S. Noerr, trans. E. Jephcott, Stanford: Stanford University Press.

Benhabib, Seyla. 1996. Democracy and Difference: Contesting the Boundaries of the Political, Princeton, N.J.: Princeton University Press.

Buchanan, J. and Tullock, G., 1965, The Calculus of Consent: Logical Foundations of Constitutional Democracy, Ann Arbor, MI: University of Michigan Press.

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Dworkin, Ronald. 1977, Taking Rights Seriously, Harvard University Press, Cambridge, Mass.

Habermas, Jurgen, 1996. Between Facts and Norms, Cambridge: MIT Press.

Gauthier, David. 1986, Morals By Agreement, Oxford: Oxford University Press.

Gumann, Amy, 1992, Multiculturalism and 'The Politics of Recognition', Princeton: Princeton University Press.

Lippmann, Walter. 2004, The Phantom Public, New Brunswick, NJ: Transactions Publishing.

Mills, Charles. 1997, The Racial Contract, Ithaca: Cornell University Press.

MacKinnon, Catharine A. 1989. Toward a Feminist Theory of the State. Cambridge, Mass.: Harvard University Press.

Marshall, Thomas Humphrey, 1950, 'Citizenship and Social Class,' and Other Essays, Cambridge: Cambridge University Press.

Narveson, Jan. 1988, The Libertarian Idea, Philadelphia: Temple University Press.

Nozick, Robert. 1974, Anarchy, State and Utopia, New York: Basic Books.

Okin, Susan, 1989, Justice, gender, and the family, New York: Basic Books.

Pateman, Carole, 1989, The Sexual Contract, Stanford: Stanford University Press.

Sen, Amartya., 1999, Development as Freedom, New York: Knopf.

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Division	1c. Department
AS CAS	AHUM Division of Humanities	Philosophy

2. Complete Program Title/Prefix
Bachelor of Arts, Philosophy

3. Type of Program
- ☐ OEC
- ☐ Undergrad Certificate
- ☐ AA/AAS
- ☒ Baccalaureate
- ☐ Minor
- ☐ Post Baccalaureate Certificate
- ☐ Graduate
- ☐ Graduate Certificate
- ☐ Doctoral
- ☐ Specialty

4. Type of Action:

PROGRAM	**PREFIX**
☐ Add	☐ Add
☒ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Fall /2011 To: 9999/9999

6a. Coordination with Affected Units — Department, School, or College: CAS
Initiator Name (typed): John Mouracade — Initiator Signed Initials: _________
Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 2/22/10

6c. Coordination with Library Liaison Date: 3/04/10

7. Title and Program Description - Please attach the following:
☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
(1) For addition of religious studies track, this proposal is in response to student needs and interest. Using the law track as a model, the philosophy department is able to offer a rigorous and interdisciplinary program of study with an emphasis on religious studies.

Initiator (faculty only) — Date
Initiator (TYPE NAME)
☐ Approved ☐ Disapproved — Department Chairperson — Date
☐ Approved ☐ Disapproved — Curriculum Committee Chairperson — Date
☐ Approved ☐ Disapproved — Dean/Director of School/College — Date
☐ Approved ☐ Disapproved — Undergraduate/Graduate Academic Board Chairperson — Date
☐ Approved ☐ Disapproved — Provost or Designee — Date

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Division	1c. Department
AS CAS	AHUM Division of Humanities	Philosophy

2. Complete Program Title/Prefix
Minor, Philosophy

3. Type of Program

☐ OEC ☐ Undergrad Certificate ☐ AA/AAS ☐ Baccalaureate ☒ Minor
☐ Post Baccalaureate Certificate ☐ Graduate ☐ Graduate Certificate ☐ Doctoral ☐ Specialty

4. Type of Action:

PROGRAM	PREFIX
☐ Add	☐ Add
☒ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Fall /2011 To: 9999/9999

6a. Coordination with Affected Units — Department, School, or College: CAS
Initiator Name (typed): John Mouracade — Initiator Signed Initials: _________
Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 2/22/10

6c. Coordination with Library Liaison Date: 3/4/10

7. Title and Program Description - Please attach the following:

☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
The philosophy minor was described inconsistently in the previous catalog. We needed to correct that error and decided to modify the minor so as to simplify the options and give students more flexibility in completing a minor in philosophy.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved — Dean/Director of School/College	Date
Initiator (TYPE NAME)			
☐ Approved ☐ Disapproved — Department Chairperson	Date	☐ Approved ☐ Disapproved — Undergraduate/Graduate Academic Board Chairperson	Date
☐ Approved ☐ Disapproved — Curriculum Committee Chairperson	Date	☐ Approved ☐ Disapproved — Provost or Designee	Date

PHILOSOPHY

Administration/Humanities Building (ADM), Room 254, (907) 786-4455
http://philosophy.uaa.alaska.edu

Philosophy is the creative and critical reflection on enduring questions concerning the nature of the world and our place in it. For example, philosophy asks metaphysical questions about what exists, epistemic questions about what we can know, and ethical questions about the nature of the good life and right action. In addition, philosophy involves the study and practice of good reasoning and clear thinking, skills that are essential to any discipline or profession.

The Philosophy Department offers a variety of courses in the central areas of philosophy that acquaint students with the rich, living traditions of the world and explore historical and contemporary issues. Departmental faculty have a wide range of philosophical interests and expertise, with a particular strength in theoretical and applied ethics.

The Philosophy Department offers several options for students interested in the study of philosophy: (1) a Bachelor of Arts in Philosophy, with a philosophy track, a religious studies track, a law track, or an applied ethics track; (2) a Certificate of Applied Ethics; (3) a minor in Philosophy. Please read the introduction to each program below to determine which one of these options may be suitable for your particular needs.

The Philosophy Track is designed for students planning to go on to graduate school in Philosophy or other humanities areas such as Religious Studies, Theology, or Classics. It would also be a suitable second major for those planning graduate studies in History, English, French or German literature. In general, it is ideal for students who are seeking jobs in fields where writing, critical thinking, and general liberal arts skills are in demand, or for life-long learners interested in philosophy.

The Religious Studies Track is designed for students who want to learn about and reflect on religious traditions in a philosophical manner. Students completing this track will be prepared for graduate study in philosophy or religion.

The Law Track is designed for students planning on attending law school or related professional schools.

The Applied Ethics Track is designed for four types of students: (1) those who intend to pursue a graduate degree in philosophy with programs that specialize in applied ethics; (2) those interested in a strong liberal arts degree (3) those who are seeking careers in the nonprofit sector, public administration, helping professions, or government service; and (4) those interested in the study of practical ethics.

The Certificate in Applied Ethics is designed for students whose intended careers will be complemented by emphasis in ethics education: for example, business majors who may plan also to be ethics officers; those who intend to become professionals, such as lawyers, nurses, social workers, or engineers; or those in public administration, the helping professions, government service, and nonprofits. It will also be applicable to persons presently in the workforce such as corporate ethics officers, executives, and professionals who are seeking career advancement or simply want to acquire skills and knowledge in ethical decision-making.

The Minor in Philosophy is designed for students who are interested in philosophy but pursuing another degree and for students majoring in a discipline that is complemented by the study of philosophy, such as History, Justice, English, Psychology, Anthropology, Sociology, Mathematics, or the natural sciences. The Law Track is intended for students who plan to attend law school but may be majoring in another degree. This is an appropriate minor for Justice majors.

PHILOSOPHY DEPARTMENT HONORS

The Department of Philosophy recognizes exceptional undergraduate students by awarding them Departmental Honors in Philosophy. Students majoring in any one of the Bachelor of Arts tracks in Philosophy are eligible to graduate with departmental honors upon satisfaction of all of the following requirements:

1. Meet the requirements for a Bachelor of Arts degree in Philosophy.
2. Meet the requirements for Graduation with Honors as listed in Chapter 7 of this UAA catalog.
3. Maintain a grade point average of 3.75 or above in courses specific to the Philosophy major.
4. Complete the Senior Research Project, PHIL A498, with an honor grade (A), and a recommendation for departmental honors from the student's faculty committee for this course.
5. Notify the chair in writing, on or before date on which the Application for Graduation with the Office of the Registrar is filed, of the intention to graduate with departmental honors .

BACHELOR OF ARTS, PHILOSOPHY

ADMISSION REQUIREMENTS

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

GRADUATION REQUIREMENTS

Students must complete the following graduation requirements:

A. GENERAL UNIVERSITY REQUIREMENTS

Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.

B. GENERAL EDUCATION REQUIREMENTS

Complete the General Education Requirements for Baccalaureate Degrees located at the beginning of this chapter.

C. COLLEGE OF ARTS AND SCIENCES REQUIREMENTS

Complete the College of Arts and Sciences Requirements for the Bachelor of Arts listed at the beginning of the CAS section.

D. MAJOR REQUIREMENTS

1. Complete the following core courses:

Logical Reasoning and Argumentation:

PHIL A101	Introduction to Logic	3

Foundations of Philosophy:

PHIL A201	Introduction to Philosophy	3
PHIL A211	History of Philosophy I	3
PHIL A212	History of Philosophy II	3

Ethical Theory and Value studies:

PHIL A301	Ethics	3

2. Choose one of the following tracks:

Note: Courses selected may not be used in more than one track.

Philosophy Track (21 credits)

Complete the following courses:

Applied Ethics: Complete one course from the following:

PHIL A302	Biomedical Ethics	3
PHIL/ ENVI A303	Environmental Ethics	3
PHIL A304	Business Ethics	3
PHIL A405	Professional Ethics	3

Philosophical Problems: Complete one course from each of the following two groups:

Group A

PHIL A309	Philosophy of Mind	3
PHIL A317	Metaphysics	3

Group B

PHIL A318	Epistemology	3
PHIL A421	Philosophy of the Sciences	3

***Topics in Philosophy: Complete one course from the* following:**

PHIL A313	Eastern Philosophy and Religion	3
PHIL A314	Western Religion	3
PHIL A320	Philosophy of Religion	3
PHIL A350	Contemporary Social and Political Philosophy	3
PHIL A401	Aesthetics	3
PHIL A406	Philosophy of Law	3
PHIL A415	Feminist Philosophy	3

Complete the following three courses:

PHIL A423	Advanced Ethical Theory	3
PHIL A490	Topics in Contemporary Philosophy	3
PHIL A492	Seminar on an Enduring Philosopher	3

Religious Studies Track (21 credits)

Complete the following courses:

PHIL A313	Eastern Philosophy and Religion	3
PHIL A314	Western Religions	3
PHIL A320	Philosophy of Religion	3
Complete one of the following:		
PHIL A317	Metaphysics	3
PHIL A318	Epistemology	3
Complete one of the following:		
ANTH A200	Natives of Alaska	3
AKNS A201	Alaska Native Perspectives	3
Complete one of the following:		
SOC A347	Sociology of Religion	3
ANTH A335	Native North Americans	3
ANTH A400	Anthropology of Religion	3
Complete one of the following:		
PHIL A423	Advanced Ethical Theory	3
PHIL A490	Topics in Contemporary Philosophy	3
PHIL A492	Seminar on an Enduring Philosopher	3

Law Track (21 credits)

Complete the following courses:

Professional Ethics:		
PHIL A405	Professional Ethics	3
Philosophical Foundations of the Law:		
PS A332	History of Political Philosophy I: Classical	3
PS A333	History of Political Philosophy II: Modern	3
PS/JUST A343	Constitutional Law	3
PHIL A350	Contemporary Social and Political Philosophy	3
PHIL A406	Philosophy of Law	3
PHIL A423	Advanced Ethical Theory	3

Applied Ethics Track (18 credits)

Complete the following courses:

Professional Ethics:		
PHIL A405	Professional Ethics	3
Applied Ethics Core: Complete two from the following:		
PHIL A302	Biomedical Ethics	3
PHIL/ENVI A303	Environmental Ethics	3
PHIL A304	Business Ethics	3
PHIL A350	Contemporary Social and Political Philosophy	3
PHIL A406	Philosophy of Law	3
PHIL A415	Feminist Philosophy	3
Complete the following three courses:		
PHIL A423	Advanced Ethical Theory	3
PHIL A490	Topics in Contemporary Philosophy	3
PHIL A495	Service Learning in Applied Ethics	3

3. A total of 120 credits is required for the degree of which 42 credits must be upper division.

UNDERGRADUATE CERTIFICATE, APPLIED ETHICS

ADMISSION REQUIREMENTS

A student must satisfy the Admission to Certificate Requirements in Chapter 7, Academic Standards and Regulations.

GRADUATION REQUIREMENTS

1. Complete the following requirements:

   Written Communication Skills

   Complete two courses from the GER requirements for written communication skills (6 credits). 6

Oral Communication Skills

Complete one course from the GER requirements for oral communication skills (3 credits). 3

Quantitative Skills

Complete one course from the GER requirements for quantitative skills (3 credits). 3

Critical Reasoning Skills

Complete the following course:

PHIL A101	Introduction to Logic	3

Ethical Theory

Complete the following course:

PHIL A301	Ethics	3

Applied Ethics

Complete two courses from the following:

PHIL A302	Biomedical Ethics	3
PHIL/ ENVI A303	Environmental Ethics	3
PHIL A304	Business Ethics	3

Professional Ethics

Complete one course from the following:

PHIL A405	Professional Ethics	3
BA A488	The Environment of Business	3
HUMS A412	Ethical Issues in Human Services Practice	3
PADM A618	Public Accountability, Ethics and Law	3
PSY A611	Ethics and Professional Practice	3

Note: Graduate courses taken to satisfy this requirement cannot also be counted towards a graduate degree in that program.

Service Learning: Complete the following course:

PHIL A495	Service Learning in Applied Ethics	3

2. A total of 30 credits is required for the certificate.

MINOR, PHILOSOPHY

Students majoring in another subject who wish to minor in Philosophy must complete the following requirements. A total of 18 credits is required for the minor, 9 of which must be upper division.

1. Complete the following core courses:

Ways of Knowing (pick one):

PHIL A101	Introduction to Logic	3
PHIL A201	Introduction to Philosophy	3
PHIL A301	Ethics	3

Foundations of Philosophy:

PHIL A211	History of Philosophy I	3
PHIL A212	History of Philosophy II	3

2. Upper Level Electives (9 credits)

Choose any 3 upper level Philosophy courses

FACULTY

Raymond Anthony, Associate Professor, AFRXA@uaa.alaska.edu
Stephanie Bauer, Assistant Professor, AFSLB@uaa.alaska.edu
Thomas Buller, Associate Professor, AFTGB@uaa.alaska.edu
William Jamison, Term Instructor, AFWSJ@uaa.alaska.edu
Terry Kelly, Term Instructor, AFTMK@uaa.alaska.edu
James Liszka, Professor, AFJJL@uaa.alaska.edu
John Mouracade, Associate Professor/Chair, AFJMM2@uaa.alaska.edu

PHILOSOPHY

Administration/Humanities Building (ADM), Room 254, (907) 786-4455
http://philosophy.uaa.alaska.edu

Philosophy is the creative and critical reflection on enduring questions concerning the nature of the world and our place in it. For example, philosophy asks metaphysical questions about what exists, epistemic questions about what we can claim to know, and ethical questions about the nature of the good life and right action. In addition, philosophy involves the study and practice of good reasoning and clear thinking, skills that are essential to any discipline or profession.

The Philosophy Department offers a variety of courses in the central areas of philosophy that acquaint students with the rich, living traditions of the world and explore historical and contemporary issues. Departmental faculty have a wide range of philosophical interests and expertise, with a particular strength in theoretical and applied ethics.

The Philosophy Department offers several options for students interested in the study of philosophy: (1) a Bachelor of Arts in Philosophy, with a philosophy track, a law track, or an applied ethics track; (2) a Certificate of Applied Ethics; (3) a minor in Philosophy, with a philosophy track or law track. Please read the introduction to each program below to determine which one of these options may be suitable for your particular needs.

The philosophy track is designed for students planning to go on to graduate school in philosophy or other humanities areas such as religious studies, theology, or classics. It would also be a suitable second major for those planning graduate studies in history, English, French or German literature. In general, it is ideal for students who are seeking jobs in fields where writing, critical thinking, and general liberal arts skills are in demand, or for lifelong learners interested in philosophy.

The Religious Studies Track is designed for students who want to learn about and reflect on religious traditions in a philosophical manner. Students completing this track will be prepared for graduate study in philosophy or religion.

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The law track is designed for students planning on attending law school or related professional schools.

The applied ethics track is designed for four types of students: (1) those who intend to pursue a graduate degree in philosophy with programs that specialize in applied ethics; (2) those interested in a strong liberal arts degree (3) those who are seeking careers in the nonprofit sector, public administration, helping professions, or government service; and (4) those interested in the study of practical ethics.

The Certificate in Applied Ethics is designed for students whose intended careers will be complemented by emphasis in ethics education: for example, business majors who may plan also to be ethics officers; those who intend to become professionals, such as lawyers, nurses, social workers, or engineers; or those in public administration, the helping professions, government service, and nonprofits. It will also be applicable to persons presently in the workforce such as corporate ethics officers, executives, and professionals who are seeking career advancement or simply want to acquire skills and knowledge in ethical decision-making.

The minor in Philosophy is designed for students who are interested in philosophy but pursuing another degree, and for students majoring in a discipline that is complemented by the study of philosophy, such as History, Justice, English, Psychology, Anthropology, Sociology, Mathematics, or the natural sciences. The law track is intended for students who plan to attend law school but may be majoring in another degree. This is an appropriate minor for Justice majors.

Philosophy Department Honors

The Department of Philosophy recognizes exceptional undergraduate students by awarding them Departmental Honors in Philosophy. Students majoring in any one of the Bachelor of Arts tracks in Philosophy are eligible to graduate with departmental honors upon satisfaction of all of the following requirements:

1. Meet the requirements for a Bachelor of Arts degree in Philosophy.
2. Meet the requirements for Graduation with Honors as listed in Chapter 7, Academic Standards and Regulations.
3. Maintain a grade point average of 3.75 or above in courses specific to the Philosophy major.
4. Complete PHIL A498 Senior Research Project with an honor grade (A), and a recommendation for departmental

honors from the student's faculty committee for this course.

5. Notify the chair in writing, on or before date on which the Application for Graduation is filed with the Office of the Registrar, of the intention to graduate with departmental honors.

Bachelor of Arts, Philosophy

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees located at the beginning of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences Requirements for the Bachelor of Arts listed at the beginning of the CAS section.

D. Major Requirements

1. Complete the following core courses:

Logical Reasoning and Argumentation:

PHIL A101 Introduction to Logic 3

Foundations of Philosophy:

PHIL A201 Introduction to Philosophy 3
PHIL A211 History of Philosophy I 3
PHIL A212 History of Philosophy II 3

Ethical Theory and Value studies:

PHIL A301 Ethics 3

2. Choose one of the following tracks:

Note: Courses selected may not be used in more than one track.

Philosophy Track (21 credits)

Complete the following courses:

Applied Ethics: Complete one course from the following: ~~3~~

PHIL A302 Biomedical Ethics ~~(3)~~
PHIL/ENVI A303 Environmental Ethics ~~(3)~~
PHIL A304 Business Ethics ~~(3)~~

PHIL A405 Professional Ethics ~~(3)~~

Philosophical Problems: Complete one course from each of the following two groups: ~~6~~

Group A

PHIL A309 Philosophy of Mind (3)
PHIL A317 Metaphysics (3)

Group B

PHIL A318 Epistemology (3)
PHIL A421 Philosophy of the Sciences (3)

Topics in Philosophy: Complete one course from the following: ~~3~~

PHIL A313 Eastern Philosophy and Religion ~~(3)~~
PHIL A314 Western Religion ~~(3)~~
PHIL A320 Philosophy of Religion 3
PHIL A350 Contemporary Social and

Political Philosophy 3

PHIL A401 Aesthetics ~~(3)~~

PHIL A406 Philosophy of Law 3~~(3)~~

PHIL A415 Feminist Philosophy ~~(3)~~

Complete the following three courses (9 credits):

PHIL A423 Advanced Ethical Theory 3

PHIL A490 Topics in Contemporary Philosophy 3

PHIL A492 Seminar on an Enduring Philosopher 3

Religious Studies Track (21 credits)

Complete the following courses:

PHIL A313 Eastern Philosophy and Religion 3

PHIL A314 Western Religions 3

PHIL A320 Philosophy of Religion 3

Complete one of the following:

PHIL A317 Metaphysics 3

PHIL A318 Epistemology 3

Complete one of the following:

ANTH A200 Natives of Alaska 3

AKNS A201 Alaska Native Perspectives 3

Complete one of the following:

SOC A347 Sociology of Religion 3

ANTH A335 Native North Americans 3

ANTH A400 Anthropology of Religion 3

Complete one of the following:

PHIL A423 Advanced Ethical Theory 3

PHIL A490 Topics in Contemporary Philosophy 3

PHIL A492 Seminar on an Enduring Philosopher 3

Law Track (21 credits)

Complete the following courses:

Professional Ethics:

PHIL A405 Professional Ethics 3

Philosophical Foundations of the Law:

~~JUST A250 Development of Law 3~~

~~PHIL A406 Philosophy of Law 3~~

~~PHIL A423 Advanced Ethical Theory 3~~

PS A332 History of Political Philosophy I: Classical 3

PS A333 History of Political Philosophy II: Modern 3

PS/JUST A343 Constitutional Law 3

PHIL A350 Contemporary Social and Political Philosophy 3

PHIL A406 Philosophy of Law 3

PHIL A423 Advanced Ethical Theory 3

Applied Ethics Track (18 credits)

Complete the following courses:

Professional Ethics:

PHIL A405 Professional Ethics 3

Applied Ethics Core: Complete two courses from the following: ~~6~~

PHIL A302 Biomedical Ethics ~~(3)~~

PHIL/ENVI A303 Environmental Ethics ~~(3)~~

PHIL A304 Business Ethics ~~(~~3

PHIL A350 Contemporary Social and

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	Political Philosophy	~~3~~
PHIL A406	Philosophy of Law	~~(3)~~
PHIL A415	Feminist Philosophy	~~(3)~~

Complete the following three courses (9 credits):

PHIL A423	Advanced Ethical Theory	3
PHIL A490	Topics in Contemporary Philosophy	3
PHIL A495	Service Learning in Applied Ethics	3

1. A total of 120 credits is required for the degree of which 42 credits must be upper division.

Undergraduate Certificate, Applied Ethics

Admission Requirements

A student must satisfy the Admission to Certificate Requirements in Chapter 7, Academic Standards and Regulations.

Graduation Requirements

1. Complete the following requirements:

Written Communication Skills

Complete two courses from the GER requirements for written communication skills. 6

Oral Communication Skills

Complete one course from the GER requirements for oral communication skills. 3

Quantitative Skills

Complete one course from the GER requirements for quantitative skills. 3

Critical Reasoning Skills

Complete the following course:

PHIL A101	Introduction to Logic	3

Ethical Theory

Complete the following course:

PHIL A301	Ethics	3

Applied Ethics

Complete two courses from the following: 6

PHIL A302	Biomedical Ethics (3)
PHIL/ ENVI A303	Environmental Ethics (3)
PHIL A304	Business Ethics (3)

Professional Ethics

Complete one course from the following: 3

PHIL A405	Professional Ethics (3)
BA A488	Environment of Business (3)
HUMS A412	Ethical Issues in Human Services Practice (3)
PADM A618	Public Accountability, Ethics and Law (3)
PSY A611	Ethics and Professional Practice (3)

Note: Graduate courses taken to satisfy this requirement cannot also be counted towards a graduate degree in that program.

Service Learning

Complete the following course:

PHIL A495	Service Learning in Applied Ethics	3

2. A total of 30 credits is required for the certificate.

Minor, Philosophy

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Students majoring in another subject who wish to minor in Philosophy must complete the following requirements. A total of 18 credits is required for the minor, 6 of which must be upper division.

Choose one of the following tracks. *(Courses selected may not be used in more than one track.)*

Philosophy Track (18 credits)

1. Complete the following courses:

Ways of Knowing (pick one)~~***Logical Reasoning and Argumentation***~~*:*

PHIL A101	Introduction to Logic	3

~~***Foundations of Philosophy:***~~

PHIL A201	Introduction to Philosophy	3
PHIL A301	Ethics	3

Foundations of Philosophy:

PHIL A211	History of Philosophy I	3
PHIL A212	History of Philosophy II	3

2. **Upper Level Electives (9credits)**~~***Complete two courses from the following:***~~

Choose any 3 upper level Philosophy Courses ~~6~~

~~PHIL A301 Ethics (3)~~
~~PHIL A302 Biomedical Ethics (3)~~
~~PHIL/~~
~~ENVI A303 Environmental Ethics (3)~~
~~PHIL A304 Business Ethics (3)~~
~~PHIL A309 Philosophy of Mind (3)~~
~~PHIL A317 Metaphysics (3)~~
~~PHIL A318 Epistemology (3)~~
~~PHIL A313 Eastern Philosophy and Religion (3)~~
~~PHIL A314 Western Religion (3)~~
~~PHIL A401 Aesthetics (3)~~
~~PHIL A405 Professional Ethics (3)~~
~~PHIL A406 Philosophy of Law (3)~~
~~PHIL A415 Feminist Philosophy (3)~~
~~PHIL A421 Philosophy of the Sciences (3)~~

~~**Law Track (21 credits)**~~

~~Complete the following courses:~~

~~***Logical Reasoning and Argumentation:***~~

~~PHIL A101 Introduction to Logic 3~~

~~***Foundations of Philosophy:***~~

~~PHIL A201 Introduction to Philosophy 3~~
~~PHIL A211 History of Philosophy I 3~~
~~PHIL A212 History of Philosophy II 3~~

~~***Ethics and Values:***~~

~~PHIL A301 Ethics 3~~

~~***Philosophical Foundations of the Law:***~~

~~PHIL A406 Philosophy of Law 3~~
~~PHIL A423 Advanced Ethical Theory 3~~

FACULTY

Raymond Anthony, Associate Professor, AFRXA@uaa.alaska.edu
Stephanie Bauer, Assistant Professor, AFSLB@uaa.alaska.edu
Thomas Buller, Associate Professor, AFTGB@uaa.alaska.edu
William Jamison, Term Instructor, AFWSJ@uaa.alaska.edu
Terry Kelly, Term Instructor, AFTMK@uaa.alaska.edu
James Liszka, Professor, AFJJL@uaa.alaska.edu
John Mouracade, Associate Professor/Chair, AFJMM2@uaa.alaska.edu

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Department of Biological Sciences
UNIVERSITY of ALASKA ANCHORAGE

3211 Providence Drive
Anchorage, Alaska 99508-4614
T 907.786.4770 • F 907.786.4607
http://www.uaa.alaska.edu/biology/

18Feb2011

To: Toby Widdicombe,Chair, CAS Course and Curriculum Committee
Hillary Davies, Chair, Undergraduate Academic Board

From: Khrys Duddleston, Chair
Department of Biological Sciences Curriculum Committee

RE: Changes to the B.S. in Natural Sciences Degree

The Department of Biological Sciences proposes the following changes to the B.S. in Natural Sciences Degree:

1. Implementing three options
   a. Environmental Sciences
   b. Pre-Health Professions
   c. General Science
2. Require that student apply for admission into the degree program
   a. Students will submit a form indicating they have met with an advisor in the Sciences to
      i. Choose an option
      ii. File a preliminary plan of study with the Department of Biological Sciences

Our changes are primarily meant to maintain the flexibility of the degree program while providing more guidance to students as well as simplifying the advising process for both students and faculty. In addition, within the General Sciences option we have also included guidance for students wishing to meet the National Science Teacher Association Standards for Science Teacher Preparation.

While developing these changes the Dept. Curriculum Committee has communicated with the following individuals:

LeeAnnMunk, Geology (personal communications during Fall, 2010 semester)
Dorn Van Dommelen, Environmental Studies (19Nov10 and follow-up e-mail)
Janet Johnston, Health Sciences (21Jan11 and follow-up e-mail)
Jim Pantaleone and Travis Rector, Physics and Astronomy (many e-mail and personal communications beginning in Spring, 2010)
Eric Holmberg, Chemistry (16Feb2011 and follow-up e-mail).
Susan Barstow, Donna Gail Shaw, Jim Powell, COE (numerous communications)

Please feel free to contact me with any questions you may have.

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Division	1c. Department
AS CAS	AMSC Division of Math Science	Biological Sciences

2. Complete Program Title/Prefix
B.S., Natural Sciences

3. Type of Program
- ☐ OEC
- ☐ Undergrad Certificate
- ☐ AA/AAS
- ☒ Baccalaureate
- ☐ Minor
- ☐ Post Baccalaureate Certificate
- ☐ Graduate
- ☐ Graduate Certificate
- ☐ Doctoral
- ☐ Specialty

4. Type of Action:

PROGRAM
- ☐ Add
- ☒ Change
- ☐ Delete

PREFIX
- ☐ Add
- ☐ Change
- ☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2011 To: Fall/9999

6a. Coordination with Affected Units
Department, School, or College: UAA Faculty Listserve
Initiator Name (typed): Khrystyne Duddleston
Initiator Signed Initials: _________
Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 25Feb11

6c. Coordination with Library Liaison Date: 2/18/2011

7. Title and Program Description - Please attach the following:

☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
Our changes are designed to a) address student needs by providing more guidance to students earning a B.S. in Natural Sciences while maintaining the flexibility of the program and b) improve the advising process.

Initiator (faculty only) Date
Khrys Duddleston
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Bachelor of Science, Natural Sciences

The Department of Biological Sciences also oversees the Bachelor of Science in Natural Sciences. This curriculum emphasizes the interrelationships among the sciences. A program of study in the Natural sciences requires that students select an option within the degree, and complete all courses required within the option, as well as sufficient science elective courses to meet minimum unit requirements for graduation.Students accepted into this flexible degree program select one of three options: the General Sciences Option is designed for students who are interested in understanding the interrelationships among various scientific fields, or in teaching science at the secondary level. The Pre-Health Professions Option is designed to meet the admission requirements of specific professional schools in medicine, dentistry, and veterinary medicine. The Environmental Sciences Option is designed to prepare students for graduate school or for employment in the private or public sector.

For a complete program description see the Natural Sciences section of this chapter.

Bachelor of Science, Natural Sciences

The Department of Biological Sciences also oversees the Bachelor of Science in Natural Sciences. This curriculum emphasizes the interrelationships among the sciences. A program of study in the Natural sciences requires that students select an option within the degree, and complete all courses required within the option, as well as sufficient science elective courses to meet minimum unit requirements for ~~This~~graduation.Students accepted into this flexible degree program select one of three options: the General Sciences Option is designed for students who are interested in understanding the interrelationships among various scientific fields, or in teaching science at the secondary level. The Pre-Health Professions Option is designed to meet the admission requirements of specific professional schools in medicine, dentistry, and veterinary medicine. The Environmental Sciences Option is designed to prepare students for graduate school or for employment in the private or public sector.~~flexible degree program can be used to meet admissions requirements of specific professional schools in medicine, dentistry, and veterinary medicine. It is also designed for health sciences practitioners who wish to obtain a stronger background in both the biological and chemical sciences, and for those preparing to teach science at the secondary level.~~

For a complete program description see the Natural Sciences section of this chapter.

NATURAL SCIENCES

ConocoPhillips Integrated Sciences Building (CPSB), Room 101, ***(907) 786-4770***
http://biology.uaa.alaska.edu

The undergraduate program in Natural Sciences is founded on a curriculum that emphasizes the interrelationships among the sciences. A program of study in the Natural Sciences requires that students select an option within the degree, and complete all courses required within the option, as well as sufficient science elective courses to meet minimum unit requirements for graduation.

Students accepted into this flexible degree program select one of three options: the General Sciences Option is designed for students who are interested in understanding the interrelationships among various scientific fields, or in teaching science at the secondary level. The Pre-Health Professions Option is designed to meet the admission requirements of specific professional schools in medicine, dentistry, and veterinary medicine. The Environmental Sciences Option is designed to prepare students for graduate school or for employment in the private or public sector.

The Natural Sciences program is administered by the Department of Biological Sciences. Upon acceptance to the major, an academic advisor from the Department of Biological Sciences will be assigned in accordance with the student's declared Option, and students are strongly encouraged to consult with their academic advisors to determine which electives best suit their career requirements.

Bachelor of Science, Natural Sciences

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.
Declare the major (see Major Requirements) and select one of 3 options: General Sciences, Pre-Health Professions or Environmental Sciences.

Academic Progress

In order to graduate with a BS in Natural Sciences, all courses covered under Major Requirements for a BS in Natural Sciences must be completed with a grade of C or better. All prerequisites for courses used to meet the Natural Sciences degree requirements must be completed with a grade of C or better. Students who audit a course intended to meet the Natural Sciences degree requirements or who are unable to earn a grade of C or better in the course may repeat the course. Students repeating a Department of Biological Sciences course which contains a lecture and laboratory component are required to retake both components of the course.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for all Baccalaureate Degrees located at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section. It is recommended that MATH A200 or MATH A272, STAT A253 or STAT A307, and the Computer Programming requirements be completed in the first two years of study.

D. Major Requirements

1. In order to declare the Bachelor of Science in Natural Sciences as their major, students must meet with an advisor and then apply to be accepted into the major. To schedule your advising session, contact the Department of Biological Sciences. At the advising session students are required to:
   a. choose one of the three options and
   b. file a preliminary program of study with the Department of Biological Sciences.
2. It is strongly recommended that any changes to the preliminary program be reviewed by an advisor to ensure that the final Program of study will meet all requirements for graduation.
3. Students must submit a final Program of Study-Natural Sciences Degree form signed by their advisor to both the Office of the Registrar and the Department of Biological Sciences during the semester prior to the semester in which they plan to graduate. All courses listed in the Program of Study-Natural Sciences Degree form must be approved by the formal advisor before submitting the form to the Office of the Registrar and the Department of Biological Sciences.
4. No more than 6 credits may come from courses designated as 495, 499 and 498 combined, with no more than 2 credits from 495.
5. No more than 4 credits may be 492, with no more than 2 from the same discipline.
6. Courses not listed as approved for the Natural Sciences degree maybe considered by petition, which should be signed by an advisor.
7. A total of 120-124 credits is required for the degree, of which 42 credits must be upper division.

Note: It is suggested that the required science sequences for any option be completed in the first two years of study.

Note: Students are encouraged to pay careful attention to pre-requisite requirements when designing their program of study.

Note: Some courses meet more than one of the requirements (GER, CAS, Major). Courses approved for the Natural Sciences degree options that meet more than one requirement are identified as follows in the approved course lists: ***Bolded courses meet GER and Major requirements. Bold, Italicized courses meet CAS and Major requirements****.* <u>*Underlined courses meet GER, CAS and Major requirements.*</u>

Environmental Sciences Option (80 credits)

1. *Complete the following required courses (30 credits):*

<u>BIOL A115</u>	<u>Fundamentals of Biology I</u>	<u>4</u>
<u>BIOL A116</u>	<u>Fundamentals of Biology II</u>	<u>4</u>
<u>CHEM A105</u>	<u>General Chemistry I</u>	<u>3</u>
<u>CHEM A105L</u>	<u>General Chemistry I Laboratory</u>	<u>1</u>
<u>CHEM A106</u>	<u>General Chemistry II</u>	<u>3</u>
<u>CHEM A106L</u>	<u>General Chemistry II Laboratory</u>	<u>1</u>
<u>GEOL A111</u>	<u>Physical Geology</u>	<u>4</u>
<u>GEOL A221</u>	<u>Historical Geology</u>	<u>4</u>
ENVI A211	**Environmental Science: Systems & Processes**	**3**
ENVI A212	**Living on Earth: People and the Environment**	**3**

2. *Complete an additional 50 credits of degree electives from the approved course lists for the Environmental Sciences Option.*
    a. *A minimum of 32 credits must be upper division.*
    b. *A minimum of 20 credits must come from the following Natural and Physical Sciences Course List for the Environmental Sciences Option:*

BIOL A178	**Fundamentals of Oceanography**	**3**
BIOL A179	**Fundamentals of Oceanography Laboratory**	**1**
BIOL A200	**Introduction to Complexity**	**3**
BIOL A242	Fundamentals of Cell Biology	4
BIOL A252	Principles of Genetics	4
BIOL A271	Principles of Ecology	4
BIOL A308	Principles of Evolution	3
BIOL A309	Biogeography	3
BIOL A310	Principles of Physiology	4
BIOL A316	Introduction to Plant Physiology	3
BIOL A331	Systematic Botany	4
BIOL A333	Biology of Non-Vascular Plants	4
BIOL A334	Biology of Vascular Plants	4
BIOL A340	General Microbiology	5
BIOL A365	**Astrobiology**	**3**

BIOL A373	Conservation Biology	3
BIOL A378	**Marine Biology**	**3**
BIOL A403	Microtechnique	4
BIOL A415	Comparative Animal Physiology	3
BIOL A423	Ichthyology	4
BIOL A425	Mammalogy	3
BIOL A426	Ornithology	4
BIOL A427	Invertebrate Zoology	4
BIOL A430	Marine Mammal Biology	4
BIOL A441	Animal Behavior	4
BIOL A445	Plant-Herbivore Ecology	4
BIOL A450	Microbial Ecology	3
BIOL A451	Applied Microbiology	3
BIOL A456	**Nonlinear Dynamics and Chaos**	**3**
BIOL A477	Tundra and Taiga Ecosystems	3
BIOL A478	Biological Oceanography	4
BIOL A479	Physiological Plant Ecology	3
BIOL A487	Comparative Anatomy of Vertebrates	4
BIOL A489	**Population Genetics and Evolutionary Processes**	**3**
BIOL A490	Selected Lecture Topics in Biology	1-3
BIOL A490L	Selected Laboratory Topics in Biology	1-3
BIOL A492	Undergraduate Seminar	1
BIOL A495A	Internship in the Biological Sciences	3
BIOL A498	Individual Research	1-6
BIOL A499	Senior Thesis	3
CHEM A212	Quantitative Analysis	5
CHEM A253	Principles of Inorganic Chemistry	3
CHEM A311	Physical Chemistry: A Biological Orientation	3
CHEM A321	Organic Chemistry I	3
CHEM A322	Organic Chemistry II	3
CHEM A323L	Organic Chemistry Laboratory	2
CHEM A331	Physical Chemistry I	3
CHEM A332	Physical Chemistry II	3
CHEM A333L	Physical Chemistry Laboratory	2
CHEM A434	Instrumental Methods	4
CHEM A441	**Principles of Biochemistry I**	**3**
CHEM A442	Principles of Biochemistry II	3
CHEM A443	Biochemistry Laboratory	2
CHEM A450	Environmental Chemistry	3
CHEM A453	Advanced Inorganic Chemistry	5
CHEM A460	Chemical Ecotoxicology	3
CHEM A492	Undergraduate Seminar	1
CHEM A498	Individual Research	3

GEOL A115	**Environmental Geology**	**3**
GEOL A115L	**Environmental Geology Laboratory**	**1**
GEOL A190	Introductory Topics in Geology	1-3
GEOL A320	Volcanology	3
GEOL A321	Mineralogy	4
GEOL A322	Igneous and Metamorphic Petrology	4
GEOL A325	Geology of Ore Deposits	3
GEOL A335	Structural Geology	4
GEOL A340	Hydrogeology	3
GEOL A350	Geomorphology	4
GEOL A360	Geochemistry	3
GEOL A380	Anchorage Field Studies	3
GEOL A381	Kenai Peninsula Field Studies	3
GEOL A382	Geological Field Studies	3
GEOL A421	Invertebrate Paleontology	4
GEOL A450	Paleoclimatology and Global Change	3
GEOL A452	Sedimentology and Stratigraphy	4
GEOL A454	Glacial and Quaternary Geology	3
GEOL A455	Permafrost	3
GEOL A456	**Geoarchaeology**	**3**
GEOL A457	Soil Genesis and Classification	4
GEOL A460	Environmental Geochemistry	3
GEOL A475	Environmental Geophysics	3
GEOL A480	Geological Field Methods	3
GEOL A481	Alaskan Field Investigations	3
GEOL A482	Geological Field Investigations	3
GEOL A490	Advanced Topics in Geology	1-4
GEOL A492	Geology Seminar	1
GEOL A495	Geology Internship	1-3
GEOL A498	Student Research	1-3
GEOL A499	Senior Thesis	3
LSIS A201	**Life on Earth**	**5**
LSIS A202	**Concepts and Processes: Natural Sciences**	**5**
PHYS A123	Basic Physics I	3*
PHYS A123L	Basic Physics I Laboratory	1
PHYS A124	Basic Physics II	3
PHYS A124L	Basic Physics II Laboratory	1
PHYS A211	General Physics I	3
PHYS A211L	General Physics I Laboratory	1
PHYS A212	General Physics II	3
PHYS A212L	General Physics II Laboratory	1
PHYS A303	Modern Physics	3

****Note: Students cannot get credit for both PHYS 123/L and PHYS 211/L or PHYS 124/L and 212/L***

c. A minimum of 15 credits must come from the following Math and Computational Skills Course List for the Environmental Sciences Option:

CS A109	***Computer Programming***	***3***
or		
CS A110	***Java Programming***	***3***
or		
CS A111	***Visual Basic .NET Programming***	***3***
or		
CS A201	***Programming Concepts I***	***3***
CS A202	***Programming Concepts II***	***3***
CS A304	Object-Oriented Analysis and Modeling	3
CS A330	Algorithms and Data Structures	3
CS A351	Automata, Algorithms, and Complexity	3
CS A360	Database Systems	3
CS A385	Computer Graphics	3
CS A405	Artificial Intelligence	3
CS A407	Evolutionary Computing	3
GEO A157	Analytical and Digital Cartography	3
GEO A167	Remote Sensing and Image Analysis	3
GEO A248	Digital Terrain Cartography	3
GEO A257	Elements of Photogrammetry	3
GEO A359	Geodesy and Map Projections	3
GEO A459	Geodetic Geomatics	3
GEO A467	Analytical and Digital Photogrammetry	3
GIS A268	Elements of Geographic Information Systems (GIS)	3
GIS A295	Internship in Geographic Information Systems I	3
GIS A366	Spatial Information Analysis and Modeling	3
GIS A367	GIS and Remote Sensing	3
GIS A370	GIS and Remote Sensing for the Natural Sciences	3
GIS A433	GIS and the Marine Environment	3
GIS A458	Design and Management of Spatial Data	3
GIS A468	Integration of Geomatic Technologies	3
GIS A495	Internship in Geographic Information Systems II	3
MATH A200	Calculus I	4
or		
MATH A272	Applied Calculus	3
MATH A201	**Calculus II**	**4**
MATH A202	Calculus III	4

MATH A215	Introduction to Mathematical Proofs	3
MATH A231	Introduction to Discrete Mathematics	3
MATH A302	Ordinary Differential Equations	3
MATH A303	Introduction to Modern Algebra	3
MATH A305	Introduction to Geometrics	3
MATH A306	Discrete Methods	3
MATH A314	Linear Algebra	3
MATH A321	Analysis of Several Variables	3
MATH A324	Advanced Calculus	3
MATH A371	Stochastic Processes	3
MATH A407	Mathematical Statistics I	3
MATH A408	Mathematical Statistics II	3
MATH A410	Introduction to Complex Analysis	3
MATH A422	Partial Differential Equations	3
STAT A253	Applied Statistics for the Sciences	4
or		
STAT A307	Probability and Statistics	4
STAT A308	**Intermediate Statistics for the Sciences**	**3**
STAT A402	Scientific Sampling	3
STAT A403	Regression Analysis	3
STAT A404	Analysis of Variance	3
STAT A405	Nonparametric Statistics	3
STAT A407	Time Series Analysis	3
STAT A408	Multivariate Statistics	3
STAT A490	Selected Topics in Statistics	1-3

d. *A minimum of 9 credits must come from the following Social Sciences Course List for the Environmental Sciences Option:*

ANTH A101	**Introduction to Anthropology**	**3**
ANTH A202	**Cultural Anthropology**	**3**
ANTH A205	Biological Anthropology	3
ANTH A335	Native North Americans	3
ANTH A354	**Culture and Ecology**	**3**
ANTH A415	Applied Anthropology	3
ANTH A445	Evolution of Humans and Disease	3
CEL A292	**Introduction to Civic Engagement**	**3**
CEL A390	Selected Topics in Civic Engagement	1-3
ECON A201	**Principles of Macroeconomics**	**3**
ECON A202	**Principles of Microeconomics**	**3**
ECON A210	**Environmental Economics and Policy**	**3**
ECON A300	The Economy of Alaska	3
ECON A321	Intermediate Microeconomics	3
ECON A324	Intermediate Macroeconomics	3

ECON A435	Natural Resource Economics	3
ENVI A303	Environmental Ethics	3
ENVI A470	Environmental Planning and Problem Solving	4
ENVI A490	Topics in Environment and Society	3
GEOG A101	**Local Places/Global Regions: An Introduction to Geography**	**3**
LSSS A311	People, Places and Ecosystems	3
SOC A101	**Introduction to Sociology**	**3**
SOC A404	Environmental Sociology	3

Pre-Health Professions Option (80 credits)

1. *Complete the following required courses (24 credits):*

BIOL A115	Fundamentals of Biology I	4
BIOL A116	Fundamentals of Biology II	4
CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1
CHEM A106	General Chemistry II	3
CHEM A106L	General Chemistry II Laboratory	1
PHYS A123	Basic Physics I	3
PHYS A123L	Basic Physics I Laboratory	1
PHYS A124	Basic Physics II	3
PHYS A124L	Basic Physics II Laboratory	1

2. *Complete an additional 56 credits of degree electives from the approved course lists for the Pre-Health Professions Option.*
   a. *A minimum of 32 credits must be upper division.*
   b. *A minimum of 23 credits must come from the following Natural Sciences Course List for the Pre-Health Professions Option:*

BIOL A111	Human Anatomy and Physiology I	4
BIOL A112	Human Anatomy and Physiology II	4
BIOL A200	**Introduction to Complexity**	**3**
BIOL A240	Introductory Microbiology for Health Sciences	4
or		
BIOL A340	General Microbiology	5
BIOL A242	Fundamentals of Cell Biology	4
BIOL A252	Principles of Genetics	4
BIOL A310	Principles of Physiology	4
BIOL A403	Microtechnique	4
BIOL A415	Comparative Animal Physiology	3
BIOL A425	Mammalogy	4
BIOL A451	Applied Microbiology	3
BIOL A452	**Human Genome**	**3**
BIOL A456	**Nonlinear Dynamics and Chaos**	**3**

BIOL A461	Molecular Biology	3
BIOL A461L	Molecular Biology Laboratory	1
BIOL A462	Virology	3
BIOL A471	Immunochemistry	4
BIOL A487	Comparative Anatomy of Vertebrates	4
BIOL A488	Developmental Biology	4
BIOL A489	**Population Genetics and Evolutionary Processes**	**3**
BIOL A490	Selected Lecture Topics in Biology	1-3
BIOL A490L	Selected Laboratory Topics in Biology	1-3
BIOL A492	Undergraduate Seminar	1
BIOL A495A	Internship in the Biological Sciences	3
BIOL A498	Individual Research	1-6
CHEM A212	Quantitative Analysis	5
CHEM A311	Physical Chemistry: A Biological Orientation	3
CHEM A321	Organic Chemistry I	3
CHEM A322	Organic Chemistry II	3
CHEM A323L	Organic Chemistry Laboratory	2
CHEM A434	Instrumental Methods	4
CHEM A441	**Principles of Biochemistry I**	**3**
CHEM A442	Principles of Biochemistry II	3
CHEM A443	Biochemistry Laboratory	2
CHEM A460	Chemical Ecotoxicology	3
CHEM A492	Undergraduate Seminar	1
CHEM A498	Individual Research	3

c. *A minimum of (15) credits must come from the following Social Sciences Course List for the Pre-Health Professions Option:*

ANTH A101	**Introduction to Anthropology**	**3**
ANTH A205	Biological Anthropology	3
ANTH A324	Psychological Anthropology	3
ANTH A365	Races: Modern Human Diversity	3
ANTH A445	Evolution of Humans and Disease	3
ANTH A455	Medical Anthropology	3
AHTH A457	Food and Nutrition: An Anthropological Perspective	3
ANTH A485	Human Osteology	4
ANTH A486	Applied Human Osteology	3
ANTH A490	Selected Topics in Anthropology	1-3
ECON A201	**Principles of Macroeconomics**	**3**
ECON A202	**Principles of Microeconomics**	**3**
HS A220	**Core Concepts in Health Sciences**	**3**
HS A210	Introduction to Environmental Health	3
HS A230	Introduction to Global Health	3

HS A326	Introduction to Epidemiology	3
HS A492	**Senior Seminar: Contemporary Health Policy**	**3**
PHIL A302	Biomedical Ethics	3
PSY A111	**General Psychology**	**3**
PSY A143	Death and Dying	3
PSY A150	**Lifespan Development**	**3**
PSY A245	Child Development	3
PSY A245L	Child Development Laboratory	1
PSY A260	Statistics for Psychology	3
PSY A260L	Statistics for Psychology Lab	1
PSY A261	Research Methods in Psychology	4
PSY A345	Abnormal Psychology	3
PSY A355	Learning and Cognition	4
PSY A366	Perception	3
PSY A368	Personality	3
PSY A370	**Biological Psychology**	**3**
PSY A412	Foundations of Modern Psychology	3
PSY A420	Conducting Research in Psychology	3
PSY A425	Clinical Psychology	3
PSY A428	Evolutionary Psychology	3
PSY A450	Adult Development and Aging	3
PSY A453	Application of Statistics to the Social Sciences	4
PSY A455	Mental Health Services in Alaska	3
PSY A485	Health Psychology	3
PSY A498	Individual Research	3

d. A minimum of 9 credits must come from the following Math and Computational Skills Course List for the Pre-Health Professions Option:

MATH A200	Calculus I	4
or		
MATH A272	Applied Calculus	3
MATH A201	**Calculus II**	**4**
MATH A202	Calculus III	4
MATH A215	Introduction to Mathematical Proofs	3
MATH A231	Introduction to Discrete Mathematics	3
MATH A302	Ordinary Differential Equations	3
MATH A303	Introduction to Modern Algebra	3
MATH A305	Introduction to Geometrics	3
MATH A306	Discrete Methods	3
MATH A314	Linear Algebra	3
MATH A321	Analysis of Several Variables	3
MATH A324	Advanced Calculus	3
MATH A371	Stochastic Processes	3

MATH A407	Mathematical Statistics I	3
MATH A408	Mathematical Statistics II	3
MATH A410	Introduction to Complex Analysis	3
MATH A422	Partial Differential Equations	3
MATH A490A	Selected Topics in Pure Mathematics	3
MATH A490B	Selected Topics in Applied Mathematics	3
MATH A498	Individual Research	1-3
STAT A253	Applied Statistics for the Sciences	4
or		
STAT A307	Probability and Statistics	4
STAT A308	**Intermediate Statistics for the Sciences**	**3**
STAT A402	Scientific Sampling	3
STAT A403	Regression Analysis	3
STAT A404	Analysis of Variance	3
STAT A405	Nonparametric Statistics	3
STAT A407	Time Series Analysis	3
STAT A408	Multivariate Statistics	3
STAT A490	Selected Topics in Statistics	1-3

General Sciences Option (80 credits)

1. *Complete the following required courses (32 credits):*

BIOL A115	Fundamentals of Biology I	4
BIOL A116	Fundamentals of Biology II	4
CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1
CHEM A106	General Chemistry II	3
CHEM A106L	General Chemistry II Laboratory	1
GEOL A111	Physical Geology	4
GEOL A221	Historical Geology	4
PHYS A123	Basic Physics I (3)	8
PHYS A123L	Basic Physics I Laboratory (1)	
and		
PHYS A124	Basic Physics II (3)	
PHYS A124L	Basic Physics II Laboratory (1)	
or		
PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	
and		
PHYS A212	General Physics II (3)	
PHYS A212L	General Physics II Laboratory (1)	

2. *Complete an additional 48 credits of degree electives.**
    a. *The credits must come from the following course lists:*

i. *Environmental Sciences Course Lists.*
ii. *Pre-Health Professions Course Lists.*
iii. *General Sciences Additional Course List (below).*

b. *A minimum of 32 credits must be upper division.*

c. *A minimum of 20 credits must come from at least 2 science disciplines (Astronomy, Biology, Chemistry, Geology, Physics).*

NOTE: Students wishing to meet the National Science Teachers Association Standards for Science Teacher Preparation will need to meet the following credit requirements within the 48 degree elective credits**:

i. *Twenty of the 48 credits must come from 4 credits per each of the following:*

1.	*Biology (BIOL)*	*4*
2.	*Chemistry (CHEM)*	*4*
3.	*Geology (GEOL)*	*4*
4.	*Astronomy (ASTR)*	*4*
5.	*Physics or Astronomy (PHYS or ASTR)*	*4*

ii. *In addition to the credits listed above (i), at least 17 additional credits must come from one of the following disciplines such that a minimum of 21 elective credits are taken in a single science discipline:*

1. *Biology (BIOL)* *17*

OR

2. *Chemistry (CHEM)*

OR

3. *Geology (GEOL)*

OR

4. *Physics/Astronomy (PHYS and/or ASTR)*

*****NOTE: Students wishing to meet the National Science Teachers Association Standards for Science Teacher Preparation with an emphasis in Physics will be unable to do so while earning a degree in 120-125 credits. Options are to earn a degree with greater than 125 credits, or develop a degree plan that meets the majority of the standards' requirements and complete the remainder as a post-Baccalaureate student.***

d. *Additional Courses for the General Sciences Option List:*

ASTR A103	Solar System Astronomy	3
ASTR A103L	**Solar System Astronomy Laboratory**	**1**
ASTR A104	Stars, Galaxies and Cosmology	3
ASTR A104L	**Stars, Galaxies and Cosmology Laboratory**	**1**
ASTR A365	**Astrobiology**	**3**
PHYS A311	Intermediate Classical Mechanics	3
PHYS A314	Electromagnetics	3
PHYS A320	Simulation of Physical Systems	3
PHYS A324	Electromagnetics II	3
PHYS A403	Quantum Mechanics	3
PHYS A413	Statistical and Thermal Mechanics	3

PHYSA456	**Nonlinear Dynamics and Chaos**	**3**
PHYS A498	Individual Research	1-6

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~~NATURAL SCIENCES~~

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~~Modern sciences do not stand alone. Most draw heavily upon the tenets of at least one other discipline. The Natural Sciences curriculum emphasizes the interrelationships among the sciences and allows students to obtain a strong background in two or more sciences while meeting the requirements of a single degree program. A minimum of 74 science credits is required for this major, as specified below. For individuals pursuing careers as secondary science educators, it is required by the College of Education that they complete 12 credits in each of the following sciences: biology, chemistry, physics, and earth and space science.~~

~~The Natural Sciences program is administered by the Department of Biological Sciences. For further information about the Natural Sciences program, contact the chairperson of the Department of Biological Sciences. Upon acceptance into the major, an academic advisor from the Department of Biological Sciences will be assigned in accordance with the student's declared area of emphasis.~~

~~Bachelor of Science, Natural Sciences~~

~~Admission Requirements~~

~~Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.~~

~~Academic Progress~~

~~In order to graduate with a BS in Natural Sciences, all courses covered under Major Requirements for a BS in Natural Sciences must be completed with a grade of C or better. Students who audit a course intended to meet the Natural Sciences degree requirements or who are unable to earn a grade of C or better in the course may repeat the course. All prerequisites for courses used to meet the Natural Sciences degree requirements must be completed with a grade of C or better. Students repeating a course in the Department of Biological Sciences are required to complete all components of the course during the semester in which the course is retaken. For a course with a lecture and laboratory component, students may not carry forward an individual lecture or laboratory grade from a previous semester in which the course was taken.~~

~~Graduation Requirements~~

~~Students must complete the following graduation requirements:~~

~~A. General University Requirements~~

~~Complete the General University Requirements for All Baccalaureate Degrees located at the beginning~~

~~of this chapter.~~

~~B. General Education Requirements~~

~~Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.~~

~~C. College of Arts and Sciences Requirements~~

~~Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section. It is recommended that MATH A200 or MATH A272, STAT A253 or STAT A307, and the Computer Programming requirements be completed in the first two years of study.~~

~~*Note: Major requirements may also be used to satisfy the College of Arts and Sciences Requirements.*~~

~~Students must complete the following major requirements:~~

1. ~~Complete three of the following course sequences:~~

~~BIOL A115/L~~	~~Fundamentals of Biology I with Laboratory (4)~~
~~BIOL A116/L~~	~~Fundamentals of Biology II with Laboratory (4)~~
~~CHEM A105~~	~~General Chemistry I (3)~~
~~CHEM A105L~~	~~General Chemistry I Laboratory (1)~~
~~CHEM A106~~	~~General Chemistry II (3)~~
~~CHEM A106L~~	~~General Chemistry II Laboratory (1)~~
~~GEOL A111~~	~~Physical Geology (4)~~
~~GEOL A221~~	~~Historical Geology (4)~~
~~PHYS A123~~	~~Basic Physics I (3)~~
	~~and~~
~~PHYS A123L~~	~~Basic Physics I Laboratory (1)~~
~~PHYS A124~~	~~Basic Physics II (3)~~
	~~and~~
~~PHYS A124L~~	~~Basic Physics II Laboratory (1)~~

~~*Note: It is recommended that the three science course sequences be completed in the first two years of study. For students whose emphasis lies in the area of the biological sciences, it is recommended that BIOL A242 and BIOL A252 also be completed within the first two years of study, as it is a prerequisite for several upper division biology courses.*~~

2. ~~Complete an additional 50 science credits, of which at least 35-38 credits must be upper division from at least two science disciplines. UAA science courses approved for the Natural Sciences degree are listed below.~~

~~Anthropology~~	~~Geographic Information Systems~~
~~Astronomy~~	~~Geomatics~~
~~Biology~~	~~Health Sciences~~
~~Chemistry~~	~~Honors Program~~
~~Computer Science~~	~~Mathematics~~
~~Environmental Studies~~	~~Psychology~~
~~Geography~~	~~Statistics~~
~~Geology~~	~~UAF Palmer Research Center~~

~~Other courses may be considered by petition. Acceptable credits from other accredited institutions include but are not limited to credits earned in the following disciplines:~~

~~Statistics~~	~~Natural Resource Management~~
~~Environmental Sciences~~	~~Wildlife Management~~
~~Engineering~~	~~Oceanography~~

~~*Note: Credit for laboratory, internship or clinical practicum courses will be awarded on an individual basis with the general rule of 1 credit for three lab hours applying in most cases.*~~

3. ~~Courses taken to meet the 50-credit Natural Science major degree requirement must be chosen with the approval of your advisor.~~
4. ~~Submit a Program of Study-Natural Sciences Degree Form signed by your advisor to both the Office of the Registrar and the Department of Biological Sciences during the semester prior to the semester in which you plan to graduate. All courses listed in the Program of Study-Natural Sciences Degree must be approved by your formal advisor before you can submit the form to the Office of the Registrar and the Department of Biological Sciences~~
5. ~~A total of 120 credits is required for the degree, of which 42 credits must be upper division.~~

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NATURAL SCIENCES

ConocoPhillips Integrated Sciences Building (CPSB), Room 101, *(907) 786-4770*
http://biology.uaa.alaska.edu

The undergraduate program in Natural Sciences is founded on a curriculum that emphasizes the interrelationships among the sciences. A program of study in the Natural Sciences requires that students select an option within the degree, and complete all courses required within the option, as well as sufficient science elective courses to meet minimum unit requirements for graduation.

Students accepted into this flexible degree program select one of three options: the General Sciences Option is designed for students who are interested in understanding the interrelationships among various scientific fields, or in teaching science at the secondary level. The Pre-Health Professions Option is designed to meet the admission requirements of specific professional schools in medicine, dentistry, and veterinary medicine. The Environmental Sciences Option is designed to prepare students for graduate school or for employment in the private or public sector.

The Natural Sciences program is administered by the Department of Biological Sciences. Upon acceptance to the major, an academic advisor from the Department of Biological Sciences will be assigned in accordance with the student's declared Option, and students are strongly encouraged to consult with their academic advisors to determine which electives best suit their career requirements.

Bachelor of Science, Natural Sciences

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Declare the major (see Major Requirements) and select one of 3 options: General Sciences, Pre-Health Professions or Environmental Sciences.

Academic Progress

In order to graduate with a BS in Natural Sciences, all courses covered under Major Requirements for a BS in Natural Sciences must be completed with a grade of C or better. All prerequisites for courses used to meet the Natural Sciences degree requirements must be completed with a grade of C or better. Students who audit a course intended to meet the Natural Sciences degree requirements or who are unable to earn a grade of C or better in the course may repeat the course. Students repeating a Department of Biological Sciences course which contains a lecture and laboratory component are required to retake both components of the course.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for all Baccalaureate Degrees located at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section. It is recommended that MATH A200 or MATH A272, STAT A253 or STAT A307, and the Computer Programming requirements be completed in the first two years of study.

D. Major Requirements

1. In order to declare the Bachelor of Science in Natural Sciences as their major, students must meet with an advisor and then apply to be accepted into the major. To schedule your advising session, contact the Department of Biological Sciences. At the advising session students are required to:
   a. choose one of the three options and
   b. file a preliminary program of study with the Department of Biological Sciences.
2. It is strongly recommended that any changes to the preliminary program be reviewed by an advisor to ensure that the final Program of study will meet all requirements for graduation.
3. Students must submit a final Program of Study-Natural Sciences Degree form signed by their advisor to both the Office of the Registrar and the Department of Biological Sciences during the semester prior to the semester in which they plan to graduate. All courses listed in the Program of Study-Natural Sciences Degree form must be

approved by the formal advisor before submitting the form to the Office of the Registrar and the Department of Biological Sciences.

4. No more than 6 credits may come from courses designated as 495, 499 and 498 combined, with no more than 2 credits from 495.
5. No more than 4 credits may be 492, with no more than 2 from the same discipline.
6. Courses not listed as approved for the Natural Sciences degree maybe considered by petition, which should be signed by an advisor.
7. A total of 120-124 credits is required for the degree, of which 42 credits must be upper division.

Note: It is suggested that the required science sequences for any option be completed in the first two years of study.

Note: Students are encouraged to pay careful attention to pre-requisite requirements when designing their program of study.

Note: Some courses meet more than one of the requirements (GER, CAS, Major). Courses approved for the Natural Sciences degree options that meet more than one requirement are identified as follows in the approved course~~s~~ lists: ***Bolded courses meet GER and Major requirements. Bold, Italicized courses meet CAS and Major requirements****. Underlined courses meet GER, CAS and Major requirements.*

Environmental Sciences Option (80 credits)

1. Complete the following required courses (30 credits):

BIOL A115	Fundamentals of Biology I	4
BIOL A116	Fundamentals of Biology II	4
CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1
CHEM A106	General Chemistry II	3
CHEM A106L	General Chemistry II Laboratory	1
GEOL A111	Physical Geology	4
GEOL A221	Historical Geology	4
ENVI A211	**Environmental Science: Systems & Processes**	**3**
ENVI A212	**Living on Earth: People and the Environment**	**3**

2. Complete an additional 50 credits of degree electives from the approved course lists for the Environmental Sciences Option.

a. A minimum of 32 credits must be upper division.

b. A minimum of 20 credits must come from the following Natural and Physical Sciences Course List for the Environmental Sciences Option:

BIOL A178	**Fundamentals of Oceanography**	**3**
BIOL A179	**Fundamentals of Oceanography Laboratory**	**1**
BIOL A200	**Introduction to Complexity**	**3**
BIOL A242	Fundamentals of Cell Biology	4
BIOL A252	Principles of Genetics	4

BIOL A271	Principles of Ecology	4
BIOL A308	Principles of Evolution	3
BIOL A309	Biogeography	3
BIOL A310	Principles of Physiology	4
BIOL A316	Introduction to Plant Physiology	3
BIOL A331	Systematic Botany	4
BIOL A333	Biology of Non-Vascular Plants	4
BIOL A334	Biology of Vascular Plants	4
BIOL A340	General Microbiology	5
BIOL A365	**Astrobiology**	**3**
BIOL A373	Conservation Biology	3
BIOL A378	**Marine Biology**	**3**
BIOL A403	Microtechnique	4
BIOL A415	Comparative Animal Physiology	3
BIOL A423	Ichthyology	4
BIOL A425	Mammalogy	3
BIOL A426	Ornithology	4
BIOL A427	Invertebrate Zoology	4
BIOL A430	Marine Mammal Biology	4
BIOL A441	Animal Behavior	4
BIOL A445	Plant-Herbivore Ecology	4
BIOL A450	Microbial Ecology	3
BIOL A451	Applied Microbiology	3
BIOL A456	**Nonlinear Dynamics and Chaos**	**3**
BIOL A477	Tundra and Taiga Ecosystems	3
BIOL A478	Biological Oceanography	4
BIOL A479	Physiological Plant Ecology	3
BIOL A487	Comparative Anatomy of Vertebrates	4
BIOL A489	**Population Genetics and Evolutionary Processes**	**3**
BIOL A490	Selected Lecture Topics in Biology	1-3
BIOL A490L	Selected Laboratory Topics in Biology	1-3
BIOL A492	Undergraduate Seminar	1
BIOL A495A	Internship in the Biological Sciences	3
BIOL A498	Individual Research	1-6
BIOL A499	Senior Thesis	3
CHEM A212	Quantitative Analysis	5
CHEM A253	Principles of Inorganic Chemistry	3
CHEM A311	Physical Chemistry: A Biological Orientation	3
CHEM A321	Organic Chemistry I	3
CHEM A322	Organic Chemistry II	3
CHEM A323L	Organic Chemistry Laboratory	2
CHEM A331	Physical Chemistry I	3
CHEM A332	Physical Chemistry II	3

CHEM A333L	Physical Chemistry Laboratory	2
CHEM A434	Instrumental Methods	4
CHEM A441	**Principles of Biochemistry I**	**3**
CHEM A442	Principles of Biochemistry II	3
CHEM A443	Biochemistry Laboratory	2
CHEM A450	Environmental Chemistry	3
CHEM A453	Advanced Inorganic Chemistry	5
CHEM A460	Chemical Ecotoxicology	3
CHEM A492	Undergraduate Seminar	1
CHEM A498	Individual Research	3
GEOL A115	**Environmental Geology**	**3**
GEOL A115L	**Environmental Geology Laboratory**	**1**
GEOL A190	Introductory Topics in Geology	1-3
GEOL A320	Volcanology	3
GEOL A321	Mineralogy	4
GEOL A322	Igneous and Metamorphic Petrology	4
GEOL A325	Geology of Ore Deposits	3
GEOL A335	Structural Geology	4
GEOL A340	Hydrogeology	3
GEOL A350	Geomorphology	4
GEOL A360	Geochemistry	3
GEOL A380	Anchorage Field Studies	3
GEOL A381	Kenai Peninsula Field Studies	3
GEOL A382	Geological Field Studies	3
GEOL A421	Invertebrate Paleontology	4
GEOL A450	Paleoclimatology and Global Change	3
GEOL A452	Sedimentology and Stratigraphy	4
GEOL A454	Glacial and Quaternary Geology	3
GEOL A455	Permafrost	3
GEOL A456	**Geoarchaeology**	**3**
GEOL A457	Soil Genesis and Classification	4
GEOL A460	Environmental Geochemistry	3
GEOL A475	Environmental Geophysics	3
GEOL A480	Geological Field Methods	3
GEOL A481	Alaskan Field Investigations	3
GEOL A482	Geological Field Investigations	3
GEOL A490	Advanced Topics in Geology	1-4
GEOL A492	Geology Seminar	1
GEOL A495	Geology Internship	1-3
GEOL A498	Student Research	1-3
GEOL A499	Senior Thesis	3
LSIS A201	**Life on Earth**	**5**
LSIS A202	**Concepts and Processes: Natural Sciences**	**5**

PHYS A123	Basic Physics I	3*
PHYS A123L	Basic Physics I Laboratory	1
PHYS A124	Basic Physics II	3
PHYS A124L	Basic Physics II Laboratory	1
PHYS A211	General Physics I	3
PHYS A211L	General Physics I Laboratory	1
PHYS A212	General Physics II	3
PHYS A212L	General Physics II Laboratory	1
PHYS A303	Modern Physics	3

Note: Students cannot get credit for both PHYS 123/L and PHYS 211/L or PHYS 124/L and 212/L

c. *A minimum of 15 credits must come from the following Math and Computational Skills Course List for the Environmental Sciences Option:*

CS A109	***Computer Programming***	***3***
or		
CS A110	***Java Programming***	***3***
or		
CS A111	***Visual Basic .NET Programming***	***3***
or		
CS A201	***Programming Concepts I***	***3***
CS A202	***Programming Concepts II***	***3***
CS A304	Object-Oriented Analysis and Modeling	3
CS A330	Algorithms and Data Structures	3
CS A351	Automata, Algorithms, and Complexity	3
CS A360	Database Systems	3
CS A385	Computer Graphics	3
CS A405	Artificial Intelligence	3
CS A407	Evolutionary Computing	3
GEO A157	Analytical and Digital Cartography	3
GEO A167	Remote Sensing and Image Analysis	3
GEO A248	Digital Terrain Cartography	3
GEO A257	Elements of Photogrammetry	3
GEO A359	Geodesy and Map Projections	3
GEO A459	Geodetic Geomatics	3
GEO A467	Analytical and Digital Photogrammetry	3
GIS A268	Elements of Geographic Information Systems (GIS)	3
GIS A295	Internship in Geographic Information Systems I	3
GIS A366	Spatial Information Analysis and Modeling	3
GIS A367	GIS and Remote Sensing	3
GIS A370	GIS and Remote Sensing for the Natural Sciences	3
GIS A433	GIS and the Marine Environment	3

GIS A458	Design and Management of Spatial Data	3
GIS A468	Integration of Geomatic Technologies	3
GIS A495	Internship in Geographic Information Systems II	3
MATH A200	Calculus I	4
or		
MATH A272	Applied Calculus	3
MATH A201	**Calculus II**	**4**
MATH A202	Calculus III	4
MATH A215	Introduction to Mathematical Proofs	3
MATH A231	Introduction to Discrete Mathematics	3
MATH A302	Ordinary Differential Equations	3
MATH A303	Introduction to Modern Algebra	3
MATH A305	Introduction to Geometrics	3
MATH A306	Discrete Methods	3
MATH A314	Linear Algebra	3
MATH A321	Analysis of Several Variables	3
MATH A324	Advanced Calculus	3
MATH A371	Stochastic Processes	3
MATH A407	Mathematical Statistics I	3
MATH A408	Mathematical Statistics II	3
MATH A410	Introduction to Complex Analysis	3
MATH A422	Partial Differential Equations	3
STAT A253	Applied Statistics for the Sciences	4
or		
STAT A307	Probability and Statistics	4
STAT A308	**Intermediate Statistics for the Sciences**	**3**
STAT A402	Scientific Sampling	3
STAT A403	Regression Analysis	3
STAT A404	Analysis of Variance	3
STAT A405	Nonparametric Statistics	3
STAT A407	Time Series Analysis	3
STAT A408	Multivariate Statistics	3
STAT A490	Selected Topics in Statistics	1-3

d. A minimum of 9 credits must come from the following Social Sciences Course List for the Environmental Sciences Option:

ANTH A101	**Introduction to Anthropology**	**3**
ANTH A202	**Cultural Anthropology**	**3**
ANTH A205	Biological Anthropology	3
ANTH A335	Native North Americans	3
ANTH A354	**Culture and Ecology**	**3**
ANTH A415	Applied Anthropology	3

ANTH A445	Evolution of Humans and Disease	3
CEL A292	**Introduction to Civic Engagement**	**3**
CEL A390	Selected Topics in Civic Engagement	1-3
ECON A201	**Principles of Macroeconomics**	**3**
ECON A202	**Principles of Microeconomics**	**3**
ECON A210	**Environmental Economics and Policy**	**3**
ECON A300	The Economy of Alaska	3
ECON A321	Intermediate Microeconomics	3
ECON A324	Intermediate Macroeconomics	3
ECON A435	Natural Resource Economics	3
ENVI A303	Environmental Ethics	3
ENVI A470	Environmental Planning and Problem Solving	4
ENVI A490	Topics in Environment and Society	3
GEOG A101	**Local Places/Global Regions: An Introduction to Geography**	**3**
LSSS A311	People, Places and Ecosystems	3
SOC A101	**Introduction to Sociology**	**3**
SOC A404	Environmental Sociology	3

Pre-Health Professions Option (80 credits)

1. *Complete the following required courses (24 credits):*

BIOL A115	Fundamentals of Biology I	4
BIOL A116	Fundamentals of Biology II	4
CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1
CHEM A106	General Chemistry II	3
CHEM A106L	General Chemistry II Laboratory	1
PHYS A123	Basic Physics I	3
PHYS A123L	Basic Physics I Laboratory	1
PHYS A124	Basic Physics II	3
PHYS A124L	Basic Physics II Laboratory	1

2. *Complete an additional 56 credits of degree electives from the approved course lists for the Pre-Health Professions Option.*
   a. *A minimum of 32 credits must be upper division.*
   b. *A minimum of 23 credits must come from the following Natural Sciences Course List for the Pre-Health Professions Option:*

BIOL A111	Human Anatomy and Physiology I	4
BIOL A112	Human Anatomy and Physiology II	4
BIOL A200	**Introduction to Complexity**	**3**
BIOL A240	Introductory Microbiology for Health Sciences	4
or		
BIOL A340	General Microbiology	5

BIOL A242	Fundamentals of Cell Biology	4
BIOL A252	Principles of Genetics	4
BIOL A310	Principles of Physiology	4
BIOL A403	Microtechnique	4
BIOL A415	Comparative Animal Physiology	3
BIOL A425	Mammalogy	4
BIOL A451	Applied Microbiology	3
BIOL A452	**Human Genome**	**3**
BIOL A456	**Nonlinear Dynamics and Chaos**	**3**
BIOL A461	Molecular Biology	3
BIOL A461L	Molecular Biology Laboratory	1
BIOL A462	Virology	3
BIOL A471	Immunochemistry	4
BIOL A487	Comparative Anatomy of Vertebrates	4
BIOL A488	Developmental Biology	4
BIOL A489	**Population Genetics and Evolutionary Processes**	**3**
BIOL A490	Selected Lecture Topics in Biology	1-3
BIOL A490L	Selected Laboratory Topics in Biology	1-3
BIOL A492	Undergraduate Seminar	1
BIOL A495A	Internship in the Biological Sciences	3
BIOL A498	Individual Research	1-6
CHEM A212	Quantitative Analysis	5
CHEM A311	Physical Chemistry: A Biological Orientation	3
CHEM A321	Organic Chemistry I	3
CHEM A322	Organic Chemistry II	3
CHEM A323L	Organic Chemistry Laboratory	2
CHEM A434	Instrumental Methods	4
CHEM A441	**Principles of Biochemistry I**	**3**
CHEM A442	Principles of Biochemistry II	3
CHEM A443	Biochemistry Laboratory	2
CHEM A460	Chemical Ecotoxicology	3
CHEM A492	Undergraduate Seminar	1
CHEM A498	Individual Research	3

c. *A minimum of (15) credits must come from the following Social Sciences Course List for the Pre-Health Professions Option:*

ANTH A101	**Introduction to Anthropology**	**3**
ANTH A205	Biological Anthropology	3
ANTH A324	Psychological Anthropology	3
ANTH A365	Races: Modern Human Diversity	3
ANTH A445	Evolution of Humans and Disease	3
ANTH A455	Medical Anthropology	3
AHTH A457	Food and Nutrition: An Anthropological	

	Perspective	3
ANTH A485	Human Osteology	4
ANTH A486	Applied Human Osteology	3
ANTH A490	Selected Topics in Anthropology	1-3
ECON A201	**Principles of Macroeconomics**	**3**
ECON A202	**Principles of Microeconomics**	**3**
HS A220	**Core Concepts in Health Sciences**	**3**
HS A210	Introduction to Environmental Health	3
HS A230	Introduction to Global Health	3
HS A326	Introduction to Epidemiology	3
HS A492	**Senior Seminar: Contemporary Health Policy**	**3**
PHIL A302	Biomedical Ethics	3
PSY A111	**General Psychology**	**3**
PSY A143	Death and Dying	3
PSY A150	**Lifespan Development**	**3**
PSY A245	Child Development	3
PSY A245L	Child Development Laboratory	1
PSY A260	Statistics for Psychology	3
PSY A260L	Statistics for Psychology Lab	1
PSY A261	Research Methods in Psychology	4
PSY A345	Abnormal Psychology	3
PSY A355	Learning and Cognition	4
PSY A366	Perception	3
PSY A368	Personality	3
PSY A370	**Biological Psychology**	**3**
PSY A412	Foundations of Modern Psychology	3
PSY A420	Conducting Research in Psychology	3
PSY A425	Clinical Psychology	3
PSY A428	Evolutionary Psychology	3
PSY A450	Adult Development and Aging	3
PSY A453	Application of Statistics to the Social Sciences	4
PSY A455	Mental Health Services in Alaska	3
PSY A485	Health Psychology	3
PSY A498	Individual Research	3

d. *A minimum of 9 credits must come from the following Math and Computational Skills Course List for the Pre-Health Professions Option:*

MATH A200	Calculus I	4
or		
MATH A272	Applied Calculus	3
MATH A201	**Calculus II**	**4**
MATH A202	Calculus III	4
MATH A215	Introduction to Mathematical Proofs	3

MATH A231	Introduction to Discrete Mathematics	3
MATH A302	Ordinary Differential Equations	3
MATH A303	Introduction to Modern Algebra	3
MATH A305	Introduction to Geometrics	3
MATH A306	Discrete Methods	3
MATH A314	Linear Algebra	3
MATH A321	Analysis of Several Variables	3
MATH A324	Advanced Calculus	3
MATH A371	Stochastic Processes	3
MATH A407	Mathematical Statistics I	3
MATH A408	Mathematical Statistics II	3
MATH A410	Introduction to Complex Analysis	3
MATH A422	Partial Differential Equations	3
MATH A490A	Selected Topics in Pure Mathematics	3
MATH A490B	Selected Topics in Applied Mathematics	3
MATH A498	Individual Research	1-3
STAT A253	Applied Statistics for the Sciences	4
or		
STAT A307	Probability and Statistics	4
STAT A308	**Intermediate Statistics for the Sciences**	**3**
STAT A402	Scientific Sampling	3
STAT A403	Regression Analysis	3
STAT A404	Analysis of Variance	3
STAT A405	Nonparametric Statistics	3
STAT A407	Time Series Analysis	3
STAT A408	Multivariate Statistics	3
STAT A490	Selected Topics in Statistics	1-3

General Sciences Option (80 credits)

1. Complete the following required courses (32 credits):

BIOL A115	Fundamentals of Biology I	4
BIOL A116	Fundamentals of Biology II	4
CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1
CHEM A106	General Chemistry II	3
CHEM A106L	General Chemistry II Laboratory	1
GEOL A111	Physical Geology	4
GEOL A221	Historical Geology	4
PHYS A123	Basic Physics I (3)	8
PHYS A123L	Basic Physics I Laboratory (1)	
and		
PHYS A124	Basic Physics II (3)	
PHYS A124L	Basic Physics II Laboratory (1)	

or
PHYS A211 General Physics I (3)
PHYS A211L General Physics I Laboratory (1)
and
PHYS A212 General Physics II (3)
PHYS A212L General Physics II Laboratory (1)

2. *Complete an additional 48 credits of degree electives.**
   a. *The credits must come from the following course lists:*
      i. *Environmental Sciences Course Lists.*
      ii. *Pre-Health Professions Course Lists.*
      iii. *General Sciences Additional Course List (below).*
   b. *A minimum of 32 credits must be upper division.*
   c. *A minimum of 20 credits must come from at least 2 science disciplines (Astronomy, Biology, Chemistry, Geology, Physics).*

   NOTE: Students wishing to meet the National Science Teachers Association Standards for Science Teacher Preparation will need to meet the following credit requirements within the 48 degree elective credits**:
      i. *Twenty of the 48 credits must come from 4 credits per each of the following:*
         1. *Biology (BIOL) 4*
         2. *Chemistry (CHEM) 4*
         3. *Geology (GEOL) 4*
         4. *Astronomy (ASTR) 4*
         5. *Physics or Astronomy (PHYS or ASTR) 4*
      ii. *In addition to the credits listed above (i), at least 17 additional credits must come from one of the following disciplines such that a minimum of 21 elective credits are taken in a single science discipline:*
         1. *Biology (BIOL) 17*
         OR
         2. *Chemistry (CHEM)*
         OR
         3. *Geology (GEOL)*
         OR
         4. *Physics/Astronomy (PHYS and/or ASTR)*

   *****NOTE: Students wishing to meet the National Science Teachers Association Standards for Science Teacher Preparation with an emphasis in Physics will be unable to do so while earning a degree in 120-125 credits. Options are to earn a degree with greater than 125 credits, or develop a degree plan that meets the majority of the standards' requirements and complete the remainder as a post-Baccalaureate student.***

   d. *Additional Courses for the General Sciences Option List:*

ASTR A103 Solar System Astronomy 3
ASTR A103L Solar System Astronomy Laboratory 1

ASTR A104	Stars, Galaxies and Cosmology	3
ASTR A104L	**Stars, Galaxies and Cosmology Laboratory**	**1**
ASTR A365	**Astrobiology**	**3**
PHYS A311	Intermediate Classical Mechanics	3
PHYS A314	Electromagnetics	3
PHYS A320	Simulation of Physical Systems	3
PHYS A324	Electromagnetics II	3
PHYS A403	Quantum Mechanics	3
PHYS A413	Statistical and Thermal Mechanics	3
PHYSA456	**Nonlinear Dynamics and Chaos**	**3**
PHYS A498	Individual Research	1-6

FACULTY

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To: CAS Course and Curriculum Committee and Undergraduate Academic Board

From: Khrys Duddleston, Biological Sciences Department

Re: Proposed Changes to the Bachelor of Science, Biological Sciences: focus area in Marine Biology

Date: March 21, 2011

Attached is a Program Action Request (PAR) for changes to the Bachelor of Science Biological Sciences degree program catalog.

The proposed catalog change provides an additional area of study for biology students, adding a sub-field in **marine biology** under the organismal, ecology and evolutionary biology division.

The purpose of this catalog change is to more clearly emphasize the study opportunities in marine biology at UAA. This change is valuable as it provides clearer direction for the numerous UAA students interested in graduate studies in marine biology or for employment in the marine biology private or public sector. The courses listed in this focus area are already offered by CAS Biological Sciences Department and many are also offered at the Kachemak Bay Campus of Kenai Peninsula College.

The proposal does not change the BS Biological Sciences degree in terms of core course or credit requirements. The proposal only changes the areas of study available to students, addressing both student interests and faculty expertise.

Program/Prefix Action Request
University of AlaskaAnchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a.School or College AS CAS	1b. Division AMSC Division of Math Science	1c. Department Biological Sciences

2. Complete Program Title/Prefix
B. S., Biological Sciences

3. Type of Program

☐ OEC ☐ Undergrad Certificate ☐ AA/AAS ☒ Baccalaureate ☐ Minor
☐ Post Baccalaureate Certificate ☐ Graduate ☐ Graduate Certificate ☐ Doctoral ☐ Specialty

4. Type of Action:

PROGRAM
☐ Add
☒ Change
☐ Delete

PREFIX
☐ Add
☐ Change
☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2011 To: Fall/9999

6a. Coordination with Affected Units Department, School, or College: UAA Faculty Listserve

Initiator Name (typed): Khrys Duddleston Initiator Signed Initials: _________
Date:_______________

6b. Coordination Email submitted to Faculty Listserv(uaa-faculty@lists.uaa.alaska.edu) Date: 21Mar2011

6c. Coordination with LibraryLiaison Date: 21Mar2011

7. Title and Program Description - Please attach the following:

☒ Cover Memo ☒ Catalog Copy in Word using thetrack changes function

8. Justification for Action
To update and focus BS degree areas to include a sub-field of Marine Biology.

Initiator (faculty only) — Date Khrys Duddleston Initiator (TYPE NAME)	☐ Approved ☐ Disapproved — Dean/Director of School/College — Date
☐ Approved ☐ Disapproved — Department Chairperson — Date	☐ Approved ☐ Disapproved — Undergraduate/Graduate Academic Board Chairperson — Date
☐ Approved ☐ Disapproved — Curriculum Committee Chairperson — Date	☐ Approved ☐ Disapproved — Provost or Designee — Date

BIOLOGICAL SCIENCES

ConocoPhillips Integrated SciencesBuilding (CPSB), Room 101,
(907) 786-4770
http://biology.uaa.alaska.edu

The WWAMI/Biomedical program may be found at http://biomed.uaa.alaska.edu

Biology is the science concerned with the study of living organisms. It encompasses a vast range of biological disciplines, from the study of microbes and molecular biology to the study of plants, animals and the environment. The undergraduate program in the Biological Sciences includes courses that provide students with a broad understanding of both traditional and modern biological sciences. These courses are suitable as preparation for professional degrees, for teaching, or for careers in government or industry. Both the Bachelor of Arts and the Bachelor of Science degrees are available for undergraduates. A Master of Science degree program in Biological Sciences as well as a joint UAA-UAF Doctor of Science degree program is available for students already holding the baccalaureate degree.

A program of study in the biological sciences requires completion of a basic science core curriculum in the chemical, physical and mathematical sciences as well as required and elective courses in the biological sciences. Two general divisions are recognized in the biology program: the cell-molecular and the organismal-ecology-evolution areas. The cell-molecular area focuses on preprofessional sciences for students wishing to pursue careers in medicine, dentistry, and veterinary medicine, or who wish to attend graduate school. The organismal-ecology-evolution area is a more diversified curriculum emphasizing environmental, organismal, evolutionary, marine and general biological sciences preparatory for graduate school or for employment in the private or public sector. Students are strongly encouraged to consult with their academic advisors within the Department of Biological Sciences to determine which electives best suit their programmatic needs and career requirements.

The Bachelor of Arts and the Bachelor of Science degree programs require a total of 124-125 credits for graduation and can be completed in four years by students who have had adequate high school preparation in math and sciences. Refer to the beginning of this chapter for recommended high school courses.

PROGRAM OBJECTIVES AND EXPECTED OUTCOMES

The curriculum of the UAA Biological Sciences program is designed to produce graduates who:

1. Have a basic knowledge of the principles relating to the biological sciences with an emphasis in either molecular or organismal biology.
2. Have an ability to think critically, dissect problems, and offer solutions.
3. Have developed written and oral communications skills consistent with a career in biological sciences.
4. Have developed sufficient competency in knowledge and skills to obtain employment as an entry level biologist and be able to progress professionally within the discipline.
5. Have developed a mental attitude that learning is a lifetime occupation to maintain relevancy in the biological profession.

In keeping with the objectives, it is expected that graduates of the Biological Sciences program will have:

1. An ability to apply their knowledge of general biology to the workplace or higher education pursuits.
2. An ability to accept challenges and think through problems until solutions are derived and effectively communicate the solutions to supervisors.
3. An ability to design and conduct projects that include fieldwork, laboratory analyses, and interpretation in the discipline.
4. An ability to recognize that education does not stop at graduation, but looks to continuing education as a professional responsibility.

COMMUNITY SERVICE COURSES

The department offers a wide range of community service courses as a service to the people in the Anchorage area and extended campuses who wish to become more knowledgeable about the science of biology and how it relates to them. Unless noted otherwise in the course description, community service courses do not satisfy either core requirements or elective credit towards any degree programs in the biological sciences. All are offered as demand warrants.

BIOL A074 Field Natural History

BIOL A075 Local Flora

BIOL A100 Human Biology
BIOL A104 Natural History of Alaska
BIOL A124 Biota of Alaska: Selected Topics
BIOL A126 Birds in Field and Laboratory

DEPARTMENTAL HONORS IN BIOLOGY

Undergraduate Biological Science majors may be recognized for exceptional performance by earning Departmental Honors in Biology. In order to receive honors in biology, a student must meet each of the following requirements:

1. Meet the requirements for Graduation with Honors as listed in Chapter 7 of the UAA catalog.
2. Meet the requirements for a BA/BS degree in Biological Sciences.
3. Earn a grade point average of 3.50 or above in the major requirements.
4. During the senior year of their academic program, the student must gain faculty approval for and complete, with a grade of B or better a senior thesis research project, with enrollment in BIOL A499 Senior Thesis. Biological Science faculty members must approve the project proposal and final written report.

BACHELOR OF ARTS, BIOLOGICAL SCIENCES

ADMISSION REQUIREMENTS

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

ACADEMIC PROGRESS

In order to graduate with a BA in Biological Sciences, all courses covered under Major Requirements for a BA in Biological Sciences must be completed with a grade of C or better. Students who audit a course in biology or who are unable to earn a grade of C or better in the course may repeat the course. All prerequisites for biology courses must be completed with a grade of C or better. Students repeating a course in the Department of Biological Sciences are required to complete all components of the course during the semester in which the course is retaken. For a course with a lecture and laboratory component, students may not carry forward an individual lecture or laboratory grade from a previous semester in which the course was taken.

GRADUATION REQUIREMENTS

Students must complete the following graduation requirements:

A. GENERAL UNIVERSITY REQUIREMENTS

Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.

B. GENERAL EDUCATION REQUIREMENTS

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. COLLEGE OF ARTS AND SCIENCES REQUIREMENTS

Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section.

D. MAJOR REQUIREMENTS

1. Complete these required core courses:

BIOL A115/L	Fundamentals of Biology I with Laboratory	4
BIOL A116/L	Fundamentals of Biology II with Laboratory	4
BIOL A242/L	Fundamentals of Cell Biology with Laboratory	4
BIOL A252/L	Principles of Genetics with Laboratory	4
BIOL A310/L	Principles of Physiology with Laboratory (4)	3-4
	or	
BIOL A316	Introduction to Plant Physiology (3)	
	or	
BIOL A415	Comparative Animal Physiology (3)	
BIOL A492	Undergraduate Seminar	1
CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1

CHEM A106	General Chemistry II	3
CHEM A106L	General Chemistry II Laboratory	1

2. It is recommended that students complete 8 credits from the following: 8

GEOL A111	Physical Geology (4)
GEOL A221	Historical Geology (4)
or	
PHYS A123	Basic Physics I (3)
PHYS A123L	Basic Physics I Laboratory (1)
	and
PHYS A124	Basic Physics II (3)
PHYS A124L	Basic Physics II Laboratory (1)

3. Complete 15-17 credits of upper division program electives from the following areas:

Ecology	***3-4***
Microbiology	***4-5***
Biology electives	***8***

4. A total of 124 credits is required for the degree, of which 42 credits must be upper division.

BACHELOR OF SCIENCE, BIOLOGICAL SCIENCES

The Bachelor of Science degree includes a single core program of coursework with two areas of study. Completing courses from the cellular and molecular biology area prepares students for professional careers in areas such as medicine, dentistry and veterinary science. Completing courses from the organismal, ecology, and evolutionary area prepares students for careers in environmental, organismal, and evolutionary biology. A wide selection of electives is available to all students, including courses offered under BIOL A394 and BIOL A490, which are our selected topics courses. It is imperative that students consult their academic advisors within the Department of Biological Sciences to determine which electives are most appropriate to their career interests. Some of these elective courses are offered periodically, depending on demand. Refer to course descriptions to identify these courses.

ADMISSION REQUIREMENTS

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

ACADEMIC PROGRESS

In order to graduate with a BS in Biological Sciences, all courses covered under Major Requirements for a BS in Biological Sciences must be completed with a grade of C or better. Students who audit a course in biology or who are unable to earn a grade of C or better in the course may repeat the course. All prerequisites for biology courses must be completed with a grade of C or better. Students repeating a course in the Department of Biological Sciences are required to complete all components of the course during the semester in which the course is retaken. For a course with a lecture and laboratory component, students may not carry forward an individual lecture or laboratory grade from a previous semester in which the course was taken.

GRADUATION REQUIREMENTS

Students must complete the following graduation requirements:

A. GENERAL UNIVERSITY REQUIREMENTS

Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.

B. GENERAL EDUCATION REQUIREMENTS

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. COLLEGE OF ARTS AND SCIENCES REQUIREMENTS

Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section.

*D. MAJOR R*EQUIREMENTS

1. Some major requirements may also be used to satisfy the College of Arts and Sciences BS requirements.
2. Complete these required support courses:

CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1
CHEM A106	General Chemistry II	3
CHEM A106L	General Chemistry II Laboratory	1

CHEM A321	Organic Chemistry I	3
CHEM A322	Organic Chemistry II	3
CHEM A323L	Organic Chemistry Laboratory	2
MATH A200	Calculus I	4
MATH A201	Calculus II	4
PHYS A123	Basic Physics I (3)	8
PHYS A123L	Basic Physics I Laboratory (1)	
	and	
PHYS A124	Basic Physics II (3)	
PHYS A124L	Basic Physics II Laboratory (1)	
	or	
PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	
	and	
PHYS A212	General Physics II (3)	
PHYS A212L	General Physics II Laboratory (1)	
STAT A253	Applied Statistics for the Sciences (4)	4
	or	
STAT A307	Probability (4)	
STAT A308	Intermediate Statistics *	3

**It is recommended that STAT A308 be taken. Students may substitute STAT A308 with 3 upper division Biological Sciences credits.*

3. Complete Biological Sciences core courses:

BIOL A115/L	Fundamentals of Biology I with Laboratory	4
BIOL A116/L	Fundamentals of Biology II with Laboratory	4
BIOL A242/L	Fundamentals of Cell Biology with Laboratory	4
BIOL A252/L	Principles of Genetics with Laboratory	4
BIOL A271/L	Principles of Ecology with Laboratory	4
BIOL A308	Principles of Evolution	3
BIOL A310/L	Principles of Physiology with Laboratory (4)	3-4
	or	
BIOL A316	Introduction to Plant Physiology (3)	
	or	
BIOL A415	Comparative Animal Physiology (3)	
BIOL A340	General Microbiology	5
BIOL A492	Undergraduate Seminar	1

4. Complete 11-12 credits of upper division program electives from the following list: 11-12

Note: Preprofessional students may substitute CHEM A441-A442 Principles of Biochemistry and CHEM A443 Biochemistry Laboratory for 8 upper division biology credits.

a. *Recommended electives in cellular and molecular biology:*

Cellular-Molecular

BIOL A451	Applied Microbiology (3)
BIOL A452	Human Genome* (3)
BIOL A461	Molecular Biology (3)
BIOL A461L	Molecular Biology Laboratory (1)
BIOL A462	Virology (3)
BIOL/ CHEM A471	Immunochemistry (4)
BIOL A488	Developmental Biology (4)

Zoology

BIOL A327	Parasitology (4)

BIOL A415	Comparative Animal Physiology (3)
BIOL A487	Comparative Anatomy of Vertebrates (4)

Techniques

BIOL A403	Microtechnique (4)
BIOL A495	Instructional Practicum: Laboratory (1)

b. *Recommended elective courses in organismal, ecology and evolutionary biology:*

Botany

BIOL A316	Introduction to Plant Physiology (3)
BIOL A331	Systematic Botany (4)
BIOL A333	Biology of Non-Vascular Plants (4)
BIOL A334	Biology of Vascular Plants (4)
BIOL A479	Physiological Plant Ecology (3)

Zoology

BIOL A327	Parasitology (4)
BIOL A415	Comparative Animal Physiology (3)
BIOL A423	Ichthyology (4)
BIOL A425	Mammalogy (4)
BIOL A426	Ornithology (4)
BIOL A427	Invertebrate Zoology (4)
BIOL A487	Comparative Anatomy of Vertebrates (4)

Ecology-Systems

BIOL A309	Biogeography (3)
BIOL A373	Conservation Biology (3)
BIOL A378	Marine Biology (3)
BIOL A430	Marine Mammal Biology (4)
BIOL A441	Animal Behavior (4)
BIOL A445	Plant-Herbivore Ecology (4)
BIOL A450	Microbial Ecology (3)
BIOL A477	Tundra and Taiga Ecosystems (3)
BIOL A478	Biological Oceanography (4)
BIOL A479	Physiological Plant Ecology (3)
BIOL A489	Population Genetics and Evolutionary Processes* (3)

Marine Biology

BIOL A378	Marine Biology (3)
BIOL A423	Ichthyology (4)
BIOL A427	Invertebrate Zoology (4)
BIOL A430	Marine Mammal Biology (4)
BIOL A478	Biological Oceanography (4)

Techniques

BIOL A403	Microtechnique (4)
BIOL A495	Instructional Practicum: Laboratory (1)

c. *Special topics, independent study and individual research (credits vary):*

BIOL A456	Nonlinear Dynamics and Chaos (3)
BIOL A490	Selected Lecture Topics in Biology (1-3)
BIOL A490L	Selected Laboratory Topics in Biology (1-3)
BIOL A497	Independent Study in Biology
BIOL A498	Individual Research
BIOL A499	Senior Thesis (3)

*Integrative capstone courses

5. A total of 122-125 credits is required for the degree, of which 42 credits must be upper division.

BACHELOR OF SCIENCE, NATURAL SCIENCES

The Department of Biological Sciences also oversees the Bachelor of Science in Natural Sciences. This curriculum emphasizes the interrelationships among the sciences. This flexible degree program can be used to meet admissions requirements of specific professional schools in medicine, dentistry, and veterinary medicine. It is also designed for health sciences practitioners who wish to obtain a stronger background in both the biological and chemical sciences, and for those preparing to teach science at the secondary level.

For a complete program description see the Natural Sciences section of this chapter.

MINOR, BIOLOGICAL SCIENCES

Students majoring in another subject who wish to minor in Biological Sciences must complete the following requirements. A total of 28 credits is required for the minor, 12 of which must be upper division.

BIOL A115/L	Fundamentals of Biology I with Laboratory	4
BIOL A116/L	Fundamentals of Biology II with Laboratory	4
BIOL A242/L	Fundamentals of Cell Biology with Laboratory	4
BIOL A252/L	Principles of Genetics with Laboratory	4
Upper division Biological Sciences electives		12

FACULTY

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BIOLOGICAL SCIENCES

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5. Have developed a mental attitude that learning is a lifetime occupation to maintain relevancy in the biological profession.

In keeping with the objectives, it is expected that graduates of the Biological Sciences program will have:

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3. An ability to design and conduct projects that include fieldwork, laboratory analyses, and interpretation in the discipline.
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The department offers a wide range of community service courses as a service to the people in the Anchorage area and extended campuses who wish to become more knowledgeable about the science of biology and how it relates to them. Unless noted otherwise in the course description, community service courses do not satisfy either core requirements or elective credit towards any degree programs in the biological sciences. All are offered as demand warrants.

BIOL A074 Field Natural History
BIOL A075 Local Flora

BIOL A100 Human Biology
BIOL A104 Natural History of Alaska
BIOL A124 Biota of Alaska: Selected Topics
BIOL A126 Birds in Field and Laboratory

DEPARTMENTAL HONORS IN BIOLOGY

Undergraduate Biological Science majors may be recognized for exceptional performance by earning Departmental Honors in Biology. In order to receive honors in biology, a student must meet each of the following requirements:

1. Meet the requirements for Graduation with Honors as listed in Chapter 7 of the UAA catalog.
2. Meet the requirements for a BA/BS degree in Biological Sciences.
3. Earn a grade point average of 3.50 or above in the major requirements.
4. During the senior year of their academic program, the student must gain faculty approval for and complete, with a grade of B or better a senior thesis research project, with enrollment in BIOL A499 Senior Thesis. Biological Science faculty members must approve the project proposal and final written report.

BACHELOR OF ARTS, BIOLOGICAL SCIENCES

ADMISSION REQUIREMENTS

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

ACADEMIC PROGRESS

In order to graduate with a BA in Biological Sciences, all courses covered under Major Requirements for a BA in Biological Sciences must be completed with a grade of C or better. Students who audit a course in biology or who are unable to earn a grade of C or better in the course may repeat the course. All prerequisites for biology courses must be completed with a grade of C or better. Students repeating a course in the Department of Biological Sciences are required to complete all components of the course during the semester in which the course is retaken. For a course with a lecture and laboratory component, students may not carry forward an individual lecture or laboratory grade from a previous semester in which the course was taken.

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C. COLLEGE OF ARTS AND SCIENCES REQUIREMENTS

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D. MAJOR REQUIREMENTS

1. Complete these required core courses:

BIOL A115/L	Fundamentals of Biology I with Laboratory	4
BIOL A116/L	Fundamentals of Biology II with Laboratory	4
BIOL A242/L	Fundamentals of Cell Biology with Laboratory	4
BIOL A252/L	Principles of Genetics with Laboratory	4
BIOL A310/L	Principles of Physiology with Laboratory (4)	3-4
	or	
BIOL A316	Introduction to Plant Physiology (3)	
	or	
BIOL A415	Comparative Animal Physiology (3)	
BIOL A492	Undergraduate Seminar	1
CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1

CHEM A106	General Chemistry II	3
CHEM A106L	General Chemistry II Laboratory	1

2. It is recommended that students complete 8 credits from the following: 8

GEOL A111	Physical Geology (4)
GEOL A221	Historical Geology (4)
or	
PHYS A123	Basic Physics I (3)
	~~and~~
PHYS A123L	Basic Physics I Laboratory (1)
	and
PHYS A124	Basic Physics II (3)
	~~and~~
PHYS A124L	Basic Physics II Laboratory (1)

3. Complete 15-17 credits of upper division program electives from the following areas:

Ecology	***3-4***
Microbiology	***4-5***
Biology electives	***8***

4. A total of 124 credits is required for the degree, of which 42 credits must be upper division.

BACHELOR OF SCIENCE, BIOLOGICAL SCIENCES

The Bachelor of Science degree includes a single core program of coursework with two areas of study. Completing courses from the cellular and molecular biology area prepares students for professional careers in areas such as medicine, dentistry and veterinary science. Completing courses from the organismal, ecology, and evolutionary area prepares students for careers in environmental, organismal, and evolutionary biology. A wide selection of electives is available to all students, including courses offered under BIOL A394 and BIOL A490, which are our selected topics courses. It is imperative that students consult their academic advisors within the Department of Biological Sciences to determine which electives are most appropriate to their career interests. Some of these elective courses are offered periodically, depending on demand. Refer to course descriptions to identify these courses.

ADMISSION REQUIREMENTS

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

ACADEMIC PROGRESS

In order to graduate with a BS in Biological Sciences, all courses covered under Major Requirements for a BS in Biological Sciences must be completed with a grade of C or better. Students who audit a course in biology or who are unable to earn a grade of C or better in the course may repeat the course. All prerequisites for biology courses must be completed with a grade of C or better. Students repeating a course in the Department of Biological Sciences are required to complete all components of the course during the semester in which the course is retaken. For a course with a lecture and laboratory component, students may not carry forward an individual lecture or laboratory grade from a previous semester in which the course was taken.

GRADUATION REQUIREMENTS

Students must complete the following graduation requirements:

A. GENERAL UNIVERSITY REQUIREMENTS

Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.

B. GENERAL EDUCATION REQUIREMENTS

Complete the General Education Requirements for Baccalaureate Degrees listed at the beginning of this chapter.

C. COLLEGE OF ARTS AND SCIENCES REQUIREMENTS

Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section.

D. MAJOR REQUIREMENTS

1. Some major requirements may also be used to satisfy the College of Arts and Sciences BS requirements.
2. Complete these required support courses:

CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1
CHEM A106	General Chemistry II	3
CHEM A106L	General Chemistry II Laboratory	1

CHEM A321	Organic Chemistry I	3
CHEM A322	Organic Chemistry II	3
CHEM A323L	Organic Chemistry Laboratory	2
MATH A200	Calculus I	4
MATH A201	Calculus II	4
PHYS A123	Basic Physics I (3)	8
PHYS A123L	Basic Physics I Laboratory (1)	
	and	
PHYS A124	Basic Physics II (3)	
PHYS A124L	Basic Physics II Laboratory (1)	
	or	
PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	
	and	
PHYS A212	General Physics II (3)	
PHYS A212L	General Physics II Laboratory (1)	
STAT A253	Applied Statistics for the Sciences (4)	~~3~~ 4
	or	
STAT A307	Probability (~~3~~4)	
STAT A308	Intermediate Statistics *	3

**It is recommended that STAT A308 be taken. Students may substitute STAT A308 with 3 upper division Biological Sciences credits.*

3. Complete Biological Sciences core courses:

BIOL A115/L	Fundamentals of Biology I with Laboratory	4
BIOL A116/L	Fundamentals of Biology II with Laboratory	4
BIOL A242/L	Fundamentals of Cell Biology with Laboratory	4
BIOL A252/L	Principles of Genetics with Laboratory	4
BIOL A271/L	Principles of Ecology with Laboratory	4
BIOL A308	Principles of Evolution	3
BIOL A310/L	Principles of Physiology with Laboratory (4)	3-4
	or	
BIOL A316	Introduction to Plant Physiology (3)	
	or	
BIOL A415	Comparative Animal Physiology (3)	
BIOL A340	General Microbiology	5
BIOL A492	Undergraduate Seminar	1

4. Complete 11-12 credits of upper division program electives from the following list: 11-12

Note: Preprofessional students may substitute CHEM A441-A442 Principles of Biochemistry and CHEM A443 Biochemistry Laboratory for 8 upper division biology credits.

a. *Recommended electives in cellular and molecular biology:*

Cellular-Molecular

BIOL A451	Applied Microbiology (3)
BIOL A452	Human Genome* (3)
BIOL A461	Molecular Biology (3)
BIOL A461L	Molecular Biology Laboratory (1)
BIOL A462	Virology (3)
BIOL/ CHEM A471	Immunochemistry (4)
BIOL A488	Developmental Biology (4)

Zoology

BIOL A327	Parasitology (4)

BIOL A415	Comparative Animal Physiology (3)
BIOL A487	Comparative Anatomy of Vertebrates (4)

Techniques

BIOL A403	Microtechnique (4)
BIOL A495	Instructional Practicum: Laboratory (1)

b. *Recommended elective courses in organismal, ecology and evolutionary biology:*

Botany

BIOL A316	Introduction to Plant Physiology (3)
BIOL A331	Systematic Botany (4)
BIOL A333	Biology of Non-Vascular Plants (4)
BIOL A334	Biology of Vascular Plants (4)
BIOL A479	Physiological Plant Ecology (3)

Zoology

BIOL A327	Parasitology (4)
BIOL A415	Comparative Animal Physiology (3)
BIOL A423	Ichthyology (4)
BIOL A425	Mammalogy (4)
BIOL A426	Ornithology (4)
BIOL A427	Invertebrate Zoology (4)
BIOL A487	Comparative Anatomy of Vertebrates (4)

Ecology-Systems

BIOL A309	Biogeography (3)
BIOL A373	Conservation Biology (3)
BIOL A378	Marine Biology (3)
BIOL A430	Marine Mammal Biology (4)
BIOL A441	Animal Behavior (4)
BIOL A445	Plant-Herbivore Ecology (4)
BIOL A450	Microbial Ecology (3)
BIOL A477	Tundra and Taiga Ecosystems (3)
BIOL A478	Biological Oceanography (4)
BIOL A479	Physiological Plant Ecology (3)
BIOL A489	Population Genetics and Evolutionary Processes* (3)

Marine Biology

~~BIOL A333~~	~~Biology of Non-Vascular Plants (4)~~
BIOL A378	Marine Biology (3)
BIOL A423	Ichthyology (4)
BIOL A427	Invertebrate Zoology (4)
BIOL A430	Marine Mammal Biology (4)
~~BIOL A450~~	~~Microbial Ecology (3)~~
BIOL A478	Biological Oceanography (4)

Techniques

BIOL A403	Microtechnique (4)
BIOL A495	Instructional Practicum: Laboratory (1)

c. *Special topics, independent study and individual research (credits vary):*

BIOL A456	Nonlinear Dynamics and Chaos (3)
BIOL A490	Selected Lecture Topics in Biology (1-3)
BIOL A490L	Selected Laboratory Topics in Biology (1-3)
BIOL A497	Independent Study in Biology

BIOL A498	Individual Research	
BIOL A499	Senior Thesis (3)	

*Integrative capstone courses

5. A total of 122-125 credits is required for the degree, of which 42 credits must be upper division.

BACHELOR OF SCIENCE, NATURAL SCIENCES

The Department of Biological Sciences also oversees the Bachelor of Science in Natural Sciences. This curriculum emphasizes the interrelationships among the sciences. This flexible degree program can be used to meet admissions requirements of specific professional schools in medicine, dentistry, and veterinary medicine. It is also designed for health sciences practitioners who wish to obtain a stronger background in both the biological and chemical sciences, and for those preparing to teach science at the secondary level.

For a complete program description see the Natural Sciences section of this chapter.

MINOR, BIOLOGICAL SCIENCES

Students majoring in another subject who wish to minor in Biological Sciences must complete the following requirements. A total of 28 credits is required for the minor, 12 of which must be upper division.

BIOL A115/L	Fundamentals of Biology I with Laboratory	4
BIOL A116/L	Fundamentals of Biology II with Laboratory	4
BIOL A242/L	Fundamentals of Cell Biology with Laboratory	4
BIOL A252/L	Principles of Genetics with Laboratory	4
Upper division Biological Sciences electives		12

FACULTY

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Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	Geomatics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEO	A158	Not Applic	1	(0+2)

6. Complete Course Title
Geomatics Computer Fundamentals
Geom Computer Fundamentals
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☒ Credits
☐ Title
☐ Grading Basis
☒ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
 ☐ Class ☐ Level
 ☐ College ☐ Major
☐ Other (please specify)

☐ Course Number
☒ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☒ Course Prerequisites
☒ Co-requisites
☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Associate of Applied Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
3.			

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Use of computational devices with applications in Geomatics. The basics of Reverse Polish Notation and keystroke programming will be covered. Use of Excel and MATLAB to solve geomatics problems will be emphasized. To be taken concurrently with ENGR A161

16a. Course Prerequisite(s) *(list prefix and number)*

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
GEO A155 and ENGR A161

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Revision of course to reflect changes in the Geomatics program and in technology. Course redesigned to work in concert with ENGR A161, providing a Geomatics application opportunity for Geomatics students.

Initiator (faculty only) Date
John Bean
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: March 7, 2011

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GEO
Course Number:	A158
Title:	Geomatics Computer Fundamentals
Credits:	1
Contact Hours:	2 hours of lab per week = 30 hours per semester. (0+2)
Grading Basis:	A–F
Implementation Date:	Fall, 2011
Course Description:	Use of computational devices with applications in Geomatics. The basics of Reverse Polish Notation and keystroke programming will be covered. Use of Excel and MATLAB to solve geomatics problems will be emphasized. To be taken concurrently with ENGR A161.
Course Prerequisites(s):	N/A
Test Scores(s):	N/A
Co-requisite(s)	GEO A155, ENGR A161
Registration Restrictions:	N/A
Course Fee:	☒ Yes ☐ No

III. Course Level Justification

This course is an introduction to using MATLAB, spreadsheets and programmable calculators for geomatics students. There are two 100 level co-requisites.

IV. Instructional Goals

The instructor will:

1.	Demonstrate how to use a programmable calculator for calculations
2.	Demonstrate programming the calculator for repetitive calculations
3.	Explain moderately complex computations using a spreadsheet
4.	Explain formating spreadsheets in any manner desired
5.	Demonstrate MATLAB as a calculator using the command window
6.	Explain writing MATLAB scripts to perform moderately complex computations
7.	Demonstrate data exchange between a spreadsheet and MATLAB

V. Student Outcomes and Assessment Procedures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Procedures** This outcome will be assessed by one or more of the following:
1.	Effectively use the calculator for calculations	HW & Exam
2.	Program the calculator for repetitive calculations	HW & Exam
3.	Perform moderately complex computations using a spreadsheet	HW & Exams
4.	Format spreadsheets in any manner they wish	HW & Exams
5.	Use MATLAB as a calculator using the command window	HW & Exams
6.	Write MATLAB scripts to perform moderately complex computations	HW & Exams
7.	Exchange data between a spreadsheet and MATLAB	HW & Exams

VI. Course Outline

1. Basic Surveying Calculations
   - 1.1 Overview
   - 1.2 Measurements
   - 1.3 Leveling
   - 1.4 Traversing
   - 1.5 Topographic mapping

2. Programmable Scientific Calculator
   - 2.1 Overview
   - 2.2 RPN data entry
   - 2.3 Built-in functions
   - 2.4 Keystroke programming
   - 2.5 Applications in Geomatics

3. Spreadsheets
   - 3.1 Overview
   - 3.2 Functions
   - 3.3 Formatting
   - 3.4 Applications in Geomatics

4. MATLAB
   - 4.1 Overview
   - 4.2 Command window calculations
   - 4.3 Scripting
   - 4.4 Applications in Geomatics

VII. Suggested Text(s)

HP35s User’s Manual.

Wirshing, R.H., and Wirshing, J.R., 1985. *Schaum's Outline Theory and Problems of Introductory Surveying*. McGraw-Hill.

Moore, H.S., 2008. *MATLAB for Engineers*, 2nd Edition, Prentice-Hall

VIII. Bibliography

McDonald, M., 2010. *Excel 2010: The Missing Manual*, 1st Edition, O'Reilly Media.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: EN SOENGR

1b. Division: No Division Code

1c. Department: Geomatics

2. Course Prefix: GEO

3. Course Number: A181

4. Previous Course Prefix & Number: Not Applic

5a. Credits/CEUs: 1

5b. Contact Hours (Lecture + Lab): (0+3)

6. Complete Course Title
Construction Surveying
Construction Surveying
Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2012 To: /9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Construction Management	184-5	Feb-March, 2011	Jeffrey Callahan
2.			
3.			

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Basic construction surveying procedures, including: staking for roads, buildings and excavations; use of maps, construction plans, datums, and co-ordinate systems; machine control systems. The course is predominantly field work.

16a. Course Prerequisite(s) *(list prefix and number)*
MATH A105

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Creates a new lab-based course supporting surveying needs for Construction Management programs. Content decided through close co-operation between Construction Management and Geomatics faculty.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: **2nd March, 2011.**

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GEO
Course Number:	A181
Course Title:	Construction Surveying
Credits:	1
Contact Hours	3 hours per week of supervised laboratory time = 2,250 contact minutes = 45 contact hours per semester. (0+3)
Grading Basis:	A–F.
Implementation Date:	Spring semester, 2012.
Course Description:	Basic construction surveying procedures, including: staking for roads, buildings and excavations; use of maps, construction plans, datums, and co-ordinate systems; machine control systems. The course is predominantly field work.
Course Prerequisites(s):	MATH A105 or equivalent.
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	N/A
Course Fee:	☒ Yes ☐ No

III. Course Level Justification

This course introduces students to the fundamental concepts and practical work involved in supporting construction with surveying services. Students require a foundation in Intermediate Algebra, but do not require a background in surveying. Because this course provides an introduction to this field of knowledge, together with basic field skills, it is well suited to being a 100-level course.

IV. Instructional Goals

The instructor will:

1.	Demonstrate basic leveling surveys, including note keeping and reduction
2.	Demonstrate basic traversed, including note keeping;
3.	Explain how to locate and stake out appropriate marks for the construction of roads;
4.	Explain how to locate and stake out appropriate marks for the construction of buildings;
5.	Explain how to compute and stake basic curves for roads;
6.	Demonstrate how to work from plans and maps to locate various works;
7.	Explain different datums and co-ordinate systems, including vertical;
8.	Explain the fundamentals of machine control in construction; and
9.	Explain how to discuss construction matters with professional surveyors.

V. Student Outcomes and Assessment Measures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Measures** This outcome will be assessed by one or more of the following:
1.	Demonstrate the ability to complete a basic leveling survey	Lab exercise, exam
2.	Demonstrate the ability to complete a basic traverse	Lab exercise, exam
3.	Demonstrate the ability to stake out road construction	Lab exercise, exam
4.	Demonstrate the ability to stake out building construction	Lab exercise, exam
5.	Demonstrate the ability to compute and stake road curves	Lab exercise, exam
6.	Demonstrate the ability to work from plans and maps to stake out construction works	Lab exercise, exam

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Measures** This outcome will be assessed by one or more of the following:
7.	Demonstrate an understanding of datums and co-ordinate systems	Exam, assignment, class discussion
8.	Demonstrate an understanding of machine control systems	Exam, assignment, class discussion
9.	Demonstrate an ability to discussion construction matters with professional surveyors	Exam, assignment, class discussion

VI. Topical Outline

1. Basic Leveling
   - 1.1 Leveling theory
   - 1.2 Misclosures and orders
   - 1.3 Reduction and computation
   - 1.4 Linear leveling
   - 1.5 Grid leveling

2. Azimuths and Bearing
   - 2.1 The nature of orientation
   - 2.2 Conversions and differences
   - 2.3 Applications

3. Basic Traversing
   - 3.1 Angle measurement
   - 3.2 Distance measurement
   - 3.3 Total stations

4. Locating and Staking for Building Construction
   - 4.1 Lines and Co-ordinates
   - 4.2 Batter Boards
   - 4.3 Distances and Offsets
   - 4.4 Control Systems

5. Topographic Surveying
   - 5.1 Levels, Total Stations and GPS
   - 5.2 Topographic Surveying Techniques

6. Locating and Staking for Road Construction
   - 6.1 Location Methods
   - 6.2 Horizontal and Vertical Curves
   - 6.3 Cut and Fill Staking

7. Working from Maps and Construction Plans
    7.1 Plans, Maps and Plats
    7.2 Scale and Precision
    7.3 Interpretation

8. Datums and Co-ordinate Systems
    8.1 Datums
    8.2 Co-ordinate Systems
    8.3 Vertical Datums

9. Machine Control Systems
    9.1 GPS
    9.2 Laser Systems
    9.3 Hybrid Systems

10. Interacting with Professional Surveyors
    10.1 Terminology
    10.2 Limitations of Knowledge

VII. Suggested Text(s)

CRAWFORD, Wesley G., 2002. Construction Surveying and Layout: A Step-by-Step Field Engineering Methods Manual (3rd edition). West Lafayette, IN: Creative Construction Publishing. ISBN: 978-0964742116.

KAVANAGH, B.F., 2009. Surveying with Construction Applications (7th edition). Upper Saddle River, NJ: Prentice Hall. ISBN: 978-0135000519.

VIII. Bibliography

ACSM, 2005. *Definitions of Surveying and Associated Terms.* American Congress on Surveying and Mapping, Gaithersburg, MD. ISBN-10: 0-976599104.

BANNISTER, A., RAYMOND, S. and BAKER, R., 1998. *Surveying*. 7th Edition, Harlow, UK: Addison Wesley Longman Ltd.

GHILANI, C.D., and WOLF, P.R., 2011. *Elementary Surveying: An Introduction to Geomatics* (13th edition). Upper Saddle River, NJ: Prentice Hall. ISBN: 978-0132554343.

MEYER, C.F., and GIBSON, D.W., 1980. *Route Surveying and Design*. New York: Harper and Row.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: EN SOENGR
1b. Division: No Division Code
1c. Department: Geomatics

2. Course Prefix: GEO
3. Course Number: A256
4. Previous Course Prefix & Number: Not Applic
5a. Credits/CEUs: 3
5b. Contact Hours (Lecture + Lab): (2+3)

6. Complete Course Title
Municipal and Civil Geomatics
Municipal & Civil Geomatics
Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☒ Credits
☐ Title
☐ Grading Basis
☒ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

☐ Course Number
☒ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☒ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Associate of Applied Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
3.			

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Theory and application of engineering surveying, including design and implementation of horizontal and vertical control. Route surveys, horizontal and vertical curves, control surveys, quantity and as-built surveys. Mining surveys, terrestrial scanners. Application of the theory of errors, error budgets and error simulation.

16a. Course Prerequisite(s) *(list prefix and number)*
MATH A109 and GEO A155, with a minimum grade of C.

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update of course to include newer technology and techniques, as well as changes in the Geomatics program.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: **7th March, 2011**

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GEO
Course Number:	A256
Title:	Municipal and Civil Geomatics
Credits:	3
Contact Hours:	2 hours lecture and 3 hours lab per week for 15 weeks = 4,500 mins per semester = 75 hours per semester. (2+3)
Grading Basis:	A–F
Implementation Date:	Fall, 2011
Course Description:	Theory and application of engineering surveying, including design and implementation of horizontal and vertical control. Route surveys, horizontal and vertical curves, control surveys, quantity and as-built surveys. Mining surveys, terrestrial scanners. Application of the theory of errors, error budgets and error simulation.
Course Prerequisites(s):	MATH A109 (or equivalent) and GEO A155, with a minimum grade of C. STAT A253 recommended.
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	N/A
Course Fee:	☒ Yes ☐ No

III. Course Level Justification

This is a second course in surveying Geomatics, which builds on earlier Geomatics and Math courses.

IV. Instructional Goals

The instructor will:

1.	Explain the fundamentals of providing control for engineering surveying
2.	Develop error budgets and explain basic errors in surveying measurements
3.	Demonstrate designing, computing and setting out a variety of horizontal and vertical curves
4.	Explain how to design and undertake surveys for volume and area determination
5.	Explain the fundamentals of mining surveying
6.	Explain the proper care and adjustment of equipment
7.	Explain safety requirements for Geomatics work

V. Student Outcomes and Assessment Procedures

	Student Outcomes Upon successful completion of the course, the student will be able to:	**Assessment Procedures** This outcome will be assessed by one or more of the following:
1.	Explain and apply the principles of surveying to engineering surveying work	Assignments, labs and exams
2.	Compare, contrast and evaluate data sources for engineering surveys	Assignments, labs and exams
3.	Set out a variety for forms for engineering work	Assignments, labs and exams
4.	Explain the creation and development of control that lies behind construction survey work.	Assignments, labs and exams
5.	Produce professional maps and related products for construction surveys by hand and by computer	Assignments, labs and exams

VI. Course Outline

1. Safety in Geomatics
   1.1 Working safely
   1.2 Safety requirements
   1.3 OSHA
   1.4 Safety equipment

2. Vertical surveys
   2.1 Base leveling
   2.2 Standards of leveling
   2.3 Leveling errors
   2.4 Topographic leveling
   2.5 Construction leveling

3. Survey control
   3.1 Horizontal and vertical control
   3.2 Control methods for engineering surveys
   3.3 Quality and reliability of control
   3.4 Errors and their propagation

4. Curves
   4.1 Horizontal curves
   4.2 Transition curves / spirals
   4.3 Vertical curves
   4.4 Design and set out work

5. Quantity surveys
   5.1 Area determination and calculation
   5.2 Volume determination and calculation
   5.3 Cuts and fills
   5.4 Laser and GNSS controlled construction

6. Utility and construction surveys
   6.1 Road surveys
   6.2 Utility surveys
   6.3 Line and grade
   6.4 Building construction surveys
   6.5 As-built surveys

7. Mining surveying
   7.1 Terminology and methods
   7.2 Azimuth and location transfer
   7.3 Borehole measurements
   7.4 Surveys for geophysical exploration

VII. Suggested Text(s)

Crawford, Wesley G., 2002, *Construction Surveying and Layout: A Step-by-Step Field Engineering Methods Manual*. 3rd Edition, Creative Construction Publishing, West Lafayette, IN.

VIII. Bibliography

Bannister, A., Raymond, S. and Baker, R., 1998. *Surveying*. 7th Edition, Harlow, UK: Addison Wesley Longman Ltd.

Klauder, L.T., Chrismer, S.M., and Elkins, J., 2002. Improved Spiral Geometry for High Speed Rail and Predicted Vehicle Response. Paper presented at AREMA TRB Meeting, January, 2002. Download from : http://www.arema.org/eseries/scriptcontent/custom/e_arema/comm/c17/trb_spiral_paper_v_12c_w_figs_in_text.PDF

Meyer, C.F., and Gibson, D.W., 1980. *Route Surveying and Design*. New York: Harper and Row.

Moffitt, F.H. and Bossler, J., 1999. *Surveying*. Menlo Park, Ca.: Addison Wesley.

Richardus, P., 1966. *Project Surveying*. New York: John Wiley and Sons, Inc.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code	1c. Department Geomatics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEO	A266	GEO A166	3	(2+3)

6. Complete Course Title
Advanced Surveying
Advanced Surveying
Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☒ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Associate of Applied Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
3.			

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Advanced survey measurement techniques. Use of conventional survey instrumentation, total stations and data controllers. Acquisition and retrieval of geomatics data from data controllers. Horizontal and vertical traversing and adjustment methods. Basics of GPS control surveying. Topographic surveying projects.

16a. Course Prerequisite(s) *(list prefix and number)*
GEO A155, GEO A146 and GEO A157, all with a minimum grade of C.

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Revision of course to reflected more advanced material, as a result of developments in the field.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: **7th March, 2011**

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GEO
Course Number:	A266
Title:	Advanced Surveying
Credits:	3
Contact Hours:	2 hours lecture and 3 hrs lab per week = 5 hours per week = 75 hours per semester. (2+3)
Grading Basis:	A–F
Implementation Date:	Fall, 2011
Course Description:	Advanced survey measurement techniques. Use of conventional survey instrumentation, total stations and data controllers. Acquisition and retrieval of geomatics data from data controllers. Horizontal and vertical traversing and adjustment methods. Basics of GPS control surveying. Topographic surveying projects.
Course Prerequisites(s):	GEO A155, GEO A146, GEO A157
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	N/A
Course Fee:	☒ Yes ☐ No

III. Course Level Justification

This course is a second year course that follows on from GEO A155 and requires knowledge of tools from GEO A146 and GEO A157.

IV. Instructional Goals

The instructor will:

1.	Demonstrate quickly and effectively setting up a total station instrument
2.	Explain how to use a data collector to collect measurements
3.	Explain downloading the data collector to a computer
4.	Explain how to perform least squares adjustment using computer software
5.	Explain how to create a plan showing topography and site features
6.	Demonstrate researching existing horizontal and vertical control
7.	Demonstrate setting up and collecting geodetic GPS data
8.	Explain how to process GPS data and perform least squares adjustment on the results
9.	Explain how to translate, scale and rotate field data into a recognized coordinate system

V. Student Outcomes and Assessment Procedures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Procedures** This outcome will be assessed by one or more of the following:
1.	Quickly and effectively set up a total station instrument	Labs, homework, projects, exams
2.	Use a data collector to collect measurements	Labs, homework, projects, exams
3.	Download the data collector to a computer	Labs, homework, projects, exams
4.	Perform least squares adjustment using computer software	Labs, homework, projects, exams
5.	Create a plan showing topography and site features	Labs, homework, projects, exams
6.	Research existing horizontal and vertical control	Labs, homework, projects, exams
7.	Set up and collect geodetic GPS data	Labs, homework, projects, exams
8.	Process GPS data and perform least squares adjustment on the results	Labs, homework, projects, exams
9.	Translate, scale and rotate field data into a recognized coordinate system	Labs, homework, projects, exams

VI. Course Outline

1. Safety
   - 1.1 General campus safety / emergency evacuation
   - 1.2 Vehicle traffic hazards during geomatics measurements
   - 1.3 Proper use and disposal of rechargeable batteries
   - 1.4 Electrical hazards during geomatics measurements
   - 1.5 Field safety
   - 1.6 Survey equipment safety
   - 1.7 Computer concerns and ergonomics
   - 1.8 Moose and bear safety

2. Field Notes
   - 2.1 Formats
   - 2.2 Elements

3. Field Survey Standards
   - 3.1 Methodology
   - 3.2 Codes

4. Survey Crew Dynamics

5. Field Survey Measurements Review
   - 5.1 Distance measurements
   - 5.2 Angle measurements
   - 5.3 Vertical measurements

6. Total Stations
   - 6.1 Conventional
   - 6.2 Reflectorless
   - 6.3 Robotic

7. Data Controllers
   - 7.1 Use and Functions
   - 7.2 Coding
   - 7.3 Data Exchange

8. Adjustment Computations
   - 8.1 Compass Rule
   - 8.2 Transit Rule
   - 8.3 Crandall's Adjustment
   - 8.4 Least Squares Adjustment

9. Topographic Surveying
   - 9.1 Methods of Data Acquisition
     - 9.1.1 Rectangular observations

9.1.2 Radial observations
9.1.3 Profiling
9.2 Field Techniques

10. Horizontal and Vertical Control

11. Basics of Geodetic GPS Surveying
    11.1 Collection
    11.2 Downloading
    11.3 Processing

VII. Suggested Text(s)

Ghilani, Charles D. and Paul R. Wolf. (2001). *Elementary Surveying.* Tenth ed. New York: Prentice Hall.

VIII. Bibliography

Anderson, James M. and Mikhail M. Edward, (1998). *Surveying Theory and Practice.* Seventh ed. New York: McGraw-Hill.

Brinker, Minnick, (1987). *The Surveying Handbook.* Van Norstrand Reinhold, New York.

Kavanagh, Barry F. and Glenn S. J. Bird. (1999). *Surveying Principles and Applications*. Fifth ed. New Jersey: Prentice Hall.

McCormac, Jack C., (1995). *Surveying Fundamentals.* Third ed. New Jersey: Prentice Hall.

Moffitt, Francis H. and Harry Bouchard. (1993). *Surveying*. Ninth ed. New York: Harper & Row.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	Geomatics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEO	A301	Not Applic	1	(0+2)

6. Complete Course Title
Professional Development 1

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☐ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)
☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☐ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2.			
3.			

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
An introduction to structured thinking, focusing on breadth of thinking skills and organization of thinking, with an emphasis on open-ended problem-solving skills.

16a. Course Prerequisite(s) *(list prefix and number)*

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☒ Level

16e. Registration Restriction(s) *(non-codable)*
Junior standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Addition of a course targeted to professional development for Geomatics students advancing beyond the AAS level. First course in a three course sequence.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: 7th March, 2011

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GEO
Course Number:	A301
Title:	Professional Development 1
Credits:	1
Contact Hours:	2 hours lab per week for 15 weeks = 1,800 mins per week = 30 hours per semester. (0+2)
Grading Basis:	A–F
Implementation Date:	Fall, 2011
Course Description:	An introduction to structured thinking, focusing on breadth of thinking skills and organization of thinking, with an emphasis on open-ended problem-solving skills.
Course Prerequisites(s):	N/A
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	Junior standing
Course Fee:	☒ Yes ☐No

III. Course Level Justification

This course begins a sequence for Geomatics students to introduce a range of fundamental professional skills, and so takes place beyond the AAS degree.

IV. Instructional Goals

The instructor will:

1.	Help students develop skills in thinking and working through a wide range of problems, especially open-ended problems.
2.	Demonstrate how to work through various problems in groups and individually.
3.	Explain how to apply these skills to the remainder of the program, as well as to professional and life problems after graduation.

V. Student Outcomes and Assessment Procedures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Procedures** This outcome will be assessed by one or more of the following:
1.	Structure their thinking in an efficient and effective manner.	Lab participation, exam
2.	Organize their thinking and problem-solving skills and apply them to a wide range of problems.	Lab participation, exam
3.	Demonstrate the use of meta-thinking tools.	Lab participation, exam
4.	Analyze, structure and evaluate arguments and cases, both their own and others.	Lab participation, exam

VI. Course Outline

1. Fundamental thinking skills and tools
   - 1.1 Treatment of ideas and factors involved
   - 1.2 Rules, consequences and objectives
   - 1.3 Priorities, alternatives and decisions
   - 1.4 Other viewpoints

2. Organization and meta-thinking
    2.1 Structural tools for thinking
    2.2 Organizational tools for thinking
    2.3 Meta-thinking tools

3. Interaction with thinking
    3.1 Examining multiple viewpoints
    3.2 Evidence evaluation
    3.3 Agreement and disagreement
    3.4 Right and wrong
    3.5 Outcomes

4. Ethical issues in Geomatics
    4.1 Applying various tools to ethical questions
    4.2 Arguing a side in an ethics case

VII. Suggested Text(s)

There is no suggested text. Worksheets and notes will be provided at each lab.

VIII. Bibliography

De Bono, E., 1969. *The Mechanism of Mind*. New York: Simon and Schuster.

De Bono, E., 1978. *Teaching Thinking*. New York: Penguin Books.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: EN SOENGR

1b. Division: No Division Code

1c. Department: Geomatics

2. Course Prefix: GEO

3. Course Number: A302

4. Previous Course Prefix & Number: Not Applic

5a. Credits/CEUs: 1

5b. Contact Hours (Lecture + Lab): (0+2)

6. Complete Course Title: Professional Development 2

Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Credits ☐ Title ☐ Grading Basis ☐ Course Description ☐ Test Score Prerequisites ☐ Other Restrictions (☐ Class ☐ Level ☐ College ☐ Major) ☐ Other (please specify)

☐ Course Number ☐ Contact Hours ☐ Repeat Status ☐ Cross-Listed/Stacked ☐ Course Prerequisites ☐ Co-requisites ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2012 To: /9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2.			
3.			

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities ☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*

A continuation of GEO A301, with an emphasis on creative problem-solving, design tools, information and emotion analysis in the thinking process. Bringing all the skills together in a co-ordinated thinking process.

16a. Course Prerequisite(s) *(list prefix and number)*
GEO A301

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action

Addition of a course targeted to professional development for Geomatics students advancing beyond the AAS level. Second course in a three course sequence

Initiator (faculty only) Date

N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: 7th March, 2011

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GEO
Course Number:	A302
Title:	Professional Development 2
Credits:	1
Contact Hours:	2 hours lab per week for 15 weeks = 1,800 mins per week = 30 hours per semester. (0+2)
Grading Basis:	A–F
Implementation Date:	Spring, 2011
Course Description:	A continuation of GEO A301, with an emphasis on creative problem-solving, design tools, information and emotion analysis in the thinking process. Bringing all the skills together in a co-ordinated thinking process.
Course Prerequisites(s):	GEO A301
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	N/A
Course Fee:	☒ Yes ☐No

III. Course Level Justification

This course follows directly from GEO A301 and continues the development of various professional skills for Geomatics students.

IV. Instructional Goals

The instructor will:

1.	Develop student skills in thinking and working through a wide range of problems, especially open-ended problems.
2.	Explain how to work through various problems in groups and individually.
3.	Explain how to apply these skills to the remainder of the program, as well as to professional and life problems after graduation.

V. Student Outcomes and Assessment Procedures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Procedures** This outcome will be assessed by one or more of the following:
1.	Use creative thinking skills to solve complex problems.	Lab participation, exam
2.	Use creative thinking in design work.	Lab participation, exam
3.	Use constructive thinking to improve ideas and designs.	Lab participation, exam
4.	Undertake information collection and processing, together with the emotional aspects of thinking.	Lab participation, exam
5.	Use parallel thinking in groups to solve complex problems.	Lab participation, exam

VI. Course Outline

1. Creativity and Creative Thinking
   - 1.1 Creative thinking in Geomatics
   - 1.2 Creative problem-solving
   - 1.3 Creativity and design
   - 1.4 Tools for creative thinking

2. Constructive Thinking
   - 2.1 Refining concepts
   - 2.2 Design processes

3. Information Collection and Processing
   3.1 Questions
   3.2 Information assessment and analysis
   3.3 Contradictions
   3.4 Guesses

4. Emotions and Feelings in Thinking
   4.1 Beliefs
   4.2 Opinions
   4.3 Emotions
   4.4 Values
   4.5 Working with emotions in thinking

5. Large-scale Thinking Structures
   5.1 Decision-making processes
   5.2 Parallel thinking
   5.3 Combining sub-processes
   5.4 Managing thinking processes
   5.5 Meeting organization and management

VII. Suggested Text(s)

There is no suggested text. Worksheets and notes will be provided at each lab.

VIII. Bibliography

De Bono, E., 1969. *The Mechanism of Mind*. New York: Simon and Schuster.

De Bono, E., 1978. *Teaching Thinking*. New York: Penguin Books.

De Bono, E., 1999. *Six Thinking Hats*. Back Bay Books.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code	1c. Department Geomatics

2. Course Prefix GEO	3. Course Number A303	4. Previous Course Prefix & Number Not Applic	5a. Credits/CEUs 1	5b. Contact Hours (Lecture + Lab) (0+2)

6. Complete Course Title
Professional Development 3

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2.			
3.			

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduction to presentation skills: verbal, written, audio-visual and electronic. Use of presentation support equipment and software, and the art of presentation in the Geomatics field. Introduction to organizational skills, with an emphasis on understanding how modern businesses involved in Geomatics operate.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☒ Level

16e. Registration Restriction(s) *(non-codable)*
Junior standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Addition of a course targeted to professional development for Geomatics students advancing beyond the AAS level. Third course in a three course sequence.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: **7th March, 2011**

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GEO
Course Number:	A303
Title:	Professional Development 3
Credits:	1
Contact Hours:	2 hours lab per week for 15 weeks = 1,800 mins per week = 30 hours per semester. (0+2)
Grading Basis:	A-F
Implementation Date:	Fall, 2011
Course Description:	Introduction to presentation skills: verbal, written, audio-visual and electronic. Use of presentation support equipment and software, and the art of presentation in the Geomatics field. Introduction to organizational skills, with an emphasis on understanding how modern businesses involved in Geomatics operate.
Course Prerequisites(s):	N/A
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	Junior Standing
Course Fee:	☒ Yes ☐ No

III. Course Level Justification

This course continues a sequence for Geomatics students to introduce a range of fundamental professional skills, and so takes place beyond the AAS degree.

IV. Instructional Goals

The instructor will:

1.	Describe carrying out a literature search and the requirements of effective writing for technical literature in the geomatics field.
2.	Explain planning and executing a presentation using a range of support systems.
3.	Describe designing and developing electronic presentation materials.
4.	Explain applying these skills to the remainder of the program, as well as to professional and life problems after graduation.
5.	Explain how to carry out an analysis of an organization on the basis of its published material and a site visit.
6.	Explain the functions and responsibilities of the Geomatics professional within the community.
7.	Discuss the skills required for professional consulting in the Geomatics industry.

V. Student Outcomes and Assessment Procedures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Procedures** This outcome will be assessed by one or more of the following:
1.	Make a professional multi-media presentation	Lab work, presentations, assignments
2.	Present professional written materials	Lab work, presentations, assignments
3.	Present professional electronic materials	Lab work, presentations, assignments
4.	Analyze an organization and report on it to the class	Lab work, presentations, assignments
5.	Discuss organizational analysis tools, e.g., SWOT, TOP and TOO, organizational discourse analysis	Lab work, presentations, assignments
6.	Discuss organizational structures and processes	Lab work, presentations, assignments

VI. Course Outline

1. Written presentation skills
   - 1.1 Writing and editing skills
   - 1.2 Using graphics software
   - 1.3 Professional presentation of text and pages
   - 1.4 Literature searches and citations in Geomatics

2. Visual presentation skills
   - 2.1 Graphics
   - 2.2 PowerPoint, slides, overheads
   - 2.3 Print vs screen vs projected hardware and circumstances

3. Verbal presentation skills
   - 3.1 Structuring a presentation
   - 3.2 Hooks and body language

4. Using electronic support systems
   - 4.1 Multi-media
   - 4.2 Audio-visual and web-based systems
   - 4.3 Video
   - 4.4 Mobile devices

5. Organizational structures
   - 5.1 Hierarchies and flat structures
   - 5.2 Different organizational structures
   - 5.3 Re-engineering and organizational change

6. Organizational analysis
   - 6.1 SWOT analysis
   - 6.2 TOP vs TOO analysis
   - 6.3 Organizational discourse analysis
   - 6.4 Analyzing organizational materials

7. Marketing your skills and services
   - 7.1 Resumes and CVs
   - 7.2 Meeting and interview skills
   - 7.3 Consulting

VII. Suggested Text(s)

There is no suggested text. Worksheets and notes will be provided at each lab.

VIII. Bibliography

Jones, B.O., 1995. *Sleepers, Wake! Technology and the Future of Work.* Melbourne : Oxford University Press Australia.

Korda, M., 1976. *Power! How to get it, how to use it*. London : Hodder and Stoughton.

Michaelson, H.B., 1990. *How to Write and Publish Engineering Papers and Reports*. (3rd edition) Oryx Press.

Mintzberg, H., 1989. *Mintzberg on Management: Inside our strange world of organizations*. New York: The Free Press.

Mouland, D., *Ethics for the Professional Surveyor*. Rancho Cordova, Ca : Landmark Enterprises.

Parker, R.C., 2006. *Looking Good in Print*. Paraglyph Press.

Parkinson, C.N., 1957. *Parkinson's Law and other studies in administration.* Boston : Houghton Mifflin.

Peter, L.J., and Hull, R., 1970. *The Peter Principle*. London : Pan Books.

Peter, L.J., 1972. *The Peter Prescription: How to be Creative, Confident and Competent*. New York : William Morrow & Co., Inc.

Williams, R., 1992. *The PC is not a Typewriter*. Peachpit Press.

Williams, R., and Tollett, J., 1998. *The Non-Designer's Web Book.* Peachpit Press.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: EN SOENGR

1b. Division: No Division Code

1c. Department: Geomatics

2. Course Prefix: GEO

3. Course Number: A354

4. Previous Course Prefix & Number: Not Applic

5a. Credits/CEUs: 3

5b. Contact Hours (Lecture + Lab): (3+0)

6. Complete Course Title
City and Regional Planning
City and Regional Planning
Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☐ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
  ☐ Class ☐ Level
  ☐ College ☐ Major
☐ Other (please specify)

☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☐ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2.			
3.			

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduction to fundamentals concepts, including physical planning, transportation, housing, land use, urban development and preservation. Population movement to cities and suburbs; rural depopulation. Regional growth and development. Political and economic development drivers. History, theory and ethics of planning. Virtual environments, GIS and support tools for planning decisions.

16a. Course Prerequisite(s) *(list prefix and number)*
none

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☒ Level

16e. Registration Restriction(s) *(non-codable)*
Junior standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
New course required to include a city and regional planning background for Geomatics students.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: **7th March, 2011**

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GEO
Course Number:	A354
Title:	City and Regional Planning
Credits:	3
Contact Hours:	3 hours of lectures per week = 45 hours per semester. (3+0)
Grading Basis:	A–F
Implementation Date:	Fall, 2011
Course Description:	Introduction to fundamentals concepts, including physical planning, transportation, housing, land use, urban development and preservation. Population movement to cities and suburbs; rural depopulation. Regional growth and development. Political and economic development drivers. History, theory and ethics of planning. Virtual environments, GIS & support tools for planning decisions.
Course Prerequisites(s):	None
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	Junior standing.
Course Fee:	☒ Yes ☐ No

III. Course Level Justification

This course is designed to building on a foundation in Geomatics or similar fields. Being part of the BS in Geomatics, but not the AAS in Geomatics, is designed for third-year students.

IV. Instructional Goals

The instructor will:

1.	Explain how to observe city and regional systems and environments and understand them in terms of various descriptive models
2.	Explain how to evaluate the influence of different factors on growth, development and decline in a region
3.	Discuss different approaches to improving urban and regional areas and spaces
4.	Explain how space functions with people and how it is managed in various ways for different purposes
5.	Explain how to apply different tools and theories to planning discussion and decision-making
6.	Explain the role of the Geomatics professional in planning and development

V. Student Outcomes and Assessment Procedures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Procedures** This outcome will be assessed by one or more of the following:
1.	Discuss different approaches to planning and improvement	Assignments, exam, in-class discussion
2.	Discuss the role of space and place and how it can be managed	Assignments, exam, in-class discussion
3.	Discuss how to apply spatial tools and theories to planning and decision-making	Assignments, exam, in-class discussion
4.	Analyze different aspects of real city and regional systems and report on analyses	Assignments, exam, in-class discussion
5.	Discuss the role of non-planning professionals in the planning process	Assignments, exam, in-class discussion

VI. Course Outline

1. A Brief History of Planning
   - 1.1 Town planning
   - 1.2 City planning
   - 1.3 Regional planning
   - 1.4 Environment and sustainability
   - 1.5 Central Place Theory
   - 1.5 Integration

2. City Growth
   - 2.1 Movement to the cities
   - 2.2 Political and economic drivers of form and function
   - 2.3 Theories of growth
   - 2.4 Slums, neighborhoods, suburbs, urban areas
   - 2.5 Public vs private development

3. Directions for Cities
   - 3.1 Designing new cities
   - 3.2 Extending existing cities
   - 3.3 Redesigning city centers
   - 3.4 Edge cities
   - 3.5 Landscape, the environment and cities
   - 3.6 Transportation impacts
   - 3.7 Community activism
   - 3.8 The virtual city
   - 3.9 The secure city
   - 3.10 Energy, resources and sustainability

4. Regional Issues
   - 4.1 Rural depopulation
   - 4.2 Villages, small town, regional centers
   - 4.3 Resources, employment and economic factors
   - 4.4 Stimulating economic growth outside cities
   - 4.5 Ecotourism and geotourism

5. Planning Concepts
   - 5.1 Ordering space
   - 5.2 Place and space in planning
   - 5.3 Ethics of planning
   - 5.4 Socio-economic differentiation and city morphology
   - 5.5 Development vs preservation

6. Future Directions
    6.1 Changes in the agriculture, industrial and information sectors
    6.2 Changes in the services sector
    6.3 Changes in work and home life
    6.4 Community planning and development
    6.5 The impact of globalization

7. Support Tools
    7.1 Virtual environments and simulations
    7.2 GIS
    7.3 Spatial decision support systems and products
    7.4 Systems analysis

VII. Suggested Text(s)

Hall, P., and Tewdwr-Jones, M., 2009. *Urban and Regional Planning*. (5th edition) Routledge.

VIII. Bibliography

Birch, E., 2009. *The Urban and Regional Planning Reader*. Routledge.

Calthorpe, P., and Fulton, W., 2001. *The Regional City*. Island Press.

Inman, R.P., (ed.), 2009. *Making Cities Work: Prospects and Policies for Urban America*. Princeton University Press.

McHarg, I., 1995. *Design with Nature*. (25th anniversary edition) Wiley.

Newman, P., and Thornley, A., 2011. *Planning World Cities: Globalization and Urban Politics*. Palgrave Macmillan.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	Geomatics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEO	A365	Not Applic	4	(4+0)

6. Complete Course Title
Geomatics Adjustment and Analysis
Geom Adjustment & Analysis
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☐ Credits ☐ Contact Hours
☒ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☒ Course Description ☒ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2.			
3.			

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Analysis of errors and adjustments in Geomatics measurements. Propagation of errors and variances. Statistical analyses and error ellipses. Geomatics accuracies and standards, Theory and methods of least squares adjustment.

16a. Course Prerequisite(s) *(list prefix and number)*
MATH A272 and STAT A253 and GEO A256, all with minimum grade of C.

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update course title and prerequisite to reflect other changes in the Geomatics program.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: **7th March, 2011**

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GEO
Course Number:	A365
Title:	Geomatics Adjustment and Analysis
Credits:	4
Contact Hours:	4 hours lecture per week = 3,600 mins = 60 hours per semester. (4+0)
Grading Basis:	A–F
Implementation Date:	Fall, 2011
Course Description:	Analysis of errors and adjustments in Geomatics measurements. Propagation of errors and variances. Statistical analyses and error ellipses. Geomatics accuracies and standards, Theory and methods of least squares adjustment.
Course Prerequisites(s):	MATH A272 and STAT A253 and GEO A256, all with minimum grade of C.
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	N/A
Course Fee:	☒ Yes ☐No

III. Course Level Justification

This course builds on 200-level preparation courses, and develops Geomatics skills beyond the AAS level.

IV. Instructional Goals

The instructor will:

1.	Explain the nature of errors in spatial data
2.	Explain how errors propagate through spatial data processes
3.	Explain how to model error propagation and develop an error budget
4.	Explain the fundamentals of least squares adjustment
5.	Explain how to design and develop least squares adjustment for a wide range of Geomatics measurements
6.	Explain how to undertake least squares adjustments for various Geomatics applications

V. Student Outcomes and Assessment Procedures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Procedures** This outcome will be assessed by one or more of the following:
1.	Analyze geomatics data and provide an error budget for measurements	Assignments, tests, exams
2.	Analyze the propagation of errors through sequential processes	Assignments, tests, exams
3.	Design least squares adjustments for a range of geomatics applications	Assignments, tests, exams
4.	Undertake a least squares adjustment and analyze the results	Assignments, tests, exams
5.	Apply least squares adjustment to a wide range of Geomatics applications	Assignments, tests, exams

VI. Course Outline

1. Introduction
   - 1.1 Concepts of measurement and error
   - 1.2 Types of error
   - 1.3 Relevant concepts in probability
   - 1.4 Reliability of measurements

2. Error propagation and linearization
    2.1 Error propagation, Monte Carlo simulation
    2.2 Linearization
    2.3 Linear algebra applications

3. Concept of adjustment
    3.1 Introduction
    3.2 Simple adjustment methods
    3.3 Least squares adjustment

4. Least squares adjustment
    4.1 Techniques of least squares
    4.2 The concept of weights
    4.3 Least squares adjustment by condition equations
    4.4 Least squares adjustment by observation equations

5. Probability theory
    5.1 Normal, t, and Chi-square distributions
    5.2 Measures of precision and accuracy
    5.3 Covariance and correlation
    5.4 Variance-covariance, cofactor and weight matrices

6. Variance-covariance propagation
    6.1 Derivation of propagation laws
    6.2 Stepwise propagation
    6.3 Propagation in condition equations LSA
    6.4 Propagation in observation equations LSA

7. Statistical analysis for spatial data
    7.1 Samples and statistics
    7.2 Mean and variance
    7.3 Confidence intervals
    7.4 Statistical testing
    7.5 Bivariate and multi-variate normal distribution
    7.6 Error ellipses and ellipsoids

8. General least squares adjustment
    8.1 Derivation
    8.2 Precision estimation
    8.3 Special cases
    8.4 Parameter constraints
    8.5 Unified approach
    8.6 Sequential processing

9. Applications in Geomatics
    9.1 Photogrammetry
    9.2 Surveying
    9.3 GIS
    9.4 Image processing
    9.5 GPS
    9.6 3-D geodetic model
    9.7 Combining measurements
    9.8 Constrained and minimally-constrained adjustments

VII. Suggested Text(s)

Ghilani, C.G., 2010. *Adjustment Computations: Spatial Data Analysis*. 5th edition. Wiley.

Mikhail, E.M., and Gracie, G., 1981. *Analysis and Adjustment of Survey Measurements*. Van Nostrand Reinhold Co.

VIII. Bibliography

Rainsford, H.F., 1957. *Survey Adjustments and Least Squares*. London: Constable and Co.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code			1c. Department Geomatics
2. Course Prefix GEO	3. Course Number A456	4. Previous Course Prefix & Number Not Applic	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (+)

6. Complete Course Title
Geomatics and Civil Design

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☐ Change *or* ☒ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☐ Credits ☐ Contact Hours
☐ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☐ Course Description ☐ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2. Bachelor of Science, Civil Engineering	225	3/22/2011	Tom Ravens
3.			

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*

16a. Course Prerequisite(s) *(list prefix and number)*

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course has not been run for many years. Faculty member who created left some years ago. No longer required.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code	1c. Department Geomatics

2. Course Prefix GEO	3. Course Number A460	4. Previous Course Prefix & Number Not Applic	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (1+6)

6. Complete Course Title
Geomatics Design Project
Geomatics Design Project
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☒ Contact Hours
- ☒ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status Yes # of Repeats 1 Max Credits 6

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2.			
3.			

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☒ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Projects in Geomatics and GIS. Research, design, data compilation, analysis, and mapping for a Geomatics project. Professional standards and ethical concerns for Geomatics professionals.

16a. Course Prerequisite(s) *(list prefix and number)*
GEO A359, GEO A365 and GIS A366 with minimum grade of C, or permission of instructor,

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Need to update this course to reflect changing needs in program and for Honors students.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: **7th March, 2011**

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GEO
Course Number:	A460
Title:	Geomatics Design Project
Credits:	3
Contact Hours:	1 hour of lecture and 6 hours of unsupervised lab for 15 weeks = 6,300 mins = 105 hours per semester. (1+6)
Grading Basis:	A–F
Implementation Date:	Fall, 2011
Course Description:	Projects in Geomatics and GIS. Research, design, data compilation, analysis, and mapping for a Geomatics project. Professional standards and ethical concerns for Geomatics professionals.
Course Prerequisites(s):	GEO A359, GEO A365 and GIS A366, all with minimum grade of C, or permission of instructor.
Repeat Status:	May be repeated once for a maximum of 6 credits.
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	N/A
Course Fee:	☒ Yes ☐ No

III. Course Level Justification

This is the senior-level capstone course for the Geomatics program and is designed to allow integration of several parts of the overall program, as well as allow students to practice design thinking and problem solving.

IV. Instructional Goals

The instructor will:

1.	Explain how to plan and execute a design-based project on a Geomatics topic
2.	Explain how to present a professional report and oral presentation of the project
3.	Explain the importance and practice of professional and ethical behavior

V. Student Outcomes and Assessment Procedures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Procedures** This outcome will be assessed by one or more of the following:
1.	Create a design project proposal with a research component	Discussion with faculty, reports and presentation
2.	Conduct primary and secondary research	Discussion with faculty, reports and presentation
3.	Develop a thesis statement	Discussion with faculty, reports and presentation
4.	Analyze a problem	Discussion with faculty, reports and presentation
5.	Map the results	Discussion with faculty, reports and presentation
6.	Present findings and results in oral and written form.	Discussion with faculty, reports and presentation

VI. Course Outline

1. Research techniques
    - 1.1 Primary research
    - 1.2 Secondary research
    - 1.3 Thesis statements

2. Presentation
    2.1 Analysis of audience, purpose and approach
    2.2 Oral presentations
    2.3 Written presentations
    2.4 Graphical and video techniques

3. Ethical and professional considerations
    3.1 Surveyor's Code of Ethics
    3.2 Other Codes of Ethics
    3.3 Professional affiliations
    3.4 Attributes of a professional

VII. Suggested Text(s)

This will vary depending upon the student's individual topic.

VIII. Bibliography

Aronoff, Stan. (1995). *Geographic Information Systems: A Management Perspective*, WDL Publications, Ottawa.

Briscoe, John. (1984). *Surveying the Courtroom: A Land Expert's Guide to Evidence and Civil Procedure,* Landmark Enterprises, Rancho Cordova, CA.

Brown, Curtis, M. (1994). *Evidence and Procedures for Boundary Location,* John Wiley and Sons, Inc, New York.

Brown, Curtis, M. (1994). *Boundary Control and Legal Principles,* John Wiley and Sons, Inc, New York.

Cho, George. (1998). *Geographic Information Systems and the Law, Mapping the Legal Frontiers*, Wiley, New York.

Huxhold, William and Levinsohn. (1995). *Managing Geographic Information Systems,* Oxford University Press, New York.

Kratovil, Robert. and Werner, Raymond. (2001). *Real Estate Law,* Prentice Hall, Inc., Englewood Cliffs, NJ.

Onsrud, Harland J., and David W. Cook. (1993). *Geographic and Land Information Systems for Practicing Surveyors, A Compendium.* American Congress on Surveying and Mapping, Gaithersburg, MD.

Wattles, Gurdon H. (1979). *Writing Legal Descriptions,* Wattles Publishing, Tustin, CA.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	Geomatics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEO	A466	Not Applic	3	(3+0)

6. Complete Course Title
Geopositioning

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☒ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☒ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2.			
3.			

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: _________ Date:______________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
The theory and practice of positioning systems, primarily GNSS. Data collection, quality assessment, analysis and adjustment. Connection to INS and other applications.

16a. Course Prerequisite(s) *(list prefix and number)*
GEO A359 and GEO A365 with a grade of C or higher.

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Updating course to reflect changes in technology and the program.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: 7th March, 2011

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GEO
Course Number:	A466
Title:	Geopositioning
Credits:	3
Contact Hours:	3 hours lecture per week = 180 mins per week = 2,700 mins per semester = 45 hours per semester. (3+0)
Grading Basis:	A–F
Implementation Date:	Fall, 2011
Course Description:	The theory and practice of positioning systems, primarily GNSS. Data collection, quality assessment, analysis and adjustment. Connection to INS and other applications.
Course Prerequisites(s):	GEO A359 and GEO A365 with a grade of C or higher
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	N/A
Course Fee:	☒ Yes ☐ No

III. Course Level Justification

Advanced course in geodesy and GNSS, building on earlier courses.

IV. Instructional Goals

The instructor will:

1.	Explain the theoretical foundations of GNSS.
2.	Connect suitable observation methodologies to match specific project specifications and needs
3.	Demonstrate a range of GNSS observations
4.	Explain how to reduce and analyze GNSS measurements
5.	Explain how to apply GNSS technology in a range of Geomatics applications

V. Student Outcomes and Assessment Procedures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Procedures** This outcome will be assessed by one or more of the following:
1.	Explain the theoretical foundations of GNSS	Exams, projects and class participation
2.	Undertake GNSS measurements and data collection	Exams, projects and class participation
3.	Reduce, analyze and adjust GNSS observations	Exams, projects and class participation
4.	Apply GNSS technology to a range of geomatics application areas	Exams, projects and class participation

VI. Course Outline

1. Review of geodetic concepts
   - 1.1 Reference frames and measurement systems
   - 1.2 Geodetic and Cartesian co-ordinates
   - 1.3 Ellipsoid and geoid heights

2. Review of previous systems
   - 2.1 Astronomical observations
   - 2.2 TRANSIT Doppler
   - 2.3 Classical terrestrial systems
   - 2.4 Loran, Omega and other radio positioning systems

3. Global Navigation Satellite System (GNSS)
    - 3.1 GPS
    - 3.2 GLONASS
    - 3.3 Galileo
    - 3.4 Compass
    - 3.5 Other satellite systems

4. GNSS methodologies
    - 4.1 Pseudo-range measurements
    - 4.2 Carrier phase measurements
    - 4.3 Static and rapid static measurements
    - 4.4 Kinematics and real-time kinematic measurements
    - 4.5 OTF measurements

5. GNSS elements
    - 5.1 Orbit determination and parameters
    - 5.2 Dilution of precision
    - 5.3 Ephemerides
    - 5.4 Reference frames

6. Signal structures
    - 6.1 Modulation techniques, CDMA
    - 6.2 Message formats
    - 6.3 SA and AS

7. Biases and errors
    - 7.1 Range error
    - 7.2 Clock and orbit biases
    - 7.3 Ionospheric and tropospheric errors
    - 7.4 Observation errors
    - 7.5 Multipath

8. Solutions
    - 8.1 Types of solutions
    - 8.2 Relative positioning using differencing solutions
    - 8.3 Network solutions
    - 8.4 Constrained solutions
    - 8.5 Iono-free solutions
    - 8.6 Wide-lane solutions

9. Inertial Navigation Systems (INS)
    - 9.1 Theory and operation
    - 9.2 Kalman filtering
    - 9.3 GNSS/INS positioning

10. Adjustment of GNSS measurements
    - 10.1 Reduction and checking
    - 10.2 Least squares adjustment
    - 10.3 Combining terrestrial measurements and GNSS
    - 10.4 Combining GNSS and INS measurements

11. Practical aspects
    - 11.1 Planning and field operations
    - 11.2 Data processing
    - 11.3 GNSS survey standards
    - 11.4 Advantages and limitations of GNSS measurements
    - 11.5 CORS and other base stations

VII. Suggested Text(s)

Leick, Alfred, 2003, *GPS Satellite Surveying*. 3rd Edition, John Wiley & Sons, Inc.: New York.

van Sickle, J., 2008. *GPS for Land Surveyors*. 3rd Edition. Boca Raton: CRC Press.

VIII. Bibliography

Burkholder, E.F., 1983. *Geodesy for the Layman*. USAF.

Burkholder, E.F., 2008. *The 3-D Global Spatial Data Model: Foundation of the Spatial Data Infrastructure*. CRC Press.

Bomford, A.G., 1980. *Geodesy*. 4th edition. Oxford: Oxford University Press.

Ewing, C.E. and Mitchell, M.M., 1979. *Introduction to Geodesy*. New York: Elsevier.

Ghilani, C.D., 2010. *Adjustment Computations: Spatial Data Analysis*. 5th Edition. New York: John Wiley and Sons.

Rapp, R., 1991. *Lecture Notes (Geometric Geodesy I and II).* The Ohio State University.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: EN SOENGR	1b. Division: No Division Code	1c. Department: Geomatics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GIS	A268	Not Applic	4	(2+3)

6. Complete Course Title
Elements of Geographic Information Systems (GIS)
Elements of GIS
Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☒ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Associate of Applied Science in Geomatics	231	3/11/2011	N.W.J. Hazelton
2. Undergraduate Certificate, GIS	230	3/11/2011	N.W.J. Hazelton
3. Geographic Information Systems Minor	233	3/11/2011	N.W.J. Hazelton

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduction to fundamentals of GIS including common uses and technical concepts, e.g., data structures (raster and vector), data sources, metadata, databases, coordinate systems, geocoding, spatial analysis, georeferencing, cartographic design and map compilation. Investigation of spatial data quality and accuracy. Application of GIS analysis functions and standard query languages. Application of GIS to real-world problems.

16a. Course Prerequisite(s) *(list prefix and number)*

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Updating an existing course to reflect changes in theory and technology in the subject matter.

Initiator (faculty only) Date
Gennady Gienko
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: **7th March, 2011.**

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GIS
Course Number:	A268
Title:	Elements of Geographic Information Systems (GIS)
Credits:	4
Contact Hours:	2 hours per week lecture, 3 hours per week lab. = 4,500 contact minutes per semester = 75 contact hours per semester. (2+3)
Grading Basis:	A-F
Implementation Date:	Fall Semester, 2011
Course Description:	Introduction to fundamentals of GIS including common uses and technical concepts, e.g., data structures (raster and vector), data sources, metadata, databases, coordinate systems, geocoding, spatial analysis, georeferencing, cartographic design and map compilation. Investigation of spatial data quality and accuracy. Application of GIS analysis functions and standard query languages. Application of GIS to real-world problems.
Course Prerequisites(s):	N/A
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	N/A
Course Fee:	☒ Yes ☐ No

III. Course Level Justification

This course provides students with the theoretical foundation and concepts of geographical information systems (GIS). It is an entry level class in GIS.

IV. Instructional Goals

The instructor will:

1.	Explain and discuss the basic theory and concepts of GIS
2.	Demonstrate and work with various spatial and non-spatial data
3.	Explain basic cartographic concepts and design basic maps
4.	Explain basic concepts and implement basic spatial analysis
5.	Demonstrate and work with terrain surface representations and analysis
6.	Demonstrate and work with georeferencing of spatial data in GIS
7.	Explain typical workflow in applied GIS projects

V. Student Outcomes and Assessment Measures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Measures** This outcome will be assessed by one or more of the following:
1.	Demonstrate understanding of various spatial data models and structures	Exam, class discussion, lab exercise
2.	Work with spatial and non-spatial data	Exam, class discussion, lab exercise
3.	Design and compile thematic maps	Exam, class discussion, lab exercise
4.	Undertake spatial analyses using spatial and non-spatial data	Exam, class discussion, lab exercise
5.	Undertake data interpolation and work with terrain data in GIS	Exam, class discussion, lab exercise
6.	Georeference raster data in GIS	Exam, class discussion, lab exercise
7.	Gather geo-spatial data, compile and design various maps using GIS	Exam, class discussion, lab exercise

VI. Course Outline

1. Introduction to GIS.
    - 1.1 What is a GIS
    - 1.2 Typical questions a GIS can answer
    - 1.3 Major areas of practical applications
    - 1.4 Contributing disciplines and technologies

2. Fundamental geospatial concepts. Data models
    - 2.1 Data models - raster, vector
    - 2.2 Graphic and non-graphic data
    - 2.3 Digital spatial data in GIS. Spatial data acquisition
    - 2.4 Data sources and formats

3. Data visualization in GIS
    - 3.1 Cartography and thematic mapping
    - 3.2 Graphic design and composition
    - 3.3 Cartographic generalization

4. Attribute data and spatial databases
    - 4.1 Data base fundamentals
    - 4.2 Spatial and non-spatial databases
    - 4.3 Attribute data in GIS
    - 4.4 Attribute and spatial queries
    - 4.5 Spatial and aspatial joins

5. Spatial analysis
    - 5.1 Analysis of graphic and attribute data
    - 5.2 Retrieval, classification and measurement
    - 5.3 Single-layer and multi-layer operations
    - 5.4 Overlay, proximity and connectivity operations

6. Raster data analysis
    - 6.1 Raster data types and sources
    - 6.2 Digital elevation models
    - 6.3 Elements of surface analysis
    - 6.4 Surface interpolation

7. Spatial reference
    - 7.1 Shape of the Earth
    - 7.2 Map projections
    - 7.3 Common coordinate systems
    - 7.4 Georeferencing
    - 7.5 Geocoding

8. Network analysis
   8.1 Spatial networks
   8.2 Utility and transportation network analysis

9. Spatial data compilation and editing
   9.1 On-screen digitizing
   9.2 Vector data editing

10. Spatial data quality
    10.1 Positional and attribute accuracy
    10.2 Logical consistency and completeness
    10.3 Accuracy assessment
    10.4 Metadata

11. GIS project: design and implementation

VI. Suggested Text(s)

Price, Maribeth *Mastering ArcGIS*, 5th Edition, 2011

Bolstad, Paul *GIS Fundamentals: A First Text on Geographic Information Systems*, 3rd Edition, 2008

VII. Bibliography

Getting to know ArcGIS desktop, 2010, Redlands, Calif. : ESRI Press

DeMers, M., 2009. Fundamentals of Geographic Information Systems. New York: Wiley.

Longley, P.A, Goodchild, M.F. Maguire D.J., Rhind, D.W., 2005.Geographic Information Systems and Science, Wiley

Brewer, C.A., 2005. Designing Better Maps: A Guide for GIS Users, ESRI Press
Chang, K-T., Introduction to Geographic Information Systems, 2011, McGraw-Hill

Maher, M.M., 2010. Lining Up Data in ArcGIS: A Guide to Map Projections. ESRI Press

13a. Impacted Courses or Programs

Impacted Program/Courses	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Associate of Applied Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2. Undergraduate Certificate, GIS	230	3/11/2011	N.W.J. Hazelton
3. Geographic Information Systems Minor	233	3/11/2011	N.W.J. Hazelton
4. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton

Initiator Name: N.W.J. Hazelton   Initiator initials: __________   Date: _________

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	Geomatics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GIS	A366	Not Applic	3	(2+2)

6. Complete Course Title
Spatial Information Analysis and Modeling
Spatial Info Analysis & Model
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☐ Credits ☐ Contact Hours
☐ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☒ Course Description ☐ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status No # of Repeats 0 Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Geographic Information Systems (GIS) Minor	233	3/11/2011	N.W.J. Hazelton
2. Undergraduate Certificate in GIS	230	3/11/2011	N.W.J. Hazelton
3. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton

Initiator Name (typed): N W J Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Analysis and modeling of spatial and attribute data: theoretical foundation and practical applications. Spatial and non-spatial databases, SQL, retrieval and indexing. Spatial statistics and their application in GIS analysis. Basic network analysis, surface interpolation and modeling. Error modeling and representation in GIS.

16a. Course Prerequisite(s) *(list prefix and number)*
GIS A268

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update content and course description.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: **7th March, 2011.**

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GIS
Course Number:	A366
Title:	Spatial Information Analysis and Modeling
Credits:	3
Contact Hours:	2 hours per week lecture, 2 hours per week lab. = 3,600 contact minutes per semester = 60 contact hours per semester. (2+2)
Grading Basis:	A-F
Implementation Date:	Fall Semester, 2011
Course Description:	Analysis and modeling of spatial and attribute data: theoretical foundation and practical applications. Spatial and non-spatial databases, SQL, retrieval and indexing. Spatial statistics and their application in GIS analysis. Basic network analysis, surface interpolation and modeling. Map projections in GIS. Error modeling and representation in GIS.
Course Prerequisites(s):	GIS A268, with a grade of C or higher.
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	N/A
Course Fee:	☒ Yes ☐ No

III. Course Level Justification

This course provides students with advanced modeling and analysis techniques for spatial information systems. It builds upon the foundation developed in GIS A268 Elements of Geographic Information Systems (GIS)

IV. Instructional Goals, Student Outcomes, and Assessment Measures

The instructor will:

1.	Discuss various spatial data models and structures
2.	Explain how to work with various spatial and non-spatial databases
3.	Explain how to work with spatial and non-spatial statistics
4.	Explain how to work with surface representations and analysis
5.	Explain how to work with errors in spatial databases
6.	Explain how to work with various map projections in GIS

V. Student Outcomes and Assessment Measures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Measures** This outcome will be assessed by one or more of the following:
1.	Demonstrate understanding of various spatial data models and structures	Exam, class discussion, lab exercise
2.	Work with spatial and attribute databases	Exam, class discussion, lab exercise
3.	Undertake statistical analyses using spatial and attribute data	Exam, class discussion, lab exercise
4.	Undertake surface creation and analysis	Exam, class discussion, lab exercise
5.	Analyze data quality and uncertainty in spatial and non-spatial data	Exam, class discussion, lab exercise
6.	Work with various map projections in GIS	Exam, class discussion, lab exercise

VI. Course Outline

1. Foundation for modeling in GIS – Spatial
   1.1 Geometries
   1.2 Topology
   1.3 Tessellations
   1.4 Data structures and algorithms
   1.5 Other data structures, forms and indexing

2. Foundation for modeling in GIS – Attribute
   2.1 Databases, their design and implementation
   2.2 RDBMS and SQL

3. Foundation for analysis in GIS
   3.1 Descriptive and inferential statistics
   3.2 Spatial statistics
   3.3 Spatial autocorrelation
   3.4 Pattern analysis and descriptors

4. Surfaces
   4.1 Measuring surfaces
   4.2 Creating surfaces
   4.3 Surface modeling
   4.4 Surface analysis
   4.5 Higher dimensions

5. Error analysis and modeling in GIS
   5.1 Uncertainty and reliability and their representation in GIS
   5.2 Standards and error types
   5.3 Testing accuracy and precision

6. Network analysis
   6.1 Linear feature analysis
   6.2 Connectivity and accessibility
   6.3 Applications

7. Map projections and GIS
   7.1 Map projections as used in GIS
   7.2 Conversions between projections
   7.3 Choices of projections
   7.4 Co-ordinate Systems and Datums

VI. Suggested Text(s)

Snyder, J.P., 1987. *Map Projections—A Working Manual*. USGS Professional Paper No. 1395. US Department of the Interior, US Geological Survey. A PDF file of a scan of the full book can be downloaded (free) from: http://pubs.er.usgs.gov/djvu/PP/PP_1395.pdf

Mitchell, A., 2009. *The ESRI Guide to GIS Analysis: Volume 2: Spatial Measurements and Statistics*. ISBN: 978-1-58948-116-9

VII. Bibliography

Allen, D.W., 2010. *GIS Tutorial 2: Spatial Analysis Workbook* (2nd edition for AcrGIS 10). ESRI Press. ISBN: 978-1589482586.

de Smith, M.J., Goodchild, M.F., and Longley, P.A., 2007. *Geospatial Analysis: A Comprehensive Guide to Principles, Techniques and Software Tools*. 2nd edition. Troubador Publishing. ISBN: 978-1906221980.

Fischer, M.M., and Getis, A. (eds.) 2009. *Handbook of Applied Spatial Analysis: Software Tools, Methods and Applications*. Springer. ISBN: 978-3642036460.

Lloyd, C.D., 2010. *Spatial Data Analysis: An Introduction for GIS Users*. Oxford University Press, USA. ISBN: 978-0199554324.

Maher, M.M., 2010. Lining Up Data in ArcGIS: A Guide to Map Projections. ESRI Press. ISBN: 978-1598482494.

Murayama, Y. and Thapa, R.B. (eds.), 2011. *Spatial Analysis and Modeling in Geographical Transformation Process: GIS-based Applications*. Springer. ISBN: 978-9400706705.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code		1c. Department Geomatics	
2. Course Prefix GIS	3. Course Number A375	4. Previous Course Prefix & Number Not Applic	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (1+4)

6. Complete Course Title
GIS Applications I

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☒ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Geomatics	232	3/11/2011	N.W.J. Hazelton
2. Geographic Information Systems (GIS) Minor	233	3/11/2011	N.W.J. Hazelton
3. Undergraduate Certificate GIS	230	3/11/2011	N.W.J. Hazelton

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Detailed investigation of application areas of GIS, together with applications methodologies. Topics may include public health and epidemiology, decision-support, geological, transportation, maritime, temporal, utility, land parcel, business, logistics and natural resources applications. Students will complete several application projects during the semester.

16a. Course Prerequisite(s) *(list prefix and number)*
GIS A268

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course revised to be a more general GIS applications course.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: **7th March, 2011.**

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GIS
Course Number:	A375
Title:	GIS Applications I
Credits:	3
Contact Hours:	1 hour per week lecture, 4 hours per week lab. = 4,500 contact minutes per semester = 75 contact hours per semester. (1+4)
Grading Basis:	A–F
Implementation Date:	Fall, 2011
Course Description:	Detailed investigation of application areas of GIS, together with applications methodologies. Topics may include public health and epidemiology, decision-support, geological, transportation, maritime, temporal, utility, land parcel, business, logistics and natural resources applications. Students will complete several application projects during the semester.
Course Prerequisites(s):	GIS A268 with a grade of C or higher.
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	N/A

Course Fee: ☒ Yes ☐ No

III. Course Level Justification

This course builds upon the foundation established in GIS A268 Elements of Geographic Information Systems (GIS), moving the students into more specific application areas. It is designed for upper division students.

IV. Instructional Goals

The instructor will:

1.	Explain basic applications and approaches in GIS
2.	Explain and develop specific application approaches using GIS
3.	Guide completion of several applications projects in GIS

V. Student Outcomes and Assessment Procedures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Procedures** This outcome will be assessed by one or more of the following:
1.	Demonstrate understanding of various application needs in GIS	Lab exercises, class participation, project work.
2.	Demonstrate development of several applications in GIS	Lab exercises, class participation, project work.
3.	Present results of the applications projects	Lab exercises, class participation, project work.

VI. Course Outline

1. Application Areas for GIS
   - 1.1 Various GIS application areas
   - 1.2 Application area needs with GIS
   - 1.3 Application methodologies

2. Applications Projects
   - 2.1 Various applications projects in various GIS application areas
   - 2.2 Project presentation

VII. Suggested Text(s)

To be decided, based on the applications areas and topics to be covered.

VIII. Bibliography

Allen, D.W., 2010. *GIS Tutorial 2: Spatial Analysis Workbook* (2nd edition for AcrGIS 10). ESRI Press. ISBN: 978-1589482586.

Allen, D.W., and Coffey, F.M., 2010. *GIS Tutorial 3: Advanced Workbook*. ESRI Press. ISBN: 978-1589482074.

Chainey, S., and Ratcliffe, J., 2005. *GIS and Crime Mapping*. Wiley. ISBN: 978-0470860991.

Gore, W.L., and Kurland, K.S., 2010. *GIS Tutorial 1: Basic Workbook* (4th edition for ArcGIS 10) ESRI Press. ISBN: 978-1589482593.

Kidner, D., Higgs, G., and White, S., 2002. *Socio-economic Applications of Geographic Information Science*. CRC Press. ISBN: 978-0415279109.

Mitchell, A., 2009. *The ESRI Guide to GIS Analysis: Volume 2: Spatial Measurements and Statistics*. ISBN: 978-1589481169.

Pierce, F.J., and Clay, D., 2007. *GIS Applications in Agriculture*. CRC Press. ISBN: 978-0849375262.

Pinde, F., and Sun, J., 2010. *Web GIS: Principles and Applications*. ESRI Press. ISBN: 978-1589482456.

Shamsi, U.M., 2005. *GIS Applications for Water, Wastewater and Stormwater Systems*. CRC Press. ISBN: 978-0849320972.

Wheatley, D., and Gillings, M., 2002. *Spatial Technology and Archaeology: The Archaeological Applications of GIS*. CRC Press. ISBN: 978-0415246408.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR		1b. Division No Division Code		1c. Department Geomatics
2. Course Prefix GIS	3. Course Number A433	4. Previous Course Prefix & Number Not Applic	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (2+2)

6. Complete Course Title
Coastal Mapping
Coastal Mapping
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2012 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2. Geographic Information Systems, Minor	233	3/11/2011	N.W.J. Hazelton
3. Undergraduate Certificate, GIS	230	3/11/2011	N.W.J. Hazelton

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Applying spatial reasoning and information to coastal mapping projects. Supporting engineering and decision making in the coastal zone with GIS and mapping tools. Joining upland and bathymetric data sets. Resolving datum issues.

16a. Course Prerequisite(s) *(list prefix and number)*
GIS A366 or permission of instructor

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Modifications and updates to the course to reflect changes in program, faculty and the discipline.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: **7th March, 2011**

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GIS
Course Number:	A433
Title:	Coastal Mapping
Credits:	3
Contact Hours:	2 hours lecture and 2 hours lab per week for 15 weeks = 60 hours per semester. (2+2)
Grading Basis:	A–F
Implementation Date:	Fall, 2011
Course Description:	Applying spatial reasoning and information to coastal mapping projects. Supporting engineering and decision making in the coastal zone with GIS and mapping tools. Joining upland and bathymetric data sets. Resolving datum issues.
Course Prerequisites(s):	GIS A366, or permission of instructor.
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	N/A
Course Fee:	☒ Yes ☐ No

III. Course Level Justification

This course requires significant surface analysis operations and understanding, and so is dependent upon GIS A366. It develops the basic theory and practice covered in GIS A366 into new application areas, adding significant additional material.

IV. Instructional Goals

The instructor will:

1.	Discuss public databases of coastal zone spatial information
2.	Explain how to use relevant data in GIS packages
3.	Demonstrate how to generate decision support product for coastal zone management and projects
4.	Explain and demonstrate using various GIS extensions for coastal analysis and mapping
5.	Explain the use of spatial information for engineering support in coastal environments
6.	Help arrange student interaction with two commercial businesses in the field
7.	Explain how to analyze data layers over time for change detection in the coastal zone

V. Student Outcomes and Assessment Procedures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Procedures** This outcome will be assessed by one or more of the following:
1.	Demonstrate proficiency in the technical skills required for using specialist applications	Projects, labs, assignments and exams
2.	Use correct representations for horizontal and vertical representations	Projects, labs, assignments and exams
3.	Demonstrate understanding of the concepts, challenges and applications in coastal zone mapping	Projects, labs, assignments and exams
4.	Be able to estimate time and cost for developing a coastal mapping product	Projects, labs, assignments and exams
5.	Demonstrate understanding of accuracy and uncertainty in data and derived products	Projects, labs, assignments and exams

VI. Course Outline

1. Challenges of the Coastal Zone
   - 1.1 Public databases
   - 1.2 Existing data and tools
   - 1.3 Products from Google Earth vs ArcGIS and equivalent
   - 1.4 Joining datasets at the shoreline
   - 1.5 Datums, horizontal and vertical

2. Application of GIS Layers
   - 2.1 Surface representations and hydrography
   - 2.2 Bathymetry
   - 2.3 Topography
   - 2.4 Infrastructure

3. Modeling
   - 3.1 Watershed analysis
   - 3.2 Coastal erosion
   - 3.3 Change detection
   - 3.4 Accuracy and uncertainty
   - 3.5 Surface modeling and analysis
   - 3.6 Representations

4. Practical Application 1
   - 4.1 Building a coastal map
   - 4.2 Designing and engineering mapping products
   - 4.3 Water levels, waves, currents and sea level rise
   - 4.4 Other environmental parameters

5. Practical Application 2
   - 5.1 Data collection and design supporting a coastal engineering project
   - 5.2 Cross-sections and surface models

6. Practical Application 3
   - 6.1 Permit map for NEPA

7. Support Tools
   - 7.1 Cost estimating
   - 7.2 Project planning

VII. Suggested Text(s)

To be decided closer to when the course is to be run.

VIII. Bibliography

Bartlett, D., and Smith, J., (eds.), 2004. *GIS for Coastal Zone Management*. CRC Press.

Bremen, J., 2002. *Marine Geography: GIS for the Oceans and Seas*. ESRI Press.

Green, D.R. (ed.), 2009. *Coastal and Marine Geospatial Technologies*. Springer.

Maidment, D., 2002. *Arc Hydro: GIS for Water Resources*. ESRI Press.

Sverdrup, K.A., and Armbrust, V., 2008. *An Introduction to the World's Oceans*. 10th edition. McGraw-Hill.

Wright, D.J., and Bartlett, D., 1999. *Marine and Coastal Geographical Information Systems*. CRC Press.

Wright, D.J., Blongewicz, M.J., Halpin, P.N., and Breman, J., 2007. *Arc Marine: GIS for a Blue Planet*. ESRI Press.

Wright, D.J., Dwyer, E., Cummins, V., 2010. *Coastal Informatics: Web Atlas Design and Implementation*. Information Science Reference.

IX. Additional Information

Students will be required to visit two commercial businesses in the hydrographic field to ascertain how they tackle practical problems. Reports will be required following visits. Visits may be made as a class.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: EN SOENGR
1b. Division: No Division Code
1c. Department: Geomatics

2. Course Prefix: GIS
3. Course Number: A458
4. Previous Course Prefix & Number: Not Applic
5a. Credits/CEUs: 3
5b. Contact Hours (Lecture + Lab): (2+2)

6. Complete Course Title
Design and Management of Spatial Information
Design & Man. of Spatial Info
Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☒ Title
☐ Grading Basis
☒ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
 ☐ Class ☐ Level
 ☐ College ☐ Major
☐ Other (please specify)

☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☐ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Geomatics	232	3/11/2011	N.W.J. Hazelton
2. Geographic Information Systems (GIS) Minor	233	3/11/2011	N.W.J. Hazelton
3. Undergraduate Certificate, GIS	230	3/11/2011	N.W.J. Hazelton

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Spatial database system philosophy and concepts including decision making criteria, design, planning, implementation, and management. Discussion of spatial data standards, legal issues, and national spatial data policies. Project implementation and management. GIS in organizational contexts. Human-computer interactions and GIS.

16a. Course Prerequisite(s) *(list prefix and number)*
GIS A366

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update content and course description.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: **7th March, 2011**

II. Information for the Course Action Request

College/School:	EN School of Engineering
Department:	Geomatics
Course Prefix:	GIS
Course Number:	A458
Title:	Design and Management of Spatial Information
Credits:	3
Contact Hours:	2 hours per week lecture, 2 hours per week lab. = 3,600 contact minutes per semester = 60 contact hours per semester. (2+2)
Grading Basis:	A–F
Implementation Date:	Fall 2011
Course Description:	Spatial database system philosophy and concepts including decision making criteria, design, planning, implementation, and management. Discussion of spatial data standards, legal issues, and national spatial data policies. Project implementation and management. GIS in organizational contexts. Human-computer interactions and GIS.
Course Prerequisites(s):	GIS A366, with a grade of C or higher.
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	N/A
Course Fee:	☒ Yes ☐ No

III. Course Level Justification

The course provides students with advanced GIS design and implementation techniques, including connecting GIS implementations to the rest of the organization, society and the users. It builds upon the technical foundations of GIS A366 Spatial Information Analysis and Modeling.

IV. Instructional Goals

The instructor will:

1.	Demonstrate and explain how to design spatial databases
2.	Explain how to organize and manage GIS projects
3.	Explain how to make GIS projects interoperable
4.	Help students develop an ability to work as a project team
5.	Explain how GIS work in organizational contexts
6.	Discuss human-computer interactions in GIS
7.	Explain various standards for spatial data

V. Student Outcomes and Assessment Measures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Measures** This outcome will be assessed by one or more of the following:
1.	Design and implement GIS	Class participation, lab exercises, exams
2.	Organize and manage GIS projects	Class participation, lab exercises, exams
3.	Work as a GIS team member	Class participation, lab exercises, exams
4.	Discuss GIS in organizational contexts	Class participation, lab exercises, exams
5.	Discuss human-computer interactions in GIS	Class participation, lab exercises, exams
6.	Demonstrate an understanding of spatial data standards	Class participation, lab exercises, exams

VI. Course Outline

1. Spatial database design
   - 1.1 Data acquisition procedures
   - 1.2 Data quality assessment
   - 1.3 Database design and implementation
   - 1.4 GIS management
   - 1.5 Case studies

2. GIS projects and their management
   - 2.1 Data standards
   - 2.2 Interchange standards
   - 2.3 Legal issues
   - 2.4 National Spatial Data Infrastructure
   - 2.5 Project management

3. GIS in Organizations
   - 3.1 Organizational structures
   - 3.2 GIS roles in organizations

4. Human-computer interactions and GIS
   - 4.1 Human-computer interactions (HCI)
   - 4.2 HCI modeling
   - 4.3 HCI and GIS

VII. Suggested Text(s)

Arctur, David and Zeiler, Michael, *Designing Geodatabases: Case Studies in GIS Data Modeling*, ESRI Press, 2004.

Hernandez, Michael J., *Database Design for Mere Mortals*: Second Edition, Addison Wesley, 2003.

VIII. Bibliography

Allen, D.W., and Coffey, F.M., 2010. *GIS Tutorial 3: Advanced Workbook*. ESRI Press. ISBN: 978-1589482074.

Snyder, J.P., 1987. *Map Projections—A Working Manual*. USGS Professional Paper No. 1395. US Department of the Interior, US Geological Survey. A PDF file of a scan of the full book can be downloaded (free) from: http://pubs.er.usgs.gov/djvu/PP/PP_1395.pdf

Zeiler, M., 2010. *Modeling Our World: The ESRI Guide to Geodatabase Concepts.* ESRI Press. ISBN: 978-1589482784.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code			1c. Department Geomatics
2. Course Prefix GIS	3. Course Number A468	4. Previous Course Prefix & Number Not Applic	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (2+2)

6. Complete Course Title
Integration of Geomatics Technologies
Integration Geom Tech
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☒ Title
☐ Grading Basis
☒ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
 ☐ Class ☐ Level
 ☐ College ☐ Major
☐ Other (please specify)

☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☒ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2. Geographic Information Systems, Minor	233	3/11/2011	N.W.J. Hazelton
3. Undergraduate Certificagte, GIS	230	3/11/2011	N.W.J. Hazelton

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Integrating GPS, INS, GIS, photogrammetry, remote sensing, terrestrial surveying and related technology and techniques. Scripting and development in various geo-spatial packages. Data translation/transfer techniques. Web-based approaches to spatial information management and dissemination. Mobile and server technologies for spatial information.

16a. Course Prerequisite(s) *(list prefix and number)*
GIS A268

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Revision of existing course to bring it up to date and better integrated into the Geomatics program.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: **7th March, 2011**

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GIS
Course Number:	A468
Title:	Integration of Geomatics Technologies
Credits:	3
Contact Hours:	2 hours per week lecture, 2 hours per week lab. = 3,600 contact minutes per semester = 60 contact hours per semester. (2+2)
Grading Basis:	A–F
Implementation Date:	Fall 2011
Course Description:	Integrating GPS, INS, GIS, photogrammetry, remote sensing, terrestrial surveying and related technology and techniques. Scripting and development in various geo-spatial packages. Data translation/transfer techniques. Web-based approaches to spatial information management and dissemination. Mobile and server technologies for spatial information.
Course Prerequisites(s):	GIS A268 with a grade of C or higher.
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	N/A
Course Fee:	☒ Yes ☐ No

III. Course Level Justification

This course builds upon the introductory GIS material in GIS A268, and assumes a significant foundation across the wider geomatics discipline.

IV. Instructional Goals

The instructor will:

1.	Explain how to apply various scripting languages to a range of geospatial packages
2.	Explain the fundamentals of server-side applications for distributed and mobile geospatial technologies
3.	Explain the fundamentals of connection and data movement between mobile and distributed geospatial technologies, and servers
4.	Explain how to develop integrated data flow between different geospatial technologies
5.	Explain the fundamental concepts in GNSS/INS/instrument integration and data analysis
6.	Explain the basics of incorporating volunteer/amateur geospatial data into professional geomatics information systems

B. Student Outcomes/Assessment Procedures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Procedures** This outcome will be assessed by one or more of the following:
1.	Demonstrate an understanding of scripting methods in various packages	Class participation, practical exercises, lab work, exam, project work
2.	Demonstrate server-side applications in distributed geospatial information systems	Class participation, practical exercises, lab work, exam, project work
3.	Demonstrated integrated data flow between different geospatial information systems	Class participation, practical exercises, lab work, exam, project work
4.	Demonstrate understanding of GNSS/INS/instrument integration and data analysis	Class participation, practical exercises, lab work, project work
5.	Work in teams across geomatics sub-discipline areas to integrate a range of technologies	Class participation, practical exercises, lab work, project work

VI. Course Outline

1. Overview of customization and development tools for geospatial packages
    - 1.1 ArcObjects
    - 1.2 Python
    - 1.3 VBA
    - 1.4 Perl, C++, C#, Objective C, C, etc.
    - 1.5 Other tools

2. Distributed geospatial information systems
    - 2.1 Mobile and distributed systems
    - 2.2 Cloud computing
    - 2.3 Peripheral devices, connections and integration
    - 2.4 Networking implications
    - 2.5 GIS Servers
    - 2.6 Web GIS
    - 2.7 Distribution of geospatial information

3. Geospatial sensor integration
    - 3.1 Fundamental concepts
    - 3.2 GNSS/INS/sensor integration
    - 3.3 QA/QC methods and procedures

4. Geospatial data integration and conflation
    - 4.1 Data sources: professional
    - 4.2 Data sources: volunteer/amateur
    - 4.3 Data integration
    - 4.4 Fundamentals of data conflation

5. Integration projects across geomatics sub-disciplines

VII. Suggested Text(s)

Fu, P., and Sun, J., 2010. *Web GIS: Principles and Applications*. ESRI Press.

VIII. Bibliography

Allen, D.W., and Coffey, F.M., 2010. *GIS Tutorial 3: Advanced Workbook*. ESRI Press. ISBN: 978-1589482074.

Beazley, D.M., 2009. *Python Essential Reference* (4th edition). Addison-Wesley Profession. ISBN: 978-1672329784.

Billen, R., Joao, E., and Forrest, D., 2006. *Dynamic and Mobile GIS: Investigating Changes in Space and Time*. CRC Press.

Burke, R., 2003. *Getting to Know ArcObjects: Programming ArcGIS with VBA.* ESRI Press. ISBN: 978-1589480186.

Farrell, J., 2003. *Aided Navigation: GPS with High Rate Sensors*. McGraw-Hill.

Grewal, M.S., Weill, L.R., and Andrews, A.P., 2007. *Global Positioning Systems, Inertial Navigation and Integration*. Wiley-Interscience.

Groves, P., 2007. *Principles of GNSS, Inertial, and Multi-Sensor Navigation Systems*. Artech House Publishers.

Kropla, W., 2005. *Beginning MapServer: Open Source GIS Development*. Apress.

Lutz, M., 2008. *Programming Python*. O'Reilly Media. ISBN: 978-0596009250.

Peters, D., 2008. *Building a GIS: System Architecture Design Strategies for Managers*. ESRI Press.

Pick, J.B., 2008. *Geo-Business: GIS in the Digital Organization*. Wiley.

Taylor, G., and Blewitt, G., 2006. *Intelligent Positioning: GIS-GPS Unification*.

Thurston, J., Poiker, T.K., and Moore, J.P., 2003. *Integrating Geospatial Technologies: A Guide to GPS, GIS and Data.*

Weston, J., and Titterton, D., 2005. *Strapdown Inertial Navigation and Technology.* The Institution of Engineering and Technology.

Zhuang, V., Wrazien, D.R., Wang, M., and Huang, X., 2005. *Programming ASP.NET for ArcGIS Server*. OnWord Press.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code	1c. Department Geomatics

2. Course Prefix GIS	3. Course Number A470	4. Previous Course Prefix & Number Not Applic	5a. Credits/CEUs 4	5b. Contact Hours (Lecture + Lab) (1+6)

6. Complete Course Title
GIS Applications II

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☒ Credits ☒ Contact Hours
☒ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☒ Course Description ☐ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Geomatics	232	3/11/2011	N.W.J. Hazelton
2. Undergraduate Certtificate, GIS	230	3/11/2011	N.W.J. Hazelton
3. Geographic Information Systems (GIS) Minor	233	3/11/2011	N.W.J. Hazelton

Initiator Name (typed): N.W.J. Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Detailed investigation of advanced application areas of GIS. Topics may include socio-economic, decision-support, web-based, archaeological, justice, temporal, agricultural, land parcel, business, logistics and natural resources applications. Students will complete several application projects during the semester.

16a. Course Prerequisite(s) *(list prefix and number)* GIS A366	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Second applications course in GIS, covering more advanced material than GIS A375. Uses the spatial analysis work from GIS A366.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
School of Engineering
Department of Geomatics

I. Date Initiated: **7th March, 2011.**

II. Information for the Course Action Request

College/School:	EN – School of Engineering
Department:	Geomatics
Course Prefix:	GIS
Course Number:	A470
Title:	GIS Applications II
Credits:	4
Contact Hours:	1 hour per week lecture, 6 hours per week lab. = 6,300 contact minutes per semester = 105 contact hours per semester. (1+6)
Grading Basis:	A–F
Implementation Date:	Fall, 2011
Course Description:	Detailed investigation of advanced application areas of GIS. Topics may include socio-economic, decision-support, web-based, archaeological, justice, temporal, agricultural, land parcel, business, logistics and natural resources applications. Students will complete several application projects during the semester.
Course Prerequisites(s):	GIS A366 with a grade of C or higher.
Test Scores(s):	N/A
Corequisite(s)	N/A
Registration Restrictions:	N/A
Course Fee:	☒ Yes ☐ No

III. Course Level Justification

This course builds upon the spatial analysis foundation established in GIS A366 Spatial Information Analysis and Modeling. Will explore more advanced applications than GIS A375.

IV. Instructional Goals

The instructor will:

1.	Discuss advanced applications in GIS
2.	Explain how to develop specific application approaches using GIS
3.	Guide students to complete several applications projects in GIS

V. Student Outcomes and Assessment Procedures

	Student Outcomes Upon successful completion of the course, the student will be able to do the following:	**Assessment Procedures** This outcome will be assessed by one or more of the following:
1.	Demonstrate understanding of various application needs in GIS	Lab exercises, class participation, project work.
2.	Demonstrate development of several applications in GIS	Lab exercises, class participation, project work.
3.	Present results of the applications projects	Lab exercises, class participation, project work.

VI. Course Outline

1. Advanced Application Areas for GIS
   - 1.1 Various GIS advanced application areas
   - 1.2 Application area needs with GIS

2. Advanced Applications Projects
   - 2.1 Various advanced applications projects in various GIS application areas
   - 2.2 Project presentation

VII. Suggested Text(s)

To be decided, based on the applications areas and topics to be covered.

VIII. Bibliography

Allen, D.W., 2010. *GIS Tutorial 2: Spatial Analysis Workbook* (2nd edition for AcrGIS 10). ESRI Press. ISBN: 978-1589482586.

Allen, D.W., and Coffey, F.M., 2010. *GIS Tutorial 3: Advanced Workbook*. ESRI Press. ISBN: 978-1589482074.

Chainey, S., and Ratcliffe, J., 2005. *GIS and Crime Mapping*. Wiley. ISBN: 978-0470860991.

Gore, W.L., and Kurland, K.S., 2010. *GIS Tutorial 1: Basic Workbook* (4th edition for ArcGIS 10) ESRI Press. ISBN: 978-1589482593.

Kidner, D., Higgs, G., and White, S., 2002. *Socio-economic Applications of Geographic Information Science*. CRC Press. ISBN: 978-0415279109.

Mitchell, A., 2009. *The ESRI Guide to GIS Analysis: Volume 2: Spatial Measurements and Statistics*. ISBN: 978-1589481169.

Pierce, F.J., and Clay, D., 2007. *GIS Applications in Agriculture*. CRC Press. ISBN: 978-0849375262.

Pinde, F., and Sun, J., 2010. *Web GIS: Principles and Applications*. ESRI Press. ISBN: 978-1589482456.

Shamsi, U.M., 2005. *GIS Applications for Water, Wastewater and Stormwater Systems*. CRC Press. ISBN: 978-0849320972.

Wheatley, D., and Gillings, M., 2002. *Spatial Technology and Archaeology: The Archaeological Applications of GIS*. CRC Press. ISBN: 978-0415246408.

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College EN SOENGR	1b. Division No Division Code	1c. Department Geomatics

2. Complete Program Title/Prefix
Associate of Applied Science, Geomatics

3. Type of Program
- ☐ OEC
- ☐ Undergrad Certificate
- ☒ AA/AAS
- ☐ Baccalaureate
- ☐ Minor
- ☐ Post Baccalaureate Certificate
- ☐ Graduate
- ☐ Graduate Certificate
- ☐ Doctoral
- ☐ Specialty

4. Type of Action:

PROGRAM	PREFIX
☐ Add	☐ Add
☒ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2011 To: /9999

6a. Coordination with Affected Units
Department, School, or College: none
Initiator Name (typed): _____
Initiator Signed Initials: _________ Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 3/23/2011

6c. Coordination with Library Liaison Date: 3/23/2011

7. Title and Program Description - Please attach the following:
☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
Updating program to maintain correspondence to, and ease of transfer into, the BS in Geomatics degree.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College EN SOENGR	1b. Division No Division Code	1c. Department Geomatics

2. Complete Program Title/Prefix
Bachelor of Science, Geomatics

3. Type of Program
☐ OEC ☐ Undergrad Certificate ☐ AA/AAS ☒ Baccalaureate ☐ Minor
☐ Post Baccalaureate Certificate ☐ Graduate ☐ Graduate Certificate ☐ Doctoral ☐ Specialty

4. Type of Action:

PROGRAM
☐ Add
☒ Change
☐ Delete

PREFIX
☐ Add
☐ Change
☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2011 To: /9999

6a. Coordination with Affected Units
Department, School, or College: none
Initiator Name (typed): _____ Initiator Signed Initials: _________ Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 3/23/2011

6c. Coordination with Library Liaison Date: 3/23/2011

7. Title and Program Description - Please attach the following:
☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
Updating curriculum and structure in response to ABET accreditation requirements, and to account for changes in the discipline.

Initiator (faculty only) — Date N.W.J. Hazelton Initiator (TYPE NAME)	☐ Approved ☐ Disapproved Dean/Director of School/College — Date
☐ Approved ☐ Disapproved Department Chairperson — Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson — Date
☐ Approved ☐ Disapproved Curriculum Committee Chairperson — Date	☐ Approved ☐ Disapproved Provost or Designee — Date

SCHOOL OF ENGINEERING

Geomatics

Geomatics embraces the traditional disciplines of land surveying, mapping, geodesy, photogrammetry, and hydrography, together with the newer disciplines of remote sensing, digital photogrammetry, and spatial or geographic information systems (GIS). Geomatics professionals help design, map and manage the natural and the man-made resources of the earth. Their skills and efforts are important in project development and environmental protection. They gather, analyze, and manipulate data; map results; and help design new developments. The disciplines used in geomatics are based on advancing technologies and use an integrated approach to the acquisition, analysis, storage, distribution, management, and application of spatially referenced data.

GEOMATICS

Engineering Building (ENGR), Room 213, (907) 786-1972 [***www.engr.uaa.alaska.edu***](http://www.engr.uaa.alaska.edu)

The Department of Geomatics offers a two-year Associate of Applied Science in Geomatics, a four-year Bachelor of Science in Geomatics, a minor in Geographic Information Systems (GIS), and an Undergraduate Certificate in Geographic Information Systems (GIS). Students seeking the baccalaureate degree may graduate in one of two emphasis areas: Surveying or GIS. Students seeking continuing education for technical or professional enhancement or a concentrated area of study in GIS should consider either the minor in GIS or the Undergraduate Certificate in GIS. The Geomatics program is science-based and includes:

- Land surveying using global positioning systems and conventional techniques
- Automated mapping
- Computational analysis and adjustment
- Geodesy
- Principles of boundary law
- Geographic Information Systems (GIS)
- Digital photogrammetry
- Remote sensing and image analysis.

The wide diversity in the profession creates a similar diversity of employment opportunities. The Undergraduate Certificate in GIS educates students with a broad base of concepts and theory, provides them with hands-on training in real world problems that are relevant to Alaska's environment, and allows them to explore several thematic areas in GIS applications, such as facilities management, transportation, marine environments, and natural resources.

The minor in GIS is designed for students to enhance their knowledge of GIS and remote sensing to complement a major baccalaureate degree in a variety of disciplines including science, art, business management and engineering. GIS, as a part of geospatial science and information technologies, is widely used in many industries important to Alaska (e.g. oil, gas), governance and administrations (municipalities and the state), statewide and federal agencies and departments (transportation, natural resources, land management, parks and recreation, etc.), research (sustainability, biodiversity, ecology, geology, anthropology, socioeconomics, etc.), homeland security, military applications and non-profit organizations.

The Associate of Applied Science in Geomatics prepares students for technician-level employment as land survey technicians or as automated mapping technicians. Those working as survey technicians frequently work outdoors, travel to various job locations, and enjoy an independent lifestyle. Automated mapping technicians work with the latest cartographic techniques and equipment and easily transfer skills learned in geomatics courses to other disciplines.

The Bachelor of Science prepares students for a wide variety of professional level opportunities. Since Alaska poses unique geomatics challenges, the curriculum emphasizes northern principles and practices. UAA graduates are highly employable in the Alaska marketplace and worldwide. Employment opportunities are found in private industry, government, and municipal agencies. Geomatics graduates working at the professional level enjoy responsibility and a choice of indoor and outdoor employment with many opportunities for advancement and diversification.

The new high-tech fields open employment in GIS, photogrammetry, remote sensing, land surveying, automated mapping, land design and planning, survey engineering, and resource management positions. In Alaska, geomatics professionals work on state and Native land claims, mining claims, fishing leases, petroleum reserves, forest selections, transportation corridors, private developments, and government and military projects. In Alaska and elsewhere, geomatics professionals work in land surveying, land development and design, mapping and tax assessment, the defense industry, environmental engineering assessment and management, public safety and welfare, medicine, transportation, agriculture, business, and natural sciences.

Professional predictors indicate that employment opportunities will be strong for the various geomatics specialties in Alaska and the Pacific Rim well into the 21st century. While enrolled in the program, students are eligible for cooperative employment programs with government agencies and with private industry during the summer and for intern programs during the school year.

The Department of Geomatics accommodates a wide variety of student objectives from entry level to professional preparation and encourages the nontraditional student to return for training in current practices and principles.

Students seeking professional licensing as registered land surveyors and those who are interested in specializing in surveying or geographic information systems should enroll in the Bachelor of Science program. For the most effective planning, bachelor's degree candidates should declare their intent by the second semester of their geomatics studies.

Accreditation

The Bachelor of Science program in Geomatics at UAA is accredited by the Applied Science Accreditation Commission (ASAC) of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202.

Program Educational Objectives and Program Outcomes

Program Educational Objectives

The UAA Bachelor of Science, Geomatics program has the following Program Educational Objectives.

Within five years of graduation, graduates of the Geomatics program will have achieved the following.

1. Graduates who are pursuing careers in the surveying area will have attempted the AELS Board's Fundamentals of Surveying examination, and their overall pass rate will be at least 80%.
2. At least 60% of graduates who are pursuing careers in non-surveying areas will have attempted equivalent professional certification or registration, e.g., CP, GISP, as appropriate for their career path.
3. At least 60% of graduates will be members of professional organizations relevant to their career of choice.
4. At least 80% of graduates will have found employment in the fields within the geomatics disciplines, including: surveying of various types, mapping and cartography, GIS/LIS, remote sensing, geodesy, photogrammetry or hydrographic surveying.
5. At least 80% of graduates will have completed at least one professional development course or session, or completed one higher education course.
6. At least 50% of graduates will have taught at least one workshop or training session, made one conference presentation, or published one article relevant to their career.

Program Outcomes

In keeping with the program educational objectives, it is expected that graduates of the UAA Geomatics program will have:

1. An ability to apply knowledge of mathematics through calculus III and either linear algebra or differential equations or probability and statistics, and general physics;
2. An ability to collect, analyze and interpret data in all of the recognized surveying and mapping areas;
3. An ability to identify, formulate, and design a geomatics system, component or process to meet desired needs;
4. An ability to function on multidisciplinary as well as on interdisciplinary teams;
5. An ability to think critically and to creatively solve geomatics problems;
6. An understanding of professional and ethical responsibility;
7. An ability to communicate effectively;
8. The broad education necessary to understand the impact of geomatics solutions in a global and societal context;
9. A recognition of the need for, and ability to engage in, lifelong learning;
10. A knowledge of contemporary issues in professional practice;
11. An ability to use the techniques, skills and modern geomatics tools necessary for geomatics practice; and
12. An ability to apply knowledge in all six areas of surveying and mapping:
    i. Field surveying and methods;
    ii. Photogrammetric mapping and image interpretation and remote sensing;
    iii. Surveying calculation and data adjustment;
    iv. Geodetic coordinates and astronomy;
    v. Cartographic representation, projections, and map production;
    vi. Computer-based multipurpose cadastre, geographic information systems.

Associate of Applied Science, Geomatics

Admission Requirements

Satisfy the Admission to Undergraduate Certificate and Associate's Degree Programs Requirements in Chapter 7, Academic Standards and Regulations.

General University Requirements

Complete the Associate of Applied Science General Degree Requirements located at the beginning of this chapter. Some of the major requirements will also fulfill Associate of Applied Science degree general requirements. Students should coordinate choices carefully with their academic advisor in the Department of Geomatics.

Academic Progress

Students must complete all major requirement courses with a grade of C or higher. A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt will result in removal from the Geomatics program.

Major Requirements

1. Complete 4 credits in physics: 4

PHYS A123	Basic Physics I (3)	
PHYS A123L	Basic Physics I Laboratory (1)	
	or	
PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	

2. Complete the following required courses (51 credits):

CSE A102	Introduction to Computer Systems	1
ENGL A212	Technical Writing	3
GEO A137	Principles of Mapping	3
GEO A146	Surveying Computations	3
GEO A155	Fundamentals of Surveying	3
GEO A157	Analytical and Digital Cartography	3
ENGR A161	Engineering Practices II	3
GEO A158	Geomatics Computer Fundamentals	1
GEO A266	Advanced Surveying	3
GEO A167	Remote Sensing and Image Analysis	4
GEO A248	Digital Terrain Cartography	3
GEO A256	Municipal and Civil Geomatics	4
GEO A257	Elements of Photogrammetry	3
GEO A267	Boundary Law I	4
GIS A268	Elements of Geographic Information Systems (GIS)	4
MATH A109	Precalculus †	6

3. Electives to total of 61 credits.

† MATH A107 College Algebra and MATH A108 Trigonometry (both courses) may be substituted for MATH A109 Precalculus.

Bachelor of Science, Geomatics

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Graduation Requirements

A. General University Requirements

Complete the General University Requirements for all Baccalaureate Degrees at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees at the beginning of this chapter.

Academic Progress

Students must complete all courses under major requirements with a grade of C or higher. A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt will result in removal from the Geomatics program.

C. Major Requirements

1. Complete 4 credits in physics from one of the following course pairs: 4

PHYS A123	Basic Physics I (3)	
PHYS A123L	Basic Physics I Laboratory (1)	
	or	
PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	

2. Complete the following (21 credits):

CSE A102	Introduction to Computer Systems	1
ENGL A212	Technical Writing	3
ENGR A161	Engineering Practices II	3
GEO A158	Geomatics Computer Fundamentals	1
MATH A109	Precalculus †	6
MATH A272	Applied Calculus ◊	3
STAT A253	Applied Statistics for the Sciences	4

† MATH A107 College Algebra and MATH A108 Trigonometry (both) may be substituted for MATH A109 Precalculus.
◊ MATH A200 Calculus I may be substituted for MATH A272 Applied Calculus.

3. Complete all of the following (71 credits):

BA/JUST A241	Business Law I	3
GEO A137	Principles of Mapping	3
GEO A146	Surveying Computations	3
GEO A155	Fundamentals of Surveying	3
GEO A157	Analytical and Digital Cartography	3
GEO A167	Remote Sensing and Image Analysis	4
GEO A248	Digital Terrain Cartography	3
GEO A256	Municipal and Civil Geomatics	3
GEO A257	Elements of Photogrammetry	3
GEO A266	Advanced Surveying	3
GEO A267	Boundary Law I	4
GEO A301	Professional Development I	1
GEO A302	Professional Development 2	1
GEO A303	Professional Development 3	1
GEO A355	Land Development and Design	3
GEO A359	Geodesy and Map Projections	3

GEO A365	Geomatics Adjustment and Analysis	4
GEO A457	Boundary Law II	4
GEO A460	Geomatics Design Project	3
GEO A466	Geopositioning	3
GIS A268	Elements of Geographic Information Systems (GIS)	4
GIS A366	Spatial Information Analysis and Modeling	3
GIS A468	Integration of Geomatics Technologies	3
PHIL A405	Professional Ethics	3

4. Complete at least 11 credits in one of the emphasis areas.

Surveying Emphasis

a. Complete the following (4 credits):

GEO A433	Hydrographic Surveying	3
PEP A110	Remote First Aid (1)	
	or	1
PEP A112	First Aid and CPR for Professionals (1)	

b. Complete 7 credits from the following: 7

GEO A354	City and Regional Planning (3)
GEO A358	Programming for Digital Cartography (3)
GEO A459	Geodetic Geomatics (3)
GEO A467	Analytical and Digital Photogrammetry (3)
GEO A490	Selected Advanced Topics in Geomatics (1-6)
GIS A369	Land Information Systems (3)
GIS A375	GIS Applications I (3)
GIS A433	Coastal Mapping (3)
GIS A470	GIS Applications II (4)

Geographic Information Systems (GIS) Emphasis

a. Complete the following (3 credits):

GIS A458	Design and Management of Spatial Data	3

b. Complete 8 credits from the following: 8

GIS A367	GIS and Remote Sensing (3)
GIS A369	Land Information Systems (3)
GIS A370	GIS and Remote Sensing for Natural Resources (3)
GIS A375	GIS Applications I (3)
GIS A433	Coastal Mapping (3)
GIS A470	GIS Applications II (4)
GIS A490	Selected Advanced Topics in GIS (1-6)
PEP A110	Remote First Aid (1)
	or
PEP A112	First Aid and CPR for Professionals (1)

5. A total of 131 credits is required for the degree, of which 42 must be upper division.

SCHOOL OF ENGINEERING

Geomatics

Geomatics embraces the traditional disciplines of land surveying, mapping, geodesy, photogrammetry, and hydrography, together with the newer disciplines of remote sensing, digital photogrammetry, and spatial or geographic information systems (GIS). Geomatic~~ian~~s professionals help design, map and manage the natural and the man-made resources of the earth. Their skills and efforts are important in project development and environmental protection. They gather, analyze, and manipulate data; map results; and help design new developments. The disciplines used in geomatics are based on advancing technologies and use an integrated approach to the acquisition, analysis, storage, distribution, management, and application of spatially referenced data.

GEOMATICS

Engineering Building (ENGR), Room 213, (907) 786-1972 www.engr.uaa.alaska.edu

The Department of Geomatics offers a two-year Associate of Applied Science in Geomatics, a four-year Bachelor of Science in Geomatics, a minor in Geographic Information Systems (GIS), and an Undergraduate Certificate in Geographic Information Systems (GIS). Students seeking the baccalaureate degree may graduate in one of two emphasis areas: Surveying or GIS. Students seeking continuing education for technical or professional enhancement or a concentrated area of study in GIS should consider either the minor in GIS or the Undergraduate Certificate in GIS. The Geomatics program is science-based and includes:

- Land surveying using global positioning systems and conventional techniques
- Automated mapping
- Computational analysis and adjustment
- Geodesy
- Principles of boundary law
- Geographic Information Systems (GIS)
- Digital photogrammetry
- Remote sensing and image analysis.

The wide diversity in the profession creates a similar diversity of employment opportunities. The Undergraduate Certificate in GIS educates students with a broad base of concepts and theory, provides them with hands-on training in real world problems that are relevant to Alaska's environment, and allows them to explore several thematic areas in GIS applications, such as facilities management, transportation, marine environments, and natural resources.

The minor in GIS is designed for students to enhance their knowledge of GIS and remote sensing to complement a major baccalaureate degree in a variety of disciplines including science, art, business management and engineering. GIS, as a part of geospatial science and information technologies, is widely used in many industries important to Alaska (e.g. oil, gas), governance and administrations (municipalities and the state), statewide and federal agencies and departments (transportation, natural resources, land management, parks and recreation, etc.), research (sustainability, biodiversity, ecology, geology, anthropology, socioeconomics, etc.), homeland security, military applications and non-profit organizations.

The Associate of Applied Science in Geomatics prepares students for technician-level employment as land survey technicians or as automated mapping technicians. Those working as survey technicians frequently work outdoors, travel to various job locations, and enjoy an independent lifestyle. Automated mapping technicians work with the latest cartographic techniques and equipment and easily transfer skills learned in geomatics courses to other disciplines.

The Bachelor of Science prepares students for a wide variety of professional level opportunities. Since Alaska poses unique geomatics challenges, the curriculum emphasizes northern principles and practices. UAA graduates are highly employable in the Alaska marketplace and worldwide. Employment opportunities are found in private industry, government, and municipal agencies. Geomatic~~ian~~s graduates working at the professional level enjoy responsibility and a choice of indoor and outdoor employment with many opportunities for advancement and diversification.

The new high-tech fields open employment in GIS, photogrammetry, remote sensing, land surveying, automated mapping, land design and planning, survey engineering, and resource management positions. In Alaska, geomatic~~ian~~s professionals work on state and Native land claims, mining claims, fishing leases, petroleum reserves, forest selections, transportation corridors, private developments, and government and military projects. In Alaska and elsewhere, geomatic~~ian~~s professionals work in land surveying, land development and design, mapping and tax assessment, the defense industry, environmental engineering assessment and management, public safety and welfare, medicine, transportation, agriculture, business, and natural sciences.

Professional predictors indicate that employment opportunities will be strong for the various geomatics specialties in Alaska and the Pacific Rim well into the 21st century. While enrolled in the program, students are eligible for cooperative employment programs with government agencies and with private industry during the summer and for intern programs during the school year.

The Department of Geomatics accommodates a wide variety of student objectives from entry level to professional preparation and encourages the nontraditional student to return for training in current practices and principles.

Students seeking professional licensing as registered land surveyors and those who are interested in specializing in surveying or geographic information systems should enroll in the Bachelor of Science program. For the most effective planning, bachelor's degree candidates should declare their intent by the second semester of their geomatics studies.

Accreditation

The Bachelor of Science program in Geomatics at UAA is accredited by the Applied Science Accreditation Commission (ASAC) of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202.

Program Educational Objectives and Program Outcomes

Program Educational Objectives

The ~~curriculum of the~~ UAA Bachelor of Science, Geomatics program ~~is designed to produce graduates who:~~has the following Program Educational Objectives.

Within five years of graduation, graduates of the Geomatics program will have achieved the following.

1. ~~Have a basic knowledge of the principles and skills relating to the geomatics disciplines of land surveying, surveying boundary law, surveying computations and adjustments, mapping, geodesy, and photogrammetry, together with the newer disciplines of remote sensing, digital photogrammetry, global positioning systems (GPS), and spatial or geographic information systems (GIS);~~ Graduates who are pursuing careers in the surveying area will have attempted the AELS Board's Fundamentals of Surveying examination, and their overall pass rate will be at least 80%.
2. ~~Have an understanding of the principles related to project delivery;~~ At least 60% of graduates who are pursuing careers in non-surveying areas will have attempted equivalent professional certification or registration, e.g., CP, GISP, as appropriate for their career path.
3. ~~Have sufficient technical competence to obtain employment as an entry-level geomatics professional and to be able to progress professionally within the discipline, and to be prepared for advanced studies;~~ At least 60% of graduates will be members of professional organizations relevant to their career of choice.
4. At least 80% of graduates will have found employment in the fields within the geomatics disciplines, including: surveying of various types, mapping and cartography, GIS/LIS, remote sensing, geodesy, photogrammetry or hydrographic surveying.
5. At least 80% of graduates will have completed at least one professional development course or session, or completed one higher education course.

~~4. Have a fundamental understanding of the issues relating to geomatics practice in GIS;~~

~~5.~~6. ~~Are able to communicate their ideas;~~ At least 50% of graduates will have taught at least one workshop or training session, made one conference presentation, or published one article relevant to their career.

~~6. Are able to work within a team environment; and~~

~~7. Are prepared for and understand the need for continued professional development throughout their careers.~~

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Program Outcomes

In keeping with the program educational objectives, it is expected that graduates of the UAA Geomatics program will have:

1. An ability to apply knowledge of mathematics through calculus III and either linear algebra or differential equations or probability and statistics, and general physics;
2. An ability to collect, analyze and interpret data in all of the recognized surveying and mapping areas;
3. An ability to identify, formulate, and design a geomatics system, component or process to meet desired needs;
4. An ability to function on multidisciplinary as well as on interdisciplinary teams;
5. An ability to think critically and to creatively solve geomatics problems;
6. An understanding of professional and ethical responsibility;
7. An ability to communicate effectively;
8. The broad education necessary to understand the impact of geomatics solutions in a global and societal context;
9. A recognition of the need for, and ability to engage in, lifelong learning;
10. A knowledge of contemporary issues in professional practice;

11. An ability to use the techniques, skills and modern geomatics tools necessary for geomatics practice; and
12. An ability to apply knowledge in all six areas of surveying and mapping:
    i. Field surveying and methods;
    ii. Photogrammetric mapping and image interpretation and remote sensing;
    iii. Surveying calculation and data adjustment;
    iv. Geodetic coordinates and astronomy;
    v. Cartographic representation, projections, and map production;
    vi. Computer-based multipurpose cadastre, geographic information systems.

Associate of Applied Science, Geomatics

Admission Requirements

Satisfy the Admission to Undergraduate Certificate and Associate's Degree Programs Requirements in Chapter 7, Academic Standards and Regulations.

General University Requirements

Complete the Associate of Applied Science General Degree Requirements located at the beginning of this chapter. Some of the major requirements will also fulfill Associate of Applied Science degree general requirements. Students should coordinate choices carefully with their academic advisor in the Department of Geomatics.

Academic Progress

Students must complete all major requirement courses with a grade of C or higher. A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt will result in removal from the Geomatics program.

Major Requirements

1. Complete 4 credits in physics: 4

PHYS A123	Basic Physics I (3)	
PHYS A123L	Basic Physics I Laboratory (1)	
	or	
PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	

2. Complete the following required courses (~~48~~ 51 credits):

CSE A102	Introduction to Computer Systems	1
ENGL A212	Technical Writing	3
GEO A137	Principles of Mapping	3
GEO A146	Surveying Computations	3
GEO A155	Fundamentals of Surveying	3
GEO A157	Analytical and Digital Cartography	3
ENGR A161	Engineering Practices II	3
GEO A158	Geomatics Computer Fundamentals	~~3~~ 1
GEO ~~A166~~ A266	Advanced Surveying	~~4~~ 3
GEO A167	Remote Sensing and Image Analysis	4
GEO A248	Digital Terrain Cartography	3
GEO A256	Municipal and Civil Geomatics	4
GEO A257	Elements of Photogrammetry	3
GEO A267	Boundary Law I	4
GIS A268	Elements of Geographic Information Systems (GIS)	4
MATH ~~A200~~ A109	Prec~~C~~alculus † ~~1~~	6~~4~~

3. Electives to total of 61~~0~~ credits.

† MATH A107 College Algebra and MATH A108 Trigonometry (both courses) may be substituted for MATH A109 Precalculus.

Bachelor of Science, Geomatics

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Graduation Requirements

A. General University Requirements

Complete the General University Requirements for ~~All~~ all Baccalaureate Degrees at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees at the beginning of this chapter.

Academic Progress

Students must complete all courses under major requirements with a grade of C or higher. A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt will result in removal from the Geomatics program.

C. Major Requirements

1. Complete ~~8~~ 4 credits in physics from one of the following ~~sequences~~course pairs: ~~8~~ 4

PHYS A123	Basic Physics I (3)
PHYS A123L	Basic Physics I Laboratory (1)
~~PHYS A124~~	~~Basic Physics II (3)~~
~~PHYS A124L~~	~~Basic Physics II Laboratory (1)~~
	or
PHYS A211	General Physics I (3)
PHYS A211L	General Physics I Laboratory (1)
~~PHYS A212~~	~~General Physics II (3)~~
~~PHYS A212L~~	~~General Physics II Laboratory (1)~~

~~*These credits must be in addition to the 7 Natural Sciences credits taken to complete the General Education Requirement.*~~

2. Complete the following (~~18~~ 21 credits):

CSE A102	Introduction to Computer Systems	1
ENGL A212	Technical Writing	3
ENGR A161	Engineering Practices II	3
GEO A158	Geomatics Computer Fundamentals	~~3~~ 1
MATH ~~A200~~ A109	Prec~~C~~alculus ~~I~~ †	~~4~~ 6
MATH A272~~01~~	Applied Calculus ◊ ~~II~~	~~4~~ 3
~~MATH~~ STAT ~~A202~~ A253	~~Calculus III~~Applied Statistics for the Sciences	4

† MATH A107 College Algebra and MATH A108 Trigonometry (both) may be substituted for MATH A109 Precalculus.
◊ MATH A200 Calculus I may be substituted for MATH A272 Applied Calculus.

~~3. Complete one of the following: 3~~

~~MATH A302~~	~~Ordinary Differential Equations (3)~~
~~MATH A314~~	~~Linear Algebra (3)~~
~~STAT A307~~	~~Probability (3)~~

~~4.~~3. Complete all of the following (~~62~~ 71 credits):

BA/JUST A241	Business Law I	3
GEO A137	Principles of Mapping	3
GEO A146	Surveying Computations	3
GEO A155	Fundamentals of Surveying	3

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GEO A157	Analytical and Digital Cartography	3
~~GEO A166~~	~~Advanced Surveying~~	~~4~~
GEO A167	Remote Sensing and Image Analysis	4
GEO A248	Digital Terrain Cartography	3
GEO A256	Municipal and Civil Geomatics	~~4~~ 3
GEO A257	Elements of Photogrammetry	3
GEO A266	Advanced Surveying	3
GEO A267	Boundary Law I	4
GEO A301	Professional Development I	1
GEO A302	Professional Development 2	1
GEO A303	Professional Development 3	1
GEO A355	Land Development and Design	3
GEO A359	Geodesy and Map Projections	3
GEO A365	Geomatics Adjustment and Analysis	4
GEO A457	Boundary Law II	4
GEO A460	Geomatics Design Project	3
GEO A466	Geopositioning	~~4~~ 3
GIS A268	Elements of Geographic Information Systems (GIS)	4
GIS A366	Spatial Information Analysis and Modeling	3
GIS A468	Integration of Geomatics Technologies	3
PHIL A405	Professional Ethics	3

~~5.~~4. Complete at least ~~12~~ 11 credits in one of the emphasis areas.

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Surveying Emphasis

a. Complete the following (~~6~~ 4 credits):

~~GEO A358~~	~~Programming for Digital Cartography~~	~~3~~
GEO A433	Hydrographic Surveying	3
PEP A110	Remote First Aid (1)	
	or	1
PEP A112	First Aid and CPR for Professionals (1)	

b. Complete ~~6~~ 7 credits from the following: ~~6~~ 7

GEO A354	City and Regional Planning (3)
GEO A358	Programming for Digital Cartography (3)
~~GEO A456~~	~~Geomatics and Civil Design (3)~~
GEO A459	Geodetic Geomatics (3)
GEO A467	Analytical and Digital Photogrammetry (3)
GEO A490	Selected Advanced Topics in Geomatics (1-6)
GIS A369	Land Information Systems (3)
GIS A375	GIS Applications I (3)
GIS A433	Coastal Mapping (3)
GIS A470	GIS Applications II (4)

Geographic Information Systems (GIS) Emphasis

a. Complete the following (3 credits):

GIS A458	Design and Management of Spatial Data	3

b. Complete ~~9~~ 8 credits from the following: ~~9~~ 8

GIS A367	GIS and Remote Sensing (3)
GIS A369	Land Information Systems (3)
GIS A370	GIS and Remote Sensing for Natural Resources (3)
GIS A375	~~GIS and Public Health~~GIS Applications I (3)
GIS A433	~~GIS and the Marine Environment~~Coastal Mapping (3)
~~GIS A468~~	~~Integration of Geomatic Technologies (3)~~
GIS A470	~~GIS for Facility Management and Transportation Systems~~GIS Applications II (4~~3~~)
GIS A490	Selected Advanced Topics in GIS (1-6)
PEP A110	Remote First Aid (1)
	or
PEP A112	First Aid and CPR for Professionals (1)

~~6.~~5. A total of 131 credits is required for the degree, of which 42 must be upper division.

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Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code			1c. Department BSE
2. Course Prefix CSE	3. Course Number 102	4. Previous Course Prefix & Number Not Applic	5a. Credits/CEUs 1	5b. Contact Hours (Lecture + Lab) (1+0)

6. Complete Course Title
Introduction to Computer Systems
Intro to Computer Systems
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☐ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
  ☐ Class ☐ Level
  ☐ College ☐ Major
☐ Other (please specify)
☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☐ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2012 To: /9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelor of Science, Geomatics	231	3/11/2011	N.W.J. Hazelton
2.			
3.			

Initiator Name (typed): N.W.J.Hazelton Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/23/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/23/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduction to hardware, operating systems, networking, security, storage, maintenance and related topics in computer systems. This course prepares students for applications across a wide range of computer systems for use in Geomatics and GIS courses, as well as basic system management in field situations for Geomatics/GIS applications.

16a. Course Prerequisite(s) *(list prefix and number)*

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This is an introductory course for Geomatics students.

Initiator (faculty only) Date
N.W.J. Hazelton
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage, School of Engineering

CSE A102
Introduction to Computer Systems

Date: March 25, 2011

Course Number: CSE A102
Course Title: Introduction to Computer Systems
Credits: 1 (1+0)

I. Course Description

Introduction to hardware, operating systems, networking, security, storage, maintenance and related topics in computer systems. This course prepares students for applications across a wide range of computer systems for use in Geomatics and GIS courses, as well as basic system management in small office and field situations.

II. Course Design

A. Designed for Bachelor of Science in Geomatics.
B. One (1) credit course (1 lectures + 0 laboratory)
C. 50 minutes of lecture per week for 15 weeks = 750 minutes per semester. (1+0)
D. Required course for Geomatics majors.
E. Fees: Yes.
F. Grading Basis: A - F
G. This course will be offered in the regular semester timeframe.
H. This is a new course.
I. Coordinated with: School of Engineering and faculty list-serve.

III. Course Prerequisites

N/A

IV. Guidelines for Evaluation

Methods of evaluation may include but are not limited to:

- Assignments
- Exams
- Labs

V. Course Outline

1. Computer Hardware
    1.1 Architecture and components
    1.2 Mass storage
    1.3 Memory
    1.4 Monitors and video cards
    1.5 Connectivity
    1.6 Input and output devices
    1.7 Handhelds, data recorders, calculators

2. Operating Systems
    2.1 Basic concepts
    2.2 Operations
    2.3 Protection methods
    2.4 OS APIs
    2.5 Example OSs

3. Storage
    3.1 Disks and related devices
    3.2 Partitioning
    3.3 Hierarchical and other file systems
    3.4 Fragmentation
    3.5 Protection
    3.6 CD and DVD

4. Networks
    4.1 Protocols and addressing
    4.2 Connections: wired and wireless
    4.3 Topologies
    4.4 Security
    4.5 Applications

5. Security
    5.1 Threats and rationale
    5.2 Firewalls
    5.3 Software protection
    5.4 Protocols and policies

6. Application software
    6.1 Software and firmware
    6.2 Software installation /updating/un-installation
    6.3 Licensing types and methods

7. Computer maintenance
    7.1 Setting up a new computer
    7.2 Routine maintenance, performance and speed optimization
    7.3 Hardware diagnostics and upgrades

8. Other Topics (may include)
    8.1 Cloud computing
    8.2 Web computing
    8.3 HTML, XML and LandXML
    8.4 Mobile computing
    8.5 Trends and the future of information technologies

VI. Instructional Goals, Student Outcomes, and Assessment Measures

A. Instructional Goals

The instructor will:

1. Show and explain hardware and software components of a modern computer
2. Demonstrate how to network computers
3. Identify computer and network security issues
4. Explain basic computer maintenance
5. Install and maintain application software

B. Student Outcomes and Assessment Measures

Student Outcomes	**Assessment Procedures**
Upon successful completion of the course, the student will be able to do the following:	The outcome will be assessed by one or more of the following
1. Assemble computer components into a working unit	Homework, labs, assignments, projects, exam, tests
2. Install, uninstall and maintain OS and application software	Homework, labs, assignments, projects, exam, tests
3. Create wired and wireless networks	Homework, labs, assignments, projects, exam, tests
4. Implement and maintain basic security systems for a range of computers	Homework, labs, assignments, projects, exam, tests
5. Provide basic maintenance for modern computers and networks	Homework, labs, assignments, projects, exam, tests

VII. Suggested Text(s)

1. Shelly, G. and Vermaat, M., *Discovering Computers 2009 Complete,* Course Technology, 2008.

VIII. Bibliography

1. White, R. and Downs, T., *How Computers Work*, 9th Edition, Que, 2007.
2. Norton, P., *Peter Norton's Introduction to Computers,* 6th edition, Career Education, 2004

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR		1b. Division No Division Code		1c. Department BSE
2. Course Prefix CSE	3. Course Number A335	4. Previous Course Prefix & Number N/A	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (3+0)

6. Complete Course Title
Operating Systems Engineering
Operating Systems Engineering
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. SOENGR/BSE	357	3/14/2011	Faculty/Dean
2.			
3.			

Initiator Name (typed): Sun-il Kim Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 3/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/29/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introductory course on the inner workings of an operating system from an enginering perspective. Students will create different modules of an operating system, including memory management, threading, networking, and user interface in an environment of engineering applications and designed for hardware in the engineering field and other CSE courses.

16a. Course Prerequisite(s) *(list prefix and number)*
CSE A225

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
To allow students to develop advanced solutions for engineering design projects, students in CSEA335 need to have the hardware design concepts and low-level programming experience which are covered in CSE A225. This is a part of our continuous improvement process in accordance with ABET accreditation.

Initiator (faculty only) Date
Sun-il Kim
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE
University of Alaska Anchorage, School of Engineering

CSE A335
Operating Systems Engineering

Date: March 11, 2011

Course Number: CSE A335
Course Title: Operating Systems Engineering
Credits: 3 (3+0)

I. Course Description

Introductory course on the inner workings of an operating system from an enginering perspective. Students will create different modules of an operating system, including memory management, threading, networking, and user interface in an environment of engineering applications and designed for hardware in the engineering field and other CSE courses.

II. Course Design

A. Designed for Bachelor of Science in Engineering (BSE) students with emphasis in Computer Systems Engineering (CSE).
B. Three (3) credit course (3 lectures + 0 laboratory)
C. Total time of student participation: 105 hours
   1) Lecture: 45 hours
   2) Lab:
   3) Outside of class: 90 hours
D. Required course for BSE majors with emphasis in CSE.
E. Fees: Yes.
F. Grading Basis: A - F
G. This course will be offered in the regular semester timeframe.
H. This is an existing course, with the prerequisite being changed.
I. Coordinated with: School of Engineering and faculty list-serve.

III. Course Prerequisites

CSE A225

IV. Guidelines for Evaluation

Methods of evaluation may include but are not limited to:

- Assignments
- Exams
- Projects

V. Course Outline

1. Processes, Threads
2. Inter-process Communication
3. Thread Synchronization
   - Engineering Application and Design Project 1 – Implementation of multi-threaded programs with ThreadPool for Mobile devices
4. Monitors, Semaphores
5. CPU Scheduling
   - Engineering Application and Design Project 2 – Power-aware Processor Scheduling on Mobile Devices
6. Deadlock
7. Memory Management
8. Virtual Memory
   - Engineering Application and Design Project 3 – Utilizing Solid State Drives or Flash Memory for Virtual Memory Implementation in Embedded Systems
9. Remote Procedure Calls
10. Distributed Operating Systems
    - Engineering Application and Design Project 4 – Accessing Peripheral Devices Connected to Remote Systems
11. Fault Tolerance
12. Operating System Security
    - Engineering Application and Design Project 5 – Implementing Security Protocols via devices such as FPGA (Field-Programmable Gate Array)
13. Engineering applications and design

VI. Instructional Goals and Student Outcomes

A. Instructional Goals

1. Provide students with the necessary skills to understand the inner workings of operating systems.
2. Demonstrate by example the use of locks, semaphores, and monitors for synchronization in hardware.
3. Aid students in incorporating pieces of an operating system together to build a working operating system that executes on a device.
4. Introduce students to writing algorithms for multi-threaded processes communicating with peripheral devices.
5. Allow students to implement an operating system by integrating existing algorithms into a larger application.

B. Student Outcomes

Upon completion of this course, students will be able to:

Outcome	Assessment
Design and implement multi-processing in an operating system.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

Identify different approaches for implementing locking and virtual memory management in an operating system.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Implement functioning operating system components that communicate with peripheral devices, such as FPGAs.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Implement operating systems components in embedded devices such as mobile phones.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Integrate different pieces of an operating system into an existing codebase as well as create a distributed operating system to solve an engineering problem in groups.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

VII. Suggested Text

1. Tanenbaum, Andrew. Modern Operating Systems, 3rd Edition, Prentice Hall, 2007.
2. Love, R., Linux Kernel Development, 3rd edition, Addison-Wesley, 2010.
3. J. Corbet, A. Rubini and G. Kroah-Hartman, Linux Device Drivers, 3rd edition, O'Reilly, 2005.

VIII. Bibliography

1. D. P. Bovet and M. Cesati, Understanding the Linux Kernel, 3rd edition, O'Reilly, 2005.
2. Craig, Iain D. Formal Refinement for Operating System Kernels, Springer, 2007.
3. Etter, Delores and Jeanine Ingber. Engineering Problem Solving with C++, Prentice Hall, 2003.
4. Kalyanmoy, Deb. Optimization for Engineering Design: Algorithms and Examples, Prentice Hall, 2004.
5. Sinha, Pradeep. Distributed Operating Systems: Concept and Design, Wiley & Sons, 1996.
6. Stallings, William. Operating Systems: Internals and Design Principles, 6th Edition, Prentice Hall, 2008.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	BSE

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
CSE	A465	N/A	3	(3+0)

6. Complete Course Title
Network Security
Network Security
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☐ Credits ☐ Contact Hours
☐ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☐ Course Description ☒ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. SOENGR/BSE	358	3/14/2011	Faculty/Dean
2.			
3.			

Initiator Name (typed): Jeff Miller Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: 3/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/29/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Analysis of network attack techniques and methods to defend against them including firewalls, virtual private networks, network intrusion detection, and denial of service.

16a. Course Prerequisite(s) *(list prefix and number)*
CSE A355

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
The current prerequisite for this course is a non-existing CSE course (with the label CSE 455). The material needed by the students before taking this course is covered in CSE 355, which includes knowledge of data and communication networks and the hardware device design concepts that are used in various aspects of networking.

Initiator (faculty only) Date
Jeff Miller
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE
University of Alaska Anchorage, School of Engineering

CSE A465
Network Security

Date: March 11, 2011

Course Number: CSE A465
Course Title: Network Security
Credits: 3 (3+0)

I. Course Description

Analysis of network attack techniques and methods to defend against them including firewalls, virtual private networks, network intrusion detection, and denial of service.

II. Course Design

A. Designed for individuals majoring in the Bachelor of Science in Engineering degree.
B. Three (3) credit course (3 lecture + 0 laboratory)
C. Total time of student participation: 135 hours
   1) Lecture: 45 hours
   2) Lab: 0 hours
   3) Outside: 90 hours
D. Elective for the Bachelor of Science in Engineering degree with specializations in Computer Systems Engineering and Electrical Engineering.
E. Fees: Yes
F. Grading Basis: A - F
G. May be scheduled in any time frame but not less than 1 week per credit.
H. This is an existing class, with the prerequisite being updated.
I. Coordinated with: School of Engineering, and faculty list-serve.
J. Course outcomes meet the criteria listed in the Curriculum Handbook for a 400 level course.

III. Course Prerequisites:

CSE A355

IV. Guidelines for Evaluation:

Methods of evaluation may include but are not limited to:

- Assignments
- Exams

V. Course Outline

A. Lecture

1. Network Security Introduction
2. TCP/IP Attacks (Transmission Control Protocol/Internet Protocol)
3. TCP Misbehavior (
4. PKI Overview (Public Key Infrastructure)
5. SSL/TLS Security Issues (Secure Socket Layer/Transport Layer Security)
6. Secure Sensor Networks
7. Intrusion Detection
8. NIDS Evasion (Network Intrusion Detection System)
9. DDoS (Distributed Denial of Service)
    a. Attack Tools
    b. IP Traceback and Pushback
    c. PI (Pin Identification)
    d. Shrew Attack and SIFF (Syndication Interchange File Format)
10. TCP and Trusted Hardware (Transmission Control Protocol)
11. Multicast Stream Signatures
12. Key Agreements
13. Routing Protocols
14. Worm Propagation
15. Anonymous Communication
16. Security Administration

VI. Instructional Goals and Student Outcomes

A. Instructional Goals

1. Provide an understanding of security problems encountered with computer network system.
2. Provide an understanding of the how to prevent network security breaches.
3. Provide a practical level of understanding of how to trace and identify network security threats.
4. Instill the importance of professionalism in the students and in their interaction with others.

B. Student Outcomes

Upon completion of this course, students should be able to:

Outcome	Assessment
Identify potential security problems with computer networking systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Design security network systems resistant to attack.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Determine the source of network security threats.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Demonstrate professionalism in interactions with colleagues, faculty, and staff.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

VII. Suggested Texts

1. *Computer Networks: A Top Down Approach*, B. Forouzan, F. Mosharraf, McGraw Hill, 2012.
2. *Cryptography and Network Security*, W. Stallings, Prentice Hall, 3rd Edition, 2002.
3. *Computer Networks: An Open Source Approach*, Y. Lin, R. Hwang, F. Baker, McGraw Hill, 2012.
4. *Network Security: Private Communication in a public World*, C. Kaufman, R. Perlman, M. Speciner, Pearson Education, 2nd Edition, 2002.

VIII. Bibliography

1. *Security+* FastPass, J. Stewart, Wiley Publishing-Sybex, 2004.
2. *Secure Broadcast Communication: In Wired and Wireless Networks*, A. Perrig and J.D. Tygar, Kluwer Academic Publisers, 2002.
3. *Security Engineering: A Guide to Building Dependable Distributed Systems*, R. Anderson, Wiley, 2001.
4. *Security in Computing*, C. Pfleeger and S. Lawrence, Prentice Hall, 3rd Edition, 2002.
5. *Firewalls and Internet Security: Repelling and Wily Hacker*, W. Cheswick et al., Addison-Wesley, 2nd Edition, 2003.
6. *Cryptography Decrypted*, H.X. Mel and D. Baker, Addison-Wesley, 1st Edition, 2000.
7. *Practical Cryptography*, N. Ferguson and B. Schneiser, Wiley, 1st Edition, 2003.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	BSE

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
CSE	A480	N/A	3	(3+0)

6. Complete Course Title
Engineering Software/Hardware Systems
Engr Software/Hardware System
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☐ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
  ☐ Class ☐ Level
  ☐ College ☐ Major
☐ Other (please specify)

☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☐ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. SOENGR/BSE		3/14/2011	Faculty/Dean
2.			
3.			

Initiator Name (typed): Sun-il Kim Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 3/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/29/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Modern systems abstractions and challenges in developing scalable solutions for increasingly complex computing needs from systems software design perspective. Relationships between software and hardware abstractions are studied while focusing on engineering tradeoffs between correctness and performance. Advanced topics including parallel systems and multi-core models.

16a. Course Prerequisite(s) *(list prefix and number)*
CSE A215, CSE A335

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course will be a new upper level CSE course for the Bachelor of Science in Engineering Program, following the ABET accreditation review and contiuous improvement process.

_______________________________________ Date
Initiator (faculty only)
Sun-il Kim
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved _______________________________ Date
Department Chairperson

☐ Approved
☐ Disapproved _______________________________ Date
Curriculum Committee Chairperson

☐ Approved
☐ Disapproved _______________________________ Date
Dean/Director of School/College

☐ Approved
☐ Disapproved _______________________________ Date
Undergraduate/Graduate Academic Board Chairperson

☐ Approved
☐ Disapproved _______________________________ Date
Provost or Designee

COURSE CONTENT GUIDE
University of Alaska Anchorage, School of Engineering

CSE A480
Engineering Software/Hardware Systems

Date: March 11, 2011

Course Number: CSE A480
Course Title: Engineering Software/Hardware Systems
Credits: 3 (3+0)

I. Course Description

Modern systems abstractions and challenges in developing scalable solutions for increasingly complex computing needs from systems software design perspective. Relationships between software and hardware abstractions are studied while focusing on engineering tradeoffs between correctness and performance. Advanced topics including parallel systems and multi-core models.

II. Course Design

A. Designed for Bachelor of Science in Engineering (BSE) students with emphasis in Computer Systems Engineering (CSE).
B. Three (3) credit course (3 lectures + 0 laboratory)
C. Total time of student participation: 105 hours
   1) Lecture: 45 hours
   2) Lab:
   3) Outside of class: 90 hours
D. Required course for BSE majors with emphasis in Computer Systems Engineering.
E. Fees: Yes.
F. Grading Basis: A - F
G. This course will be offered in the regular semester timeframe.
H. This is a new course.
I. Coordinated with: School of Engineering and faculty list-serve.

III. Course Prerequisites

CSEA215 and CSE A335

IV. Guidelines for Evaluation

Methods of evaluation may include but are not limited to:

- Assignments
- Exams
- Projects

V. Course Outline

1. Operating systems review

2. Systems design fundamentals: Case study with C/C++ and Linux kernel
   - Modular design
   - Device and hardware abstractions
   - Interrupts and exceptions: systems-level to language level
   - Interface abstractions
   - Memory management
   - Reusability
   - Access control
   - Virtualization
3. Understanding performance
   - Models of abstraction
   - Software/hardware performance
   - Systems reliability and correctness vs performance goals
   - Tools for profiling and tuning
   - Systems analysis: Availability, reliability, dependability, scalability and performance
4. Advanced topics in modern trends: Towards parallel systems and its challenges:
   - Shared memory and synchronization revisited
   - Architectural issues
   - Transactional memory: hardware vs software
   - Distributed computing environments
   - Models for programming parallel systems

VI. Instructional Goals and Student Outcomes

A. Instructional Goals

1. Provide students with the necessary skills to understand the inner workings and the design principles behind modern systems and languages.
2. Introduce tools and techniques for quantifying various performance parameters (such as computational efficiency and reliability).
3. Introduce testing and debugging techniques for solving systems-level problems.
4. Introduce the state-of-the art solutions and current trends related to systems software and hardware design through the use of technical publications from international journals and conferences.

B. Student Outcomes

Upon completion of this course, students will be able to:

Outcome	**Assessment**
Quantitatively reason about the engineering tradeoffs between performance-related parameters.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Design and implement or modify various systems software components and related hardware/device abstractions.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

Profile, test and debug systems software.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Find and understand new solutions to technical problems related to systems software and hardware engineering (by utilizing technical publications from internationally recognized journals and conferences in computing research), and implement the solution or recreate the experiments.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

VII. Suggested Text

1. Englander, I., The Architecture of Computer Hardware, Systems Software, & Networking, 4th edition, 2009.
2. Liu, H., Software Performance and Scalability: A Quantitative Approach, Wiley, 2009.
3. Love, R., Linux Kernel Development, 3rd edition, Addison-Wesley, 2010.
4. Various technical publications selected from IEEE journals and conferences that cover latest trends and the state of the art developments in systems design (Our students have free access to these publications through the UAA Consortium Library).

VIII. Bibliography

1. Dollimore, J., Kindberg, T. and Coulouris, G., Distributed Systems: Concepts and Designs, 4th edition, Addison-Wesley, 2005.
2. Rochkind, Marc J., Advanced UNIX Programming, 2nd edtion, Addison-Wesley, 2004.
3. D. P. Bovet and M. Cesati, Understanding the Linux Kernel, 3rd edition, O'Reilly, 2005.
4. Stroustrup, B., The Design and Evolution of C++, Addison-Wesley, 1994.
5. Pfister, G., In Search of Clusters: The Ongoing Battle in Lowly Parallel Computing, 2nd edition, Prentice Hall, 1998.
6. Venkateswarian, S., Essential Linux Device Drivers, 1st edition, Prentice Hall, 2008.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	BSE

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ENGR	A470	ENGR A494A	1	(0+3)

6. Complete Course Title
Engineering Internship
Engineering Internship
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☒ Course Number
- ☐ Contact Hours
- ☒ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status Yes # of Repeats 1 Max Credits 2

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. SOENGR/BSE		3/14/2011	Faculty/Dean
2.			
3.			

Initiator Name (typed): Sun-il Kim Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: 3/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/28/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Professional work experienced designed to give students the opportunity to investigate the practical applications of engineering design within engineering organizations. Assignments and projects arranged with cooperating organizations and agencies.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
N/A		N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is being changed to a permanent course from a temporary course.

Initiator (faculty only) Date
Sun-il Kim
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE
University of Alaska Anchorage, School of Engineering

ENGR A470
Engineering Internship

Date: March 25, 2011

Course Number: ENGR A470
Course Title: Engineering Internship
Credits: 1 (0 + 3)

I. Course Description

Professional work experienced designed to give students the opportunity to investigate the practical applications of engineering design within engineering organizations. Assignments and projects arranged with cooperating organizations and agencies.

II. Course Design

A. Designed for individuals majoring in the Bachelor of Science in Engineering degree.
B. One (1) credit course (0 hours lecture + 3 hours laboratory)
C. Total time of student participation: 135 hours
    1) Lecture:
    2) Lab: 45 hours
    3) Outside: 45 hours
D. Not required for the Bachelor of Science in Engineering.
E. Fees: Yes
F. Grading Basis: A - F
G. May be scheduled in any time frame but not less than 1 week per credit.
H. This is an existing course becoming a permanent course.
I. Coordinated with: School of Engineering, and UAA list serve.
J. Course needed to enable students to work with companies that require an internship course registration with the university. Course can be taken up to two times (max of 2 credits) for credit toward the degree.

III. Course Prerequisites

Junior or senior standing, or instructor permission.

IV. Guidelines for Evaluation

Methods of evaluation may include but are not limited to:

- Assignments
- Exams
- Laboratory Reports
- Projects
- Presentations

V. Course Outline

Dependent upon agreement with sponsoring organization, agency, or company and may vary.

VI. Instructional Goals and Student Outcomes

A. Instructional Goals

The instructor will present the necessary tools and information that will enable students to:

1. Participate in opportunities to use academic knowledge in a working environment.

B. Student Outcomes

At the end of the course, the student who has mastered the course material will be able to:

Outcome	Assessment
Demonstrate the application of academic knowledge in a working environment.	This outcome will be assessed through discussions and other means determined by coordination between the employer and faculty.

VII. Suggested Texts

Dependent upon agreement with sponsoring organization, agency, or company and may vary.

VIII. Bibliography

Dependent upon agreement with sponsoring organization, agency, or company and may vary.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	BSE

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
EE	A203	N/A	4	(3+3)

6. Complete Course Title
Fundamentals of Electrical Engineering I
Fund. of Elect. Engr. I
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. BSE	381	3-20-2011	Jens Munk
2.			
3.			

Initiator Name (typed): Jens Munk Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: 3-20-2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3-28-2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduces components, circuits, and methods of analysis of DC and AC electrical systems. Covers node voltage and mesh current techniques, operation amplifiers, RL/RC/RLC natural and step response, analysis of AC circuits with complex impedance and phasors, and AC Power.

16a. Course Prerequisite(s) *(list prefix and number)*
MATH A201

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Updated course content guide and prerequisites to reflect changes in the structure of the BSE/EE program

Initiator (faculty only) Date
Jens Munk
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE
University of Alaska Anchorage, School of Engineering

EE A203
Fundamentals of Electrical Engineering I

Date: 25 March 2011

Course Number: EE A203
Course Title: Fundamentals of Electrical Engineering I
Credits: 4 (3+3)

I. Course Description

Introduces components, circuits, and methods of analysis of DC and AC electrical systems. Covers node voltage and mesh current techniques, operation amplifiers, RL/RC/RLC natural and step response, analysis of AC circuits with complex impedance and phasors, and AC Power.

II. Course Design

A. Designed for individuals majoring in the Bachelor of Science in Engineering degree with an Electrical Engineering or Computer Systems Engineering specialization.
B. Four (4) credit course (3 lecture + 3 laboratory)
C. Total time of student participation: 180 hours
   1) Lecture: 45 hours
   2) Lab: 45 hours
   3) Outside: 90 hours
D. Required for the Bachelor of Science in Engineering degree with an Electrical Engineering or Computer Systems Engineering specialization.
E. Fees: Yes
F. Grading Basis: A - F
G. May be scheduled in any time frame but not less than 1 week per credit.
H. This is an update to an existing course at UAA.
I. Coordinated with: UAA list serve.
J. The course requires foundational knowledge in mathematics. It prepares students for more advanced courses in electronic circuits and signals.

III. Course Prerequisites:

MATH A201

IV. Guidelines for Evaluation:

Methods of evaluation may include but are not limited to:

- Assignments
- Quizzes
- Exams

- Laboratory Exercises
- Projects

V. Course Outline

A. Lecture

1. Foundational physics
   i. electron charge/mass
   ii. two particle electrostatics
   iii. electric fields/potential
   iv. voltage and current
   v. power and energy
2. Circuit elements
   i. voltage and current sources
   ii. resistance and Ohm’s law
   iii. Kirchhoff’s laws
3. Simple circuits
   i. resistors in series and parallel
   ii. voltage and current divider
   iii. measuring voltage, current, and resistance
   iv. delta-wye transformations
4. Circuit analysis techniques
   i. node voltage
   ii. mesh current
   iii. source transformations
   iv. Thevenin and Norton equivalents
   v. superposition
5. Operational amplifiers
6. Inductance and capacitance
   i. inductors
   ii. capacitors
   iii. series and parallel combinations
   iv. mutual inductance
7. First-order RL and RC circuits
   i. natural response
   ii. step response
   iii. sequential switching
8. Second-order RLC circuits
   i. response forms (overdamped, underdamped, critically-damped)
   ii. parallel RLC
   iii. series RLC
9. Sinusoidal steady-state analysis

i. properties of periodic waveforms
ii. sinusoidal response
iii. impedance
iv. phasors
v. circuit analysis techniques with impedance and phasors

10. Sinusoidal power calculations
    i. instantaneous power
    ii. average power
    iii. RMS voltage and current in power calculations
    iv. complex power calculations
    v. maximum power transfer

B. Laboratory

1. Safety and equipment
2. Voltage and current measurements
3. Kirchhoff's laws
4. Node voltage and mesh current analysis
5. CAD/Spice circuit construction and analysis
6. Operational amplifiers
7. Inductors and capacitors
8. First order circuits
9. Second order circuits
10. AC circuits
11. Impedance and power factor

VI. Instructional Goals and Student Outcomes

A. Instructional Goals

1. Provide an understanding of physical properties of electronic circuits including voltage, current, resistance, and power.
2. Present circuit analysis techniques including voltage divider, current divider, KCL, KVL, node voltage, mesh current, and superposition.
3. Present methods for simplifying circuits including equivalent resistance/capacitance/inductance/impedance, Delta-Wye transformations, source transformations, and Thevenin and Norton equivalents.
4. Provide an overview of ideal operation amplifiers, analysis techniques, and basic circuit configurations.
5. Present techniques for analyzing the natural and step response of first-order and second-order circuits containing inductors, capacitors, and/or resistors.
6. Provide an understanding of AC steady-state circuits, their analysis with phasors and impedance, and complex power.
7. Provide an understanding of the importance of proper laboratory procedures and safety.

8. Instill the importance of professionalism in the students and in their interaction with others.

B. Student Outcomes

Upon completion of this course, students will be able to do the following.

Outcome	**Assessment**
Express mathematically the physical relationships between voltage, current and power in passive circuit elements: resistors, capacitors, inductors, and power supplies.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Apply Kirchhoff's laws and Ohm's laws to analyze circuits.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Calculate unknown circuit parameters using common circuit analysis techniques: voltage/current divider, node voltage, mesh current, superposition, and Norton and Thevenin equivalent circuits.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Apply simplifying assumptions and analysis techniques to solve for unknown values in operational amplifier circuits.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Identify the name and function of common operational amplifier circuits: inverting amplifier, non-inverting amplifier, summing amplifier, difference amplifier.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Determine the form, amplitude and time constants for the transient behavior of natural and step response RC, RL and RLC circuits.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Analyze steady-state AC circuits containing resistors, capacitors, and inductors using complex impedances and phasors.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Analyze power supplied to and dissipated by AC circuits.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Operate electronic equipment in a laboratory environment without harm to themselves or damage to the equipment.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Construct circuits using both discrete components and simulation software, analyze the behavior of these circuits and report their findings in a proper format.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

VII. Suggested Texts

1. Nilsson, J. and Riedel, S. *Electric Circuits*, 9th edition. Prentice Hall, Upper Saddle River, NJ, 2010.

VIII. Bibliography

1. Irwin, J. and Kerns, D. *Introduction to Electrical Engineering*, 5th edition. Prentice Hall, Upper Saddle River, NJ, 1996.
2. Nahvi, M. and Edminster, J. *Schaum's Outline of Electric Circuits*, 4th edition. McGraw-Hill, Columbus, OH, 2002.
3. Hambley, A. *Electrical Engineering: Principles and Applications*, 4th edition, Prentice Hall, Upper Saddle River, NJ, 2007.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code			1c. Department BSE
2. Course Prefix EE	3. Course Number A306	4. Previous Course Prefix & Number N/A	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (3+0)

6. Complete Course Title
Dynamics of Systems
Dynamics of Systems
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☐ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☐ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☒ Cross Listed with ME A306
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. BSE/ME A471	421	03/01/2011	Jeffrey Hoffman
2. BSE/EE		03/01/2011	Jens Munk
3.			

Initiator Name (typed): Jeffrey Hoffman Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 03/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/28/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Modeling of mechanical, electrical, fluid, and thermal elements and systems. Study of free and forced response by the Laplace transform, transfer function, and state space models. Time domain and frequency domain responses. Coupled systems, system analogy, sensing, and actuation principles.

16a. Course Prerequisite(s) *(list prefix and number)*
MATH A302; ES A210 or ES A208; ES A309 or EE 203

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
New required course in Mechanical Engineering to enable sequencing with ME A471 and ME A408.

Initiator (faculty only) Date	☐ Approved ☐ Disapproved Dean/Director of School/College Date
Jeffrey Hoffman Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved Department Chairperson Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date
☐ Approved ☐ Disapproved Curriculum Committee Chairperson Date	☐ Approved ☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

1. Change Date: March 2011

2. Course Information

A.	College:	School of Engineering
B.	Course Prefix:	EE
C.	Course Number:	A306
D.	Number of Credits and Contact Hours	
	Number of Credits:	3
	Contact Hours:	3 + 0
E.	Course Title:	Dynamics of Systems
F.	Grading Basis:	A-F
G.	Implementation Date:	Fall 2011
H.	Cross Listing:	ME A306
I.	Course Description:	Modeling of mechanical, electrical, fluid, and thermal elements and systems. Study of free and forced response by the Laplace transform, transfer function, and state space models. Time domain and frequency domain responses. Coupled systems, system analogy, sensing, and actuation principles.
J.	Course Prerequisites:	MATH A302; ES A210 or ES A208; ES A309 or EE A203
K.	Course Fee:	Yes

3. Course Level Justification

This course incorporates knowledge from prerequisite courses and utilizes basic concepts characterizing mechanical, electrical, fluid, and thermal elements to derive mathematical models of the corresponding individual systems, as well as of coupled (mixed or combined) systems. The material prepares the student to be able to model, analyze, and design a variety of systems through their dynamic response by employing analytical/numerical procedures and tools available in MATLAB and Simulink.

4. Instructional Goals and Student Outcomes

Instructional Goals

The instructor will:

1. Present the main engineering systems (mechanical, electrical, fluid, and thermal) by means of similar mathematical models and analysis methods.
2. Provide an understanding of utilizing the Laplace transform, the transfer function, the state space model, and the complex transfer function in deriving mathematical models of dynamic systems.
3. Explain the fundamentals and the characteristics of evaluating the response of dynamic systems in the time domain and in the frequency domain.
4. Introduce modern tools of modeling, analyzing, and designing dynamic systems by using MATLAB and Simulink.

5. Identify the main concepts of coupled systems, sensing, and actuation.
6. Encourage individual problem solving approaches as well as team approaches to designing individual and coupled dynamic systems.

Student Outcomes
The student will be able to:

Outcome	Assessment
Comprehend the individual features as well as the common representations of dynamic mechanical, electrical, fluid, and thermal systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Apply simplifying assumptions to actual engineering systems to obtain physical models and mathematical models of individual (mechanical, electrical, fluid, and thermal) systems, as well as models of coupled systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Demonstrate proficiency in using various methods and modern computational tools to model, analyze, and design dynamic systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Understand the principles of coupled systems, which govern the behavior of sensors and actuators.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Demonstrate capabilities of working individually and in a team to solve a complex system dynamics project.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Interact professionally with colleagues and the instructor in critical analyses of dynamic systems applications.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

5. Evaluation and Assessment Methods

Students will be evaluated using a variety of tools at the instructor's discretion including critical discussions/analysis of concepts and applications, class project, in-class presentations, homework assignments, quizzes, midterm exams, and a final/comprehensive exam.

6. Topical Course Outline

A. Mechanical systems
   1. Elements: inertia, stiffness, damping, and forcing
   2. Free and forced responses of basic single degree-of-freedom systems
   3. Free and forced responses of multiple degree-of-freedom systems

B. Electrical systems
   1. Elements: resistor, capacitance, inductor, voltage/current source
   2. Circuits and networks

3. Operational amplifier circuits

C. Fluid and thermal systems
   1. Liquid elements and systems
   2. Pneumatic elements and systems
   3. Thermal elements and systems

D. The Laplace transform
   1. Direct and inverse Laplace transforms
   2. Solving differential equations and systems related to the mathematical models of dynamic engineering systems

E. Transfer function approach
   1. Transfer function concept
   2. Model formulation
   3. Time response

F. State space model
   1. State space concept
   2. Model formulation
   3. Time response

G. Frequency-domain analysis and design
   1. Complex transfer function
   2. Steady-state response under harmonic input

H. Coupled systems
   1. System analogies
   2. Electro-mechanical coupling
   3. Thermo-mechanical coupling
   4. Electro-thermo-mechanical coupling

7. Suggested Text

Lobontiu, N., *System Dynamics for Engineering Students: Concepts and Applications*, Elsevier, 2010.

8. Bibliography

Ogata, K., *System Dynamics*, Fourth Edition. Prentice Hall, 2005.
Palm, W.J., *System Dynamics*, Second Edition. McGraw-Hill, 2009.
Klee, H., *Simulation of Dynamic Systems with MATLAB and Simulink*. CRC Press, 2007.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code		1c. Department BSE	
2. Course Prefix EE	3. Course Number A353L	4. Previous Course Prefix & Number N/A	5a. Credits/CEUs 1	5b. Contact Hours (Lecture + Lab) (0+3)

6. Complete Course Title
Circuit Theory Lab
Circuit Theory Lab
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Electrical Engineering	?	3-20-2011	Jens Munk
2.			
3.			

Initiator Name (typed): Jens Munk Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3-20-2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3-28-2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Analysis of circuit behavior for passive and active filters. Application of Laplace and Fourier techniques to circuit characterization. This course serves as a laboratory component to EE A353.

16a. Course Prerequisite(s) *(list prefix and number)*
N/A

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
EE A353

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is intended to provide a hands on component to EE A353 Circuit Theory.

Initiator (faculty only) Date
Jens Munk
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE
University of Alaska Anchorage, School of Engineering

EE A353L
Circuit Theory Lab

Date: March 21, 2011

Course Number: EE A353L
Course Title: Circuit Theory
Credits: 1 (0+3)

I. Course Description

Analysis of circuit behavior for passive and active filters. Application of Laplace and Fourier techniques to circuit characterization. This course serves as a laboratory component to EE A353.

II. Course Design

A. Designed for individuals in the BSE program with a specialization in Electrical Engineering.
B. One (1) credit course (0 lecture + 3 laboratory)
C. Total time of student participation: 45 hours
   1) Lecture: 0 hours
   2) Lab: 45 hours
   3) Outside: 0 hours
D. Required for the BSE major for students specializing in Electrical Engineering.
E. Fees: Yes
F. Grading Basis: A - F
G. May be scheduled in any time frame but not less than 1 week per credit.
H. This is a new course to UAA and offers hands on applications to concepts learned in EE A353.
I. Coordinated with: BSE and UAA list serve.
J. Course content and outcomes meet the criteria listed in the Curriculum Handbook for a 300 level course.

III. Course Co-requisites:

EE A353

IV. Guidelines for Evaluation:

Methods of evaluation may include but are not limited to:

- Lab reports
- Assignments
- Exams

V. Course Outline

1. Frequency selective circuits and the transfer function.
2. Analysis of passive filters including:
   a) High-pass,
   b) Low-pass,
   c) Band-pass, and
   d) Notch filters.
3. Analysis of active filter circuits, including:
   a) High order op-amp filters, and
   b) nth order Butterworth filters.
4. Application of the Fourier series to circuit analysis.
5. Application of the Fourier and Laplace Transformations to circuit analysis.

VI. Instructional Goals and Student Outcomes

A. Instructional Goals

The instructor will:

1. Present applications of the Laplace transformation to circuit analysis.
2. Introduce the concept of the transfer function, and its relationship to the impulse response and the convolution integral.
3. Examine properties of frequency selective circuits, including both active and passive filters.
4. Introduce students to the Fourier series and Fourier transformation.

B. Student Outcomes

Upon completion of this course, students should be able to:

Outcome	Assessment
Apply the Laplace transform in analysis of electric circuits.	This outcome will be assessed through assignments, quizzes, exams, discussions, labs, and projects.
Analyze frequency selective circuits through the concept of the transfer function for low-pass, high-pass, band-pass and notch filters.	This outcome will be assessed through assignments, quizzes, exams, discussions, labs, and projects.
Analyze active filters, including nth order Butterworth.	This outcome will be assessed through assignments, quizzes, exams, discussions, labs, and projects.
Analyze circuit behavior for periodic inputs using the Fourier Series.	This outcome will be assessed through assignments, quizzes, exams, discussions, labs, and projects.
Analyze circuit behavior for step and impulse functions through application of the Fourier Transform.	This outcome will be assessed through assignments, quizzes, exams, discussions, labs, and projects.

VII. Suggested Text

1. *Electric Circuits 9th ed*., Nilsson, J. W., and Riedel, S. A., Prentice Hall, 2011.

VIII. Bibliography

1. *Basic Engineering Circuit Analysis, 10th Edition*, J. D. Irwin, and R. M. Nelms, John Wiley & Sons, Inc., 2011.
2. *Signals and Systems, 2nd Edition,* Oppenheim, A. V., and Willsky A. S., Prentice Hall, 1997.
3. *The Fourier Integral and its Applications*, Papoulis, A., McGraw-Hill, 1962.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	BSE

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
EE	A407	N/A	3	(3+0)

6. Complete Course Title
Power Distribution
Power Distribution
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Electrical Engineering	?	3-20-2011	Jens Munk
2.			
3.			

Initiator Name (typed): Jens Munk Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3-20-2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3-28-2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Analysis of electrical power distribution and control systems, power flow control, symmetrical faults, power interruption, voltage variations, distributed generation, and economic dispatch with computer-aided analysis.

16a. Course Prerequisite(s) *(list prefix and number)*
EE A204, EE A353

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Updated course content guide and prerequisites to reflect changes in the structure of the BSE/EE program

Initiator (faculty only) Date
Jens Munk
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE
University of Alaska Anchorage, School of Engineering

EE A407
Power Distribution

Date: 21 March 2011

Course Number: EE A407
Course Title: Power Distribution
Credits: 3 (3+0)

I. Course Description

Analysis of electrical power distribution and control systems, power flow control, symmetrical faults, power interruption, voltage variations, distributed generation, and economic dispatch with computer-aided analysis.

II. Course Design

A. Designed for individuals majoring in the Bachelor of Science in Engineering.
B. Three (3) credit course (3 lecture + 0 laboratory)
C. Total time of student participation: 135 hours
   1) Lecture: 45 hours
   2) Lab: 0 hours
   3) Outside: 90 hours
D. Elective for the Bachelor of Science in Engineering degree.
E. Fees: Yes
F. Grading Basis: A - F
G. May be scheduled in any time frame but not less than 1 week per credit.
H. Coordinated with: BSE program and UAA list serve.
I. Course outcomes meet the criteria listed in the Curriculum Handbook for a 400 level course.

III. Course Prerequisites:

EE A204, EE A353

IV. Guidelines for Evaluation:

Methods of evaluation may include but are not limited to:

- Assignments
- Exams
- Projects

V. Course Outline

A. Lecture
1. Terminology
2. Power Components
3. Voltage Sags and Interruptions
4. Transient Over-voltages
5. Fundamentals of Harmonics
6. Applied Harmonics
7. Long Range Voltage Variations
8. Power Quality Benchmarking
9. Distributed Generation and Power Quality

VI. Instructional Goals and Student Outcomes

A. Instructional Goals
1. Provide an understanding of design factors in electrical power components.
2. Provide an understanding of design factors in electrical power systems.
3. Provide an ability to design power distribution and power quality control systems.
4. Instill the importance of professionalism in the students and in their interaction with others.

B. Student Outcomes
Upon completion of this course, students will be able to do the following.

Outcome	Assessment
Understand and calculate voltage sags and interruptions.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Determine transient over-voltages as it relates to power distribution.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Understand and apply voltage variation and harmonic indices.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Understand, determine, and apply the concepts of power generation and control in the design of power systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Demonstrate professionalism in interactions with colleagues, faculty, and staff.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

VII. Suggested Texts
1. *Power Systems Analysis and Design.*, J. Duncan Glover, M. S. Sarma, and T. Overbye, 4th Edition, CL – Engineering, 2007
2. *Power Systems Analysis (Power and Energy),* A. Bergen, V. Vittal, Prentice-Hall, 2nd Edition, 1999.

VIII. Bibliography

1. *Electric Power Generation, Transmission, and Distribution*, L. Grigsby, CRC- Press, 2^{nd} Edition, 2007,
2. *Electrical Power Systems Quality*, S. Santoso, et. al. McGraw-Hill, 2^{nd} edition, 2002
3. *Power Systems Control and Stability*, Wiley-IEEE Press, 2^{nd} edition, 2002.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code			1c. Department BSE
2. Course Prefix EE	3. Course Number A441	4. Previous Course Prefix & Number N/A	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (3+0)

6. Complete Course Title
Integrated Circuit Design
Integrated Circuit Design
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Electrical Engineering	?	3-20-2011	Jens Munk
2.			
3.			

Initiator Name (typed): Jens Munk Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: 3-20-2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3-28-2011

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Develops the design and fabrication of integrated circuits (ICs) used in computer electronics. Describes the material properties, methods of charge transport, energy exchanges, fundamentals of device fabrication, and fabrication process capabilities and limits. Electrical characteristics, timing considerations, heat and power considerations, and reliability of IC devices.

16a. Course Prerequisite(s) *(list prefix and number)*
EE A204, EE A353, CHEM A105

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Updated course content guide and prerequisites to reflect changes in the structure of the BSE/EE program

Initiator (faculty only) Date
Jens Munk
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE
University of Alaska Anchorage, School of Engineering

EE A441
Integrated Circuit Design

Date: March 21, 2011

Course Number: EE A441
Course Title: Integrated Circuit Design
Credits: 3 (3+0)

I. Course Description

Develops the design and fabrication of integrated circuits (ICs) used in computer electronics. Describes the material properties, methods of charge transport, energy exchanges, fundamentals of device fabrication, and fabrication process capabilities and limits. Electrical characteristics, timing considerations, heat and power considerations, and reliability of IC devices.

II. Course Design

A. Designed for individuals in the BSE program with a specialization in Electrical Engineering.
B. One (3) credit course (3 lecture + 0 laboratory)
C. Total time of student participation: 135 hours
   1) Lecture: 45 hours
   2) Lab: 0 hours
   3) Outside: 90 hours
D. Required for the BSE major for students specializing in Electrical Engineering.
E. Fees: Yes
F. Grading Basis: A - F
G. May be scheduled in any time frame but not less than 1 week per credit.
H. Coordinated with: BSE and UAA list serve.
I. Course content and outcomes meet the criteria listed in the Curriculum Handbook for a 400 level course.

III. Course prerequisites:

EE A204, EE A353, CHEM A105

IV. Guidelines for Evaluation:

Methods of evaluation may include but are not limited to:

- Assignments
- Exams

V. Course Outline

1. Resistors
2. Conductivity
3. Lithography and diffusion of components
4. Intrinsic and doped materials
5. Electron and hole generation
6. Carrier mobility
7. Energy band model
8. Capacitance and voltage dependence
9. Junction parameters
10. Metal oxide semiconductor capacitors
11. Rectifying diode
12. Device parameters
13. Breakdown phenomena
14. Analog circuits
15. Digital circuits
16. Field effect transistors
17. Bipolar junction transistors
18. Photonic devices
19. Light emitting diodes
20. High frequency devices
21. Failure mechanisms in device reliability

VI. Instructional Goals and Student Outcomes

A. Instructional Goals

The instructor will:

1. Present theories and concepts surrounding the fundamentals of solid state physics.
2. Describe charge transport, pn junctions and transistor concepts.
3. Present practical applications of solid state electronics in modern systems and engineering.

B. Student Outcomes

Upon completion of this course, students should be able to:

Outcome	**Assessment**
Describe the materials and processes used to produce integrated circuits.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Distinguish among the families of IC devices and evaluate their use in creating digital circuits.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Analyze the operations of typical devices and determine their voltage, current, power, and timing parameters.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

VII. Suggested Text

Solid State Electronic Devices – 6th Edition, B. Streetman, and S. Banerjee, Prentice Hall, 2005.

VIII. Bibliography

1. *Microelectronic Circuits,* A. Sedra and K. Smith, Oxford University Press, 5th Edition, 2007.
2. *Fundamentals of Microelectronics,* B. Razavi, Wiley, 1st Edition, 2008

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: EN SOENGR
1b. Division: No Division Code
1c. Department: BSE

2. Course Prefix: EE
3. Course Number: A462
4. Previous Course Prefix & Number: N/A
5a. Credits/CEUs: 3
5b. Contact Hours (Lecture + Lab): (3+0)

6. Complete Course Title
Communication Systems
Communication Systems
Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Electrical Engineering	?	3-20-2011	Jens Munk
2.			
3.			

Initiator Name (typed): Jens Munk Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: 3-20-2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3-28-2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Develops the theory behind the design and operation of electronic communication systems. Includes the mathematical representation of signal and system components and their interaction. Covers power spectra, modulation techniques, frequency response of media and components, detection and recovery of information, and the effects of noise.

16a. Course Prerequisite(s) *(list prefix and number)*
EE A354

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Updated course content guide and prerequisites to reflect changes in the structure of the BSE/EE program

Initiator (faculty only) Date
Jens Munk
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE
University of Alaska Anchorage, School of Engineering

EE A462
Communication Systems

Date: 29 March 2011

Course Number: EE A462
Course Title: Communication Systems
Credits: 3 (3+0)

I. Course Description

Develops the theory behind the design and operation of analog and digital electronic communication systems. Includes the mathematical representation of signal and system components and their interaction. Covers power spectra, modulation techniques, frequency response of media and components, detection and recovery of information, and the effects of noise.

II. Course Design

A. Designed for individuals majoring in the Bachelor of Science in Engineering degree, with a specialization in Electrical Engineering.
B. Three (3) credit course (3 lecture + 0 laboratory)
C. Total time of student participation: 135 hours
  1) Lecture: 45 hours
  2) Lab: 0 hours
  3) Outside: 90 hours
D. Elective for the Bachelor of Science in Engineering degree with specializations in Computer Systems or Electrical Engineering
E. Fees: Yes
F. Grading Basis: A - F
G. May be scheduled in any time frame but not less than 1 week per credit.
H. Coordinated with BSE program and UAA list serve.
I. Course content and outcomes meet the criteria listed in the Curriculum Handbook for a 400 level course.

III. Course Prerequisites:

EE A354

IV. Guidelines for Evaluation:

Methods of evaluation may include but are not limited to:

- Quizzes
- Exams
- Additional Study / Research

V. Course Outline

A. Lecture

1. Introduction
2. Signals
3. Signal Transmission and Analysis
4. Amplitude Modulation
5. Angle Modulation
6. Sampling and Pulse Code Modulation
7. Digital Transmission
8. Emerging Technologies

VI. Instructional Goals and Student Outcomes

A. Instructional Goals

1. Develop student independence in engineering study and academics
2. Expand student knowledge in communications systems and system design
3. Broaden student knowledge in Signals and Systems course content to include practical communications applications.

B. Student Outcomes

Upon completion of this course, students will be able to do the following.

Outcome	**Assessment**
Perform critical analysis of modulation and signaling systems	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Analyze power spectra of communications channels	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Analyze communications systems block diagrams	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Quantify signal to noise and channel quality parameters	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

VII. Suggested Texts

1. Modern Digital and Analog Communications Systems. B.P. Lathi and Z. Ding, Oxford University Press Inc., 2008.

VIII. Bibliography

1. *An Introduction to Analog and Digital Communications*, S. Haykin, and M. Moher, Wiley, 2nd Edition, 2006.
2. *Analog and Digital Communications* (Scham's Outlines), H. P. Hsu, McGraw Hill, 2nd Edition, 2002.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code			1c. Department BSE
2. Course Prefix EE	3. Course Number A465	4. Previous Course Prefix & Number N/A	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (3+0)

6. Complete Course Title
Telecommunications
Telecommunications
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Electrical Engineering	?	3-20-2011	Jens Munk
2.			
3.			

Initiator Name (typed): Jens Munk Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 3-20-2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3-28-2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Emphasis in data transmission, guided and wireless transmission, signal encoding, digital data, multiplexing, and circuit and packet switching. Analyze data communications, networking, protocols, and standards.

16a. Course Prerequisite(s) *(list prefix and number)*
EE A354

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Updated course content guide and prerequisites to reflect changes in the structure of the BSE/EE program

Initiator (faculty only) Date
Jens Munk
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE
University of Alaska Anchorage, School of Engineering

EE A465
Telecommunications

Date: 22 March 2011

Course Number: EE A465
Course Title: Telecommunications
Credits: 3 (3+0)

I. Course Description

Emphasis in data transmission, guided and wireless transmission, signal encoding, digital data, multiplexing, and circuit and packet switching. Analyze data communications, networking, protocols, and standards.

II. Course Design

A. Designed for individuals majoring in the Bachelor of Science in Engineering degree specializing in Electrical Engineering or Computer Systems Engineering.
B. Three (3) credit course (3 lecture + 0 laboratory)
C. Total time of student participation: 135 hours
   1) Lecture: 45 hours
   2) Lab: 0 hours
   3) Outside: 90 hours
D. Required for students in the Bachelor of Science degree with specialization in Electrical Engineering.
E. Fees: Yes
F. Grading Basis: A - F
G. May be scheduled in any time frame but not less than 1 week per credit.
H. Coordinated with: BSE faculty and UAA list serve.
I. Course content and outcomes meet the criteria listed in the Curriculum Handbook for a 400 level course.

III. Course Prerequisites:

EE A354

IV. Guidelines for Evaluation:

Methods of evaluation may include but are not limited to:

- Assignments
- Exams
- Projects

V. Course Outline

A. Lecture

1. Data Transmission
2. Guided and Wireless Transmission
3. Signal Encoding Techniques
4. Digital Data Communication
5. Data Link Control
6. Routing Switched Networks
7. Cellular Wireless Networks
8. Congestion Control
9. High-Speed-LANs (Local Area Network)
10. Wireless LANs

VI. Instructional Goals and Student Outcomes

A. Instructional Goals

1. Provide an understanding of data transmission.
2. Provide an understanding of guided and wireless transmission.
3. Provide an understanding of digital data communication and data links.
4. Provide an understanding of switched and wireless networks.
5. Provide an understanding of high speed and wireless LANs.
6. Instill the importance of professionalism in the students and in their interaction with others.

B. Student Outcomes

Upon completion of this course, students will be able to do the following.

Outcome	Assessment
Analyze data transmission.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Analyze digital data communication and data links.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Analyze switched and wireless networks.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Analyze high speed and wireless LANs.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Practice professionalism in their work and interaction with others.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

VII. Suggested Texts

1. *Data and Computer Communications*, W. Stallings, Prentice-Hall, 9th Edition, 2011.

VIII. Bibliography

1. *Wireless Communications and Networks*, W. Stallings, Prentice Hall, 1st Edition, 2001.
2. *Telecommunication System Engineering*, R. Freeman, John Wiley & Sons, 4th Edition, 2004.
3. *The Essential Guide to Telecommunicaitons*, A. Dodd, Prentice-Hall, 3rd Edition, 2001.
4. *Illustrated TCP/IP*, M. Naugle, Wiley, 1998.
5. *Wireless Communications: Principles and Practice*, T. Rappaport, Prentice-Hall, 2nd Edition, 2001.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: EN SOENGR

1b. Division: No Division Code

1c. Department: BSE

2. Course Prefix: EE

3. Course Number: A471

4. Previous Course Prefix & Number: N/A

5a. Credits/CEUs: 3

5b. Contact Hours (Lecture + Lab): (3+0)

6. Complete Course Title
Automatic Control
Automatic Control
Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☒ Cross Listed with ME A471

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. BSE/EE		03/01/2011	Jens Munk
2. BSE/ME		03/01/2011	Jeff Hoffman
3.			

Initiator Name (typed): Jeff Hoffman Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 03/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/21/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*

Feedback control of linear mechanical and electrical systems by using block diagrams with transfer functions of plants, controllers, sensors, and actuators. Stability analysis with transfer-function and state-space models. Transient, steady-state analysis, frequency-domain analysis, and design of control systems with Bode plots and the Nyquist criterion.

16a. Course Prerequisite(s) *(list prefix and number)*
MATH A302; ES A208 or ES 210; EE A353
or ME/EE A306

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course description and prerequisites are updated.

Initiator (faculty only) Date
Jeff Hoffman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

1. **Change Date:** November 2010

2. **Course Information**

A.	College:		School of Engineering
B.	Course Prefix:		EE
C.	Course Number:		A471
D.	Number of Credits and Contact Hours		
		Number of Credits:	3
		Contact Hours:	3 + 0
E.	Course Title:		Automatic Control
F.	Grading Basis:		A-F
G.	Implementation Date:		Fall 2011
H.	Cross Listing:		ME A471
I.	Course Description:		Feedback control of linear mechanical and electrical systems by using block diagrams with transfer functions of plants, controllers, sensors, and actuators. Stability analysis with transfer-function and state-space models. Transient, steady-state, analysis, frequency-domain analysis, and design of control systems with Bode plots and the Nyquist criterion.
J.	Course Prerequisites:		MATH A302; ES A208 or ES A210; EE A353 or ME/EE A306
K.	Course Fee:		Yes

3. **Course Level Justification**

This course utilizes knowledge gained from prerequisite courses to model the time and frequency responses of mechanical and electrical feedback control systems. The course is based on the Laplace transform, the related transfer function approach, and the state space model. The material prepares the student to be able to model, analyze, and design simple and complex feedback control systems by means of analytical procedures and numerical tools available in MATLAB and Simulink. The main emphasis areas are stability, transient response and steady-state response of feedback control systems.

4. **Instructional Goals and Student Outcomes**

Instructional Goals

The instructor will:

1. Introduce the concepts of linear open-loop and closed-loop (feedback) control systems of mechanical and electrical engineering applications.
2. Provide an understanding of applying the Laplace transform and deriving transfer functions to model systems (plants), controllers, sensors, and actuators in feedback control systems.

3. Utilize the concepts of coupled systems in modeling sensing and actuation of feedback control systems.
4. Provide an understanding of the actions produced by proportional, derivative, and integrative controllers.
5. Facilitate the understanding of stability, transient response, and steady-state response of feedback control systems.
6. Introduce the students to modern tools for the analytical/numerical modeling, analyzing, and designing of feedback control systems by means of MATLAB and Simulink.
7. Encourage individual problem solving approaches as well as team approaches to designing feedback control systems.

Student Outcomes

The student will be able to:

Outcome	**Assessment**
Explain the concepts and main features of linear feedback control as a means to conveniently adjust the dynamic response of mechanical and electrical systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Derive transfer functions by using the Laplace transform for plants, controllers, sensors, and actuators in a variety of mechanical and electrical system applications.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Critically utilize proportional, derivative, and/or integrative control actions to achieve the desired dynamic behavior of a feedback control system.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Characterize the stability, the transient response, and the steady-state response of feedback control systems in the time domain as well as in the frequency domain.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Demonstrate proficiency in using various solution methods and modern computational tools to model, analyze, and design feedback control systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Work individually in problem solving as well as in teams to complete an engineering control project.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Interact professionally with colleagues and the instructor in analyses of feedback control system applications.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

5. Evaluation and Assessment Methods

Students will be evaluated using a variety of tools at the instructor's discretion including critical discussions/analysis of concepts and applications, class project, in-class presentations, homework assignments, quizzes, midterm exams, and a final/comprehensive exam.

6. Topical Course Outline

A. Time-domain modeling of open-loop systems
   1. Mechanical and electrical elements; open-loop systems
   2. Laplace transforms and transfer functions
   3. State space modeling

B. Closed-loop feedback control systems
   1. Controllers: proportional, derivative, integrative
   2. Plants, sensors, and actuators
   3. Block diagrams and transfer functions of basic feedback control systems

C. Stability of feedback control systems
   1. Routh-Hurwitz criterion
   2. MATLAB stability analysis
   3. State space stability

D. Transient response of feedback control systems
   1. Poles and zeroes
   2. First-order systems
   3. Second-order systems

E. Steady-state response and errors
   1. Unity-feedback systems
   2. Nonunity-feedback systems
   3. Errors for systems with disturbances

F. Root locus method
   1. Sketching the root locus
   2. MATLAB plotting of the root locus
   3. Analysis by the root locus method
   4. Design by the root locus method

G. Frequency-domain methods
   1. Bode plots
   2. Nyquist criterion
   3. Analysis in the frequency domain
   4. Design in the frequency domain

7. Suggested Text

Nise, N. *Control System Engineering*, Sixth Edition. Wiley, 2010.

8. Bibliography

Dorf, R.C., Bishop, R.H. *Modern Control Systems*, Twelfth Edition. Prentice Hall, 2010.
Franklin, G.F. *Feedback Control of Dynamic Systems*, Sixth Edition. Prentice Hall, 2009.
Lobontiu, N. *System Dynamics for Engineering Students: Concepts and Applications*. Elsevier, 2010.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: EN SOENGR

1b. Division: choose one

1c. Department: BSE

2. Course Prefix: ME

3. Course Number: A280

4. Previous Course Prefix & Number: N/A

5a. Credits/CEUs: 3

5b. Contact Hours (Lecture + Lab): (2+2)

6. Complete Course Title: Solid Modeling for Engineers

Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☐ Credits ☐ Contact Hours
☐ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☐ Course Description ☐ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Mechanical Engineering		3/16/2011	Jeff Hoffman
2.			
3.			

Initiator Name (typed): Jeff Hoffman Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: 3/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/28/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*

This course is an introduction to the use of solid modeling in engineering. The process of creating solid parts, assemblies, and fabrication-ready drawings in addition to kinematics linkages will be covered. Rapid prototyping technologies such as three dimensional printing will be used as laboratory exercises.

16a. Course Prerequisite(s) *(list prefix and number)*
ENGR A105A, ENGR A105B,ENGR A105C

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action

This new course was created to fulfill a need to teach students solid modeling earlier in the curriculum, thus allowing students to use this emerging approach to engineering in upper level classes for topics such as finite element heat transfer, strength of materials, kinematic analysis of mechanisms, rapid prototyping, and CNC manufacturing.

______________________________ Date
Initiator (faculty only)
Jeffrey Hoffman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved ______________________________ Date
Dean/Director of School/College

☐ Approved
☐ Disapproved ______________________________ Date
Department Chairperson

☐ Approved
☐ Disapproved ______________________________ Date
Undergraduate/Graduate Academic Board Chairperson

☐ Approved
☐ Disapproved ______________________________ Date
Curriculum Committee Chairperson

☐ Approved
☐ Disapproved ______________________________ Date
Provost or Designee

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

1. Change Date: November 2011

2. Course Information

A. College: School of Engineering
B. Course Prefix: ME
C. Course Number: A280
D. Number of Credits and Contact Hours
   Number of Credits: 3
   Contact Hours: 2 + 2
E. Course Title: Solid Modeling for Engineers
F. Grading Basis: A-F
G. Implementation Date: Fall 2011
H. Cross Listing: none
I. Course Description: This new course was created to fulfill a need to teach students solid modeling earlier in the curriculum, thus allowing students to use this emerging approach to engineering in upper level classes for topics such as finite element heat transfer, strength of materials, kinematic analysis of mechanisms, rapid prototyping, and CNC manufacturing.

J. Course Prerequisites: ENGR A105A
ENGR A105B
ENGR A105C

K. Course Fee: Yes

3. Course Level Justification

This course assumes proficiency of two dimensional computer aided design software and trigonometry which is the competency of a sophomore level student.

4. Instructional Goals and Student Outcomes

Instructional Goals

The instructor will:

1. Fully cover the solid modeling software and the techniques commonly used within parametric modeling software packages for creating solid parts, assemblies, and drawings.
2. Introduce the concept of evaluating and designing linkages (and mechanisms) as software based assemblies.
3. Provide instruction on how to tolerance drawings effectively to overcome stack up issues created by manufacturing variability.
4. This course will explore the use of solid models for creating solid parts through hands on exercises using a three dimensional printer.
5. Encourage creativity of the design process through assignments where the students model unique solutions using the solid modeling software.

Student Outcomes
The student will be able to:

Outcome	Assessment
Interface with the solid modeling software showing proficiency in creating unique parts, assemblies, and drawings.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Apply common techniques for designing and evaluating the kinematics of linkages.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Calculate acceptable tolerances required to effectively manufacture parts and their subsequent assemblies considering manufacturing variability's.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Apply the abilities of a virtual build of parts and assemblies to provide creatively engineered solutions.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Build solid plastic parts created in the software through the use of a three dimensional printer.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

5. Evaluation and Assessment Methods
Students will be evaluated through homework assignments, midterm exams, lab assignments, projects, and a final comprehensive exam.

6. Topical Course Outline

A. Two dimensional Sketching

B. Creation of parts
1. Extrusions
2. Revolutions
3. Sweeps
4. Lofts
4. Cuts
5. Patterns
6. Sheet metal options
7. Fillets and Chamfers

C. Assemblies
1. Mating commands
2. Kinematic studies of assemblies
3. Using parametric modeling variables for assemblies
4. Animation of assemblies

D. Drawings
1. Creation of drawings

2. The use of drawing template standards
3. Detailing drawings for manufacture
4. Stack up analysis of assemblies for manufacturing
5. Introduction to geometric dimensional and tolerancing schemes.
6. Stack up analysis of assemblies

E. Rapid Prototyping
1. Three dimensional printing

7. Suggested Text

Howard, W., Musto, J., *Introduction to Solid Modeling using SolidWorks 2009*, McGraw-Hill, 2009.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	BSE

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ME	A306	N/A	3	(3+0)

6. Complete Course Title
Dynamics of Systems
Dynamics of Systems
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☒ Cross Listed with EE A306
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. BSE/ME A471	421	03/01/2011	Jeffrey Hoffman
2. BSE/EE		03/01/2011	Jens Munk
3.			

Initiator Name (typed): Jeffrey Hoffman Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 03/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/28/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Modeling of mechanical, electrical, fluid, and thermal elements and systems. Study of free and forced response by the Laplace transform, transfer function, and state space models. Time domain and frequency domain responses. Coupled systems, system analogy, sensing, and actuation principles.

16a. Course Prerequisite(s) *(list prefix and number)*
MATH A302; ES A210 or ES A208; ES A309 or EE 203

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
New required course in Mechanical Engineering to enable sequencing with ME A471 and ME A408.

Initiator (faculty only) Date
Jeffrey Hoffman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

1. Change Date: March 2011

2. Course Information

A.	College:	School of Engineering
B.	Course Prefix:	ME
C.	Course Number:	A306
D.	Number of Credits and Contact Hours	
	Number of Credits:	3
	Contact Hours:	3 + 0
E.	Course Title:	Dynamics of Systems
F.	Grading Basis:	A-F
G.	Implementation Date:	Fall 2011
H.	Cross Listing:	EE A306
I.	Course Description:	Modeling of mechanical, electrical, fluid, and thermal elements and systems. Study of free and forced response by the Laplace transform, transfer function, and state space models. Time domain and frequency domain responses. Coupled systems, system analogy, sensing, and actuation principles.
J.	Course Prerequisites:	MATH A302; ES A210 or ES A208; ES A309 or EE A203
K.	Course Fee:	Yes

3. Course Level Justification

This course incorporates knowledge from prerequisite courses and utilizes basic concepts characterizing mechanical, electrical, fluid, and thermal elements to derive mathematical models of the corresponding individual systems, as well as of coupled (mixed or combined) systems. The material prepares the student to be able to model, analyze, and design a variety of systems through their dynamic response by employing analytical/numerical procedures and tools available in MATLAB and Simulink.

4. Instructional Goals and Student Outcomes

Instructional Goals

The instructor will:

1. Present the main engineering systems (mechanical, electrical, fluid, and thermal) by means of similar mathematical models and analysis methods.
2. Provide an understanding of utilizing the Laplace transform, the transfer function, the state space model, and the complex transfer function in deriving mathematical models of dynamic systems.
3. Explain the fundamentals and the characteristics of evaluating the response of dynamic systems in the time domain and in the frequency domain.
4. Introduce modern tools of modeling, analyzing, and designing dynamic systems by using MATLAB and Simulink.

5. Identify the main concepts of coupled systems, sensing, and actuation.
6. Encourage individual problem solving approaches as well as team approaches to designing individual and coupled dynamic systems.

Student Outcomes
The student will be able to:

Outcome	**Assessment**
Comprehend the individual features as well as the common representations of dynamic mechanical, electrical, fluid, and thermal systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Apply simplifying assumptions to actual engineering systems to obtain physical models and mathematical models of individual (mechanical, electrical, fluid, and thermal) systems, as well as models of coupled systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Demonstrate proficiency in using various methods and modern computational tools to model, analyze, and design dynamic systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Understand the principles of coupled systems, which govern the behavior of sensors and actuators.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Demonstrate capabilities of working individually and in a team to solve a complex system dynamics project.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Interact professionally with colleagues and the instructor in critical analyses of dynamic systems applications.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

5. Evaluation and Assessment Methods

Students will be evaluated using a variety of tools at the instructor's discretion including critical discussions/analysis of concepts and applications, class project, in-class presentations, homework assignments, quizzes, midterm exams, and a final/comprehensive exam.

6. Topical Course Outline

A. Mechanical systems
   1. Elements: inertia, stiffness, damping, and forcing
   2. Free and forced responses of basic single degree-of-freedom systems
   3. Free and forced responses of multiple degree-of-freedom systems

B. Electrical systems
   1. Elements: resistor, capacitance, inductor, voltage/current source
   2. Circuits and networks

3. Operational amplifier circuits

C. Fluid and thermal systems
   1. Liquid elements and systems
   2. Pneumatic elements and systems
   3. Thermal elements and systems

D. The Laplace transform
   1. Direct and inverse Laplace transforms
   2. Solving differential equations and systems related to the mathematical models of dynamic engineering systems

E. Transfer function approach
   1. Transfer function concept
   2. Model formulation
   3. Time response

F. State space model
   1. State space concept
   2. Model formulation
   3. Time response

G. Frequency-domain analysis and design
   1. Complex transfer function
   2. Steady-state response under harmonic input

H. Coupled systems
   1. System analogies
   2. Electro-mechanical coupling
   3. Thermo-mechanical coupling
   4. Electro-thermo-mechanical coupling

7. Suggested Text

Lobontiu, N., *System Dynamics for Engineering Students: Concepts and Applications*, Elsevier, 2010.

8. Bibliography

Ogata, K., *System Dynamics*, Fourth Edition. Prentice Hall, 2005.
Palm, W.J., *System Dynamics*, Second Edition. McGraw-Hill, 2009.
Klee, H., *Simulation of Dynamic Systems with MATLAB and Simulink*. CRC Press, 2007.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR		1b. Division No Division Code		1c. Department BSE
2. Course Prefix ME	3. Course Number A334	4. Previous Course Prefix & Number N/A	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (2+3)

6. Complete Course Title
Materials Science
Materials Science
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☐ Credits ☒ Contact Hours
☒ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☐ Course Description ☐ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Mechanical Engineering	228	3/16/2011	Jeff Hoffman
2.			
3.			

Initiator Name (typed): Jeff Hoffman Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 03/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/28/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Investigation and study of crystal structure, defect structure, aspects of metal processing, heat treatment, joining, testing, failure analysis, and phase diagrams for engineering applications and design.

16a. Course Prerequisite(s) *(list prefix and number)*
CHEM A106, PHYS A211

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course title and contact hours are updated.

Initiator (faculty only) Date
Jeffrey Hoffman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

1. Change Date: March 2011

2. Course Information

A.	College:	School of Engineering
B.	Course Prefix:	ME
C.	Course Number:	A334
D.	Number of Credits and Contact Hours	
	Number of Credits:	3
	Contact Hours:	2 + 3
E.	Course Title:	Elements of Materials Science
F.	Grading Basis:	A-F
G.	Implementation Date:	Fall 2011
H.	Course Description:	Investigation and study of crystal structure, defect structure, aspects of metal processing, heat treatment, joining, testing, failure analysis, and phase diagrams for engineering applications and design.
I.	Course Prerequisites:	CHEM A106 General Chemistry II, PHYS A211 General Physics I
J.	Course Fee:	Yes

3. Course Level Justification

This course integrates concepts of physics, chemistry, and mathematics to characterize and design engineering materials. It utilizes basic and more advanced methods of modeling and analyzing the material behavior. The laboratory portion of the course introduces the use of modern test equipment for the experimental characterization of materials.

4. Instructional Goals and Student Outcomes

Instructional Goals

The instructor will:

1. Provide an understanding the atomic structure of metals, ceramics, plastics, and composites.
2. Provide an understanding of the mechanical properties of metals and the effects of heat treatment and alloying.
3. Provide an understanding of phase diagrams and their use in developing metal alloys.
4. Provide an understanding of failure in metals and other materials and the methods of prevention.
5. Instill the importance of professionalism in the students and in their interaction with others.

Student Outcomes
The student will be able to:

Outcome	Assessment
Analyze and interpret phase diagrams and apply them to designing metal alloys.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Analyze heat treatments and relate to the properties of metals.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Design metal treatment processes to satisfy material criteria.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Identify crystalline structures and relate to material properties.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Demonstrate professionalism in interactions with colleagues, faculty, and staff.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

5. Evaluation and Assessment Methods
Students will be evaluated using a variety of tools at the instructor's discretion including critical discussions/analysis of concepts and applications, class project, in-class presentations, homework assignments, quizzes, midterm exams, and a final/comprehensive exam.

6. Topical Course Outline

1. Introduction
2. Atomic Structure
3. Structure of Crystalline Solids
4. Structure Imperfections
5. Diffusion
6. Mechanical Properties of Metals
7. Dislocations & Strengthening
8. Failure
9. Phase Diagrams
10. Phase Transformations
11. Applications & Processing of Metals
12. Properties of Ceramics, Polymers & Composites

7. Suggested Text
Material Science and Engineering: An Introduction, W. Callister, and Rethwisch, D. G., Wiley, 8th edition, 2010.

8. Bibliography
Shackelford, J., Introduction to Materials Science for Engineers, Pearson Education, 5th Edition, 1999.
Van Vlack, H., Elements of Material Science, Pearson Education, 6th Edition, 1989.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	BSE

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ME	A408	N/A	3	(3+0)

6. Complete Course Title
Mechanical Vibrations
Mechanical Vibrations
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☒ Prefix ☐ Course Number
☐ Credits ☒ Contact Hours
☒ Title ☐ Repeat Status
☐ Grading Basis ☒ Cross-Listed/Stacked
☒ Course Description ☒ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. BSE - Mechanical Engineering		3/16/2011	Jeff Hoffman
2.			
3.			

Initiator Name (typed): Jeffrey Hoffman Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 03/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/28/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Modeling of vibratory mechanical systems with single and multiple degrees of freedom. Study of free and forced vibrations with or without damping by lumped-parameter methods and finite element analysis. Vibrations of rotor systems and vibration monitoring.

16a. Course Prerequisite(s) *(list prefix and number)*
ME A306; ES A331

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course description, contact hours, and prerequisites are updated. This course is being added to the mechanical engineering electives as it is an important topic for those students involved with system dynamics. Specifically, system dynamics consisting of mass, springs and dampers. Cross listing with EE was also dropped as this class content changed into solely mechanical systems.

Initiator (faculty only) Date
Jeffrey Hoffman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

1. **Change Date:** March 2011

2. **Course Information**

A.	College:	School of Engineering
B.	Course Prefix:	ME
C.	Course Number:	A408
D.	Number of Credits and Contact Hours	
	Number of Credits:	3
	Contact Hours:	3 + 0
E.	Course Title:	Mechanical Vibrations
F.	Grading Basis:	A-F
G.	Implementation Date:	Fall 2011
H.	Course Description:	Modeling of vibratory mechanical systems with single and multiple degrees of freedom. Study of free and forced vibrations with or without damping by lumped-parameter methods and finite element analysis. Vibrations of rotor systems and vibration monitoring.
I.	Course Prerequisites:	ME A306 Dynamics of Systems, ES A331 Mechanics of Materials
J.	Course Fee:	Yes

3. **Course Level Justification**

This course integrates concepts of dynamics of rigid bodies and mechanics of materials applied to vibratory mechanical systems. It utilizes basic and more advanced methods of modeling and analyzing the vibrations of mechanical systems. The course introduces the dynamic finite element method and related software to solve practical/industrial vibration applications. The material prepares the student to be able to model, analyze and design vibration systems by utilizing a variety of analytical/numerical procedures and tools.

4. **Instructional Goals and Student Outcomes**

Instructional Goals

The instructor will:

1. Provide an understanding of the main concepts governing the vibrations of mechanical systems.
2. Integrate the necessary notions of dynamics of rigid bodies and mechanics of materials into models of vibratory mechanical systems.
3. Present the types of vibratory systems, inputs, and outputs (responses), as well as the physical/mathematical procedures for modeling, analysis and design.
4. Provide an understanding of the utilization and application of computational tools in the analysis of vibratory mechanical systems.
5. Encourage individual problem solving approaches as well as team approaches to projects involving mechanical vibrations.

Student Outcomes
The student will be able to:

Outcome	Assessment
Understand the simplified lumped-parameter modeling of vibratory mechanical systems consisting of springs, masses, and dampers.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Identify and characterize vibratory mechanical systems with one or with multiple degrees of freedom.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Analyze the natural response, the free damped response, and the forced response of vibratory mechanical systems by using lumped-parameter models.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Understand the basic principles of the dynamic finite element method and apply the related software to solve mechanical vibration problems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Apply modern computational tools to model, analyze, and design mechanical systems undergoing vibrations.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Gain knowledge of the methods and instruments needed to sense, monitor and generate mechanical vibrations.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Acquire capabilities of working individually in problem solving and in a team to analyze and design a complex mechanical vibrations project.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Interact professionally with colleagues and the instructor in critical analyses of mechanical vibration problems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

5. **Evaluation and Assessment Methods**
Students will be evaluated using a variety of tools at the instructor's discretion including critical discussions/analysis of concepts and applications, class project, in-class presentations, homework assignments, quizzes, midterm exams, and a final/comprehensive exam.

6. **Topical Course Outline**

A. Kinematics of mechanical vibrations
1. Harmonic motion and its qualifiers

2. Combination (addition) of harmonic motions
3. Fourier decomposition of non-harmonic motions
4. Degrees of freedom

B. Elements of vibratory mechanical systems
1. Springs
2. Inertia
3. Dampers

C. Free vibrations
1. Free undamped response, natural frequencies, and eigenvectors
2. Free damped response

D. Forced harmonic vibrations

E. General forced vibrations

F. Rotordynamics

G. Finite element analysis of mechanical vibrations
1. Basics of finite element modeling
2. Finite element analysis by commercially-available software

H. Mechanical vibration transduction
1. Sensing, monitoring
2. Actuation

7. Suggested Text

Inman, D.J. *Engineering Vibration*, Third Edition. Prentice Hall, 2007.

8. Bibliography

Thomson, W.T., Dillon-Dahler, M. *Theory of Vibration with Applications*, Fifth Edition. Prentice Hall, 1998.
Den Hartog, J.P. *Mechanical Vibrations*. Dover, 1985.
Rao, S.S. *Mechanical Vibrations*, Fourth Edition. Prentice Hall, 2004.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code			1c. Department BSE
2. Course Prefix ME	3. Course Number A414	4. Previous Course Prefix & Number N/A	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (2+2)

6. Complete Course Title
Thermal System Design
Thermal System Design
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☒ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Mechanical Engineering		3/16/2011	Jeff Hoffman
2.			
3.			

Initiator Name (typed): Jeff Hoffman Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 03/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/28/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduction to the design of power and space conditioning systems, energy conversion, heating, ventilating, air conditioning, refrigeration, and steady-state simulation of thermal systems including laboratory exercises and team designs of fluid-thermal systems.

16a. Course Prerequisite(s) *(list prefix and number)*
ES A341; ES A346

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course description, contact hours, and prerequisites are updated.

Initiator (faculty only) Date
Jeffrey Hoffman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE

University of Alaska Anchorage, School of Engineering

ME A414
Thermal Systems Design

1. Change Date	16 March 2011
2. Course Information	
A. College	School of Engineering (EN)
B. Course Prefix	ME
C. Course Number	A414
D. Number of Credits and Contact Hours	
	Number of Credits: 3
	Contact Hours: 2+2
E. Course Title	Thermal System Design
F. Grading Basis	A-F
G. Implementation Date	Fall 2011
H. Course Description	Introduction to the design of power and space conditioning systems, energy conversion, heating, ventilating, air conditioning, refrigeration, and steady-state simulation of thermal systems including laboratory exercises and team designs of fluid-thermal systems.
I. Course Prerequisites	ES A341 Fluid Mechanics, ES A346 Basic Thermodynamics
J. Course Fee	Yes

3. Course Level Justification

This course combines the principles of thermodynamics, heat transfer and fluid mechanics and applies them to thermal system design. The material presented prepares the student to be able to model, analyze, and design a variety of thermal systems. Since engineering practice is system oriented this course demonstrates to the student how individual fundamental concepts are integrated into thermal systems through laboratory exercises and team design projects of fluid-thermal systems.

4. Instructional Goals and Student Outcomes

A. Instructional Goals

The instructor will

1. Provide an understanding of fundamental thermal science principles and perform analysis of thermal/fluids components and whole thermal systems.
2. Provide an understanding that enables the student to choose appropriate tools to implement, solve, and present thermal system models.
3. Provide an understanding of thermal system design through laboratory and design exercises.
4. Enable the students to develop models, including computer-based models, and choose appropriate tools to implement, solve, and present thermal system models.
5. Instill the importance of professionalism in the students and in their interaction with others.

B. Student Outcomes

Upon completion of this course, students should be able to:

Outcome	Assessment
Use psychrometric equations and charts for a variety of practical applications	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Analyze and calculate heating and cooling loads for thermal systems	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Design low and high pressure ductwork systems including friction losses and fan sizing.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Design refrigeration, water, and steam piping systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Develop simple thermal system steady-state simulations.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Perform experimental measurements on thermal system components and analyze and present experimental data .	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Demonstrate professionalism in interactions with colleagues, faculty, and staff.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

5. Evaluation and Assessment Methods

Students will be evaluated using a variety of tools at the instructor's discretion including but not limited to homework assignments, projects, midterm exams, laboratory reports, in-class activities and presentations, and a final/comprehensive exam.

6. Topical Course Outline

1. HVAC Fundamentals
   a) Conservation of Mass
   b) Steady-Flow Energy Equation
   c) Psychrometrics
   e) HVAC Systems and Equipment
2. Refrigeration
   a) Applications of Refrigeration
   b) Thermodynamics and Refrigeration Cycles
   c) Cycle Analysis
3. Heat Exchangers
   a) Heat Exchanger Types
   b) The Overall Heat Transfer Coefficient
   c) Heat Exchanger Analysis
   d) Log Mean Temperature Method
   e) Effectiveness-NTU Method
   f) Design of Heat Exchanger
4. Flow, Pumps, and Piping Design
   a) Fluid Flow Basics
   b) Piping System Fundamentals
   c) Centrifugal Pumps
   d) Combined System and Pump Characteristics
   e) System Design
5. System Simulation
   a) Classes of Simulation
   b) Sequential and Simultaneous Calculations
   c) Successive Substitution and Newton-Raphson

d) Introduction to Simulation Software

e) Integration of Simulation and Design

7. Suggested Texts

1. *Heating, Ventilating, and Air Conditioning,* F. McQuiston and J. Parker, John Wiley & Sons, 6th edition, 2004.

8. Bibliography

1. *Fundamentals of Heat and Mass Transfer*, F.P. Incropera and D.P DeWitt, 7th Edition, John Wiley & Sons, 2011.
2. *Thermodynamics: An Engineering Approach,* Y.A. Cengel and M. A. Boles, McGraw-Hill, 7th edition, 2011.
3. *2010 ASHRAE Handbook Refrigeration*, American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc.
4. *2009 ASHRAE Handbook Fundamentals*, American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc.
5. *2008 ASHRAE Handbook HVAC Systems and Equipment,* American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc.
6. *2007 ASHRAE Handbook HVAC Applications*, American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	BSE

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ME	A441	N/A	3	(2+2)

6. Complete Course Title
Heat & Mass Transfer
Heat & Mass Transfer
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☒ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Mechanical Engineering	228	3/16/2011	Jeff Hoffman
2.			
3.			

Initiator Name (typed): Jeff Hoffman Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 3/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/28/2011

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Application of heat and mass transfer concepts to engineering problems including steady state and transient conduction, numerical analysis of heat transfer problems, laminar and turbulent free and forced convection, boiling, evaporation and condensation, and black body and real surface radiation.

16a. Course Prerequisite(s) *(list prefix and number)*
ES A302, ES A341, ES A346

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course description is updated.

Initiator (faculty only) Date
Jeffrey Hoffman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE

University of Alaska Anchorage, School of Engineering

ME A441

Heat and Mass Transfer

1. Change Date	16 March 2011
2. Course Information	
A. College	School of Engineering (EN)
B. Course Prefix	ME
C. Course Number	A441
D. Number of Credits and Contact Hours	
	Number of Credits: 3
	Contact Hours: 2+2
E. Course Title	Heat & Mass Transfer
F. Grading Basis	A-F
G. Implementation Date	Fall 2011
H. Course Description	Application of heat and mass transfer concepts to engineering problems including steady state and transient conduction, numerical analysis of heat transfer problems, laminar and turbulent free and forced convection, boiling, evaporation and condensation, and black body and real surface radiation.
I. Course Prerequisites	ES A302 Engineering Data Analysis, ES A341 Fluid Mechanics, ES A346 Basic Thermodynamics
J. Course Fee	Yes

3. Course Level Justification

This course takes the concepts of energy and mass conservation introduced in ES A346 and ES A341 and applies them to the more advanced study of heat and mass transfer. Because heat and mass are transferred down gradients, the analysis necessarily involves more complex methods, including modeling with ODEs and PDEs. This course introduces principles of numerical analysis, which is widespread in industrial and research applications, and encourages students to develop both numerical and analytical tools for solving complex problems.

4. Instructional Goals and Student Outcomes

A. Instructional Goals

The instructor will

1. Provide an understanding of the three modes of heat transfer.
2. Provide an applicable understanding of calculus, physics, and differential equations to the design of heat and mass transfer components.
3. Provide an understanding of heat and mass transfer fundamentals to perform design and analysis of heat and mass transfer systems.
4. Enable the students to develop models, including computer-based models, and choose appropriate tools to implement, solve, and present heat and mass transfer models.
5. Instill the importance of professionalism in the students and in their interaction with others.

B. Student Outcomes

Upon completion of this course, students should be able to:

Outcome	**Assessment**
Develop both a qualitative and quantitative understanding of the three modes of heat transfer.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Derive fundamental integral and differential thermal energy equations for thermal/fluid systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Make appropriate approximations and develop simplified model equations for particular applications.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
From an energy balance, derive the finite difference equations for conduction. Describe numerical solution methods used to solve finite difference equations.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Analyze unsteady one-dimensional conduction problems with surface convection using one-dimensional unsteady conduction analysis in solids and apply the lumped capacitance approximation as appropriate.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

Set up and solve combined conduction, convection, and radiation heat transfer problems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Demonstrate professionalism in interactions with colleagues, faculty, and staff.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

5. Evaluation and Assessment Methods

Students will be evaluated using a variety of tools at the instructor's discretion including but not limited to homework assignments, projects, quizzes, midterm exams, laboratory reports, in-class presentations, and a final/comprehensive exam.

6. Topical Course Outline

1. Elements of Heat Transfer
    a. Conduction and Fourier's law
    b. Convection and Newton's law of cooling
    c. Radiation and the Stefan-Boltzman law
2. Steady One-Dimensional Heat Conduction
    a. Thermal resistance elements
3. Multi-Dimensional and Unsteady Conduction
    a. The heat equation
    b. Lumped system method
    c. Spatial effects
4. Numerical Analysis of Heat Transfer Problem
5. Convection Fundamentals and Correlations
6. Convection Analysis
7. Thermal Radiation
    a. Surface properties
    b. View factors
8. Condensation, Evaporation, and Boiling
9. Mass Transfer

7. Suggested Texts

1. *Fundamentals of Heat and Mass Transfer*, F.P. Icropera and D.P DeWitt, 5th Edition, John Wiley & Sons, 2001.

2. Heat and Mass Transfer: Fundamentals and Applications, Y.A. Cengel and A.J. Ghajar, 4th Edition, McGraw-Hill, 2007.

8. Bibliography

1. *Heat and Mass Transfer,* A. F. Mills, Prentice-Hall, 2nd Edition, 2000.
2. *Fundamentals of Momentum, Heat, and Mass Transfer*, J. Welty et al., John Wiley & Sons, 4th, 2000.
3. *Thermodynamics: An engineering Approach,* Y. A. Cengel and M. A. Boles, McGraw-Hill, 4th edition, 2002.
4. *Thermal Environmental Engineering*, T. Kuehn, J. Ramsey, J Threlkeld, Prentice-Hall, 3rd Edition, 1998.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	BSE

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ME	A450	ME A494B	3	(2+2)

6. Complete Course Title
Manufacturing Design
Manufacturing Design
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☒ Course Number
- ☒ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Mechanical Engineering		3/16/2011	Jeff Hoffman
2.			
3.			

Initiator Name (typed): Jeffrey Hoffman Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 3/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/28/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Advanced course that focuses over 3-D applied engineering applications and design. Part design for machining, molding, casting, and sheet metal operations. Methods for applied design for manufacturing and assembly are introduced. Pro/Engineer 3-D part, composite, sheet metal and assembly modules are used to practice variety of engineering design applications.

16a. Course Prerequisite(s) *(list prefix and number)*
ENGR A151, ENGR A161, ENGR A105A, ENGR A105B, ENGR A105C, ME A280, ME A302

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
The course has already been offered as temporary (elective) course for two terms and needs to be added as a permanent elective course to the course catalog

_____________________________ Date
Initiator (faculty only)
Jeffrey Hoffman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved _____________________________ Date
Department Chairperson

☐ Approved
☐ Disapproved _____________________________ Date
Curriculum Committee Chairperson

☐ Approved
☐ Disapproved _____________________________ Date
Dean/Director of School/College

☐ Approved
☐ Disapproved _____________________________ Date
Undergraduate/Graduate Academic Board Chairperson

☐ Approved
☐ Disapproved _____________________________ Date
Provost or Designee

COURSE CONTENT GUIDE
University of Alaska Anchorage, School of Engineering

ME A450
Design for Manufacturing

Date: 3 March 2011

Course Number: ME A450

Course Title: Design for Manufacturing

Credits: 3 (2.0+2.0)

I. Course Description

Advanced course that focuses over 3-D applied engineering applications and design. Part design for machining, injection molding, die casting, and sheet metal operations. Methods for applied design for manufacturing and assembly are introduced. Pro/Engineer 3-D part, composite, sheet metal and assembly modules are used to practice variety of engineering design applications e.g. shafts, gears, bolts, springs, injection and die casting mold parts etc. Several projects are assigned throughout the course which emphasize three dimensional modeling techniques and their applications in design engineering.

II. Course Design

A. Designed for individuals majoring in the Bachelor of Science in Engineering degree.
B. Three (3.0) credit course (2.0 lecture + 2.0 laboratory)
C. Total time of student participation: 135 hours
    1) Lecture: 22.5 hours
    2) Lab: 45 hours
    3) Outside: 67.5 hours
D. Required for the Bachelor of Science in Engineering degree with a specialization in Mechanical Engineering
E. Fees: Yes
F. Grading Basis: A - F
G. May be scheduled in any time frame.
H. This course will be offered as an elective course.
I. Coordinated with: School of Engineering.
J. Engineering companies in the state of Alaska are in need of well trained engineers. This class will provide students with the skills necessary to provide this need to engineering firms. Course will be an elective course for BSE students and helps to satisfy accreditation requirements.

III. Course Prerequisites:

ENGR 151, ENGR 161, ENGR 105A, ENGR 105B, ENGR 105C, ME 280, ME 302

IV. Guidelines for Evaluation:

Methods of evaluation may include but are not limited to:

- Assignments
- Exams
- Engineering design and application projects

V. Course Outline

1. Design for machining
    a. Machining using single-point cutting tools
    b. Determination of optimum speed and feed
    c. Machining using multipoint tools
    d. Machining using Abrasive wheels
    e. Standardization, choice of work material
    f. Modeling
        i. Pro-Engineer part module
            1. Basic geometry construction
            2. Introduction to Sketcher
            3. Construction of datum features
    g. Engineering application and design project 1: Machinable bracket
    h. Effect of shape of work material on machining
    i. Assembly of components
    j. Modeling
        i. Creating features in Pro-Engineer
            1. Sketching on a part
            2. Extrude
            3. Revolve
            4. Sweep
            5. Protrusions
            6. Holes
    k. Engineering application and design project 2: Machinable blind holes
2. Design for injection molding
    a. Injection molding materials
    b. The molding cycle
    c. Injection molding systems
    d. Modeling
        i. Creating features in Pro-Engineer
            1. Blend
            2. Protrusions
            3. Slots and cuts
            4. Shafts
            5. Chamfers
            6. Drafts
            7. Offset
            8. Cosmetic features
    e. Engineering application and design project 3: Clamping plate
    f. Injection molds

g. Molding machine size
h. Molding cycle time
i. Modeling
    i. Creating surface features in Pro-Engineer
        1. Quilts
        2. Flat quilts
        3. Fillet quilts
        4. Blended surfaces
        5. Merge & Transformation of quilts
        6. Free form manipulation
        7. Patterning
        8. Parametric tables and design optimization
j. Engineering application and design project 4: Cavities, cores and support plates
k. Mold cost estimation
l. Mold cost point system
m. Estimation of the optimum number of cavities
n. Insert molding
o. Design guidelines
p. Modeling
    i. Modify commands in Pro-Engineer
        1. Copying features
        2. Regeneration
        3. Parametric modification
        4. Part queries

3. Engineering application and design project 5: Heater core cover
4. Design for sheet metal working
    a. Dedicated dies and pressworking
    b. Profile shearing
    c. Piercing operations

VI. Instructional Goals and Student Outcomes

A. Instructional Goals

1. Provide an understanding of the basic principles used in product design for manufacturing and assembly
2. Introduce the basic skills needed in parametric and featured based 3-D design modeling
3. Enable the application of manufacturing and assembly techniques in concurrent and simultaneous engineering design

B. Student Outcomes

Upon completion of this course, students will be able to:

Outcome	**Assessment**
Select appropriate material and manufacturing process	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

Design optimum shaped parts for cost effective machining operations	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Generate M and G codes for numerically controlled turning and milling centers	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Design components for expedited assembly lines	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Create injection molding tool and die designs for economical manufacturing	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Create pressure die-casting tool and die designs for economical manufacture	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Design sheet metals with minimum number of forming operations	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

VII. Suggested Texts

Boothroyd G., Dewhurst P., Knight W., *Product Design for Manufacture and Assembly*, second edition, 2002.
Pro-Engineer User's Manual, Wildfire 5.0, PTC, 2009

VIII. Bibliography

1. Otto K., Wood K., *Product Design, Techniques in Reverse Engineering and New Product Development*, Prentice-Hall, 2001.
2. Baralla J.G., *Design for Manufacturability Handbook*, McGraw Hill, 1998.
3. Anderson D., *Design for Manufacturability and Concurrent Engineering*, CIM press, 2004.
4. Steffen D., Graham G., *Inside Pro/Engineer Wildfire*, ONWORD press, 2003.
5. Tickoo S., *Pro/Engineer Wildfire for Designers*, Cadcim Technologies, 2003.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College: EN SOENGR

1b. Division: No Division Code

1c. Department: BSE

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ME	A453	ME A494C	3	(3+0)

6. Complete Course Title
Renewable Energy Systems Engineering
Renewable Energy Systems Eng.
Abbreviated Title for Transcript (30 character)

7. Type of Course: ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☐ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)
☒ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☐ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Mechanical Engineering		3/21/2011	Jeff Hoffman
2.			
3.			

Initiator Name (typed): Jeff Hoffman Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: 3/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/28/2011

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
The study and design of renewable energy systems from a technical engineering standpoint. Solar, hydrokinetic, conventional hydroelectric, wind, geothermal, and biological energy systems will be examined. Additional topics include feasibility analysis and energy storage techniques.

16a. Course Prerequisite(s) *(list prefix and number)*
ES A341; ES A346

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
New technical elective course in Mechanical Engineering to offer specialization in the field of renewable energy systems.

Initiator (faculty only) Date
Jeffrey Hoffman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE
University of Alaska Anchorage, School of Engineering

ME A453
Renewable Energy Systems Engineering

Date: March 22, 2011

Course Number: ME A453

Course Title: Renewable Energy Systems Engineering

Credits: 3 (3+0)

I. Course Description

The study and design of renewable energy systems from a technical engineering standpoint. Solar, hydrokinetic, conventional hydroelectric, wind, geothermal, and biological energy systems will be examined. Additional topics include feasibility analysis and energy storage techniques.

II. Course Design

A. Designed for Bachelor of Science in Engineering students.
B. Three (3) credit course (3 lecture + 0 laboratory)
C. Total time of student participation per semester: 135 hours
   1) Lecture: 45 hours
   2) Outside of class: 90 hours
D. Advanced engineering elective for Bachelor of Science in Engineering students.
E. Fees: Yes.
F. Grading Basis: A - F
G. May be scheduled in any time frame.
H. This course has been taught for 2 years with a temporary course number. The proposed action provides the course with a permanent course number.
I. Coordinated with: School of Engineering and faculty list-serve.

III. Course Prerequisites

ES A341 and ES A346

IV. Guidelines for Evaluation

Methods of evaluation may include but are not limited to:

- Assignments
- Exams
- Quizzes
- Projects

V. Course Outline

1. Global energy trends and socioeconomic considerations
   - Energy forecasting
   - Socioeconomic factors
     - Isolated, diesel-fueled grids
2. Solar energy systems
   - Solar tracking systems
   - Irradiance models
   - Active thermal
     - Concentrating collectors
       - Parabolic trough, dish, and central receiver systems
     - Flat plate collectors
     - Salt ponds
   - Photovoltaic (PV)
     - The p-n junction
     - Model circuit calculations
   - Passive thermal
     - Trombe walls
     - Solar chimneys
3. Water-based energy systems
   - Conventional hydroelectric
     - Impoundment, run-of-the river, and pumped storage
     - Turbine design, analysis, and optimization
       - Francis
       - Kaplan
       - Pelton
       - Turgo
       - Crossflow
       - Archimedes' screw
     - Fluid losses
     - Turbine selection criteria
   - Ocean
     - Ocean Thermal Energy Conversion (OTEC)
     - Wave energy systems
     - Tidal energy systems
     - In-stream (hydrokinetic) turbines
4. Wind energy systems
   - Wind patterns (geostrophic, boundary layer, topographically influenced)
   - Boundary layer wind speed models
   - Aerodynamic considerations (blade design)

- Betz limit
- Blade element momentum (BEM) theory
    - Blade optimization
    - Tower stresses
- Gearbox design
- Generator / grid interface fundamentals
- Resource evaluation
    - The Weibull distribution
- Ice detection and de/anti-icing technology

5. Geothermal energy systems
    - Geothermal system design and thermodynamic analysis
        - Vapor-dominated
        - Liquid-dominated
        - Ground source heat pumps (GSHP)
        - Geopressurized
        - Enhanced Geothermal Systems (EGS)
        - Magma
        - Direct use
    - Reservoir monitoring and management
6. Biofuels and biomass energy systems
    - Fundamental chemical analysis and system design
        - Ethanol
        - Methanol
        - Biodiesel
        - Gasification (synthesis gas, producer gas)
        - Anaerobic Digestion (bio gas)
        - Pyrolysis (pyrolysis liquids)
    - Economic analysis
7. Grid integration and energy storage
    - Electrical power systems
        - Power factor (real and reactive power)
        - Power fundamentals (grid stability, reliability, controls, etc.)
    - Energy storage systems
        - Chemical
            - Hydrogen
            - Biofuels
        - Electrochemical
            - Conventional batteries
            - Flow batteries
            - Fuel cells

- Electrical
    - Capacitors
    - Super conducting magnetic energy storage (SMES)
- Mechanical
    - Flywheels
    - Compressed air
    - Pumped storage (hydro)
    - Spring/mass energy storage
- Thermal
    - Ice
    - Molten salts
    - Auxiliary boiler
    - Thermal mass

8. Resource evaluation
    - Evaluating site-specific renewable resources
    - Statistical analysis
    - Economic analysis (present value)

VI. Instructional Goals and Student Outcomes

A. Instructional Goals

The instructor will:

1. Evaluate global energy trends and examine the socioeconomic impact of renewable energy.
2. Examine the fundamental engineering principles which govern renewable energy systems.
3. Introduce the technical vocabulary associated with renewable energy systems.
4. Describe the operational characteristics of renewable energy systems and introduce quantitative methods for evaluating performance parameters.
5. Establish design methodologies for renewable energy systems.
6. Establish analytical processes for the assessment of renewable resources.

B. Student Outcomes

Upon completion of this course, students will be able to:

Outcome	Assessment
Evaluate global energy trends and identify the technical and socioeconomic factors which influence renewable energy system implementation.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Describe the merits and limitations of different renewable energy systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Explain the physical principles of harvesting	This outcome will be assessed

renewable energy.	through assignments, quizzes, exams, discussions, and projects.
Perform basic design calculations for renewable energy systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Quantitatively evaluate the performance of existing renewable energy systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Describe techniques for assessing renewable energy resources and perform feasibility analyses given site-specific data.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Utilize the broad array of references and sources of information on renewable energy systems currently available.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

VII. Suggested Texts

B.K. Hodge, Alternative Energy Systems, 1st Edition, John Wiley & Sons, 2010.

VIII. Bibliography

1. Burton T., et al., Wind Energy Handbook, 1st Edition, John Wiley & Sons, 2001.
2. DOE Renewable Energy Resources. Available at: http://www.eere.energy.gov/
3. Freris, L. and Infield, D., Renewable Energy in Power Systems, 1st Edition, John Wiley & Sons, 2008.
4. Kreith, F. and Goswami, D.Y., Handbook of Energy Efficiency and Renewable Energy, 1st Edition, CRC, 2007.
5. NREL Renewable Energy Resources. Available at: http://www.nrel.gov/science_technology/
6. Stine W.B. and Geyer, M., Power From the Sun, 2001, Available at: http://www.powerfromthesun.net/book.htm
7. Vanek F.M., Energy Systems Engineering Evaluation and Implementation, 1st Edition, McGraw Hill, 2008.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code	1c. Department BSE

2. Course Prefix ME	3. Course Number A455	4. Previous Course Prefix & Number ME A494E	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (2+2)

6. Complete Course Title
HVAC Systems Optimization
HVAC Systems Optimization
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☐ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☐ Other (please specify)

☒ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☐ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Mechanical Engineering		3/16/2011	Jeff Hoffman
2.			
3.			

Initiator Name (typed): Jeff Hoffman Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 03/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/28/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Design of thermal and HVAC (HVAC: heating, ventilation, and air-conditioning) systems with emphasis on economic considerations and optimization. Thermodynamics, fluid mechanics, and heat transfer culminating in a semester-long project based on economic and technical considerations.

16a. Course Prerequisite(s) *(list prefix and number)* ES A341; ES A346	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)* N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
New technical elective course in Mechanical Engineering to offer specialization in HVAC in combination with ME A414. This course was initially taught as ME A494E.

Initiator (faculty only) Date
Jeffrey Hoffman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

COURSE CONTENT GUIDE

University of Alaska Anchorage, School of Engineering

ME A455
HVAC Systems Optimization

1. Change Date	16 March 2011
2. Course Information	
A. College	School of Engineering (EN)
B. Course Prefix	ME
C. Course Number	A455
D. Number of Credits and Contact Hours	
	Number of Credits: 3
	Contact Hours: 3+2
E. Course Title	HVAC Systems Optimization
F. Grading Basis	A-F
G. Implementation Date	Fall 2011
H. Course Description	Design of thermal and HVAC (HVAC: heating, ventilation, and air-conditioning) systems with emphasis on economic considerations and optimization. Thermodynamics, fluid mechanics, and heat transfer culminating in a semester-long project based on economic and technical considerations.
I. Course Prerequisites	ES A341 Fluid Mechanics, ES A346 Basic Thermodynamics
J. Course Fee	No

3. Course Level Justification

This course emphasizes economic considerations and optimization of thermal systems. The material presented will prepare the student to be able to model, analyze, design and optimize a variety of thermal systems. A semester long design project will give the students the opportunity to optimize their design by implementing theory learned in the lecture.

4. Instructional Goals and Student Outcomes

A. Instructional Goals

The instructor will

1. Direct, supervise, and provide guidance to students and student teams to successfully complete a semester long HVAC design project.
2. Provide an understanding that enables the student to choose appropriate tools, including computer-based models, to implement, solve, and optimize thermal system models.
3. Provide an understanding of how economic and technical considerations relate to the optimization of thermal system design.
4. Instill an applicable level of knowledge required for HVAC system simulation.
5. Instill the importance of professionalism in the students and in their interaction with others.

B. Student Outcomes

Upon completion of this course, students should be able to:

Outcome	**Assessment**
Analyze and model thermal system components and complex thermal systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Understand the application and implications of engineering economics in thermal system design and operation.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Use standard computer simulation tools to implement thermal models and characterize system behavior.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Understand basic optimization methods and their application to thermal systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Develop simple HVAC system steady-state simulations.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Design and optimize a thermal system.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Work professionally on a team project.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

5. Evaluation and Assessment Methods

Students will be evaluated using a variety of tools at the instructor's discretion including but not limited to homework assignments, projects, midterm exams, laboratory reports, in-class activities and presentations, and a final/comprehensive exam.

6. Topical Course Outline

1. Economic considerations in thermal system engineering design
2. Applications of Engineering Equation Solver (EES)
3. Component simulation
4. System simulation
5. Thermal design optimization
6. Semester long design project

7. Suggested Texts

1. *Heat and Mass Transfer,* Cengel and Ghajar, , McGraw-Hill, 4th Edition, 2010

8. Bibliography

1. *Design and Optimization of Thermal Systems*, Y. Jaluria, CRC Press, 2nd Edition, 2008
2. *Thermodynamics: An Engineering Approach*, Y.A. Cengel and M. A. Boles, McGraw-Hill, 7th edition, 2011.
3. Fluid Mechanics, Frank White, 7th edition, McGraw-Hill, 2010
4. *2010 ASHRAE Handbook Refrigeration*, American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc.
5. *2009 ASHRAE Handbook Fundamentals*, American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc.
6. *2008 ASHRAE Handbook HVAC Systems and Equipment*, American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc.
7. *2007 ASHRAE Handbook HVAC Applications*, American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College EN SOENGR	1b. Division No Division Code		1c. Department BSE	
2. Course Prefix ME	3. Course Number A459	4. Previous Course Prefix & Number N/A	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (3+0)

6. Complete Course Title
Fracture Mechanics
Fracture Mechanics
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☐ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
  ☐ Class ☐ Level
  ☐ College ☐ Major
☐ Other (please specify)
☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☐ Course Prerequisites
☐ Co-requisites
☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with

☒ Stacked with ME A659 Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Mechanical Engineering	228-229	3/16/2011	Jeff Hoffman
2.			
3.			

Initiator Name (typed): Jeff Hoffman Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 3/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/28/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
The topics of theoretical, experimental, and applied fracture of solids, structures, and machines, subcritical crack growth including fatigue, creep, and corrosion, embrittlement, safety, and life cycle design and analysis will be presented. Case studies will be used to illustrate the course topics.

16a. Course Prerequisite(s) *(list prefix and number)*
ES A331

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
New technical elective course in Mechanical Engineering.

Initiator (faculty only) Date
Jeffrey Hoffman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

1. Change Date: March 2011

2. Course Information

A.	College:	School of Engineering
B.	Course Prefix:	ME
C.	Course Number:	A459
D.	Number of Credits and Contact Hours	
	Number of Credits:	3
	Contact Hours:	3 + 0
E.	Course Title:	Fracture Mechanics
F.	Grading Basis:	A-F
G.	Implementation Date:	Fall 2011
H.	Course Description:	The topics of theoretical, experimental, and applied fracture of solids, structures, and machines, subcritical crack growth including fatigue, creep, and corrosion, embrittlement, safety, and life cycle design and analysis will be presented. Case studies will be used to illustrate the course topics.
I.	Course Prerequisites:	ES A331 Mechanics of Materials
J.	Course Fee:	Yes

3. Course Level Justification

This course applies the concepts of mechanics of materials and materials science, as well as mathematics, to fracture mechanics. Basic and advanced methods of modeling crack growth in and fracture of solid materials, structures and machines are utilized. The course relates the application of fracture mechanics to the analysis and design of structures and machines. Advanced experimental techniques and their theoretical foundation are presented. Case studies are used to give a historical view and practical application of fracture mechanics. The 600-level course is stacked with the 400-level course appropriate for senior-level undergraduates. Graduate-level students taking this course will be expected to complete extra work, including but not limited to research papers and projects, to fulfill the student objective that they are prepared to conduct research in the area of fracture mechanics.

4. Instructional Goals and Student Outcomes

Instructional Goals

The instructor will:

1. Present fracture mechanics theory.
2. Present methods of fracture mechanics application.
3. Present methods of experimental fracture mechanics.
4. Present relevant case studies to illustrate fracture mechanics application.

5. Present fracture mechanics theory, application, and design content consistent with professionals in the field.

Student Outcomes

The student will be able to:

Outcome	**Assessment**
Understand the principles of fracture mechanics.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Apply fracture mechanics theory in the analysis of existing systems or components.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Apply fracture mechanics to the design of new systems or components.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Interpret and apply relevant fracture mechanics codes and standards for experiments and design.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Apply fracture mechanics to piping, pressure vessels, and other structures and machines.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Apply fracture mechanics in the optimization of design and life cycle.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Read and interpret the fracture mechanics literature and embark on a journey of lifelong learning.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Converse professionally with experienced members of the fracture mechanics field.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
For the ME A659 Fracture Mechanics, understand the recent literature in the field of fracture mechanics.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

5. Evaluation and Assessment Methods

Students will be evaluated using a variety of tools at the instructor's discretion including critical discussions/analysis of concepts and applications, class project, in-class presentations, homework assignments, quizzes, midterm exams, and a final/comprehensive exam. For ME A659 Fracture Mechanics, the students will be required to complete additional homework assignment(s), quiz or exam question(s), research paper(s), and/or research project(s) that cover fracture mechanics theory and application of greater depth.

6. Topical Course Outline

1. Fatigue and fracture mechanics overview

2. Linear-elastic fracture mechanics
3. Elastic-plastic fracture mechanics
4. Dynamic fracture
5. Fracture mechanisms
6. Experimental fracture mechanics
7. Fatigue crack growth
8. Environmental effects on fatigue and fracture
9. Creep crack growth
10. Applications of fracture mechanics to piping, pressure vessels, and other structures
11. Fracture considerations for design and safety
12. Life cycle engineering and management
13. Case studies

7. Suggested Text

Anderson, T. L., Fracture Mechanics: Fundamentals and Applications, 3rd edition, Taylor & Francis, 2005.

8. Bibliography

Janssen, M. Zuidema, J., and Wanhill, R., Fracture Mechanics, 2nd edition, Taylor & Francis, 2006.
Kanninen, M. F., and Popelar, C. H., Advanced Fracture Mechanics, Oxford University Press, 1985.
Broek, D., Elementary Engineering Fracture Mechanics, 4th edition, Springer, 1982.
R.W. Hertzberg, Deformation and fracture mechanics of engineering materials, 3rd edition, Wiley, 1989.
Wei, R. P., Fracture Mechanics: Integration of Mechanics, Materials Science, and Chemistry, Cambridge, 2010.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	BSE

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ME	A471	N/A	3	(3+0)

6. Complete Course Title
Automatic Control
Automatic Control
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☒ Cross Listed with EE A471
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. BSE/EE		03/01/2011	Jens Munk
2. BSE/ME		03/01/2011	Jeff Hoffman
3.			

Initiator Name (typed): Jeff Hoffman Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: 03/18/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/21/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Feedback control of linear mechanical and electrical systems by using block diagrams with transfer functions of plants, controllers, sensors, and actuators. Stability analysis with transfer-function and state-space models. Transient, steady-state analysis, frequency-domain analysis, and design of control systems with Bode plots and the Nyquist criterion.

16a. Course Prerequisite(s) *(list prefix and number)*
MATH A302; ES A208 or ES 210; EE A353
or ME/EE A306

16b. Test Score(s)

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course description and prerequisites are updated.

Initiator (faculty only) Date
Jeff Hoffman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

1. Change Date: November 2010

2. Course Information

A.	College:	School of Engineering
B.	Course Prefix:	ME
C.	Course Number:	A471
D.	Number of Credits and Contact Hours	
	Number of Credits:	3
	Contact Hours:	3 + 0
E.	Course Title:	Automatic Control
F.	Grading Basis:	A-F
G.	Implementation Date:	Fall 2011
H.	Cross Listing:	EE A471
I.	Course Description:	Feedback control of linear mechanical and electrical systems by using block diagrams with transfer functions of plants, controllers, sensors, and actuators. Stability analysis with transfer-function and state-space models. Transient, steady-state, analysis, frequency-domain analysis, and design of control systems with Bode plots and the Nyquist criterion.
J.	Course Prerequisites:	MATH A302; ES A208 or ES A210; EE A353 or ME/EE A306
K.	Course Fee:	Yes

3. Course Level Justification

This course utilizes knowledge gained from prerequisite courses to model the time and frequency responses of mechanical and electrical feedback control systems. The course is based on the Laplace transform, the related transfer function approach, and the state space model. The material prepares the student to be able to model, analyze, and design simple and complex feedback control systems by means of analytical procedures and numerical tools available in MATLAB and Simulink. The main emphasis areas are stability, transient response and steady-state response of feedback control systems.

4. Instructional Goals and Student Outcomes

Instructional Goals

The instructor will:

1. Introduce the concepts of linear open-loop and closed-loop (feedback) control systems of mechanical and electrical engineering applications.
2. Provide an understanding of applying the Laplace transform and deriving transfer functions to model systems (plants), controllers, sensors, and actuators in feedback control systems.

3. Utilize the concepts of coupled systems in modeling sensing and actuation of feedback control systems.
4. Provide an understanding of the actions produced by proportional, derivative, and integrative controllers.
5. Facilitate the understanding of stability, transient response, and steady-state response of feedback control systems.
6. Introduce the students to modern tools for the analytical/numerical modeling, analyzing, and designing of feedback control systems by means of MATLAB and Simulink.
7. Encourage individual problem solving approaches as well as team approaches to designing feedback control systems.

Student Outcomes
The student will be able to:

Outcome	**Assessment**
Explain the concepts and main features of linear feedback control as a means to conveniently adjust the dynamic response of mechanical and electrical systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Derive transfer functions by using the Laplace transform for plants, controllers, sensors, and actuators in a variety of mechanical and electrical system applications.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Critically utilize proportional, derivative, and/or integrative control actions to achieve the desired dynamic behavior of a feedback control system.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Characterize the stability, the transient response, and the steady-state response of feedback control systems in the time domain as well as in the frequency domain.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Demonstrate proficiency in using various solution methods and modern computational tools to model, analyze, and design feedback control systems.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Work individually in problem solving as well as in teams to complete an engineering control project.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.
Interact professionally with colleagues and the instructor in analyses of feedback control system applications.	This outcome will be assessed through assignments, quizzes, exams, discussions, and projects.

5. Evaluation and Assessment Methods

Students will be evaluated using a variety of tools at the instructor's discretion including critical discussions/analysis of concepts and applications, class project, in-class presentations, homework assignments, quizzes, midterm exams, and a final/comprehensive exam.

6. Topical Course Outline

A. Time-domain modeling of open-loop systems
   1. Mechanical and electrical elements; open-loop systems
   2. Laplace transforms and transfer functions
   3. State space modeling

B. Closed-loop feedback control systems
   1. Controllers: proportional, derivative, integrative
   2. Plants, sensors, and actuators
   3. Block diagrams and transfer functions of basic feedback control systems

C. Stability of feedback control systems
   1. Routh-Hurwitz criterion
   2. MATLAB stability analysis
   3. State space stability

D. Transient response of feedback control systems
   1. Poles and zeroes
   2. First-order systems
   3. Second-order systems

E. Steady-state response and errors
   1. Unity-feedback systems
   2. Nonunity-feedback systems
   3. Errors for systems with disturbances

F. Root locus method
   1. Sketching the root locus
   2. MATLAB plotting of the root locus
   3. Analysis by the root locus method
   4. Design by the root locus method

G. Frequency-domain methods
   1. Bode plots
   2. Nyquist criterion
   3. Analysis in the frequency domain
   4. Design in the frequency domain

7. Suggested Text

Nise, N. *Control System Engineering*, Sixth Edition. Wiley, 2010.

8. Bibliography

Dorf, R.C., Bishop, R.H. *Modern Control Systems*, Twelfth Edition. Prentice Hall, 2010.
Franklin, G.F. *Feedback Control of Dynamic Systems*, Sixth Edition. Prentice Hall, 2009.
Lobontiu, N. *System Dynamics for Engineering Students: Concepts and Applications*. Elsevier, 2010.

Date: March 30, 2011

To: Dr. Judith K. Moore, Chair
Undergraduate Academic Board

CC: Dr. Osama Abaza, Chair
Curriculum Committee
Department of Civil Engineering

Dr. Robert Lang, Dean
School of Engineering

From: Dr. Jeffrey Miller, Chair
Bachelor of Science in Engineering Department
Computer Systems, Electrical, Mechanical Engineering

Re: Catalog Copy Revisions
Bachelor of Science in Engineering
Computer Systems, Electrical, Mechanical Engineering
School of Engineering

The BSE department is in the process of revising the Bachelor of Science in Engineering degree, with specializations in Computer Systems Engineering, Electrical Engineering, and Mechanical Engineering. The modifications are coming as a result of the ABET accreditation visit that occurred in fall 2010. As part of our continuous curriculum improvement process, we have determined there are revisions necessary to the required and elective courses that are part of the three separate curricula. The changes requested and the existing catalog text is appended in hard copy. Both have been provided electronically as well for consideration by the UAB.

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	BSE

2. Complete Program Title/Prefix
Bachelor of Science in Engineering (Computer Systems Engineering, Electrical Engineering, Mechanical Engineering)

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: Bachelor of Science or Graduate: CHOOSE ONE

4. Type of Action:

PROGRAM
- ☐ Add
- ☒ Change
- ☐ Delete

PREFIX
- ☐ Add
- ☐ Change
- ☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2011 To: /

6a. Coordination with Affected Units — Department, School, or College: BSE, SOE

Initiator Name (typed): Jeffrey Miller — Initiator Signed Initials: _________
Date:_______________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 3/20/2011

6c. Coordination with Library Liaison Date: 3/28/2011

7. Title and Program Description - Please attach the following:

☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
Based on our ABET accreditation visit and continuous curriculum improvement, we have modified the curricula in Computer Systems Engineering, Electrical Engineering, and Mechanical Engineering within the BSE department.

Initiator (faculty only) ____ Date	☐ Approved ☐ Disapproved Dean/Director of School/College ____ Date
Jeffrey Miller Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved Department Chairperson ____ Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson ____ Date
☐ Approved ☐ Disapproved Curriculum Committee Chairperson ____ Date	☐ Approved ☐ Disapproved Provost or Designee ____ Date

SCHOOL OF ENGINEERING

Engineering embraces the wide range of cultural and technical subjects related to the planning, design and manufacture, technology, or construction of objects necessary for civilization. An engineer is an innovator, a builder, and a problem solver. Engineers turn scientific knowledge into useful goods and services and are responsible to society for their engineering design decisions. They are interested in working with people often as team members in positions of leadership. Engineers are concerned about people and ways to provide society with improved living standards.

The School of Engineering offers areas of study at the undergraduate level:

- A four-year program leading to a Bachelor of Science in Civil Engineering;
- A four-year program leading to a Bachelor of Science in Engineering with three specialty tracks:
  - Mechanical Engineering
  - Electrical Engineering
  - Computer Systems Engineering;
- A four-year program leading to a Bachelor of Science in Geomatics;
- A two-year program leading to an Associate of Applied Science in Geomatics; and
- Minors in Civil Engineering, Computers Systems Engineering, Electrical Engineering, General Engineering, Mechanical Engineering, or Geographic Information Systems (GIS).

Accreditation

All Bachelor of Science programs are accredited by ABET (Accreditation Board for Engineering and Technology) and include the following:

1. Civil Engineering
2. Computer Systems Engineering
3. Electrical Engineering
4. Geomatics
5. Mechanical Engineering

Civil Engineering

The UAA School of Engineering offers a Bachelor of Science in Civil Engineering to prepare students for the profession. Knowledge of mathematical and physical sciences gained by study, experience and practice is applied with judgment to develop ways to utilize materials and forces of nature for the progressive well-being of humanity. Students are prepared for improving and protecting the environment; providing facilities for community living, industry and transportation; and providing structures for the use of humanity.

Engineering: Computer Systems Engineering, Electrical Engineering, Mechanical Engineering

The UAA School of Engineering offers a Bachelor of Science in Engineering (BSE) with specializations in Computer Systems Engineering, Electrical Engineering, and Mechanical Engineering. Graduates with a BSE have a broad range of engineering skills that are necessary when serving the infrastructure needs of urban societies and remote rural areas typical of many Alaskan communities. The program emphasizes fundamental engineering principles as a basis for interdisciplinary design, teamwork, and lifelong learning. Graduates are in a position to take advantage of a wide variety of professional opportunities and are well-prepared for an engineering career in a technologically changing world.

Geomatics

Geomatics embraces the traditional disciplines of land surveying, mapping, geodesy, photogrammetry, and hydrography, together with the newer disciplines of remote sensing, digital photogrammetry, and spatial or geographic information systems (GIS). Geomaticians help design, map and manage the natural and the man-made resources of the earth. Their skills and efforts are important in project development and environmental protection. They gather, analyze, and manipulate data; map results; and help design new developments. The disciplines used in geomatics are based on advancing technologies and use an integrated approach to the acquisition, analysis, storage, distribution, management, and application of spatially referenced data.

Minors in the School of Engineering

To meet a variety of student needs, the School of Engineering offers several minors. A choice of two types of Engineering minors are offered. The first is a minor in General Engineering which is designed for students who are majoring in a non-engineering baccalaureate degree. The second is an Engineering Specialty minor program which is designed for students majoring in an engineering baccalaureate degree who, therefore, have completed much of the coursework in the Bachelor of Science in Engineering (BSE) or Civil Engineering (CE) programs. Engineering Specialty minors are in Civil Engineering, Computer Systems Engineering, Electrical Engineering, or Mechanical Engineering. Additionally, a minor in Geographic Information Systems (GIS) is offered for students who are majoring in baccalaureate degrees in a variety of disciplines and seeking strong GIS knowledge and skills to enhance their specialty and support a sustainable professional career.

CIVIL ENGINEERING

Engineering Building (ENGR), Room 201, (907) 786-1900
www.engr.uaa.alaska.edu

Civil engineering is a professional discipline recognized by licensure in each of the 50 states and many other countries. Civil engineering is a broad branch of engineering dedicated to providing civilization with essential infrastructure and services including bridges, buildings, ports, water resource development, waste disposal, dams, water power, irrigation and drainage works, roads, airports, railways, construction and management services; surveying; and providing city management and developmental planning. Civil Engineering students are introduced to principles of mathematics, chemistry, and physics during their first two years of study. The third year of study is largely devoted to courses in applied extensions of the basic sciences to form the foundation for more advanced engineering analysis and design. Students draw upon previous learning in their senior year to focus their studies on sophisticated analyses and creative designs. Throughout the four-year engineering program students take courses in communication, humanities, social sciences, and fine arts to improve their communication skills and to become more aware of their roles and responsibilities in modern society. The UAA Civil Engineering program emphasizes northern region design considerations and provides specialized training appropriate for an engineering career in Alaska and other cold regions of the world.

Bachelor of Science, Civil Engineering

The Department of Civil Engineering offers an undergraduate curriculum leading to a Bachelor of Science in Civil Engineering. The first two years of the program have application to most other branches of engineering.

Accreditation

The Bachelor of Science program in Civil Engineering at UAA is accredited by the ABET which is the only accreditor of engineering programs and related fields of study in the US.

Program Objectives and Expected Outcomes

The curriculum of the UAA civil engineering program is designed to produce graduates who:

1. Have a basic knowledge of the principles and skills relating to the civil engineering sub-disciplines of water resources, geotechnical, structural, transportation, and environmental engineering;
2. Have an understanding of the principles related to project delivery;
3. Have sufficient technical competence to obtain employment as an entry-level engineer and to be able to progress professionally within the discipline, and are prepared for advanced study;
4. Have a fundamental understanding of the issues related to civil engineering practice in cold regions;
5. Are able to communicate their ideas;
6. Are able to work within a team environment; and
7. Are prepared for and understand the need for continued professional development throughout their careers.

In keeping with the objectives, it is expected that graduates of the UAA Civil Engineering program will have:

1. An ability to apply knowledge of mathematics through differential equations, probability and statistics, calculus-based physics, and general chemistry;
2. An ability to apply knowledge in a minimum of four recognized major civil engineering areas;
3. An ability to design and conduct experiments, as well as to analyze and interpret data, in more than one of the recognized major civil engineering areas;
4. An ability to design a civil engineering system, component, or process to meet desired needs;
5. An ability to function on multidisciplinary teams;

6. An ability to identify, formulate, and solve engineering problems;
7. An understanding of professional and ethical responsibility;
8. An ability to communicate effectively;
9. The broad education necessary to understand the impact of engineering solutions in a global and societal context;
10. A recognition of the need for, and an ability to engage in, lifelong learning;
11. A knowledge of contemporary issues in professional practice; and
12. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Honors in Civil Engineering

Undergraduate Civil Engineering students may be recognized for exceptional performance by earning Departmental Honors in Civil Engineering. In order to receive honors in Civil Engineering, a student must meet each of the following requirements:

1. Complete all requirements for a BS degree in Civil Engineering. A minimum of 30 credits applicable to the Civil Engineering degree must be completed at UAA.
2. Be an active member for at least one year of both a national and an on-campus student chapter of a professional engineering society that addresses issues relevant to the civil engineering profession.
3. Have a GPA of 3.30 or higher in courses applicable to the Bachelor of Science in Civil Engineering degree.
4. Gain approval for a departmental honors design or research project prior to applying for graduation. Present an oral presentation and written report of project results eight weeks prior to scheduled graduation. The project proposal and final written report must be approved by the student's academic advisor and the chair of Civil Engineering Department.
5. Pass the Fundamentals of Engineering Examination in or prior to the fall semester of the senior year.
6. Document a minimum of eight weeks work experience in an engineering or engineering-related position.

Admission Requirements

Admission to the Civil Engineering program is to one of two levels: Pre- Engineering or Civil Engineering. Students admitted to either of the two levels are considered to be degree-seeking engineering students. Pre- Engineering students are classified within the university system as premajors. Civil Engineering students are classified within the university system as full majors.

Pre-Engineering

Applicants for admission who have completed only the general Baccalaureate Degree Program Admission Requirements in Chapter 7 of this catalog are admitted as pre-majors to the Civil Engineering program at the Pre-Engineering level.

Civil Engineering

Applicants for admission who, in addition to the general Baccalaureate Degree Program Admission Requirements, have completed the following list of high school courses (or their university equivalents) with grades of C or better will be admitted as full majors to the Civil Engineering program at the Engineering Fundamentals level:

Algebra	2 years
Chemistry	1 year
English	3 years
Physics	1 year
Trigonometry	1/2 year

Advancement

Pre-Engineering to Civil Engineering

Pre-Engineering students must work with their assigned advisor to develop a course plan to make up the high school course requirements for advancement to the Civil Engineering full major. Once the Pre- Engineering coursework outlined in the student's course plan is completed, students must meet with their advisor to apply for advancement to Engineering full-major status.

Advising

All undergraduate students are strongly encouraged to meet with their faculty advisor each semester for the purpose of reviewing their academic progress and planning future courses. All civil engineering students are required to meet with their faculty advisors to be advanced within the program and to apply for graduation. It is particularly important for students to meet with their faculty advisor whenever academic difficulties arise.

Academic Progress

Any given CE or ES course may only be taken when all prerequisites for the course are met with a grade of C or higher. A student who is unable to earn a grade of C or better in a CE or ES prerequisite course may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt may result in removal from the Civil Engineering program. A student who has a semester GPA in engineering courses below 2.00 will be placed on academic warning by the School of Engineering. A student on academic warning that receives a semester GPA in engineering courses of at least 2.00 will be removed from academic warning status by the school. Otherwise, he or she will be removed from the Civil Engineering program and will not be permitted to enroll in CE and ES courses.

Graduation Requirements

In order to receive the Bachelor of Science degree in Civil Engineering, students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees (GER) listed at the beginning of this chapter with the additional requirement that one of the following criteria are met within the courses taken to meet the social sciences, humanities, and fine arts GER requirements:

1. Six credits are from courses that are at the 200 level or above.
2. Three credits are from courses that are at the 200 level or above and 6 credits are from a sequence of courses at the 100 level. For example, HIST A101 and HIST A102 is considered to be a 6-credit course sequence.

C. Civil Engineering Requirements

1. Satisfactorily complete these courses with a GPA of 2.00. Courses with an asterisk (*) must be completed with a grade of C or better (108 credits):

CE A334*	Properties of Materials	3
CE A344	Water Resources Engineering	3
CE A402	Transportation Engineering	3
CE A403	Arctic Engineering	3
CE A422	Foundation Engineering	3
CE A431*	Structural Analysis	4
CE A432	Steel Design (3)	3
	or	
CE A433	Reinforced Concrete Design (3)	
CE A435*	Soil Mechanics	3
CE A438	Design of Civil Engineering Systems	3
CE A441	Introduction to Environmental Engineering	3
CHEM A105*	General Chemistry I	3
CHEM A105L*	General Chemistry I Laboratory	1
CHEM A106*	General Chemistry II	3
CHEM A106L*	General Chemistry II Laboratory	1
COMM A111	Fundamentals of Oral Communications (3)	3
	or	
COMM A235	Small Group Communication (3)	
	or	
COMM A237	Interpersonal Communication (3)	
	or	
COMM A241	Public Speaking (3)	
ENGL A111*	Methods of Written Communications	3
ENGL A212	Technical Writing	3
ENGR A151*	Engineering Practices I	3
ENGR A161*	Engineering Practices II	3
ES A103	Engineering Graphics	3

ES A209*	Engineering Statics	3
ES A210*	Engineering Dynamics	3
ES A302 *	Engineering Data Analysis	3
ES A309	Elements of Electrical Engineering	3
ES A331*	Mechanics of Materials	3
ES A341*	Fluid Mechanics	3
ES A341L	Fluid Mechanics Laboratory	1
ES A346	Basic Thermodynamics	3
ESM A450	Economic Analysis and Operations	3
GEO A155*	Fundamentals of Surveying	3
MATH A200*	Calculus I	4
MATH A201*	Calculus II	4
MATH A202*	Calculus III	4
MATH A302*	Ordinary Differential Equations	3
PHYS A211*	General Physics I	3
PHYS A211L*	General Physics I Laboratory	1
PHYS A212*	General Physics II	3
PHYS A212L*	General Physics II Laboratory	1

2. A natural science elective (minimum 3 credits) must be taken in addition to the 7-credit natural science General Education Requirement and may be selected from the following list: 3

BIOL A115/L	Fundamentals of Biology I with Laboratory (4)
BIOL A271/L	Principles of Ecology with Laboratory (4)
CHEM A450	Environmental Chemistry (3)
GEOL A111	Physical Geology (4)
GEOL/ BIOL A178	Fundamentals of Oceanography (3)
PHYS A303	Modern Physics (3)
PHYS A314	Electromagnetics (3)
PHYS A320	Simulation of Physical Systems (3)
PHYS/BIOL/ CHEM A456	Nonlinear Dynamics and Chaos (3)

Note: GEOL A111 is the recommended course.

3. Six credits of technical elective courses are required that may be chosen from the following list of courses. These electives are intended to improve students' knowledge and skills relating to site characterization, problem identification, criteria development, and project design in the civil engineering sub-disciplines of water resources, geotechnical, structural, transportation, and environmental engineering. Graduate courses may not be applied to both a baccalaureate and master's degree. 6

Water Resources Engineering

CE A662	Surface Water Dynamics (3)
CE A663	Ground Water Dynamics (3)
CE A674	Waves, Tides, and Ocean Process for Engineers (3)
CE A677	Coastal Measurements and Analysis (3)
CE A682	Ice Engineering (3)
CE A683	Arctic Hydrology and Hydraulic Engineering (3)
CE A684	Arctic Utility Distribution (3)

Geotechnical Engineering

CE A676	Coastal Engineering (3)
CE A681	Frozen Ground Engineering (3)

Structural Engineering

CE A432	Steel Design (3)
	or
CE A433	Reinforced Concrete Design (3)

Either CE A432 or CE A433 may be chosen as a technical elective, if not applied to satisfy the Civil Engineering Professional requirements described above.

CE A434	Timber Design (3)

CE A610	Engineering Seismology (3)
CE A611	Geotechnical Earthquake Engineering (3)
CE A612	Advanced Foundation Design (3)
CE A631	Structural Finite Elements (3)
CE A633	Structural Dynamics (3)
CE A634	Structural Earthquake Engineering (3)
CE A636	Multi-Story Building Structural Design (3)
CE A637	Earthquake Resistant Structural Design (3)
CE A639	Loads on Structures (3)

Transportation Engineering

CE A423	Traffic Engineering (3)
CE A424	Pavement Design (3)
CE A425	Highway Engineering (3)
CE A675	Design of Ports and Harbors (3)
GEO A456	Geomatics and Civil Design (3)

Environmental Engineering

AEST A601	Aquatic Process Chemistry (3)
AEST A602	Water Quality Management (3)
AEST A603	Solid Waste Management (3)
AEST A604	Environmental Law, Regulations and Permitting (3)
AEST A605	National Environmental Policy Act (3)
AEST A606	Clean Water Act (3)
AEST A608	Fundamentals of Air Pollution (3)
AEST A613	Remediation (3)
CE A442	Environmental Systems Design (3)
CE A600	Fundamentals of Environmental Science and Engineering (3)
CE A605	Chemical and Physical Water and Wastewater Treatment Processes (3)
CE A606	Biological Treatment Processes (3)

4. A total of 132 credits is required for the degree, of which 42 credits must be upper division (300-, 400-, or 600-level).

5. All Civil Engineering students are strongly encouraged to take the Fundamentals of Engineering Examination in their senior year as an initial step toward professional registration. Civil Engineering students are also encouraged to consider minors in Mathematics or Physics and graduation with departmental honors.

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ENGINEERING: COMPUTER SYSTEMS, ELECTRICAL, AND MECHANICAL ENGINEERING

Engineering Building (ENGR), Room 201, (907) 786-1900
www.engr.uaa.alaska.edu/programs/bse

Bachelor of Science, Engineering

The Bachelor of Science in Engineering (BSE) program is a design-oriented curriculum that incorporates topics that span the foundations of engineering disciplines. BSE students select courses for a specialization track that best suits their needs. Thus, the BSE curriculum can custom fit a student's education with the needs of the community and industry. The three tracks of specialization are: 1) Computer Systems Engineering, 2) Electrical Engineering, and 3) Mechanical Engineering.

The Computer Systems Engineering (CSE, also known as Computer Engineering) specialty track focuses on applied computer theory, the design and implementation of computer hardware and software, and specialized areas of computing such as network architecture, security, and distributed systems. Students take courses such as computer programming, computer hardware design, networking, operating/software systems engineering, signals, and electronic device and circuit design.

The Electrical Engineering (EE) specialty track focuses on fundamental electrical concepts including circuit theory, electrical devices, electromagnetism, and signals and systems. Students take courses in computer design, antenna theory, communication theory, and control systems.

The Mechanical Engineering (ME) specialty track focuses on the design of systems related to transfer of thermal and mechanical energies where topics such as HVAC (heating, ventilation, and air conditioning) and design of mechanisms are covered in detail. Students take courses in heat transfer, HVAC, manufacturing, and machine design, including hands-on exposure in a state of the art manufacturing lab with rapid prototyping through three dimensional printers and CNC machining.

Accreditation

All BSE programs are separately accredited by the Engineering Accreditation Commission of ABET, which is the only accreditor of engineering programs and related fields of study in the US. The accredited BSE programs include: 1) Computer Systems Engineering, 2) Electrical Engineering, and 3) Mechanical Engineering.

Program Objectives and Expected Outcomes

The curriculum of the BSE program has also been carefully designed to prepare students for the profession of engineering through study, experience, and practice. Each of the three specializations in the BSE program has objectives that are consistent with the needs of the respective program's constituents, as follows:

Computer Systems Engineering

1. Graduates are successful practitioners of computer engineering in a variety of industries, government agencies, and research/academic institutions, serving the State of Alaska as well as national/international needs.
2. Graduates exhibit high standards regarding ethical behavior and social responsibility.
3. Graduates successfully engage in life-long learning experiences such as graduate education, short courses, technical talks, conferences, training program, community groups, and writing and/or publishing papers.

Electrical Engineering

1. To produce electrical engineering graduates with the training and skills to enter the job market or to continue their education by attending graduate school.
2. To produce graduates who will become business and community leaders in Alaska and throughout the world.
3. To produce graduates who will, through their training in electrical engineering and their commitment to their continuing education, become the entrepreneurs driving Alaska's growth in the future.
4. To produce graduates in electrical engineering who conduct themselves and practice their profession with the highest of professional standards.

Mechanical Engineering

1. To produce graduates who are able to practice mechanical engineering through design and analysis of mechanical systems in industry, government, and academic settings.
2. To produce graduates who are prepared for graduate-level education, research and development, and other creative endeavors in science and technology.
3. To produce graduates who are able to conduct themselves in a professional and ethical manner.
4. To produce graduates who are able to become contributors and leaders in the economic development and improving the quality of life in the State of Alaska, the nation, and the world.

Knowing that all engineering programs must demonstrate that their students attain a level of proficiency in a number of important areas, the BSE program has chosen the following set of program outcomes for all three specializations. Students will have:

(a) an ability to apply knowledge of mathematics, science, and engineering
(b) an ability to design and conduct experiments, as well as analyze and interpret data
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health, and safety manufacturability, and sustainability
(d) an ability to function on multidisciplinary teams
(e) an ability to identify, formulate, and solve engineering problems
(f) an understanding of professional and ethical responsibility
(g) an ability to communicate effectively
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
(i) a recognition of the need for, and the ability to engage in, lifelong learning
(j) a knowledge of contemporary issues
(k) and an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Honors in Engineering

Undergraduate BSE students may be recognized for exceptional performance by earning Departmental Honors in each of the three specialty tracks: Computer Systems Engineering, Electrical Engineering, or Mechanical Engineering. The award will be noted on their permanent university transcript. In order to receive Honors in the BSE program, a student must meet each of the following requirements.

1. Complete all requirements for a BSE. A minimum of 30 credits applicable to the BSE must be completed at UAA.
2. Be an active member for at least one year of both a national and an on-campus student chapter of a professional engineering society that addresses issues relevant to the engineering profession.
3. Have a GPA of 3.30 or higher in courses applicable to the BSE.
4. Gain approval for and complete a design/research project prior to applying for graduation. An oral presentation of the project results to an appropriate audience will be required. The project proposal and final written report must be approved by the student's academic advisor and the chair of BSE program.
5. For Mechanical and Electrical Engineering specializations, take and pass the Fundamentals of Engineering Examination in the senior year. For Computer Systems Engineering specialization, take and pass the CSE Exit Examination in the senior year.
6. Document a minimum of eight weeks work experience in an engineering or engineering-related position.

Preparation

While in high school, students can prepare for entering and succeeding in the university engineering program. In order to be the best prepared, students should complete the following high school courses with grades of C or better:

Algebra	2 years
Chemistry	1 year
English	3 years
Physics	1 year
Trigonometry	1/2 year

Students successfully completing the above courses will be prepared to enroll in the first year of courses that count towards the engineering degree. Students without the above preparatory courses will need to take equivalent university courses before taking some of the first year of courses that count towards the engineering degree. Students are encouraged to work with their faculty advisors for developing a course plan.

Admission Requirements

Admission to the Bachelor of Science in Engineering program is to one of two levels: Pre- Engineering or Engineering. Students admitted to either of the two levels are considered to be degree-seeking engineering students majoring in engineering

Pre-Engineering Level

Applicants for admission who have completed only the general Baccalaureate Degree Program Admission Requirements in Chapter 7 of this catalog are admitted to the Engineering program at the Pre-Engineering level.

Engineering Level

Applicants for admission who, in addition to the general Baccalaureate Degree Program Admission Requirements, have completed at least the level of high school courses listed above under Preparation (or their university equivalents) with grades of C or better will be admitted to the Engineering program at the Engineering level.

Advancement

Pre-Engineering to Engineering

Pre-Engineering students must work with their assigned advisor to develop a course plan to make up the high school course requirements for advancement to the Engineering level. Once the Pre-Engineering course work outlined in the student's course plan is completed, students must meet with their advisor to apply for advancement to the Engineering level or may also be advanced to the Engineering level by the department chair upon review of the student's academic progress.

Curriculum

The BSE degree requires a total of 130 credits for the CSE specialization and 132 credits for the Electrical Engineering and Mechanical Engineering specializations. There are five main categories of required credits.

Category	Credits
*General Education Requirements (GER)	15
Core Curriculum	49
Engineering Emphasis Track Courses	
Computer Systems Engineering	51
Electrical Engineering	53
Mechanical Engineering	53
Advanced Math Elective	3
Advanced Engineering/Science Electives	12
Total Credits for CSE Specialization	**130**
Total Credits for EE or ME Specialization	**132**

**Note: For rules and information about selecting courses to meet General Education Requirements, see the link on the main School of Engineering website at: www.uaa.alaska.edu/schoolofengineering.*

During the first two years (freshman and sophomore) of the BSE program, the student completes a set of core courses that cover basic sciences, mathematics, oral and written communications, and other General Education Requirement courses. This provides the student with a broad and solid background in the topics necessary to build a specialization in a field of engineering.

The engineering emphasis track courses are taken mostly in the third and fourth (junior and senior) years. Each track has a series of required courses totaling 51 credits for the CSE specialization and 53 credits for the EE and ME specializations. In addition, the student selects an additional 12 credits of advanced engineering or science electives, where at least 6 of those credits must be from a class with the prefix of the student's specialization, and a 3 credit advanced mathematics elective.

Engineering design is introduced early in the curriculum and is emphasized throughout the program. In addition to a seminar course, a two-course introductory Engineering Practices series is a required part of the curriculum. It is an outstanding customized coordination of courses that specifically teaches engineering students what they most need to know early in the curriculum. These courses help students become more successful in all of their subsequent courses and to be more effective as practicing engineers. Topics include applied mathematics, computer applications, experimental data gathering and analysis, collaborative teamwork, and report preparation and presentation. Also, a senior capstone design course is required.

Since the BSE program allows for the selection of more electives than the traditional BS engineering programs, students can custom design their curriculum to specialize in the areas of engineering most applicable for their plans. So, students can prepare themselves to specifically meet the needs of specific companies, and state and federal agencies.

Professional registration is emphasized throughout the program. Students attend a professional seminar cours that exposes them to multiple experts from education and industry speaking about their fields of expertise. All students are encouraged to take the Fundamentals of Engineering examination before graduation.

Advising
All undergraduate students are encouraged to meet with their faculty advisor each semester for the purpose of reviewing their academic progress and planning future courses. It is particularly important for students to meet with their advisor whenever academic difficulties arise.

Mathematics Minor
Upon completion of the BSE with the mechanical or electrical engineering specialization, or upon completion of the BSE with the computer systems engineering specialization with a 300- or 400- level mathematics class taken from the MATH advanced electives, the requirements for obtaining a minor in Mathematics are also satisfied. Students are encouraged to apply for the mathematics minor with the BSE when applying for graduation.

Academic Progress
All prerequisites for engineering courses must be completed with a grade of C or higher. A student who has a cumulative semester GPA in engineering courses below 2.00 will be placed on academic warning by the School of Engineering. If a student on academic warning status receives a semester GPA for engineering courses of at least 2.00, that student will be removed from academic warning status by the School of Engineering. Otherwise, if a student on academic warning status receives a cumulative semester GPA in engineering courses below 2.00, the student will be dropped from the BSE program and must reapply in order to continue in the BSE program. Re-admittance requires a letter from the student requesting re-admittance with an explanation of the reasons why. Re-admittance is subject to approval by the department chair.

Graduation Requirements
A. General University Requirements
Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements
Every UAA baccalaureate degree requires a minimum of 37 credits of General Education Requirements in eight different categories. The specifically identified courses required for the BSE satisfies five of these categories. However, there are 15 GER credits in the remaining three categories (Social Sciences, Humanities, and Fine Arts) that the student selects:

Fine Arts	3
Humanities	6
Social Sciences	6

One of the following criteria must be met:

1. Six credits are from courses that are at the 200 level or above.
2. Three credits are from courses that are at the 200 level or above and 6 credits are from a sequence of courses at the 100-level. For example, HIST 101 and HIST 102 is considered to be a 6-credit course sequence.

In addition, the courses selected for Social Science must be from two different disciplines. It is very important that students see their faculty advisors and review the rules for selecting these 15 GER credits. A website with the rules is linked on the main School of Engineering website.

C. Major Requirements
1. Complete the following core courses (49 Credits):

CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1
COMM A111	Fundamentals of Oral Communications (3)	3
	or	
COMM A235	Small Group Communication (3)	
	or	
COMM A237	Interpersonal Communication (3)	
	or	

COMM A241	Public Speaking (3)	
ENGL A111	Methods of Written Communication	3
ENGL A212	Technical Writing	3
ENGR A151	Engineering Practices I	3
ENGR A161	Engineering Practices II	3
ENGR A192	Engineering Seminar I	1
ES A302	Engineering Data Analysis	3
ESM A450	Economic Analysis and Operations	3
MATH A200	Calculus I	4
MATH A201	Calculus II	4
MATH A202	Calculus III	4
MATH A302	Ordinary Differential Equations	3
PHYS A211	General Physics I	3
PHYS A211L	General Physics I Laboratory	1
PHYS A212	General Physics II	3
PHYS A212L	General Physics II Laboratory	1

2. Choose one of the following specializations:

Computer Systems Engineering (51 credits)

Complete the following required courses:

CS A330	Algorithms and Data Structures	3
CSE A205	Introduction to C Programming for Engineers	3
CSE A215	Object-Oriented Programming for Engineers	3
CSE A225	Assembly Language Programming for Engineers Using Xilinx	3
CSE A335	Operating Systems Engineering	3
CSE A342	Digital Circuits Design	3
CSE A355	Computer Networking for Engineers	3
CSE A465	Network Security	3
CSE A480	Engineering Software/Hardware Systems	3
CSE A438	Design of Computer Engineering Systems	3
EE A203	Fundamentals of Electrical Engineering I	4
EE A204	Fundamentals of Electrical Engineering II	4
EE/CS A241	Computer Hardware Concepts	4
EE/PHYS A314	Electromagnetics	3
EE A353	Circuit Theory	3
MATH A231	Introduction to Discrete Mathematics	3

Electrical Engineering (53 credits)

Complete the following required courses:

CSE A205	Introduction to C Programming for Engineers	3
CSE A215	Object-Oriented Programming for Engineers	3
CSE A225	Assembly Language Programming for Engineers Using Xilinx	3
EE A203	Fundamentals of Electrical Engineering I	4
EE A204	Fundamentals of Electrical Engineering II	4
EE/CS A241	Computer Hardware Concepts	4
EE/ME A308	Instrumentation and Measurement	3
EE/PHYS A314	Electromagnetics	3
EE/PHYS A324	Electromagnetics II	3
EE A324L	Electromagnetics Laboratory II	1
EE A353	Circuit Theory	3
EE A353L	Circuit Theory Laboratory	1
EE A354	Engineering Signal Analysis	3
EE A438	Design of Electrical Engineering Systems	3
EE A441	Integrated Circuit Design	3
EE A465	Telecommunications	3
ENGR A105A	Engineering Computer-Aided Design I	1
ENGR A105B	Engineering Computer-Aided Design II	1
ES A208	Engineering Mechanics	4

Mechanical Engineering (53 credits)

Complete the following required courses:

CHEM A106	General Chemistry II	3
CHEM A106L	General Chemistry II Laboratory	1
ENGR A105A	Engineering Computer-Aided Design I	1
ENGR A105B	Engineering Computer-Aided Design II	1
ENGR A105C	Engineering Computer-Aided Design III	1
ES A209	Engineering Statics	3
ES A210	Engineering Dynamics	3
ES A309	Elements of Electrical Engineering	3
ES A331	Mechanics of Materials	3
ES A341	Fluid Mechanics	3
ES A341L	Fluid Mechanics Laboratory	1
ES A346	Basic Thermodynamics	3
ME A280	Solid Modeling for Engineers	3
ME/EE A306	Dynamics of Systems	3
ME/EE A308	Instrumentation and Measurement	3
ME A313	Mechanical Engineering Thermodynamics	3
ME A334	Elements of Material Science	3
ME A403	Mechanical Design II	3
ME A414	Thermal Systems Design	3
ME A438	Design of Mechanical Engineering Systems	3
ME A441	Heat and Mass Transfer	3

3. Advanced Electives

BSE students are required to take 12 credits of advanced engineering/science electives from an approved list of electives for the particular emphasis area. Of the 12 elective credits, at least 6 of them must be from the prefix of the student's specialization. Also, a 3-credit advanced mathematics elective is required that is selected from a single list common for the Electrical and Mechanical Engineering specializations. The Computer Systems Engineering specialization requires 3 or 4 credits to be selected from a separate list. Many elective courses require prerequisite courses that are also elective courses. Thus, in selecting elective courses students are strongly advised to work with their advisor to develop a cohesive set of elective courses. Choice of engineering electives is subject to approval by the student's advisor and the department head.

Advanced Mathematics Electives (3 credits)

BSE Computer Systems Engineering students are required to take one course from the following:

ES A208	Engineering Mechanics	4
MATH A314	Linear Algebra	3
MATH A410	Introduction to Complex Analysis	3
MATH A422	Partial Differential Equations	3
MATH A423	Advanced Engineering Mathematics	3
STAT A307	Probability and Statistics in Science	4

BSE Electrical Engineering and BSE Mechanical Engineering students are required to take one course from the following list of advanced mathematical elective courses:

MATH A310	Numerical Methods	3
MATH A314	Linear Algebra	3
MATH A321	Analysis of Several Variables	3
MATH A371	Stochastic Processes	3
MATH A407	Mathematical Statistics I	3
MATH A410	Introduction to Complex Analysis	3
MATH A422	Partial Differential Equations	3
MATH A423	Advanced Engineering Mathematics	3

Advanced Engineering & Science Electives (12 credits)

BSE students are required to take 12 credits from one of the following lists of approved advanced engineering and science elective courses based on their specialty. Of the 12 credits, at least 6 of them must be from the prefix of the student's specialty. Students should meet with their faculty advisor for selection of courses.

A. Computer Systems Engineering Specialty Electives

CS A385	Computer Graphics	3
CS A401	Software Engineering	3
CS A405	Artificial Intelligence	3
CSE A442	VLSI Circuit Design	3
CSE A445	Computer Design and Interfacing	4
CSE A451	Digital Signal Processing	3
EE/PHYS A324	Electromagnetics II	3
EE/PHYS A324L	Electromagnetics Laboratory II	1
EE A354	Engineering Signal Analysis	3
EE A441	Integrated Circuit Design	3
EE A462	Communication Systems	3
EE A465	Telecommunications	3

B. Electrical Engineering Specialty Electives

CE A403/603	Arctic Engineering	3
	or	
ES A411	Northern Design	3
Note: Either CE A403 or CE A603 or ES A411 can be taken but not both for the degree.		
CSE A445	Computer Design and Interfacing	4
CSE A451	Digital Signal Processing	3
CSE A355	Computer Networking for Engineers	3
CSE A465	Network Security	3
EE/ME A306	Dynamics of Systems	3
EE A407	Power Distribution	3
EE A458	Antenna Theory	3
EE A462	Communication Systems	3
EE/ME A471	Automatic Control	3

C. Mechanical Engineering Specialty Electives

AEST A608	Fundamentals of Air Pollution	3
CE A403/603	Arctic Engineering	3
	or	
ES A411	Northern Design	3
Note: Either CE A403 or CE A603 or ES A411 can be taken for the degree.		
CE A441	Introduction to Environmental Engineering	3
CE A442	Environmental Systems Design	3
CE A600	Fundamentals of Environmental Science and Engineering	3
ME A408	Mechanical Vibrations	3
ME A450	Manufacturing Design	3
ME A453	Renewable Energy Systems Engineering	3
ME A455	HVAC Systems Optimization	3
ME A459/659	Fracture Mechanics	3
Note: Only one of ME A459 or ME A659 can apply to the degree.		
ME/EE A471	Automatic Control	3
ME A664	Corrosion Processes and Engineering	3
ME A685	Arctic Heat and Mass Transfer	3

4. A total of 130 credits is required for the BSE degree with a specialization in Computer Systems Engineering. A total of 132 credits is required for the BSE degree with a specialization in Electrical or Mechanical Engineering, of which 42 credits must be upper division.

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GEOMATICS

Engineering Building (ENGR), Room 213, (907) 786-1972 www.engr.uaa.alaska.edu

The Department of Geomatics offers a two-year Associate of Applied Science in Geomatics, a four-year Bachelor of Science in Geomatics, a minor in Geographic Information Systems (GIS), and an Undergraduate Certificate in Geographic Information Systems (GIS). Students seeking the baccalaureate degree may graduate in one of two emphasis areas: Surveying or GIS. Students seeking continuing education for technical or professional enhancement or a concentrated area of study in GIS should consider either the minor in GIS or the Undergraduate Certificate in GIS. The Geomatics program is science-based and includes:

- Land surveying using global positioning systems and conventional techniques
- Automated mapping
- Computational analysis and adjustment
- Geodesy
- Principles of boundary law
- Geographic Information Systems (GIS)
- Digital photogrammetry
- Remote sensing and image analysis.

The wide diversity in the profession creates a similar diversity of employment opportunities. The Undergraduate Certificate in GIS educates students with a broad base of concepts and theory, provides them with hands-on training in real world problems that are relevant to Alaska's environment, and allows them to explore several thematic areas in GIS applications, such as facilities management, transportation, marine environments, and natural resources.

The minor in GIS is designed for students to enhance their knowledge of GIS and remote sensing to complement a major baccalaureate degree in a variety of disciplines including science, art, business management and engineering. GIS, as a part of geospatial science and information technologies, is widely used in many industries important to Alaska (e.g. oil, gas), governance and administrations (municipalities and the state), statewide and federal agencies and departments (transportation, natural resources, land management, parks and recreation, etc.), research (sustainability, biodiversity, ecology, geology, anthropology, socioeconomics, etc.), homeland security, military applications and non-profit organizations.

The Associate of Applied Science in Geomatics prepares students for technician-level employment as land survey technicians or as automated mapping technicians. Those working as survey technicians frequently work outdoors, travel to various job locations, and enjoy an independent lifestyle. Automated mapping technicians work with the latest cartographic techniques and equipment and easily transfer skills learned in geomatics courses to other disciplines.

The Bachelor of Science prepares students for a wide variety of professionallevel opportunities. Since Alaska poses unique geomatic challenges, the curriculum emphasizes northern principles and practices. UAA graduates are highly employable in the Alaska marketplace and worldwide. Employment opportunities are found in private industry, government, and municipal agencies. Geomaticians working at the professional level enjoy responsibility and a choice of indoor and outdoor employment with many opportunities for advancement and diversification.

The new high-tech fields open employment in GIS, photogrammetry, remote sensing, land surveying, automated mapping, land design and planning, survey engineering, and resource management positions. In Alaska, geomaticians work on state and Native land claims, mining claims, fishing leases, petroleum reserves, forest selections, transportation corridors, private developments, and government and military projects. In Alaska and elsewhere, geomaticians work in land surveying, land development and design, mapping and tax assessment, the defense industry, environmental engineering assessment and management, public safety and welfare, medicine, transportation, agriculture, business, and natural sciences.

Professional predictors indicate that employment opportunities will be strong for the various geomatics specialties in Alaska and the Pacific Rim well into the 21st century. While enrolled in the program, students are eligible for cooperative employment programs with government agencies and with private industry during the summer and for intern programs during the school year.

The Department of Geomatics accommodates a wide variety of student objectives from entry level to professional preparation and encourages the nontraditional student to return for training in current practices and principles.

Students seeking professional licensing as registered land surveyors and those who are interested in specializing in surveying or geographic information systems should enroll in the Bachelor of Science program. For the most effective planning, bachelor's degree candidates should declare their intent by the second semester of their geomatics studies.

Accreditation

The Bachelor of Science program in Geomatics at UAA is accredited by the Applied Science Accreditation Commission (ASAC) of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202.

Program Educational Objectives and Program Outcomes

Program Educational Objectives

The curriculum of the UAA Geomatics program is designed to produce graduates who:

1. Have a basic knowledge of the principles and skills relating to the geomatics disciplines of land surveying, surveying boundary law, surveying computations and adjustments, mapping, geodesy, and photogrammetry, together with the newer disciplines of remote sensing, digital photogrammetry, global positioning systems (GPS), and spatial or geographic information systems (GIS);
2. Have an understanding of the principles related to project delivery;
3. Have sufficient technical competence to obtain employment as an entry-level geomatics professional and to be able to progress professionally within the discipline, and to be prepared for advanced studies;
4. Have a fundamental understanding of the issues relating to geomatics practice in GIS;
5. Are able to communicate their ideas;
6. Are able to work within a team environment; and
7. Are prepared for and understand the need for continued professional development throughout their careers.

Program Outcomes

In keeping with the program educational objectives, it is expected that graduates of the UAA Geomatics program will have:

1. An ability to apply knowledge of mathematics through calculus III and either linear algebra or differential equations or probability and statistics, and general physics;
2. An ability to collect, analyze and interpret data in all of the recognized surveying and mapping areas;
3. An ability to identify, formulate, and design a geomatics system, component or process to meet desired needs;
4. An ability to function on multidisciplinary as well as on interdisciplinary teams;
5. An ability to think critically and to creatively solve geomatics problems;
6. An understanding of professional and ethical responsibility;
7. An ability to communicate effectively;
8. The broad education necessary to understand the impact of geomatics solutions in a global and societal context;
9. A recognition of the need for, and ability to engage in, lifelong learning;
10. A knowledge of contemporary issues in professional practice;
11. An ability to use the techniques, skills and modern geomatics tools necessary for geomatics practice; and
12. An ability to apply knowledge in all six areas of surveying and mapping:
    - i. Field surveying and methods;
    - ii. Photogrammetric mapping and image interpretation and remote sensing;
    - iii. Surveying calculation and data adjustment;
    - iv. Geodetic coordinates and astronomy;
    - v. Cartographic representation, projections, and map production;
    - vi. Computer-based multipurpose cadastre, geographic information systems.

Honors in Geomatics

Undergraduate students may be recognized for exceptional performance by earning Departmental Honors in Geomatics. In order to receive honors in Geomatics, a student must meet each of the following requirements:

1. Complete all requirements for a BS in Geomatics.
2. Be an active member for at least one year of both a national and an on-campus student chapter of a professional geomatics society that addresses issues relevant to the geomatics profession.
3. Have a GPA of 3.50 or higher in their Geomatics and Geographic Information System courses of their catalog year. Have a GPA of 3.30 or higher for their overall cumulative GPA.
4. Pass the Fundamentals of Surveying Examination prior to the completion of the first semester of their senior year.
5. Document a minimum of eight weeks work experience while a student at the University of Alaska in a geomatics or geomatics related position.

Advising

All undergraduate students are encouraged to meet with their academic advisor each semester for the purpose of reviewing their academic progress and planning future courses. It is particularly important for students to meet with their advisor whenever academic difficulties arise. Students are encouraged to consult the faculty in the Department of Geomatics for assistance in designing their course of study to ensure that all prerequisites have been met and that university and major degree requirements are understood and followed.

Prerequisites

All prerequisites for geomatics courses must be completed with a grade of C or higher.

Preparation

The university offers courses to help students without this preparation to meet the skill level required in the Geomatics program. Insufficient preparation will increase the number of semesters required to complete either degree. Students seeking the Undergraduate Certificate in Geographic Information Systems, the Associate of Applied Science or Bachelor of Science in Geomatics should prepare for entrance into the program by completing the following high school courses:

Mathematics	Algebra II
	Trigonometry
Science	Physics
English Composition	Skill level as demonstrated by ACT, SAT or approved placement test to qualify for enrollment in ENGL A111

Undergraduate Certificate, Geographic Information Systems (GIS)

Admission Requirements

Satisfy the Admission to Certificate and Associate's Degree Programs Requirements in Chapter 7, Academic Standards and Regulations.

Course Requirements

Certain courses require prerequisites or faculty permission. Call (907) 786-1972 for further information.

Major Requirements

In order to receive an Undergraduate Certificate in GIS, students must achieve a grade of C or higher in all courses applied to the certificate.

1. Complete the following required courses (23 credits):

GEO A137	Principles of Mapping	3
GEO A167	Remote Sensing and Image Analysis	4
GIS A268	Elements of Geographic Information Systems (GIS)	4
GIS A366	Spatial Information Analysis and Modeling	3
GIS A367	GIS and Remote Sensing	3
GIS A458	Design and Management of Spatial Data	3
GIS A460 GIS	Senior Project	3

2. Complete 9 credits from the following elective courses: 9

GEO A490	Selected Advanced Topics in Geomatics (3)	
GIS A295	Internship in Geographic Information Systems I (3)	
	or	
GIS A495	Internship in Geographic Information Systems II (3)	
GIS A369	Land Information Systems (3)	
GIS A370	GIS and Remote Sensing for Natural Resources (3)	
GIS A375	GIS and Public Health (3)	
GIS A433	GIS and the Marine Environment (3)	
GIS A468	Integration of Geomatic Technologies (3)	
GIS A470	GIS for Facility Management and Transportation Systems (3)	
GIS A490	Selected Advanced Topics in GIS (3)	

3. A maximum of 3 credits of Internship (GIS A295 or GIS A495) and 3 credits of Advanced Topics in Geomatics (GEO A490) or Advanced Topics in GIS (GIS A490) can be counted toward the Certificate in GIS. Faculty approval of the GEO A490 or GIS A490 topic is necessary for application of the course to the certificate program.

4. A total of 32 credits is required for the Certificate in GIS.

Associate of Applied Science, Geomatics

Admission Requirements

Satisfy the Admission to Undergraduate Certificate and Associate's Degree Programs Requirements in Chapter 7, Academic Standards and Regulations.

General University Requirements

Complete the Associate of Applied Science General Degree Requirements located at the beginning of this chapter. Some of the major requirements will also fulfill Associate of Applied Science degree general requirements. Students should coordinate choices carefully with their academic advisor in the Department of Geomatics.

Academic Progress

Students must complete all major requirement courses with a grade of C or higher. A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt will result in removal from the Geomatics program.

Major Requirements

1. Complete 4 credits in physics: 4

PHYS A123	Basic Physics I (3)	
PHYS A123L	Basic Physics I Laboratory (1)	
	or	
PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	

2. Complete the following required courses (48 credits):

ENGL A212	Technical Writing	3
GEO A137	Principles of Mapping	3
GEO A146	Surveying Computations	3
GEO A155	Fundamentals of Surveying	3
GEO A157	Analytical and Digital Cartography	3
GEO A158	Geomatics Computer Fundamentals	3
GEO A166	Advanced Surveying	4
GEO A167	Remote Sensing and Image Analysis	4
GEO A248	Digital Terrain Cartography	3
GEO A256	Municipal and Civil Geomatics	4
GEO A257	Elements of Photogrammetry	3

GEO A267	Boundary Law I	4
GIS A268	Elements of Geographic Information Systems (GIS)	4
MATH A200	Calculus I	4

3. Electives to total of 60 credits.

Bachelor of Science, Geomatics

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Graduation Requirements

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees at the beginning of this chapter.

Academic Progress

Students must complete all courses under major requirements with a grade of C or higher. A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt will result in removal from the Geomatics program.

C. Major Requirements

1. Complete 8 credits in physics from one of the following sequences: 8

PHYS A123	Basic Physics I (3)	
PHYS A123L	Basic Physics I Laboratory (1)	
PHYS A124	Basic Physics II (3)	
PHYS A124L	Basic Physics II Laboratory (1)	
	or	
PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	
PHYS A212	General Physics II (3)	
PHYS A212L	General Physics II Laboratory (1)	

These credits must be in addition to the 7 Natural Sciences credits taken to complete the General Education Requirement.

2. Complete the following (18 credits):

ENGL A212	Technical Writing	3
GEO A158	Geomatics Computer Fundamentals	3
MATH A200	Calculus I	4
MATH A201	Calculus II	4
MATH A202	Calculus III	4

3. Complete one of the following: 3

MATH A302	Ordinary Differential Equations (3)	
MATH A314	Linear Algebra (3)	
STAT A307	Probability (3)	

4. Complete all of the following (62 credits):

GEO A137	Principles of Mapping	3
GEO A146	Surveying Computations	3
GEO A155	Fundamentals of Surveying	3
GEO A157	Analytical and Digital Cartography	3
GEO A166	Advanced Surveying	4

GEO A167	Remote Sensing and Image Analysis	4
GEO A248	Digital Terrain Cartography	3
GEO A256	Municipal and Civil Geomatics	4
GEO A257	Elements of Photogrammetry	3
GEO A267	Boundary Law I	4
GEO A355	Land Development and Design	3
GEO A359	Geodesy and Map Projections	3
GEO A365	Geomatic Adjustment and Analysis	4
GEO A457	Boundary Law II	4
GEO A460	Geomatics Design Project	3
GEO A466	Geopositioning	4
GIS A268	Elements of Geographic Information Systems (GIS)	4
GIS A366	Spatial Information Analysis and Modeling	3

5. Complete at least 12 credits in one of the emphasis areas.

Surveying Emphasis

a. Complete the following (6 credits):

GEO A358	Programming for Digital Cartography	3
GEO A433	Hydrographic Surveying	3

b. Complete 6 credits from the following: 6

GEO A456	Geomatics and Civil Design (3)
GEO A459	Geodetic Geomatics (3)
GEO A467	Analytical and Digital Photogrammetry (3)
GEO A490	Selected Advanced Topics in Geomatics (1-6)
GIS A369	Land Information Systems (3)

Geographic Information Systems (GIS) Emphasis

a. Complete the following (3 credits):

GIS A458	Design and Management of Spatial Data	3

b. Complete 9 credits from the following: 9

GIS A367	GIS and Remote Sensing (3)
GIS A369	Land Information Systems (3)
GIS A370	GIS and Remote Sensing for Natural Resources (3)
GIS A375	GIS and Public Health (3)
GIS A433	GIS and the Marine Environment (3)
GIS A468	Integration of Geomatic Technologies (3)
GIS A470	GIS for Facility Management and Transportation Systems (3)
GIS A490	Selected Advanced Topics in GIS (1-6)

6. A total of 131 credits is required for the degree of which 42 must be upper division.

FACULTY

John Bean, Associate Professor, AFJB2@uaa.alaska.edu
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Minors in the School of Engineering

To meet a variety of student needs, the School of Engineering offers several minors.

A choice of two types of engineering minors is offered. The first is a minor in General Engineering, which is for students who are majoring in a non-engineering baccalaureate degree. This program offers foundation coursework in core engineering topics.

The second is an Engineering Specialty minor which is for students majoring in an engineering baccalaureate degree who, therefore, have completed much of the coursework in the Bachelor of Science in Engineering (BSE) or Civil Engineering (CE) program. Students within the engineering program may choose to pursue an Engineering Specialty minor in Civil Engineering, Computer Systems Engineering, Electrical Engineering, or Mechanical Engineering.

Students enrolling in either engineering minor must satisfy all prerequisite requirements for the courses required for the chosen minor. Non-engineering majors, such as students in the sciences or mathematics, will likely be better positioned to meet the prerequisite requirements in the General Engineering minor. Students majoring in engineering disciplines will likely be better positioned to meet the prerequisite requirements for courses in the Engineering Specialty minor.

Additionally, a minor in Geographic Information Systems (GIS) is offered for students who are majoring in baccalaureate degrees in a variety of disciplines and who are seeking strong GIS knowledge and skills to enhance their specialty and further their professional career.

Course Requirements for Minors

A minor of study must consist of a minimum of 18 credit hours. At least 6 credits must be upper division. Students must earn a cumulative GPA of at least 2.00 (C) in the minor. A minor may only be issued simultaneously with a baccalaureate degree. For general information about minor requirements, see the minors section at the beginning of this chapter. The course requirements for each of the minors are listed below. In cases where students have unique backgrounds or interests, course selection may be adapted accordingly through consultation with the School of Engineering faculty advisors.

A. General Engineering, Minor

The following courses are required:		10
ENGR A151	Engineering Practices I	3
ENGR A161	Engineering Practices II	3
ES A208	Engineering Mechanics	4
In addition, at least three courses must be selected from the following list:		9
EE/ME A308	Instrumentation and Measurement (3)	
ES A309 *	Elements of Electrical Engineering (3)	
ES A331	Mechanics of Materials (3)	
ES A341 *	Fluids Mechanics (3)	
ES A346 *	Basic Thermodynamics (3)	
ESM A450	Economic Analysis and Operations (3)	
ME A334	Elements of Material Science (3)	

B. Engineering Specialty Minors

Minor, Civil Engineering

A minimum of 18 credits must be selected from:		18
CE A334 *	Properties of Materials (3)	
CE A344 *	Water Resources Engineering (3)	
CE A402	Transportation Engineering (3)	
CE A422 *	Foundation Engineering (3)	
CE A425	Highway Engineering (3)	
CE A431	Structural Analysis (4)	
CE A432 *	Steel Design (3)	
CE A433 *	Reinforced Concrete Design (3)	
CE A434	Timber Design (3)	
CE A435/L	Soil Mechanics with Laboratory (3)	
CE A441 *	Introduction to Environmental Engineering (3)	
CE A442	Environmental Systems Design (3)	

Minor, Computer Systems Engineering

A minimum of 18 credits must be selected from:		
CS A330	Algorithms and Data Structures	3

CS A401	Software Engineering	3
CS A405	Artificial Intelligence	3
CSE A335	Operating Systems Engineering	3
CSE A342	Digital Circuits Design	3
CSE A355	Computer Networking for Engineers	3
CSE A442	VLSI Circuit Design	3
CSE A445	Computer Design and Interfacing	4
CSE A451	Digital Signal Processing	3
CSE A465	Network Security	3
CSE A480	Engineering Software/Hardware Systems	3

Minor, Electrical Engineering

A minimum of 18 credits must be selected from:

CSE A451	Digital Signal Processing	3
EE A203	Fundamentals of Electrical Engineering I	4
EE A204	Fundamentals of Electrical Engineering II	4
EE/CS A241	Computer Hardware Concepts	4
EE/ME A308	Instrumentation and Measurement	3
EE A314	Electromagnetics	3
EE A324	Electromagnetics II	3
EE A324L	Electromagnetics Laboratory II	1
EE A353	Circuit Theory	3
EE A407	Power Distribution	3
EE A441	Integrated Circuit Design	3
EE A458	Antenna Theory	3
EE A462	Communication Systems	3
EE A465	Telecommunications	3
EE/ME A471	Automatic Control	3

Minor, Mechanical Engineering

A minimum of 18 credits must be selected from:

ES A341	Fluid Mechanics	3
ES A341L	Fluid Mechanics Laboratory	1
ES A346	Basic Thermodynamics	3
ME A302	Mechanical Design I	4
ME A306	Dynamics of Systems	3
ME/EE A308	Instrumentation and Measurement	3
ME A313	Mechanical Engineering Thermodynamics	3
ME A334	Elements of Material Science	3
ME A403	Mechanical Design II	3
ME A408	Mechanical Vibrations	3
ME A414	Thermal System Design	3
ME A441	Heat and Mass Transfer	3
ME A450	Manufacturing Design	3
ME A455	HVAC Systems Optimization	3
ME A459/659	Fracture Mechanics	3
ME/EE A471	Automatic Control	3
ME A664	Corrosion Processes and Engineering	3
ME A685	Arctic Heat and Mass Transfer	3

Note: Only one of ME A459 or ME A659 can apply to the minor.

C. Geographic Information Systems (GIS), Minor

A minimum of 18 credits must be selected from: 18

GEO A167	Remote Sensing and Image Analysis (4)
GIS A268	Elements of Geographic Information Systems (GIS) (4)
GIS A366	Spatial Information Analysis and Modeling (3)
GIS A367	GIS and Remote Sensing (3)

GIS A369	Land Information Systems (3)
GIS A370	GIS and Remote Sensing for Natural Resources (3)
GIS A375	GIS and Public Health (3)
GIS A433	GIS and the Marine Environment (3)
GIS A458	Design and Management of Spatial Data (3)
GIS A468	Integration of Geomatic Technologies (3)
GIS A470	GIS for Facility Management and Transportation Systems (3)
GIS A490	Selected Advanced Topics in GIS (1-6)

Note #1: MATH A200, MATH A201, MATH A202, MATH A302, PHYS A211, PHYS A212, CHEM A105, and CHEM A106 are prerequisites for most of the Engineering minor listed. Students should plan and review the requirements for their specific minor to determine exactly what prerequisites will be required.

Note #2: An "" indicates a recommended set of courses for the minor.*

Note #3: BSE or CE majors may pursue a BSE Engineering Specialty minor but may not pursue the BSE General Engineering minor.

Collaborative Programs With Other UA Campuses

Two-Year (2+2) Programs of Electrical or Mechanical Engineering with UAF

The School of Engineering offers a program that allows the completion of the first two years of a four-year program leading to the Bachelor of Science in Electrical Engineering or a Bachelor of Science in Mechanical Engineering. The program is coordinated with the University of Alaska Fairbanks (UAF) College of Engineering and Mines so that students may transfer from UAF to UAA, or from UAA to UAF, with little or no loss of credit. For more information, please contact the UAA School of Engineering at (907) 786-1900.

One-Year (1+3) Engineering Program with UAS

The University of Alaska Southeast in Juneau offers a 1+3 engineering program. Juneau students earn a Pre-Engineering Certificate while completing the first-year of an engineering degree at UAA. The programs at UAA and UAS are coordinated so that students may transfer to UAA with no loss of credit. For more information, please contact the UAA School of Engineering at (907) 786-1900.

SCHOOL OF ENGINEERING

Engineering embraces the wide range of cultural and technical subjects related to the planning, design and manufacture, technology, or construction of objects necessary for civilization. An engineer is an innovator, a builder, and a problem solver. Engineers turn scientific knowledge into useful goods and services and are responsible to society for their engineering design decisions. They are interested in working with people often as team members in positions of leadership. Engineers are concerned about people and ways to provide society with improved living standards.

The School of Engineering offers areas of study at the undergraduate level:

- A four-year program leading to a Bachelor of Science in Civil Engineering;
- A four-year program leading to a Bachelor of Science in Engineering with three special~~i~~ty tracks:
  - Mechanical Engineering
  - Electrical Engineering
  - Computer Systems Engineering;
- A four-year program leading to a Bachelor of Science in Geomatics;
- A two-year program leading to an Associate of Applied Science in Geomatics; and
- Minors in Civil Engineering, Computers Systems Engineering, Electrical Engineering, General Engineering, Mechanical Engineering, or Geographic Information Systems (GIS).

Accreditation

All Bachelor of Science programs are accredited by ABET (Accreditation Board for Engineering and Technology) and include the following:

1. Civil Engineering
2. Computer Systems Engineering
3. Electrical Engineering
4. Geomatics
5. Mechanical Engineering

Civil Engineering

The UAA School of Engineering offers a Bachelor of Science in Civil Engineering to prepare students for the profession. Knowledge of mathematical and physical sciences gained by study, experience and practice is applied with judgment to develop ways to utilize materials and forces of nature for the progressive well-being of humanity. Students are prepared for improving and protecting the environment; providing facilities for community living, industry and transportation; and providing structures for the use of humanity.

Engineering: Computer Systems Engineering, Electrical Engineering, Mechanical Engineering

The UAA School of Engineering offers a Bachelor of Science in Engineering (BSE) with specializations in Computer Systems Engineering, Electrical Engineering, ~~or~~ and Mechanical Engineering. Graduates with a BSE have a broad range of engineering skills that are necessary when serving the infrastructure needs of urban societies and remote rural areas typical of many Alaskan communities. The program emphasizes fundamental engineering principles as a basis for interdisciplinary design, teamwork, and ~~for~~ lifelong learning. Graduates are in a position to take advantage of a wide variety of professional opportunities and are ~~well~~ well-prepared for an engineering career in a technologically changing world.

Geomatics

Geomatics embraces the traditional disciplines of land surveying, mapping, geodesy, photogrammetry, and hydrography, together with the newer disciplines of remote sensing, digital photogrammetry, and spatial or geographic information systems (GIS). Geomaticians help design, map and manage the natural and the man-made resources of the earth. Their skills and efforts are important in project development and environmental protection. They gather, analyze, and manipulate data; map results; and help design new developments. The disciplines used in geomatics are based on advancing technologies and use an integrated approach to the acquisition, analysis, storage, distribution, management, and application of spatially referenced data.

Minors in the School of Engineering

To meet a variety of student needs, the School of Engineering offers several minors. A choice of two types of Engineering minors are offered. The first is a minor in General Engineering which is designed for students who are majoring in a non-engineering baccalaureate degree. The second is an Engineering Specialty minor program which is designed for students majoring in an engineering baccalaureate degree who, therefore, have completed much of the coursework in the Bachelor of Science in Engineering (BSE) or Civil Engineering (CE) programs. Engineering Specialty minors are in Civil Engineering, Computer Systems Engineering, Electrical Engineering, or Mechanical Engineering. Additionally, a minor in Geographic Information Systems (GIS) is offered for students who are majoring in baccalaureate degrees in a variety of disciplines and seeking strong GIS knowledge and skills to enhance their specialty and support a sustainable professional career.

CIVIL ENGINEERING

Engineering Building (ENGR), Room 201, (907) 786-1900
www.engr.uaa.alaska.edu

Civil engineering is a professional discipline recognized by licensure in each of the 50 states and many other countries. Civil engineering is a broad branch of engineering dedicated to providing civilization with essential infrastructure and services including bridges, buildings, ports, water resource development, waste disposal, dams, water power, irrigation and drainage works, roads, airports, railways, construction and management services; surveying; and providing city management and developmental planning. Civil Engineering students are introduced to principles of mathematics, chemistry, and physics during their first two years of study. The third year of study is largely devoted to courses in applied extensions of the basic sciences to form the foundation for more advanced engineering analysis and design. Students draw upon previous learning in their senior year to focus their studies on sophisticated analyses and creative designs. Throughout the four-year engineering program students take courses in communication, humanities, social sciences, and fine arts to improve their communication skills and to become more aware of their roles and responsibilities in modern society. The UAA Civil Engineering program emphasizes northern region design considerations and provides specialized training appropriate for an engineering career in Alaska and other cold regions of the world.

Bachelor of Science, Civil Engineering

The Department of Civil Engineering offers an undergraduate curriculum leading to a Bachelor of Science in Civil Engineering. The first two years of the program have application to most other branches of engineering.

Accreditation

The Bachelor of Science program in Civil Engineering at UAA is accredited by the ABET which is the only accreditor of engineering programs and related fields of study in the US.

Program Objectives and Expected Outcomes

The curriculum of the UAA civil engineering program is designed to produce graduates who:

1. Have a basic knowledge of the principles and skills relating to the civil engineering sub-disciplines of water resources, geotechnical, structural, transportation, and environmental engineering;
2. Have an understanding of the principles related to project delivery;
3. Have sufficient technical competence to obtain employment as an entry-level engineer and to be able to progress professionally within the discipline, and are prepared for advanced study;
4. Have a fundamental understanding of the issues related to civil engineering practice in cold regions;
5. Are able to communicate their ideas;
6. Are able to work within a team environment; and
7. Are prepared for and understand the need for continued professional development throughout their careers.

In keeping with the objectives, it is expected that graduates of the UAA Civil Engineering program will have:

1. An ability to apply knowledge of mathematics through differential equations, probability and statistics, calculus-based physics, and general chemistry;
2. An ability to apply knowledge in a minimum of four recognized major civil engineering areas;
3. An ability to design and conduct experiments, as well as to analyze and interpret data, in more than one of the recognized major civil engineering areas;
4. An ability to design a civil engineering system, component, or process to meet desired needs;
5. An ability to function on multidisciplinary teams;

6. An ability to identify, formulate, and solve engineering problems;
7. An understanding of professional and ethical responsibility;
8. An ability to communicate effectively;
9. The broad education necessary to understand the impact of engineering solutions in a global and societal context;
10. A recognition of the need for, and an ability to engage in, lifelong learning;
11. A knowledge of contemporary issues in professional practice; and
12. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Honors in Civil Engineering

Undergraduate Civil Engineering students may be recognized for exceptional performance by earning Departmental Honors in Civil Engineering. In order to receive honors in Civil Engineering, a student must meet each of the following requirements:

1. Complete all requirements for a BS degree in Civil Engineering. A minimum of 30 credits applicable to the Civil Engineering degree must be completed at UAA.
2. Be an active member for at least one year of both a national and an on-campus student chapter of a professional engineering society that addresses issues relevant to the civil engineering profession.
3. Have a GPA of 3.30 or higher in courses applicable to the Bachelor of Science in Civil Engineering degree.
4. Gain approval for a departmental honors design or research project prior to applying for graduation. Present an oral presentation and written report of project results eight weeks prior to scheduled graduation. The project proposal and final written report must be approved by the student's academic advisor and the chair of Civil Engineering Department.
5. Pass the Fundamentals of Engineering Examination in or prior to the fall semester of the senior year.
6. Document a minimum of eight weeks work experience in an engineering or engineering-related position.

Admission Requirements

Admission to the Civil Engineering program is to one of two levels: Pre- Engineering or Civil Engineering. Students admitted to either of the two levels are considered to be degree-seeking engineering students. Pre- Engineering students are classified within the university system as premajors. Civil Engineering students are classified within the university system as full majors.

Pre-Engineering

Applicants for admission who have completed only the general Baccalaureate Degree Program Admission Requirements in Chapter 7 of this catalog are admitted as pre-majors to the Civil Engineering program at the Pre-Engineering level.

Civil Engineering

Applicants for admission who, in addition to the general Baccalaureate Degree Program Admission Requirements, have completed the following list of high school courses (or their university equivalents) with grades of C or better will be admitted as full majors to the Civil Engineering program at the Engineering Fundamentals level:

Algebra	2 years
Chemistry	1 year
English	3 years
Physics	1 year
Trigonometry	1/2 year

Advancement

Pre-Engineering to Civil Engineering

Pre-Engineering students must work with their assigned advisor to develop a course plan to make up the high school course requirements for advancement to the Civil Engineering full major. Once the Pre- Engineering coursework outlined in the student's course plan is completed, students must meet with their advisor to apply for advancement to Engineering full-major status.

Advising

All undergraduate students are strongly encouraged to meet with their faculty advisor each semester for the purpose of reviewing their academic progress and planning future courses. All civil engineering students are required to meet with their faculty advisors to be advanced within the program and to apply for graduation. It is particularly important for students to meet with their faculty advisor whenever academic difficulties arise.

Academic Progress

Any given CE or ES course may only be taken when all prerequisites for the course are met with a grade of C or higher. A student who is unable to earn a grade of C or better in a CE or ES prerequisite course may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt may result in removal from the Civil Engineering program. A student who has a semester GPA in engineering courses below 2.00 will be placed on academic warning by the School of Engineering. A student on academic warning that receives a semester GPA in engineering courses of at least 2.00 will be removed from academic warning status by the school. Otherwise, he or she will be removed from the Civil Engineering program and will not be permitted to enroll in CE and ES courses.

Graduation Requirements

In order to receive the Bachelor of Science degree in Civil Engineering, students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees (GER) listed at the beginning of this chapter with the additional requirement that one of the following criteria are met within the courses taken to meet the social sciences, humanities, and fine arts GER requirements:

1. Six credits are from courses that are at the 200 level or above.
2. Three credits are from courses that are at the 200 level or above and 6 credits are from a sequence of courses at the 100 level. For example, HIST A101 and HIST A102 is considered to be a 6-credit course sequence.

C. Civil Engineering Requirements

1. Satisfactorily complete these courses with a GPA of 2.00. Courses with an asterisk (*) must be completed with a grade of C or better (108 credits):

CE A334*	Properties of Materials	3
CE A344	Water Resources Engineering	3
CE A402	Transportation Engineering	3
CE A403	Arctic Engineering	3
CE A422	Foundation Engineering	3
CE A431*	Structural Analysis	4
CE A432	Steel Design (3)	3
	or	
CE A433	Reinforced Concrete Design (3)	
CE A435*	Soil Mechanics	3
CE A438	Design of Civil Engineering Systems	3
CE A441	Introduction to Environmental Engineering	3
CHEM A105*	General Chemistry I	3
CHEM A105L*	General Chemistry I Laboratory	1
CHEM A106*	General Chemistry II	3
CHEM A106L*	General Chemistry II Laboratory	1
COMM A111	Fundamentals of Oral Communications (3)	3
	or	
COMM A235	Small Group Communication (3)	
	or	
COMM A237	Interpersonal Communication (3)	
	or	
COMM A241	Public Speaking (3)	
ENGL A111*	Methods of Written Communications	3
ENGL A212	Technical Writing	3
ENGR A151*	Engineering Practices I	3
ENGR A161*	Engineering Practices II	3
ES A103	Engineering Graphics	3

ES A209*	Engineering Statics	3
ES A210*	Engineering Dynamics	3
ES A302 *	Engineering Data Analysis	3
ES A309	Elements of Electrical Engineering	3
ES A331*	Mechanics of Materials	3
ES A341*	Fluid Mechanics	3
ES A341L	Fluid Mechanics Laboratory	1
ES A346	Basic Thermodynamics	3
ESM A450	Economic Analysis and Operations	3
GEO A155*	Fundamentals of Surveying	3
MATH A200*	Calculus I	4
MATH A201*	Calculus II	4
MATH A202*	Calculus III	4
MATH A302*	Ordinary Differential Equations	3
PHYS A211*	General Physics I	3
PHYS A211L*	General Physics I Laboratory	1
PHYS A212*	General Physics II	3
PHYS A212L*	General Physics II Laboratory	1

2. A natural science elective (minimum 3 credits) must be taken in addition to the 7-credit natural science General Education Requirement and may be selected from the following list: 3

BIOL A115/L	Fundamentals of Biology I with Laboratory (4)
BIOL A271/L	Principles of Ecology with Laboratory (4)
CHEM A450	Environmental Chemistry (3)
GEOL A111	Physical Geology (4)
GEOL/ BIOL A178	Fundamentals of Oceanography (3)
PHYS A303	Modern Physics (3)
PHYS A314	Electromagnetics (3)
PHYS A320	Simulation of Physical Systems (3)

PHYS/BIOL/ CHEM A456 Nonlinear Dynamics and Chaos (3)

Note: GEOL A111 is the recommended course.

3. Six credits of technical elective courses are required that may be chosen from the following list of courses. These electives are intended to improve students' knowledge and skills relating to site characterization, problem identification, criteria development, and project design in the civil engineering sub-disciplines of water resources, geotechnical, structural, transportation, and environmental engineering. Graduate courses may not be applied to both a baccalaureate and master's degree. 6

Water Resources Engineering

CE A662	Surface Water Dynamics (3)
CE A663	Ground Water Dynamics (3)
CE A674	Waves, Tides, and Ocean Process for Engineers (3)
CE A677	Coastal Measurements and Analysis (3)
CE A682	Ice Engineering (3)
CE A683	Arctic Hydrology and Hydraulic Engineering (3)
CE A684	Arctic Utility Distribution (3)

Geotechnical Engineering

CE A676	Coastal Engineering (3)
CE A681	Frozen Ground Engineering (3)

Structural Engineering

CE A432 Steel Design (3)
or
CE A433 Reinforced Concrete Design (3)

Either CE A432 or CE A433 may be chosen as a technical elective, if not applied to satisfy the Civil Engineering Professional requirements described above.

CE A434 Timber Design (3)

CE A610	Engineering Seismology (3)
CE A611	Geotechnical Earthquake Engineering (3)
CE A612	Advanced Foundation Design (3)
CE A631	Structural Finite Elements (3)
CE A633	Structural Dynamics (3)
CE A634	Structural Earthquake Engineering (3)
CE A636	Multi-Story Building Structural Design (3)
CE A637	Earthquake Resistant Structural Design (3)
CE A639	Loads on Structures (3)

Transportation Engineering

CE A423	Traffic Engineering (3)
CE A424	Pavement Design (3)
CE A425	Highway Engineering (3)
CE A675	Design of Ports and Harbors (3)
GEO A456	Geomatics and Civil Design (3)

Environmental Engineering

AEST A601	Aquatic Process Chemistry (3)
AEST A602	Water Quality Management (3)
AEST A603	Solid Waste Management (3)
AEST A604	Environmental Law, Regulations and Permitting (3)
AEST A605	National Environmental Policy Act (3)
AEST A606	Clean Water Act (3)
AEST A608	Fundamentals of Air Pollution (3)
AEST A613	Remediation (3)
CE A442	Environmental Systems Design (3)
CE A600	Fundamentals of Environmental Science and Engineering (3)
CE A605	Chemical and Physical Water and Wastewater Treatment Processes (3)
CE A606	Biological Treatment Processes (3)

4. A total of 132 credits is required for the degree, of which 42 credits must be upper division (300-, 400-, or 600-level).

5. All Civil Engineering students are strongly encouraged to take the Fundamentals of Engineering Examination in their senior year as an initial step toward professional registration. Civil Engineering students are also encouraged to consider minors in Mathematics or Physics and graduation with departmental honors.

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ENGINEERING: COMPUTER SYSTEMS, ELECTRICAL, AND MECHANICAL ENGINEERING

Engineering Building (ENGR), Room 201, (907) 786-1900
www.engr.uaa.alaska.edu/programs/bse

Bachelor of Science, Engineering

The Bachelor of Science in Engineering (BSE) program is a ~~design~~ design-oriented curriculum that incorporates topics that span the foundations of engineering disciplines. BSE students select courses for a specialization track that best suits their needs. Thus, the BSE curriculum can custom fit a student's education with the needs of the community and industry. The three tracks of specialization are: 1) Computer Systems Engineering, 2) Electrical Engineering, and 3) Mechanical Engineering.

The Computer Systems Engineering (CSE, also known as Computer Engineering) specialty track focuses on applied computer theory, the design and implementation of computer hardware and software, and ~~networking.~~specialized areas of computing such as network architecture, security, and distributed systems. Students take courses such as computer programming, ~~signals, systems,~~ computer hardware design, ~~assembly programming,~~networking, operating/software systems engineering, signals, and electronic device and circuit design.

The Electrical Engineering (EE) specialty track focuses on fundamental electrical concepts including ~~applied circuit design and theory~~ circuit theory, electrical devices, electromagnetism, and signals and systems. Students take courses in computer design, antenna theory, communication theory, and control systems.~~electrical signals and systems, circuit design, and communication systems.~~

The Mechanical Engineering (ME) specialty track focuses on the design of systems related to transfer of thermal and mechanical energies where topics such as HVAC (heating, ventilation, and air conditioning) and design of mechanisms are covered in detail. ~~heat transfer and machine design.~~ Students take courses in heat transfer, HVAC ~~(heating, ventilation, and air conditioning)~~, manufacturing, and machine design, including hands-on exposure in a state of the art manufacturing lab with rapid prototyping through three dimensional printers and CNC machining.

Accreditation

All BSE programs are separately accredited by the Engineering Accreditation Commission of ABET, which is the only accreditor of engineering programs and related fields of study in the US. The accredited BSE programs include: 1) Computer Systems Engineering, 2) Electrical Engineering, and 3) Mechanical Engineering.

Program Objectives and Expected Outcomes

The curriculum of the BSE program has also been carefully designed to prepare students for the profession of engineering through study, experience, and practice.~~, with these objectives:~~ Each of the three specializations in the BSE program has objectives that are consistent with the needs of the respective program's constituents, as follows:

Computer Systems Engineering

1. Graduates are successful practitioners of computer engineering in a variety of industries, government agencies, and research/academic institutions, serving the State of Alaska as well as national/international needs.
2. Graduates exhibit high standards regarding ethical behavior and social responsibility.
3. Graduates successfully engage in life-long learning experiences such as graduate education, short courses, technical talks, conferences, training program, community groups, and writing and/or publishing papers.

Electrical Engineering

1. To produce electrical engineering graduates with the training and skills to enter the job market or to continue their education by attending graduate school.
2. To produce graduates who will become business and community leaders in Alaska and throughout the world.
3. To produce graduates who will, through their training in electrical engineering and their commitment to their continuing education, become the entrepreneurs driving Alaska's growth in the future.
4. To produce graduates in electrical engineering who conduct themselves and practice their profession with the highest of professional standards.

Mechanical Engineering

1. To produce graduates who are able to practice mechanical engineering through design and analysis of mechanical systems in industry, government, and academic settings.
2. To produce graduates who are prepared for graduate-level education, research and development, and other creative endeavors in science and technology.
3. To produce graduates who are able to conduct themselves in a professional and ethical manner.
4. To produce graduates who are able to become contributors and leaders in the economic development and improving the quality of life in the State of Alaska, the nation, and the world.

1. ~~Produce graduates who are able to successfully practice engineering to serve the state of Alaska, and national and international industries and government agencies.~~
2. ~~Produce graduates with the necessary background and technical skills to work professionally as individuals or in teams in engineering practice or in graduate schools.~~
3. ~~Prepare graduates for personal and professional success with and understanding and appreciation of ethical behavior, social responsibility, and diversity, both as individuals and in team environments.~~
4. ~~Prepare graduates to be interested, motivated, and capable of pursuing continued lifelong learning through further graduate education, short courses, or other training programs in engineering and related fields.~~

Knowing that all engineering programs must demonstrate that their students attain a level of proficiency in a number of important areas, the BSE program has chosen the following set of program outcomes for all three specializations. Students will have:

(a) an ability to apply knowledge of mathematics, science, and engineering
(b) an ability to design and conduct experiments, as well as analyze and interpret data
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health, and safety manufacturability, and sustainability
(d) an ability to function on multidisciplinary teams
(e) an ability to identify, formulate, and solve engineering problems
(f) an understanding of professional and ethical responsibility
(g) an ability to communicate effectively
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
(i) a recognition of the need for, and the ability to engage in, lifelong learning
(j) a knowledge of contemporary issues
(k) and an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Honors in Engineering

Undergraduate BSE students may be recognized for exceptional performance by earning Departmental Honors in each of the three specialty tracks: Computer Systems Engineering, Electrical Engineering, or Mechanical Engineering~~, Electrical Engineering, or Computer Systems Engineering~~. The award will be noted on their permanent university transcript. In order to receive Honors in the BSE program, a student must meet each of the following requirements.

1. Complete all requirements for a BSE. A minimum of 30 credits applicable to the BSE must be completed at UAA.
2. Be an active member for at least one year of both a national and an on-campus student chapter of a professional engineering society that addresses issues relevant to the engineering profession.
3. Have a GPA of 3.30 or higher in courses applicable to the BSE.
4. Gain approval for and complete a design/research project prior to applying for graduation. An oral presentation of the project results to an appropriate audience will be required. The project proposal and final written report must be approved by the student's academic advisor and the chair of BSE ~~Engineering~~ program.
5. For Mechanical and Electrical Engineering specializations, ~~T~~take and ~~Pass~~ pass the Fundamentals of Engineering Examination in the senior year. For Computer Systems Engineering specialization, take and pass the CSE Exit Examination in the senior year.
6. Document a minimum of eight weeks work experience in an engineering or engineering-related position.

Preparation

While in high school, students can prepare for entering and succeeding in the university engineering program. In order to be the best prepared, students should complete the following high school courses with grades of C or better:

Algebra	2 years
Chemistry	1 year
English	3 years
Physics	1 year
Trigonometry	1/2 year

Students successfully completing the above courses will be prepared to enroll in the first year of courses that count towards the engineering degree. Students without the above preparatory courses will need to take equivalent university courses before taking some of the first year of courses that count towards the engineering degree. Students are encouraged to work with their faculty advisors for developing a course plan.

Admission Requirements

Admission to the Bachelor of Science in Engineering program is to one of two levels: Pre- Engineering or Engineering. Students admitted to either of the two levels are considered to be degree-seeking engineering students majoring in engineering

Pre-Engineering Level

Applicants for admission who have completed only the general Baccalaureate Degree Program Admission Requirements in Chapter 7 of this catalog are admitted to the Engineering program at the Pre-Engineering level.

Engineering Level

Applicants for admission who, in addition to the general Baccalaureate Degree Program Admission Requirements, have completed at least the level of high school courses ~~level~~ listed above under Preparation (or their university equivalents) with grades of C or better will be admitted to the Engineering program at the Engineering level.

Advancement

Pre-Engineering to Engineering

Pre-Engineering students must work with their assigned advisor to develop a course plan to make up the high school course requirements for advancement to the Engineering level. Once the Pre-Engineering course work outlined in the student's course plan is completed, students must meet with their advisor to apply for advancement to the Engineering level or may also be advanced to the Engineering level by the department chair upon review of the student's academic progress.

~~Admission Requirements~~

~~Complete the Baccalaureate Degree Programs Admission Requirements described in Chapter 7 of this catalog. In addition, in order to be prepared for first year courses in the BSE program, students should have completed the following high school courses with grades of C or better:~~

~~Algebra~~	~~2 years~~
~~Chemistry~~	~~1 year~~
~~English~~	~~3 years~~
~~Physics~~	~~1 year~~
~~Trigonometry~~	~~1/2 year~~

~~Students successfully completing the above courses qualify to be accepted into the BSE program with major status. If an applicant to the School of Engineering BSE program does not satisfy one or more of the above requirements, the student may be accepted into the BSE with major or pre-major status depending upon the courses that were successfully completed. Students with either pre-major or major status are considered enrolled in the BSE program. Acceptance into the pre-major or major status is determined by the department chair.~~

~~Advancement from Pre-Major to Major Status~~

~~Pre-major BSE students must work with their assigned faculty advisor to develop a course plan to make up the high school course requirements for advancement to major status in the BSE program. Once the coursework outlined in the student's course plan for advancement is completed, the student meets with their faculty advisor to request advancement to major status, or may also be advanced to major status by the department chair upon review of the students academic progress. Advancement to major status is subject to approval by the department chair.~~

Curriculum

The BSE degree requires a total of 130 credits for the CSE specialization and 132 credits for the Electrical Engineering and Mechanical Engineering specializations. ~~The total required credits for the BSE is 132 credits.~~ There are five main categories of required credits.

Category	*Credits*
*General Education Requirements (GER)	15
Core Curriculum	~~59~~ 49
Engineering Emphasis Track Courses	~~43~~
Computer Systems Engineering	51

Electrical Engineering	53
Mechanical Engineering	53
~~**~~Advanced Math Elective	3
Advanced Engineering/Science Electives	12
Total Credits for CSE Specialization	**130**
Total Credits for EE or ME Specialization	**132**

**Note: For rules and information about selecting courses to meet General Education Requirements, see the link on the main School of Engineering website at: www.uaa.alaska.edu/schoolofengineering.~~www.engr.uaa.alaska.edu/.~~*

~~***Note: MATH A231 Discrete Mathematics is required for Computer Systems Engineering students.*~~

During the first two years (freshman and sophomore) of the BSE program, the student completes a set of core courses ~~of 74 credits (59 Core Curriculum credits and 15 General Education Requirements). These courses~~that cover basic sciences, mathematics, oral and written communications, and other General Education Requirement courses. This provides the student with a broad and solid background in the topics necessary to build a specialization in a field of engineering.

The engineering emphasis track courses are taken mostly in the third and fourth (junior and senior) years. Each track has a series of required courses totaling ~~43~~ 51 credits for the CSE specialization and 53 credits for the EE and ME specializations. In addition, the student selects an additional 12 credits of advanced engineering or science electives, where at least 6 of those credits must be from a class with the prefix of the student's specialization, and a 3 credit advanced mathematics elective.

Engineering design is introduced early in the curriculum and is emphasized throughout the program. In addition to ~~the~~ a seminar course ~~series~~, a ~~three~~two-course introductory Engineering Practices series is a required part of the curriculum. It is an outstanding customized coordination of courses that specifically teaches engineering students what they most need to know early in the curriculum. These courses help students become more successful in all of their subsequent courses and to be more effective as practicing engineers. Topics include applied mathematics, computer applications, experimental data gathering and analysis, collaborative teamwork, and report preparation and presentation. Also, a senior capstone design course is required.

Since the BSE program allows for the selection of more electives than the traditional BS engineering programs, students can custom design their curriculum to specialize in the areas of engineering most applicable for their plans. So, students can prepare themselves to specifically meet the needs of specific companies, and state and federal agencies.

Professional registration is emphasized throughout the program. Students attend ~~three~~ a professional seminar cours~~es~~ that exposes them to multiple experts from education and industry speaking about their fields of expertise. All students are encouraged to take the Fundamentals of Engineering examination before graduation.

Advising

All undergraduate students are encouraged to meet with their faculty advisor each semester for the purpose of reviewing their academic progress and planning future courses. It is particularly important for students to meet with their advisor whenever academic difficulties arise.

Mathematics Minor

Upon completion of the BSE with the mechanical or electrical engineering specialization, or upon completion of the BSE with the computer systems engineering specialization with a 300- or 400- level mathematics class taken from the MATH advanced electives, the requirements for obtaining a minor in Mathematics are also satisfied. Students are encouraged to apply for the mathematics minor with the BSE when applying for graduation.

Academic Progress

All prerequisites for engineering courses must be completed with a grade of C or higher. A student who has a cumulative semester GPA in engineering courses below 2.00 will be placed on academic warning by the School of Engineering. If a student on academic warning status receives a semester GPA for engineering courses of at least 2.00, that student will be removed from academic warning status by the School of Engineering. Otherwise, if a student on academic warning status receives a cumulative semester GPA in engineering courses below 2.00, the student will be dropped from the BSE program and must reapply in order to continue in the BSE program. Re-admittance requires a letter from the student requesting re-admittance with an explanation of the reasons why. Re-admittance is subject to approval by the department chair.

Graduation Requirements

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Every UAA baccalaureate degree requires a minimum of 37 credits of General Education Requirements in eight different categories. The specifically identified courses required for the BSE satisfies five of these categories. However, there are 15 GER credits in the remaining three categories (Social Sciences, Humanities, and Fine Arts) that the student selects:

Fine Arts	3
Humanities	6
Social Sciences	6

One of the following criteria must be met:

1. Six credits are from courses that are at the 200 level or above.
2. Three credits are from courses that are at the 200 level or above and 6 credits are from a sequence of courses at the 100-level. For example, HIST 101 and HIST 102 is considered to be a 6-credit course sequence.

In addition, the courses selected for Social Science must be from two different disciplines. It is very important that students see their faculty advisors and review the rules for selecting these 15 GER credits. A website with the rules is linked on the main School of Engineering website.

C. Major Requirements

1. Complete the following core courses (~~59~~ 49 Credits):

CHEM A105	General Chemistry I	3
CHEM A105L	General Chemistry I Laboratory	1
COMM A111	Fundamentals of Oral Communications (3)	3
	or	
COMM A235	Small Group Communication (3)	
	or	
COMM A237	Interpersonal Communication (3)	
	or	
COMM A241	Public Speaking (3)	
ENGL A111	Methods of Written Communication	3
ENGL A212	Technical Writing	3
~~ENGR A105A~~	~~Engineering Computer-Aided Design I~~	~~1~~
~~ENGR A105B~~	~~Engineering Computer-Aided Design II~~	~~1~~
ENGR A151	Engineering Practices I	3
ENGR A161	Engineering Practices II	3
ENGR A192	Engineering Seminar I	1
~~ENGR A251~~	~~Engineering Practices III~~	~~3~~
~~ENGR A292~~	~~Engineering Seminar II~~	~~1~~
~~ES A208~~	~~Engineering Mechanics~~	~~4~~
ES A302	Engineering Data Analysis	3
ESM A450	Economic Analysis and Operations	3
MATH A200	Calculus I	4
MATH A201	Calculus II	4
MATH A202	Calculus III	4
MATH A302	Ordinary Differential Equations	3
PHYS A211	General Physics I	3
PHYS A211L	General Physics I Laboratory	1
PHYS A212	General Physics II	3
PHYS A212L	General Physics II Laboratory	1

2. Choose one of the following specializations:

Computer Systems Engineering (~~43~~ 51 credits)

Complete the following required courses:

CS A330	Algorithms and Data Structures	3
CSE A205	Introduction to C Programming for Engineers	3
CSE A215	Object-Oriented Programming for Engineers	3
CSE A225	Assembly Language Programming for Engineers Using Xilinx	3
CSE A335	Operating Systems Engineering	3
CSE A342	Digital Circuits Design	3
CSE A355	Computer Networking for Engineers	3
CSE A465	Network Security	3
CSE A480	Engineering Software/Hardware Systems	3
CSE A438	Design of Computer Engineering Systems	3
EE A203	Fundamentals of Electrical Engineering I	4
EE A204	Fundamentals of Electrical Engineering II	4
EE/CS A241	Computer Hardware Concepts	4
EE/PHYS A314	Electromagnetics	3
EE A353	Circuit Theory	3
~~ENGR A105C~~	~~Engineering Computer-Aided Design III~~	~~1~~
MATH A231	Introduction to Discrete Mathematics	3

Electrical Engineering (~~43~~ 53 credits)

Complete the following required courses:

CSE A205	Introduction to C Programming for Engineers	3
CSE A215	Object-Oriented Programming for Engineers	3
CSE A225	Assembly Language Programming for Engineers Using Xilinx	3
EE A203	Fundamentals of Electrical Engineering I	4
EE A204	Fundamentals of Electrical Engineering II	4
EE/CS A241	Computer Hardware Concepts	4
EE/ME A308	Instrumentation and Measurement	3
EE/PHYS A314	Electromagnetics	3
EE/PHYS A324	Electromagnetics II	3
EE A324L	Electromagnetics Laboratory II	1
EE A353	Circuit Theory	3
EE A353L	Circuit Theory Laboratory	1
EE A354	Engineering Signal Analysis	3
EE A438	Design of Electrical Engineering Systems	3
EE A441	Integrated Circuit Design	3
EE A465	Telecommunications	3
ENGR A105A	Engineering Computer-Aided Design I	1
ENGR A105B	Engineering Computer-Aided Design II	1
ES A208	Engineering Mechanics	4

Mechanical Engineering (~~43~~ 53 credits)

Complete the following required courses:

CHEM A106	General Chemistry II	3
CHEM A106L	General Chemistry II Laboratory	1
ENGR A105A	Engineering Computer-Aided Design I	1
ENGR A105B	Engineering Computer-Aided Design II	1
ENGR A105C	Engineering Computer-Aided Design III	1
ES A209	Engineering Statics	3
ES A210	Engineering Dynamics	3
ES A309	Elements of Electrical Engineering	3
ES A331	Mechanics of Materials	3
ES A341	Fluid Mechanics	3
ES A341L	Fluid Mechanics Laboratory	1
ES A346	Basic Thermodynamics	3

ME A280	Solid Modeling for Engineers	3
~~ME A302~~	~~Mechanical Design I~~	~~4~~
ME/EE A306	Dynamics of Systems	3
ME/EE A308	Instrumentation and Measurement	3
ME A313	Mechanical Engineering Thermodynamics	3
ME A334	Elements of Material Science	3
ME A403	Mechanical Design II	3
ME A414	Thermal Systems Design	3
ME A438	Design of Mechanical Engineering Systems	3
ME A441	Heat and Mass Transfer	3

3. Advanced Electives
BSE students are required to take 12 credits of advanced engineering/science electives from an approved list of electives for the particular emphasis area. Of the 12 elective credits, at least 6 of them must be from the prefix of the student's specialization. Also, a 3-credit advanced mathematics elective is required that is selected from a single list common for ~~all emphasis areas~~the Electrical and Mechanical Engineering specializations. The Computer Systems Engineering specialization requires 3 or 4 credits to be selected from a separate list. Many elective courses require prerequisite courses that are also elective courses. Thus, in selecting elective courses students are strongly advised to work with their advisor to develop a cohesive set of elective courses. Choice of engineering electives is subject to approval by the student's advisor and the department head.

Advanced Mathematics Electives (3 credits)
BSE Computer Systems Engineering students are required to take one course from the following:

~~MATH A231~~	~~Introduction to Discrete Mathematics~~	~~3~~
ES A208	Engineering Mechanics	4
MATH A314	Linear Algebra	3
MATH A410	Introduction to Complex Analysis	3
MATH A422	Partial Differential Equations	3
MATH A423	Advanced Engineering Mathematics	3
STAT A307	Probability and Statistics in Science	4

BSE Electrical Engineering and BSE Mechanical Engineering students are required to take one course from the following list of advanced mathematical elective courses: ~~3~~

MATH A310	Numerical Methods	3
MATH A314	Linear Algebra	~~(~~3~~)~~
MATH A321	Analysis of Several Variables	~~(~~3~~)~~
MATH A371	Stochastic Processes	~~(~~3~~)~~
MATH A407	Mathematical Statistics I	~~(~~3~~)~~
MATH A410	Introduction to Complex Analysis	~~(~~3~~)~~
MATH A422	Partial Differential Equations	~~(~~3~~)~~
MATH A423	Advanced Engineering Mathematics	~~(~~3~~)~~
~~MATH A426~~	~~Numerical Methods (3)~~	

Advanced Engineering & Science Electives (12 credits)
BSE students are required to take 12 credits from one of the following lists of approved advanced engineering and science elective courses based on their specialty. Of the 12 credits, at least 6 of them must be from the prefix of the student's specialty. Students should meet with their faculty advisor for selection of courses.

A. Computer Systems Engineering Specialty Electives ~~*12*~~

~~BIOL/CHEM/PHYS A456 Nonlinear Dynamics and Chaos (3)~~		
~~CE A403~~	~~Arctic Engineering (3)~~	
	~~or~~	
~~ES A411~~	~~Northern Design (3)~~	
~~*Note: Either CE A403 or ES A411 can be taken but not both for the degree.*~~		
~~CS A304~~	~~Object-Oriented Analysis and Modeling (3)~~	
~~CS A331~~	~~Programming Language Concepts (3)~~	
~~CS A351~~	~~Automata, Algorithms, and Complexity (3)~~	
~~CS A360~~	~~Database Systems (3)~~	
CS A385	Computer Graphics	~~(~~3~~)~~

CS A401	Software Engineering	~~(~~3~~)~~
CS A405	Artificial Intelligence	~~(~~3~~)~~
~~CS A413~~	~~Computer and Data Security (3)~~	
CSE A442	VLSI Circuit Design	~~(~~3~~)~~
CSE A445	Computer Design and Interfacing	~~(~~4~~)~~
CSE A451	Digital Signal Processing	~~(~~3~~)~~
~~CSE A465~~	~~Network Security (3)~~	
~~EE/ME A308~~	~~Instrumentation and Measurement (3)~~	
EE/PHYS A324	Electromagnetics II	~~(~~3~~)~~
EE/PHYS A324L	Electromagnetics Laboratory II	~~(~~1~~)~~
EE A354	Engineering Signal Analysis	~~(~~3~~)~~
~~EE A407~~	~~Power Distribution (3)~~	
EE A441	Integrated Circuit Design	~~(~~3~~)~~
~~EE/ME A471~~	~~Automatic Control (3)~~	
~~EE A453~~	~~Introduction to Wi-Fi (1)~~	
~~EE A454~~	~~Systems Reliability Engineering (1)~~	
~~EE A456~~	~~Fiber Optic Communications (1)~~	
~~EE A458~~	~~Antenna Theory (3)~~	
EE A462	Communication Systems	~~(~~3~~)~~
EE A465	Telecommunications	~~(~~3~~)~~
~~PHYS A303~~	~~Modern Physics (3)~~	

B. ***Electrical Engineering Specialty Electives*** ~~*12*~~

CE A403/603	Arctic Engineering	~~(~~3~~)~~
	or	
ES A411	Northern Design	~~(~~3~~)~~

Note: Either CE A403 or CE A603 or ES A411 can be taken but not both for the degree.

~~CS A330~~	~~Algorithms and Data Structures (3)~~	
~~CS A401~~	~~Software Engineering (3)~~	
~~CS A413~~	~~Computer and Data Security (3)~~	
CSE A445	Computer Design and Interfacing	~~(~~4~~)~~
CSE A451	Digital Signal Processing	~~(~~3~~)~~
CSE A355	Computer Networking for Engineers	3
CSE A465	Network Security	~~(~~3~~)~~
EE/ME A306	Dynamics of Systems	3
~~EE/ME A308~~	~~Instrumentation and Measurement (3)~~	
EE A407	Power Distribution	~~(~~3~~)~~
~~EE A453~~	~~Introduction to Wi-Fi (1)~~	
~~EE A454~~	~~Systems Reliability Engineering (1)~~	
~~EE A456~~	~~Fiber Optic Communications (1)~~	
EE A458	Antenna Theory	~~(~~3~~)~~
EE A462	Communication Systems	~~(~~3~~)~~
EE/ME A471	Automatic Control	~~(~~3~~)~~
~~PHYS A303~~	~~Modern Physics (3)~~	

C. ***Mechanical Engineering Specialty Electives*** ~~*12*~~

AEST A608	Fundamentals of Air Pollution	3
CE A403/603	Arctic Engineering	~~(~~3~~)~~
	or	
ES A411	Northern Design	~~(~~3~~)~~

Note: Either CE A403 or CE A603 or ES A411 can be taken ~~but not both~~ for the degree.

CE A441	Introduction to Environmental Engineering	3
CE A442	Environmental Systems Design	~~(~~3~~)~~
CE A600	Fundamentals of Environmental Science and Engineering	~~(~~3~~)~~
~~EE/ME A408~~	~~Dynamics of Systems (3)~~	
ME A408	Mechanical Vibrations	3
ME A450	Manufacturing Design	3
ME A453	Renewable Energy Systems Engineering	3
ME A455	HVAC Systems Optimization	3

ME A459/659	Fracture Mechanics	3
Note: Only one of ME A459 or ME A659 can apply to the degree.		
~~EE/~~ME/EE A471	Automatic Control	~~(~~3~~)~~
ME A664	Corrosion Processes and Engineering	~~(~~3~~)~~
ME A685	Arctic Heat and Mass Transfer	~~(~~3~~)~~

4. A total of 130 credits is required for the BSE degree with a specialization in Computer Systems Engineering. A total of 132 credits is required for the BSE degree with a specialization in Electrical or Mechanical Engineering, of which 42 credits must be upper division.

FACULTY

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GEOMATICS

Engineering Building (ENGR), Room 213, (907) 786-1972 www.engr.uaa.alaska.edu

The Department of Geomatics offers a two-year Associate of Applied Science in Geomatics, a four-year Bachelor of Science in Geomatics, a minor in Geographic Information Systems (GIS), and an Undergraduate Certificate in Geographic Information Systems (GIS). Students seeking the baccalaureate degree may graduate in one of two emphasis areas: Surveying or GIS. Students seeking continuing education for technical or professional enhancement or a concentrated area of study in GIS should consider either the minor in GIS or the Undergraduate Certificate in GIS. The Geomatics program is science-based and includes:

- Land surveying using global positioning systems and conventional techniques
- Automated mapping
- Computational analysis and adjustment
- Geodesy
- Principles of boundary law
- Geographic Information Systems (GIS)
- Digital photogrammetry
- Remote sensing and image analysis.

The wide diversity in the profession creates a similar diversity of employment opportunities. The Undergraduate Certificate in GIS educates students with a broad base of concepts and theory, provides them with hands-on training in real world problems that are relevant to Alaska's environment, and allows them to explore several thematic areas in GIS applications, such as facilities management, transportation, marine environments, and natural resources.

The minor in GIS is designed for students to enhance their knowledge of GIS and remote sensing to complement a major baccalaureate degree in a variety of disciplines including science, art, business management and engineering. GIS, as a part of geospatial science and information technologies, is widely used in many industries important to Alaska (e.g. oil, gas), governance and administrations (municipalities and the state), statewide and federal agencies and departments (transportation, natural resources, land management, parks and recreation, etc.), research (sustainability, biodiversity, ecology, geology, anthropology, socioeconomics, etc.), homeland security, military applications and non-profit organizations.

The Associate of Applied Science in Geomatics prepares students for technician-level employment as land survey technicians or as automated mapping technicians. Those working as survey technicians frequently work outdoors, travel to various job locations, and enjoy an independent lifestyle. Automated mapping technicians work with the latest cartographic techniques and equipment and easily transfer skills learned in geomatics courses to other disciplines.

The Bachelor of Science prepares students for a wide variety of professionallevel opportunities. Since Alaska poses unique geomatic challenges, the curriculum emphasizes northern principles and practices. UAA graduates are highly employable in the Alaska marketplace and worldwide. Employment opportunities are found in private industry, government, and municipal agencies. Geomaticians working at the professional level enjoy responsibility and a choice of indoor and outdoor employment with many opportunities for advancement and diversification.

The new high-tech fields open employment in GIS, photogrammetry, remote sensing, land surveying, automated mapping, land design and planning, survey engineering, and resource management positions. In Alaska, geomaticians work on state and Native land claims, mining claims, fishing leases, petroleum reserves, forest selections, transportation corridors, private developments, and government and military projects. In Alaska and elsewhere, geomaticians work in land surveying, land development and design, mapping and tax assessment, the defense industry, environmental engineering assessment and management, public safety and welfare, medicine, transportation, agriculture, business, and natural sciences.

Professional predictors indicate that employment opportunities will be strong for the various geomatics specialties in Alaska and the Pacific Rim well into the 21st century. While enrolled in the program, students are eligible for cooperative employment programs with government agencies and with private industry during the summer and for intern programs during the school year.

The Department of Geomatics accommodates a wide variety of student objectives from entry level to professional preparation and encourages the nontraditional student to return for training in current practices and principles.

Students seeking professional licensing as registered land surveyors and those who are interested in specializing in surveying or geographic information systems should enroll in the Bachelor of Science program. For the most effective planning, bachelor's degree candidates should declare their intent by the second semester of their geomatics studies.

Accreditation

The Bachelor of Science program in Geomatics at UAA is accredited by the Applied Science Accreditation Commission (ASAC) of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202.

Program Educational Objectives and Program Outcomes

Program Educational Objectives

The curriculum of the UAA Geomatics program is designed to produce graduates who:

1. Have a basic knowledge of the principles and skills relating to the geomatics disciplines of land surveying, surveying boundary law, surveying computations and adjustments, mapping, geodesy, and photogrammetry, together with the newer disciplines of remote sensing, digital photogrammetry, global positioning systems (GPS), and spatial or geographic information systems (GIS);
2. Have an understanding of the principles related to project delivery;
3. Have sufficient technical competence to obtain employment as an entry-level geomatics professional and to be able to progress professionally within the discipline, and to be prepared for advanced studies;
4. Have a fundamental understanding of the issues relating to geomatics practice in GIS;
5. Are able to communicate their ideas;
6. Are able to work within a team environment; and
7. Are prepared for and understand the need for continued professional development throughout their careers.

Program Outcomes

In keeping with the program educational objectives, it is expected that graduates of the UAA Geomatics program will have:

1. An ability to apply knowledge of mathematics through calculus III and either linear algebra or differential equations or probability and statistics, and general physics;
2. An ability to collect, analyze and interpret data in all of the recognized surveying and mapping areas;
3. An ability to identify, formulate, and design a geomatics system, component or process to meet desired needs;
4. An ability to function on multidisciplinary as well as on interdisciplinary teams;
5. An ability to think critically and to creatively solve geomatics problems;
6. An understanding of professional and ethical responsibility;

7. An ability to communicate effectively;
8. The broad education necessary to understand the impact of geomatics solutions in a global and societal context;
9. A recognition of the need for, and ability to engage in, lifelong learning;
10. A knowledge of contemporary issues in professional practice;
11. An ability to use the techniques, skills and modern geomatics tools necessary for geomatics practice; and
12. An ability to apply knowledge in all six areas of surveying and mapping:
    i. Field surveying and methods;
    ii. Photogrammetric mapping and image interpretation and remote sensing;
    iii. Surveying calculation and data adjustment;
    iv. Geodetic coordinates and astronomy;
    v. Cartographic representation, projections, and map production;
    vi. Computer-based multipurpose cadastre, geographic information systems.

Honors in Geomatics

Undergraduate students may be recognized for exceptional performance by earning Departmental Honors in Geomatics. In order to receive honors in Geomatics, a student must meet each of the following requirements:

1. Complete all requirements for a BS in Geomatics.
2. Be an active member for at least one year of both a national and an on-campus student chapter of a professional geomatics society that addresses issues relevant to the geomatics profession.
3. Have a GPA of 3.50 or higher in their Geomatics and Geographic Information System courses of their catalog year. Have a GPA of 3.30 or higher for their overall cumulative GPA.
4. Pass the Fundamentals of Surveying Examination prior to the completion of the first semester of their senior year.
5. Document a minimum of eight weeks work experience while a student at the University of Alaska in a geomatics or geomatics related position.

Advising

All undergraduate students are encouraged to meet with their academic advisor each semester for the purpose of reviewing their academic progress and planning future courses. It is particularly important for students to meet with their advisor whenever academic difficulties arise. Students are encouraged to consult the faculty in the Department of Geomatics for assistance in designing their course of study to ensure that all prerequisites have been met and that university and major degree requirements are understood and followed.

Prerequisites

All prerequisites for geomatics courses must be completed with a grade of C or higher.

Preparation

The university offers courses to help students without this preparation to meet the skill level required in the Geomatics program. Insufficient preparation will increase the number of semesters required to complete either degree. Students seeking the Undergraduate Certificate in Geographic Information Systems, the Associate of Applied Science or Bachelor of Science in Geomatics should prepare for entrance into the program by completing the following high school courses:

Mathematics	Algebra II
	Trigonometry
Science	Physics
English Composition	Skill level as demonstrated by ACT, SAT or approved placement test to qualify for enrollment in ENGL A111

Undergraduate Certificate, Geographic Information Systems (GIS)

Admission Requirements

Satisfy the Admission to Certificate and Associate's Degree Programs Requirements in Chapter 7, Academic Standards and Regulations.

Course Requirements

Certain courses require prerequisites or faculty permission. Call (907) 786-1972 for further information.

Major Requirements

In order to receive an Undergraduate Certificate in GIS, students must achieve a grade of C or higher in all courses applied to the certificate.

1. Complete the following required courses (23 credits):

GEO A137	Principles of Mapping	3
GEO A167	Remote Sensing and Image Analysis	4
GIS A268	Elements of Geographic Information Systems (GIS)	4
GIS A366	Spatial Information Analysis and Modeling	3
GIS A367	GIS and Remote Sensing	3
GIS A458	Design and Management of Spatial Data	3
GIS A460 GIS	Senior Project	3

2. Complete 9 credits from the following elective courses: 9

GEO A490	Selected Advanced Topics in Geomatics (3)
GIS A295	Internship in Geographic Information Systems I (3)
	or
GIS A495	Internship in Geographic Information Systems II (3)
GIS A369	Land Information Systems (3)
GIS A370	GIS and Remote Sensing for Natural Resources (3)
GIS A375	GIS and Public Health (3)
GIS A433	GIS and the Marine Environment (3)
GIS A468	Integration of Geomatic Technologies (3)
GIS A470	GIS for Facility Management and Transportation Systems (3)
GIS A490	Selected Advanced Topics in GIS (3)

3. A maximum of 3 credits of Internship (GIS A295 or GIS A495) and 3 credits of Advanced Topics in Geomatics (GEO A490) or Advanced Topics in GIS (GIS A490) can be counted toward the Certificate in GIS. Faculty approval of the GEO A490 or GIS A490 topic is necessary for application of the course to the certificate program.

4. A total of 32 credits is required for the Certificate in GIS.

Associate of Applied Science, Geomatics

Admission Requirements

Satisfy the Admission to Undergraduate Certificate and Associate's Degree Programs Requirements in Chapter 7, Academic Standards and Regulations.

General University Requirements

Complete the Associate of Applied Science General Degree Requirements located at the beginning of this chapter. Some of the major requirements will also fulfill Associate of Applied Science degree general requirements. Students should coordinate choices carefully with their academic advisor in the Department of Geomatics.

Academic Progress

Students must complete all major requirement courses with a grade of C or higher. A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt will result in removal from the Geomatics program.

Major Requirements

1. Complete 4 credits in physics: 4

PHYS A123	Basic Physics I (3)
PHYS A123L	Basic Physics I Laboratory (1)
	or
PHYS A211	General Physics I (3)
PHYS A211L	General Physics I Laboratory (1)

2. Complete the following required courses (48 credits):

ENGL A212	Technical Writing	3
GEO A137	Principles of Mapping	3
GEO A146	Surveying Computations	3
GEO A155	Fundamentals of Surveying	3
GEO A157	Analytical and Digital Cartography	3
GEO A158	Geomatics Computer Fundamentals	3
GEO A166	Advanced Surveying	4
GEO A167	Remote Sensing and Image Analysis	4
GEO A248	Digital Terrain Cartography	3
GEO A256	Municipal and Civil Geomatics	4
GEO A257	Elements of Photogrammetry	3
GEO A267	Boundary Law I	4
GIS A268	Elements of Geographic Information Systems (GIS)	4
MATH A200	Calculus I	4

3. Electives to total of 60 credits.

Bachelor of Science, Geomatics

Admission Requirements

Complete the Admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations.

Graduation Requirements

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees at the beginning of this chapter.

Academic Progress

Students must complete all courses under major requirements with a grade of C or higher. A student who is unable to earn a satisfactory grade in the major requirement courses during their initial enrollment may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt will result in removal from the Geomatics program.

C. Major Requirements

1. Complete 8 credits in physics from one of the following sequences: 8

PHYS A123	Basic Physics I (3)	
PHYS A123L	Basic Physics I Laboratory (1)	
PHYS A124	Basic Physics II (3)	
PHYS A124L	Basic Physics II Laboratory (1)	
	or	
PHYS A211	General Physics I (3)	
PHYS A211L	General Physics I Laboratory (1)	
PHYS A212	General Physics II (3)	
PHYS A212L	General Physics II Laboratory (1)	

These credits must be in addition to the 7 Natural Sciences credits taken to complete the General Education Requirement.

2. Complete the following (18 credits):

ENGL A212	Technical Writing	3
GEO A158	Geomatics Computer Fundamentals	3
MATH A200	Calculus I	4
MATH A201	Calculus II	4

MATH A202	Calculus III	4

3. Complete one of the following: 3

MATH A302	Ordinary Differential Equations (3)	
MATH A314	Linear Algebra (3)	
STAT A307	Probability (3)	

4. Complete all of the following (62 credits):

GEO A137	Principles of Mapping	3
GEO A146	Surveying Computations	3
GEO A155	Fundamentals of Surveying	3
GEO A157	Analytical and Digital Cartography	3
GEO A166	Advanced Surveying	4
GEO A167	Remote Sensing and Image Analysis	4
GEO A248	Digital Terrain Cartography	3
GEO A256	Municipal and Civil Geomatics	4
GEO A257	Elements of Photogrammetry	3
GEO A267	Boundary Law I	4
GEO A355	Land Development and Design	3
GEO A359	Geodesy and Map Projections	3
GEO A365	Geomatic Adjustment and Analysis	4
GEO A457	Boundary Law II	4
GEO A460	Geomatics Design Project	3
GEO A466	Geopositioning	4
GIS A268	Elements of Geographic Information Systems (GIS)	4
GIS A366	Spatial Information Analysis and Modeling	3

5. Complete at least 12 credits in one of the emphasis areas.

Surveying Emphasis

a. Complete the following (6 credits):

GEO A358	Programming for Digital Cartography	3
GEO A433	Hydrographic Surveying	3

b. Complete 6 credits from the following: 6

GEO A456	Geomatics and Civil Design (3)	
GEO A459	Geodetic Geomatics (3)	
GEO A467	Analytical and Digital Photogrammetry (3)	
GEO A490	Selected Advanced Topics in Geomatics (1-6)	
GIS A369	Land Information Systems (3)	

Geographic Information Systems (GIS) Emphasis

a. Complete the following (3 credits):

GIS A458	Design and Management of Spatial Data	3

b. Complete 9 credits from the following: 9

GIS A367	GIS and Remote Sensing (3)	
GIS A369	Land Information Systems (3)	
GIS A370	GIS and Remote Sensing for Natural Resources (3)	
GIS A375	GIS and Public Health (3)	
GIS A433	GIS and the Marine Environment (3)	
GIS A468	Integration of Geomatic Technologies (3)	
GIS A470	GIS for Facility Management and Transportation Systems (3)	
GIS A490	Selected Advanced Topics in GIS (1-6)	

6. A total of 131 credits is required for the degree of which 42 must be upper division.

FACULTY

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Minors in the School of Engineering

To meet a variety of student needs, the School of Engineering offers several minors.

A choice of two types of engineering minors ~~are~~ is offered. The first is a minor in General Engineering, which is for students who are majoring in a non-engineering baccalaureate degree. This program offers foundation coursework in core engineering topics.

The second is an Engineering Specialty minor which is for students majoring in an engineering baccalaureate degree who, therefore, have completed much of the coursework in the Bachelor of Science in Engineering (BSE) or Civil Engineering (CE) program. Students within the engineering program may choose to pursue an Engineering Specialty minor in Civil Engineering, Computer Systems Engineering, Electrical Engineering, or Mechanical Engineering.

Students enrolling in either engineering minor must satisfy all prerequisite requirements for the courses required for the chosen minor. Non-engineering majors, such as students in the sciences or mathematics, will likely be better positioned to meet the prerequisite requirements in the General Engineering minor. Students majoring in engineering disciplines will likely be better positioned to meet the prerequisite requirements for courses in the Engineering Specialty minor.

Additionally, a minor in Geographic Information Systems (GIS) is offered for students who are majoring in baccalaureate degrees in a variety of disciplines and who are seeking strong GIS knowledge and skills to enhance their specialty and further their professional career.

Course Requirements for Minors

A minor of study must consist of a minimum of 18 credit hours. At least 6 credits must be upper division. Students must earn a cumulative GPA of at least 2.00 (C) in the minor. A minor may only be issued simultaneously with a baccalaureate degree. For general information about minor requirements, see the minors section at the beginning of this chapter. The course requirements for each of the minors are listed below. In cases where students have unique backgrounds or interests, course selection may be adapted accordingly through consultation with the School of Engineering faculty advisors.

A. General Engineering, Minor

The following courses are required: 10

ENGR A151	Engineering Practices I	3
ENGR A161	Engineering Practices II	3
ES A208	Engineering Mechanics	4

In addition, at least three courses must be selected from the following list: 9

EE/ME A308	Instrumentation and Measurement (3)
ES A309 *	Elements of Electrical Engineering (3)
ES A331	Mechanics of Materials (3)
ES A341 *	Fluids Mechanics (3)
~~ES A341L~~	~~Fluid Mechanics Laboratory (1)~~
ES A346 *	Basic Thermodynamics (3)
ESM A450	Economic Analysis and Operations (3)
ME A334	Elements of Material Science (3)

B. Engineering Specialty Minors

Minor, Civil Engineering

A minimum of 18 credits must be selected from: 18

CE A334 *	Properties of Materials (3)
CE A344 *	Water Resources Engineering (3)

CE A402	Transportation Engineering (3)
CE A422 *	Foundation Engineering (3)
CE A425	Highway Engineering (3)
CE A431	Structural Analysis (4)
CE A432 *	Steel Design (3)
CE A433 *	Reinforced Concrete Design (3)
CE A434	Timber Design (3)
CE A435/L	Soil Mechanics with Laboratory (3)
CE A441 *	Introduction to Environmental Engineering (3)
CE A442	Environmental Systems Design (3)

Minor, Computer Systems Engineering

A minimum of 18 credits must be selected from: ~~18~~

CS A330	Algorithms and Data Structures	~~(~~3~~)~~
~~CS A331~~	~~Programming Language Concepts (3)~~	
CS A401	Software Engineering	~~(~~3~~)~~
CS A405	Artificial Intelligence	~~(~~3~~)~~
~~CS A413 *~~	~~Computer and Data Security (3)~~	
CSE A335~~*~~	Operating Systems Engineering	~~(~~3~~)~~
CSE A342	Digital Circuits Design	~~(~~3~~)~~
CSE A355 ~~*~~	Computer Networking for Engineers	~~(~~3~~)~~
CSE A442	VLSI Circuit Design	3
CSE ~~A442~~ A445	Computer Design and Interfacing	~~(~~4~~)~~
CSE A451 ~~*~~	Digital Signal Processing	~~(~~3~~)~~
CSE A465 ~~*~~	Network Security	~~(~~3~~)~~
CSE A480	Engineering Software/Hardware Systems	3

Minor, Electrical Engineering

A minimum of 18 credits must be selected from: ~~18~~

CSE A451	Digital Signal Processing	3
EE A203 ~~*~~	Fundamentals of Electrical Engineering I	~~(~~4~~)~~
EE A204 ~~*~~	Fundamentals of Electrical Engineering II	~~(~~4~~)~~
EE/CS A241	Computer Hardware Concepts	~~(~~4~~)~~
EE/ME A308	Instrumentation and Measurement	~~(~~3~~)~~
EE A314 ~~*~~	Electromagnetics	~~(~~3~~)~~
EE A324	Electromagnetics II	~~(~~3~~)~~
EE A324L~~*~~	Electromagnetics Laboratory II	~~(~~1~~)~~
EE A353 ~~*~~	Circuit Theory	~~(~~3~~)~~
EE A407	Power Distribution	~~(~~3~~)~~
EE A441	Integrated Circuit Design	~~(~~3~~)~~
EE A458	Antenna Theory	3
EE A462	Communication Systems	3
EE A465 ~~*~~	Telecommunications	~~(~~3~~)~~
EE/ME A471	Automatic Control	~~(~~3~~)~~

Minor, Mechanical Engineering

A minimum of 18 credits must be selected from: ~~18~~

ES A341 ~~*~~	Fluid Mechanics	~~(~~3~~)~~
ES A341L ~~*~~	Fluid Mechanics Laboratory	~~(~~1~~)~~
ES A346 ~~*~~	Basic Thermodynamics	~~(~~3~~)~~
ME A302 ~~*~~	Mechanical Design I	~~(~~4~~)~~
ME A306	Dynamics of Systems	3
ME/EE A308 ~~*~~	Instrumentation and Measurement	~~(~~3~~)~~
ME A313	Mechanical Engineering Thermodynamics	~~(~~3~~)~~
ME A334 ~~*~~	Elements of Material Science	~~(~~3~~)~~
ME A403	Mechanical Design II	~~(~~3~~)~~
~~ME A408~~	~~Dynamics of Systems (3)~~	
ME A408	Mechanical Vibrations	3

ME A414	Thermal System Design	~~(~~3~~)~~
ME A441 ~~*~~	Heat and Mass Transfer	~~(~~3~~)~~
ME A450	Manufacturing Design	3
ME A455	HVAC Systems Optimization	3
ME A459/659	Fracture Mechanics	3
ME/EE A471	Automatic Control	~~(~~3~~)~~
ME A664	Corrosion Processes and Engineering	~~(~~3~~)~~
ME A685	Arctic Heat and Mass Transfer	~~(~~3~~)~~

Note: Only one of ME A459 or ME A659 can apply to the minor.

C. Geographic Information Systems (GIS), Minor

A minimum of 18 credits must be selected from: 18

GEO A167	Remote Sensing and Image Analysis (4)
GIS A268	Elements of Geographic Information Systems (GIS) (4)
GIS A366	Spatial Information Analysis and Modeling (3)
GIS A367	GIS and Remote Sensing (3)
GIS A369	Land Information Systems (3)
GIS A370	GIS and Remote Sensing for Natural Resources (3)
GIS A375	GIS and Public Health (3)
GIS A433	GIS and the Marine Environment (3)
GIS A458	Design and Management of Spatial Data (3)
GIS A468	Integration of Geomatic Technologies (3)
GIS A470	GIS for Facility Management and Transportation Systems (3)
GIS A490	Selected Advanced Topics in GIS (1-6)

Note #1: MATH A200, MATH A201, MATH A202, MATH A302, PHYS A211, PHYS A212, CHEM A105, and CHEM A106 are prerequisites for most of the Engineering minor listed. Students should plan and review the requirements for their specific minor to determine exactly what prerequisites will be required.

Note #2: An "" indicates a recommended set of courses for the minor.*

Note #3: BSE or CE majors may pursue a BSE Engineering Specialty minor but may not pursue the BSE General Engineering minor.

Collaborative Programs With Other UA Campuses

Two-Year (2+2) Programs of Electrical or Mechanical Engineering with UAF

The School of Engineering offers a program that allows the completion of the first two years of a four-year program leading to the Bachelor of Science in Electrical Engineering or a Bachelor of Science in Mechanical Engineering. The program is coordinated with the University of Alaska Fairbanks (UAF) College of Engineering and Mines so that students may transfer from UAF to UAA, or from UAA to UAF, with little or no loss of credit. For more information, please contact the UAA School of Engineering at (907) 786-1900.

One-Year (1+3) Engineering Program with UAS~~.~~

The University of Alaska Southeast in Juneau offers a 1+3 engineering program. Juneau students earn a Pre-Engineering Certificate while completing the first-year of an engineering degree at UAA. The programs at UAA and UAS are coordinated so that students may transfer to UAA with no loss of credit. For more information, please contact the UAA School of Engineering at (907) 786-1900.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
EA COE	No Division Code	CASE

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
EDSE	A474	n/a	3	(3+0)

6. Complete Course Title
Special Children from Birth through Five
Special Children Birth-5
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☒ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☒ Other Update course (please specify)

☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☐ Course Prerequisites
☐ Co-requisites
☒ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2012 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. BAEC	142	3/23/2011	Hilary Seitz, Associate Professor
2.			
3.			

Initiator Name (typed): Dean Konopasek Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 03/28/2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/28/2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Examines milestones and theories of child development. Emphasis on disabilities, Individuals with Disabilities Act, and intervention methods. Special Note: Field experience required.

16a. Course Prerequisite(s) *(list prefix and number)*
n/a

16b. Test Score(s)
n/a

16c. Co-requisite(s) *(concurrent enrollment required)*
n/a

16d. Other Restriction(s)
☒ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Junior Standing

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action

This CAR updates a previous version for EDSE A474.

Initiator (faculty only) Date
Carolyn Coe
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
College of Education

I. Date Initiated: 11/2/10

II. Information for the Course Action Request

College/School:	College of Education
Department:	CASE
Subject:	EDSE
Course Number:	A 474
Title:	Special Children from Birth through Five
Credits:	3
Grading Basis:	A-F
Implementation Date:	Spring 2012
Course Description:	Examines milestones and theories of child development. Emphasis on disabilities, Individuals with Disabilities Act, and intervention methods. Special Note: Field experience required.
Course Prerequisites(s):	n/a
Test Scores(s):	n/a
Corequisite(s)	n/a
Registration Restrictions:	Junior Standing
Course Fee:	☐ Yes ☒ No

III. Instructional Goals, Student Outcomes, and Assessment Procedures

A. Instructional Goals

The instructor will:

Compare theories of child development.
Explain disabilities included in the IDEA (Individuals with Disabilities

Act).
Analyze basic principles of the Individuals with Disabilities Act (IDEA).
Examine the policies and procedures of early intervention and early childhood special education.

B. Student Outcomes/Assessment Procedures

Student Outcomes *Upon successful completion of the course, the student will be able to do the following:*	***Assessment Procedures*** *This outcome will be assessed by one or more of the following:*	***Standards*** *This outcome meets the following state or national standard:* Division of Early Childhood	***Core Values*** *This outcome addresses the following core value:*
Integrate child observations with child development theories.	Observation report.	DEC 1 Foundations	Intellectual Vitality
Identify the characteristics of disabilities.	Presentation	DEC 1 Foundations DEC 2 Development and characteristics of learners	Intellectual Vitality
Articulate the basic tenets of the IDEA and compare requirements of Part B and Part C.	IDEA summary	DEC 1 Foundations	Intellectual Vitality
Review the framework of early intervention and early childhood special education services.	Report	DEC 1 Foundations	Intellectual Vitality

IV. Course Level Justification

The course requires students to apply knowledge of child development to field observations and to analyze the laws, policies and procedures that form the framework for early intervention and early childhood special education.

V. Course Outline

1. Theories of Child Development
   - 1.1 Piaget
   - 1.2 Vygotsky
   - 1.3 Erikson

2. Descriptions of disabilities
   - 2.1 Autism
   - 2.2 Speech/language
   - 2.3 Visual impairments
   - 2.4 Deaf
   - 2.5 Learning disability
   - 2.6 Traumatic Brain Injury
   - 2.7 Orthopedic impairment
   - 2.8 Other health impaired
   - 2.9 Deaf/Blind
   - 2.10 Visual impairment
   - 2.11 Multiple disabilities
   - 2.12 Emotional disturbance
   - 2.13 Cognitive impairment
   - 2.14 Developmentally delayed

3. IDEA
   - 3.1 Part B
   - 3.2 Part C

4. Early Intervention / Early Childhood Framework
   - 4.1 Child find
   - 4.2 Delivery models
   - 4.3 Individual Family Service Plan (IFSP)
   - 4.4 Individualized Educational Plan (IEP)
   - 4.6 Related services

VI. Suggested Text(s)

Hooper, S. R. (2009) *Young children with special needs* (5th Ed.). Upper Saddle River, NJ: Pearson.

VII. Bibliography

Bergen, D. (2008). *Human development: Traditional and contemporary theories*. Upper

Saddle River, N.J: Pearson Prentice Hall.

Brown, J., Hemmeter, M. L., & Frontczak, K. (2005). *Blended practices for teaching young children in inclusive settings*. Baltimore, MD: Paul H. Brookes.

Callander, N. (2010). *Communication, language and literacy*. New York, NY: Continuum International Pub. Group.

Dunlap, L. L. (2009). *An introduction to early childhood special education: Birth to age five*. Upper Saddle River, N.J: Merrill/Pearson.

Farrell, M. (2009). *Foundations of special education: An introduction*. Chichester, UK: Wiley-Blackwell.

Goldstein, S. (2010). *Handbook of neurodevelopmental and genetic disorders in children,* (2nd Ed.). New York, NY: Guilford.

Howlin, P. A. (2009). *The Sage handbook of developmental disorders*. London, UK: Sage.

May, P. (2011). *Child development in practice: Responsive teaching and learning from birth to five*. New York, NY: Routledge.

Odom, S. L. (2007). *Handbook of developmental disabilities*. New York, NY: Guilford Press.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
HW CHSW	AJUS Division of Justice	Justice Center

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
JUST	A352	N/A	3	(3+0)

6. Complete Course Title
Substantive Criminal Law

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Update CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☒ Cross Listed with PARL A352
☐ Stacked with N/A
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Paralegal Studies Undergraduate Certificate	152-153		
2.			
3.			

Initiator Name (typed): Deborah Periman Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 8/30/10
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 8/28/10

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Study of elements, purposes, and functions of substantive criminal law. Includes casebook study of general law of crimes and defenses with concentration on Alaska cases and statutes in Alaska Criminal Code. Historical and philosophical concepts are covered.

16a. Course Prerequisite(s) *(list prefix and number)*
(JUST A110 or PARL A101) with a minimum grade of C

16b. Test Score(s)
N/A

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☐ Mark if course has fees No

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Updating course content guide

Initiator (faculty only) Date
Deborah Periman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
College of Health and Social Welfare
Course Content Guide

I. Date of Initiation: April 2011

II. Curriculum Action Request

A. School:	College of Health and Social Welfare
B. Course Subject:	JUST
C. Course Number:	A352
D. Number of Credits:	3
E. Contact Hours:	3+0
F. Course Program:	Undergraduate Certificate, Paralegal Studies
G. Course Title:	Substantive Criminal Law
H. Grading Basis:	A-F
I. Implementation Date:	Fall/2011
J. Cross-listed:	PARL A352
K. Course Description:	Study of elements, purposes, and functions of substantive criminal law. Includes casebook study of general law of crimes and defenses with concentration on Alaska cases and statutes in Alaska Criminal Code. Historical and philosophical concepts are covered.
L. Course Prerequisites:	(JUST A110 or PARL A101) with a minimum grade of C
M. Course Co-requisites:	N/A
N. Other Restrictions:	N/A
O. Registration Restrictions:	N/A
P. Course Fees:	No
Q. Course Attribute:	N/A

III. Instructional Goals and Student Outcomes

A. The instructor will:

1. Provide historical overview of substantive criminal law in the United States, with emphasis on ethics and the impact of gender, class and ethnicity on development and administration of criminal law.
2. Review key concepts related to statutory and judicial analysis and analysis of the elements of crimes and affirmative defenses.
3. Explain the relationship between constitutional mandates, judicial opinions, legislation, and procedural rules in the development of substantive criminal law.
4. Present key judicial opinions from the federal and state courts, with particular attention to Alaska courts, establishing the elements of specific crimes and affirmative defenses and the public policy behind excuses to criminal behavior.
5. Highlight principles of federalism, democracy, and individual rights and their impact on the development and administration of criminal law in the United States.

B. Upon completion of this course, the student will be able to:

Outcomes and Assessment Measures	
Outcomes	**Measures**
1. Appraise the effect of history and the role of gender, class, and ethnicity on the development and administration of criminal law in the United States.	Examinations, writing assignments, structured discussion
2. Apply key concepts related to statutory and judicial analysis in the analysis of the elements of crimes and affirmative defenses.	Examination, writing assignments
3. Integrate constitutional concepts of substantive due process and equal protection, judicial opinions, state and federal legislation, and administrative rules in identifying criminal conduct and defenses to crimes.	Examination, writing assignments
4. Synthesize the evolution of important state and federal judicial opinions in delineating eras of policy in the development of American criminal law and criminal law in Alaska.	Examination, writing assignments, structured discussion
5. Examine competing interest groups in the criminal justice system, the tension between social order and individual privacy, shifting approaches to balancing competing interests, states' rights, and ethics in administration of the criminal law.	Examinations, writing assignments, structured discussion

IV. Course Level Justification

This course builds upon the concepts and vocabulary acquired by students in the alternative prerequisite courses, JUST A110 (Introduction to Justice) and PARL 101 (Introduction to Law). Course readings, lectures, and assignments presuppose that students understand fundamental principles of the American legal system, federalism, and historic eras of constitutional development. This course provides an in-depth analysis of complex judicial opinions and statutory codes, and requires students to integrate a variety of models of lawmaking. It is best suited to students in their junior and senior years.

V. Topical Course Outline

1. Introduction To Criminal Law
   - 1.1. Civil and Criminal Law Distinguished
   - 1.2. The Nature and Purpose of Criminal Law
   - 1.3. Criminal Law as Punishment
   - 1.4. Retribution or Revenge

10.7. Fetal Abuse
10.8. Influence over Law Enforcement Officials
10.9. Prison and Jail Overcrowding
10.10. Drug Trafficking
10.11. Substance Abuse and Treatment
10.12. Drug Courts
10.13. Legalizing Marijuana for Medicinal Purposes

11. Sentencing And The Criminal Law
    11.1. Determining Sentences
    11.2. Sentence Models
    11.3. Presumptive Sentencing
    11.4. Sentencing Guidelines
    11.5. Recent Sentencing Reform Measures
    11.6. Capital Punishment
    11.7. Constitutional Issues in Sentencing
    11.8. Megan's Laws
    11.9. Civil Commitment Procedures

VI. Suggested Texts

Bonnie, R. J. (2010). *Criminal law* (3rd ed.). Mineola, NY: Foundation Press.

Davenport, A. (2012). *Basic criminal law* (3rd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Samaha, J. (2011). *Criminal law* (10th ed.). Belmont, CA: Wadsworth.

VII. Bibliography

Dukker, M. D., & Kelman, M. G. (2009). *American criminal law: Cases, statutes, and comments* (2nd ed.). Mineola, NY: Foundation Press.

Falcone, D. N. (2010). *American criminal justice, criminology, and criminal law.* (2nd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Friedman, L. M. (1993). *Crime and punishment in American history.* New York, NY: Harper Collins.

Harr, J. S., & Hess, K. (2008). *Constitutional law and the criminal justice system.* Belmont, CA: Thomson Higher Education.

McCord, J. W. H., & McCord, S. (2006). *Criminal law and procedure for the paralegal, a systems approach.* Albany, NY: West Thomson Learning.

Neubauer, D. W. (2011). *America's courts and the criminal justice system* (10th ed.). Belmont, CA: Wadsworth.

Reid, S. T. (2010). *Criminal law* (8^{th} ed.). New York, NY: Oxford University Press.

Scheck, B., Dwyer, J., & Neufeld, P. (2003). *Actual innocence: When justice goes wrong and how to make it right.* Urbana, IL: New American Press.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College HW CHSW		1b. Division AJUS Division of Justice		1c. Department Justice Center
2. Course Prefix PARL	3. Course Number A352	4. Previous Course Prefix & Number N/A	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (3+0)

6. Complete Course Title
Substantive Criminal Law

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Update CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☒ Cross Listed with JUST A352
☐ Stacked with N/A

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Paralegal Studies Undergraduate Certificate	152-153		
2.			
3.			

Initiator Name (typed): Deborah Periman Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: 8/30/10
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 8/28/10

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Study of elements, purposes, and functions of substantive criminal law. Includes casebook study of general law of crimes and defenses with concentration on Alaska cases and statutes in Alaska Criminal Code. Historical and philosophical concepts are covered.

16a. Course Prerequisite(s) *(list prefix and number)*
(JUST A110 or PARL A101) with a minimum grade of C

16b. Test Score(s)
N/A

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☐ Mark if course has fees No

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Updating course content guide

Initiator (faculty only) Date
Deborah Periman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
College of Health and Social Welfare
Course Content Guide

I. Date of Initiation: April 2011

II. Curriculum Action Request

A. School:	College of Health and Social Welfare
B. Course Subject:	PARL
C. Course Number:	A352
D. Number of Credits:	3
E. Contact Hours:	3+0
F. Course Program:	Undergraduate Certificate, Paralegal Studies
G. Course Title:	Substantive Criminal Law
H. Grading Basis:	A-F
I. Implementation Date:	Fall/2011
J. Cross-listed:	JUST A352
K. Course Description:	Study of elements, purposes, and functions of substantive criminal law. Includes casebook study of general law of crimes and defenses with concentration on Alaska cases and statutes in Alaska Criminal Code. Historical and philosophical concepts are covered.
L. Course Prerequisites:	(JUST A110 or PARL A101) with a minimum grade of C
M. Course Co-requisites:	N/A
N. Other Restrictions:	N/A
O. Registration Restrictions:	N/A
P. Course Fees:	No
Q. Course Attribute:	N/A

III. Instructional Goals and Student Outcomes

A. The instructor will:
1. Provide historical overview of substantive criminal law in the United States, with emphasis on ethics and the impact of gender, class and ethnicity on development and administration of criminal law.
2. Review key concepts related to statutory and judicial analysis and analysis of the elements of crimes and affirmative defenses.
3. Explain the relationship between constitutional mandates, judicial opinions, legislation, and procedural rules in the development of substantive criminal law.
4. Present key judicial opinions from the federal and state courts, with particular attention to Alaska courts, establishing the elements of specific crimes and affirmative defenses and the public policy behind excuses to criminal behavior.
5. Highlight principles of federalism, democracy, and individual rights and their impact on the development and administration of criminal law in the United States.

B. Upon completion of this course, the student will be able to:

Outcomes and Assessment Measures	
Outcomes	**Measures**
1. Appraise the effect of history and the role of gender, class, and ethnicity on the development and administration of criminal law in the United States.	Examinations, writing assignments, structured discussion
2. Apply key concepts related to statutory and judicial analysis in the analysis of the elements of crimes and affirmative defenses.	Examination, writing assignments
3. Integrate constitutional concepts of substantive due process and equal protection, judicial opinions, state and federal legislation, and administrative rules in identifying criminal conduct and defenses to crimes.	Examination, writing assignments
4. Synthesize the evolution of important state and federal judicial opinions in delineating eras of policy in the development of American criminal law and criminal law in Alaska.	Examination, writing assignments, structured discussion
5. Examine competing interest groups in the criminal justice system, the tension between social order and individual privacy, shifting approaches to balancing competing interests, states' rights, and ethics in administration of the criminal law.	Examinations, writing assignments, structured discussion

IV. Course Level Justification

This course builds upon the concepts and vocabulary acquired by students in the alternative prerequisite courses, JUST A110 (Introduction to Justice) and PARL 101 (Introduction to Law). Course readings, lectures, and assignments presuppose that students understand fundamental principles of the American legal system, federalism, and historic eras of constitutional development. This course provides an in-depth analysis of complex judicial opinions and statutory codes, and requires students to integrate a variety of models of lawmaking. It is best suited to students in their junior and senior years.

V. Topical Course Outline

1. Introduction To Criminal Law
    - 1.1. Civil and Criminal Law Distinguished
    - 1.2. The Nature and Purpose of Criminal Law
    - 1.3. Criminal Law as Punishment
    - 1.4. Retribution or Revenge

10.7. Fetal Abuse
10.8. Influence over Law Enforcement Officials
10.9. Prison and Jail Overcrowding
10.10. Drug Trafficking
10.11. Substance Abuse and Treatment
10.12. Drug Courts
10.13. Legalizing Marijuana for Medicinal Purposes

11. Sentencing And The Criminal Law
    11.1. Determining Sentences
    11.2. Sentence Models
    11.3. Presumptive Sentencing
    11.4. Sentencing Guidelines
    11.5. Recent Sentencing Reform Measures
    11.6. Capital Punishment
    11.7. Constitutional Issues in Sentencing
    11.8. Megan's Laws
    11.9. Civil Commitment Procedures

VI. Suggested Texts

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Davenport, A. (2012). *Basic criminal law* (3rd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Samaha, J. (2011). *Criminal law* (10th ed.). Belmont, CA: Wadsworth.

VII. Bibliography

Dukker, M. D., & Kelman, M. G. (2009). *American criminal law: Cases, statutes, and comments* (2nd ed.). Mineola, NY: Foundation Press.

Falcone, D. N. (2010). *American criminal justice, criminology, and criminal law.* (2nd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Friedman, L. M. (1993). *Crime and punishment in American history.* New York, NY: Harper Collins.

Harr, J. S., & Hess, K. (2008). *Constitutional law and the criminal justice system.* Belmont, CA: Thomson Higher Education.

McCord, J. W. H., & McCord, S. (2006). *Criminal law and procedure for the paralegal, a systems approach.* Albany, NY: West Thomson Learning.

Neubauer, D. W. (2011). *America's courts and the criminal justice system* (10th ed.). Belmont, CA: Wadsworth.

Reid, S. T. (2010). *Criminal law* (8th ed.). New York, NY: Oxford University Press.

Scheck, B., Dwyer, J., & Neufeld, P. (2003). *Actual innocence: When justice goes wrong and how to make it right.* Urbana, IL: New American Press.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
HW CHSW	AJUS Division of Justice	Justice Center

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
JUST	A355	JUST A455	3	(3+0)

6. Complete Course Title
Rural Justice

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☒ Other Restrictions
  - ☒ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Update CCG (please specify)
- ☒ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with N/A
☐ Stacked with N/A

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Alaska Native Studies Minor	87	3-31-2011	Penny Golden
2.			
3.			

Initiator Name (typed): Bradley Myrstol Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: 3/18/11
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/18/11

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Investigates rural crime and criminal justice. Examines the specific geographic, social, and cultural characteristics of rural communities and how these factors influence the prevalence and nature of crime and criminal justice. Reviews and assesses competing theories of justice. Comparative analysis of rural crime and criminal justice in other countries, with emphasis given to other Circumpolar nations.

16a. Course Prerequisite(s) *(list prefix and number)*
JUST A110 with a minimum grade of D

16b. Test Score(s)
N/A

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☒ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Junior or Senior standing

17. ☐ Mark if course has fees No

18. ☐ Mark if course is a selected topic course

19. Justification for Action
The change in course level is being changed in order to encourage non-majors to enroll in the course. Whereas a 400-level course requires students to have completed a substantial body of coursework in the discipline, a 300-level offering requires only a familiarity with the concepts, methods, and vocabulary of the discipline. The pre-requisite for this course is JUST A110, which provides the foundational knowledge necessary for the successful completion of the course.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved	Dean/Director of School/College — Date
Bradley Myrstol Initiator (TYPE NAME)			
☐ Approved ☐ Disapproved	Department Chairperson — Date	☐ Approved ☐ Disapproved	Undergraduate/Graduate Academic Board Chairperson — Date
☐ Approved ☐ Disapproved	Curriculum Committee Chairperson — Date	☐ Approved ☐ Disapproved	Provost or Designee — Date

University of Alaska Anchorage
College of Health and Social Welfare
Course Content Guide

I. Date of Initiation: April 2011

II. Curriculum Action Request

A. School: College of Health and Social Welfare
B. Course Subject: JUST
C. Course Number: A355
D. Number of Credits: 3
E. Contact Hours: 3+0
F. Course Program: Bachelor of Arts, Justice
G. Course Title: Rural Justice
H. Grading Basis: A-F
I. Implementation Date: Fall/2011
J. Cross-listed: N/A
K. Course Description: Investigates rural crime and criminal justice. Examines the specific geographic, social, and cultural characteristics of rural communities and how these factors influence the prevalence and nature of crime and criminal justice. Reviews and assesses competing theories of justice. Comparative analysis of rural crime and criminal justice in other countries, with emphasis given to other Circumpolar nations.
L. Course Prerequisites: JUST A110 with a minimum grade of D
M. Course Co-requisites: N/A
N. Other Restrictions: Class
O. Registration Restrictions: Junior or Senior standing
P. Course Fees: No
Q. Course Attribute: N/A

III. Instructional Goals and Student Outcomes

A. The instructor will:
   1. Provide overview of the criteria used to denote “rural” from other social geographies, with emphasis on identifying the distinguishing features of rural contexts.
   2. Present empirical data pertaining to the prevalence and nature of crime and public health problems in rural communities, and discuss how these problems may be related to the unique social, cultural, and geographic characteristics of rural communities.
   3. Outline and discuss competing conceptual/theoretical models of justice, describe the ways justice is practiced in rural settings, and challenge students to identify potential sources of conflict and contradiction with respect to the administration of justice in rural contexts.
   4. Highlight key features of rural crime and justice in other countries, particularly those in the Circumpolar North.

B. Upon completion of this course, the student will be able to:

Outcomes and Assessment Measures	
Outcomes	**Measures**
1. Delineate similarities and differences between "rural" contexts and other categories of social geography.	Class discussion, analytic memos, examinations
2. Describe the crime and public health problems prevalent in rural communities.	Class discussion, research briefs, examinations
3. Assess competing conceptual/ theoretical models of justice.	Class discussion, analytic memos, examinations
4. Discuss the provision of criminal justice in rural communities.	Class discussion, essays, examinations
5. Critically evaluate criminal justice practices and policies as they pertain to rural Alaska.	Class discussion, analytic memos, examinations, term paper
6. Compare and contrast rural crime and criminal justice in the United States with other nations.	Essays, examinations

IV. Course Level Justification

As an upper division course, JUST A355 (Rural Justice) demands that students enter the course with well-honed writing abilities and research methods/analytic skills developed in the university's general education curriculum and other substantive coursework, as well as core disciplinary knowledge obtained from prior completion of the course pre-requisite, JUST A110 (Introduction to Justice).

V. Topical Course Outline

1. The rural context
   a. Defining "rural"
   b. Routines of everyday life in rural communities
   c. The prevalence of crime and other social problems in rural communities
   d. The nature of crime in rural communities
2. Social control in rural contexts
   a. Concepts and theories of "justice"
   b. Informal social control systems in rural communities
   c. Formal social control systems in rural communities
3. Criminal justice in rural contexts
   a. Policing rural communities
   b. Courts in rural communities
   c. Corrections in rural communities
4. Rural crime and justice in Alaska
   a. Policing in rural Alaska communities

   b. Courts in rural Alaska communities
   c. Corrections in rural Alaska communities
5. Rural crime and criminal justice in comparative perspective
   a. Native Americans and the criminal justice system
   b. Crime and justice in the Circumpolar North
   c. Rural crime and justice in Australia and New Zealand

VI. Suggested Texts

Ellickson, R. C. (1994). *Order without law: How neighbors settle disputes*. Cambridge, MA: Harvard University Press.

Lebacqz, K. (1987). *Six theories of justice: Perspectives from philosophical and theological ethics.* Minneapolis, MN: Augsburg.

Ross, J. I., & Gould, L. (2006). *Native Americans and the criminal justice system*. Boulder, CO: Paradigm.

Ross, R. (2009). *Returning to the teachings: Exploring aboriginal justice.* Toronto, Canada: Penguin.

Thurman, Q. C., & McGarrell, E. F. (2003). *Community policing in a rural setting.* Cincinnati, OH: Anderson.

Websdale, N. (1998). *Rural woman battering and the justice system.* Thousand Oaks, CA: Sage.

Weisheit, R. A., Falcone, D. N., & Wells, L. E. (2006). *Crime and policing in rural and small-town America*. Long Grove, IL: Waveland.

VII. Bibliography

Applegate, B. K., & Sitren, A. H. (2008). The jail and the community: Comparing jails in rural and urban contexts. *Prison Journal, 88*, 252-269.

Carns, T. W. (1993). A picture of rural justice: Alaska Judicial Council studies. *Alaska Justice Forum, 10*(3), 1, 4-5.

Carter, T. J. (2004). Force against and by game wardens in citizen encounters. *Police Quarterly, 7,* 489-508.

Falcone, D. N. (2004). American’s conservation police: Agencies in transition. *Policing: An International Journal of Police Strategies & Management, 27,* 56-66.

Falcone, D. N., Wells, L. E., & Weisheit, R. A. (2002). The small-town police department. *Policing: An International Journal of Police Strategies and Management, 25,* 371-384.

Hickman, M. J. (2003). *Tribal law enforcement, 2000* (NCJ 197936). Washington, DC: Bureau of Justice Statistics.

Liederbach, J., & Frank, J. (2006). Policing the big beat: An observational study of county level patrol and comparisons to local small town and rural officers. *Journal of Crime and Justice, 29*, 21-44.

Patenaude, A. L., Wood, D. S., & Griffiths, C. T. (1992). Indigenous peoples in Canadian correctional system: Critical issues and prospects for 'localized' corrections. *Journal of Contemporary Criminal Justice*, *8,* 114-136.

Patten, R. (2010). Policing in the wild: The game warden's perspective. *Policing: An International Journal of Police Strategies & Management*, *33*(1), 132-151.

Payne, B. K., Berg, B. L., & Sun, I. Y. (2005). Policing in small town America: Dogs, drunks, disorder and dysfunction. *Journal of Criminal Justice, 33*, 31-41.

Perry, S. W. (2004). *American Indians and crime* (NCJ 203097). Washington, DC: Bureau of Justice Statistics.

Rieger, L. (2001). Circle peacemaking. *Alaska Justice Forum, 17*(4), 1, 6-7.

Rivera, M., Rosay, A. B., Wood, D. S., Postle, G., & TePas, K. (2008). Assaults in domestic violence incidents reported to Alaska State Troopers. *Alaska Justice Forum, 25*(3), 1, 7-12.

Ruddell, R., & Mays, G. L. (2007). Rural jails: Problematic inmates, overcrowded cells, and cash-strapped counties. *Journal of Criminal Justice, 35,* 251-260.

Shelley, T. O., & Crow, M. S. (2009). The nature and extent of conservation policing: Law enforcement generalists or conservation specialists? *American Journal of Criminal Justice, 34,* 9-27.

Wood, D. S. (2002). Explanations of employment turnover among Alaska Village Public Safety Officers. *Journal of Criminal Justice*, *30,* 197-215.

Wood, D. S., & Gruenwald, P. J. (2006). Alcohol availability, police presence, and serious injury in isolated Alaskan villages. *Addiction*, *101,* 393-403.

Wood, D. S., & Magen, R. H. (2009). Intimate partner violence against Athabaskan women residing in interior Alaska: Results from a victimization survey. *Violence Against Women*, *15,* 497-507.

Wood, D. S., Rosay, A. B., Rivera, M., & TePas, K. (2009). Attrition in cases of violence against women reported to the Alaska State Troopers. *Alaska Justice Forum*, *26*(3), 2-4.

Wood, D. S., & Trostle, L. (1997). The non-enforcement role of police in Western Alaska and the Eastern Canadian Arctic: An analysis of police tasks in Arctic communities. *Journal of Criminal Justice, 25*, 367-379.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
HW CHSW	AJUS Division of Justice	Justice Center

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
JUST	A371	JUST A410	3	(3+0)

6. Complete Course Title
Cinematic Images of Justice

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☒ Other Restrictions
  - ☒ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Update CCG (please specify)
- ☒ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with

☐ Stacked with N/A

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1.			
2.			
3.			

Initiator Name (typed): Sharon Chamard Initiator Signed Initials: _________ Date:________________

13b. Coordination Email Date: 3/18/11
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 3/18/11

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Visual survey of how the cinema has portrayed the criminal justice system. Special attention devoted to discrepancies between scientific research findings and popular stereotypes portrayed by the media. Attention given to each component of the criminal justice system. Impact of fictionalized events and justice system action/reaction will be juxtaposed with the reality of the justice system.

16a. Course Prerequisite(s) *(list prefix and number)*
JUST A110 with a minimum grade of D

16b. Test Score(s)
N/A

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☒ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Junior or senior standing

17. ☐ Mark if course has fees No

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Updating course content guide and changing level from 400 to 300 to more accurately reflect expectations in the course and prerequisites.

Initiator (faculty only) Date
Sharon Chamard
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
College of Health and Social Welfare
Course Content Guide

I.	**Date of Initiation:**	April 2011

II. Curriculum Action Request

A. School:	College of Health and Social Welfare
B. Course Subject:	JUST
C. Course Number:	A371
D. Number of Credits:	3
E. Contact Hours:	3+0
F. Course Program:	Bachelor of Arts, Justice
G. Course Title:	Cinematic Images of Justice
H. Grading Basis:	A-F
I. Implementation Date:	Fall/2011
J. Cross-listed:	N/A
K. Course Description:	Visual survey of how the cinema has portrayed the criminal justice system. Special attention devoted to discrepancies between scientific research findings and popular stereotypes portrayed by the media. Attention given to each component of the criminal justice system. Impact of fictionalized events and justice system action/reaction will be juxtaposed with the reality of the justice system.
L. Course Prerequisites:	JUST A110 with a minimum grade of D
M. Course Co-requisites:	N/A
N. Other Restrictions:	Class
O. Registration Restrictions:	Junior or senior standing
P. Course Fees:	No
Q. Course Attribute:	N/A

III. Instructional Goals and Student Outcomes

A. The instructor will:
1. Provide an overview of social constructionism.
2. Review fundamental differences in cinematic depictions of crime and the actual nature of crime.
3. Explain policing behavior and activities and discuss their depiction in the cinema.
4. Present information about courtroom activities and judicial processing and demonstrate how these are depicted in the cinema.
5. Discuss correctional policies and characteristics of prisoners and prisons, and compare these to how prison life is depicted in the cinema.

B. Upon completion of this course, the student will be able to:

Outcomes and Assessment Measures	
Outcomes	**Measures**
1. Describe the key concepts of social constructionism.	Examination, writing assignments, structured discussion
2. Contrast cinematic depictions of crime with scientific knowledge about crime patterns and distributions.	Examination, writing assignments, structured and group discussion
3. Identify and evaluate differences between cinematic depictions of policing and law enforcement and scientific knowledge about police practices.	Examination, writing assignments, structured and group discussion
4. Analyze cinematic depictions of courtrooms for accuracy in comparison to scientific knowledge about judicial processing.	Examination, writing assignments, structured and group discussion
5. Compare cinematic depictions of correctional settings with scientific knowledge about prisoner characteristics and practices of correctional agencies.	Examinations, writing assignments, structured and group discussion

IV. Course Level Justification

This course builds upon the concepts and vocabulary acquired by students in JUST A110 (Introduction to Justice). This course has a heavy writing component, and requires detection and appraisal of the contradictions between cinematic depictions of crime and criminal justice and the realities of the justice system. It is best suited to students in their junior and senior years.

V. Topical Course Outline

1. Introduction To Social Constructionism
2. Depiction of Crime and Criminality in Cinema
3. Police and Crime Fighters in Cinema
4. Courts in the Cinema
5. Corrections in the Cinema
6. Depictions of Crime Control in the Cinema
7. The Media and Crime Control Policy
8. Media and Crime and Justice in the Twenty-First Century

VI. Suggested Texts

Jewkes, Y. (2004). *Media and crime.* London, England: Sage.

Rafter, N. (2006). *Shots in the mirror: Crime films and society*. New York, NY: Oxford University Press.

Surette, R. (2011). *Media, crime, and criminal justice* (4th ed.). Belmont, CA: Wadsworth.

VII. Bibliography

Bergman, P., & Asimow, M. (2006). *Reel justice: The courtroom goes to the movies*. Kansas City, MO: Andrews McMeel.

Cettl, R. (2008). *Serial killer cinema*. Jefferson, NC: McFarland.

Chase, A. (2002). *Movies on trial: The legal system on the silver screen*. New York, NY: The New Press.

Herzberg, B. (2007). *The FBI and the movies: A history of the Bureau on screen and behind the scenes in Hollywood*. Jefferson, NC: McFarland.

King, N. (2008). Generic womanhood: Gendered depictions in cop action cinema. *Gender and Society, 22,* 238-260.

Lott, M. R. (2006). *Police on screen: Hollywood cops, detective, marshals and rangers.* Jefferson, NC: McFarland.

Machura, S., & Robson, P. (Eds.). (2001). Law and film. *Journal of Law and Society, 28,* 1-176.

O'Sullivan, S. (2001). Representations of prison in nineties Hollywood cinema: From "Con Air" to "The Shawshank Redemption." *Howard Journal of Criminal Justice, 40,* 317-334.

O'Sullivan, S. (2003). Representing "the killing state": The death penalty in nineties Hollywood cinema. *Howard Journal of Criminal Justice, 42,* 485-503.

Przemieniecki, C. J. (2005). Gang behavior and movies: Do Hollywood gang films influence violent gang behavior? *Journal of Gang Research, 12,* 41-71.

Rafter, N. (2007). Crime, film and criminology: Recent sex-crime movies. *Theoretical Criminology, 11*, 403-420.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College HW CHSW		1b. Division AJUS Division of Justice		1c. Department Justice Center
2. Course Prefix PARL	3. Course Number A362	4. Previous Course Prefix & Number N/A	5a. Credits/CEUs 3	5b. Contact Hours (Lecture + Lab) (3+0)

6. Complete Course Title
Commercial Law

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Update CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☐ Cross Listed with N/A
☐ Stacked with N/A

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Paralegal Studies Undergraduate Certificate	152-153		
2.			
3.			

Initiator Name (typed): Deborah Periman Initiator Signed Initials: __________ Date:________________

13b. Coordination Email Date: 8/30/10
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 8/28/10

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Commercial law constitutes a study of the paralegal's role in a commercial practice with emphasis on such topics as contracts, remedies, bankruptcy, business formation and organization.

16a. Course Prerequisite(s) *(list prefix and number)*
PARL A101 with a minimum grade of C

16b. Test Score(s)
N/A

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☐ Mark if course has fees No

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Updating course content guide

Initiator (faculty only) Date	☐ Approved ☐ Disapproved Dean/Director of School/College Date
Deborah Periman Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved Department Chairperson Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date
☐ Approved ☐ Disapproved Curriculum Committee Chairperson Date	☐ Approved ☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
College of Health and Social Welfare
Course Content Guide

I.	**Date of Initiation:**	April 2011

II. Curriculum Action Request

A. School:	College of Health and Social Welfare
B. Course Subject:	PARL
C. Course Number:	A362
D. Number of Credits:	3
E. Contact Hours:	3+0
F. Course Program:	Undergraduate Certificate, Paralegal Studies
G. Course Title:	Commercial Law
H. Grading Basis:	A-F
I. Implementation Date:	Fall/2011
J. Cross-listed:	N/A
K. Course Description:	Commercial law constitutes a study of the paralegal's role in a commercial practice with emphasis on such topics as contracts, remedies, bankruptcy, business formation and organization.
L. Course Prerequisites:	PARL A101 with a minimum grade of C
M. Course Co-requisites:	N/A
N. Other Restrictions:	N/A
O. Registration Restrictions:	N/A
P. Course Fees:	No
Q. Course Attribute:	N/A

III. Instructional Goals and Student Outcomes

A. The instructor will:
1. Provide a historical overview of commercial, debtor-creditor, and bankruptcy law in the United States, with emphasis on shifts in public policy over time.
2. Highlight key concepts of agency law and business organizations and their relationship to contract formation, liability, and enforcement.
3. Explain the impact of principles of federalism, separation of powers, and delegation of lawmaking authority on the creation and enforcement of commercial rights and duties in the United States.
4. Present important state and federal legislative acts and judicial opinions establishing the rules of commercial practice, debtor-creditor relations, and bankruptcy in the United States.
5. Outline the critical rules of ethics and professional conduct in the representation of debtors and creditors.

B. Upon completion of this course, the student will be able to:

Outcomes and Assessment Measures	
Outcomes	**Measures**
1. Appraise the effect of history and the role of shifting public policy in the development of commercial, debtor-creditor, and bankruptcy law in the United States.	Examination, writing assignments, structured discussion
2. Identify key concepts of agency law and business organizations and relate them to contract formation, liability, and enforcement.	Examination, writing assignments
3. Integrate principles of federalism, separation of powers, and delegation of lawmaking authority in the analysis of contract problems, actions for debt enforcement and bankruptcy proceedings.	Examination, writing assignments
4. Synthesize and apply the relevant rules established in important state and federal legislative acts and judicial opinions in analyzing issues related to commercial problems, debtor and creditor rights and duties, and bankruptcy issues.	Examination, writing assignments, structured discussion
5. Translate critical rules of legal ethics and professional conduct into strategies for resolving commercial law questions, and legal problems related to the representation of debtors and creditors.	Examination, writing assignments, structured discussion

IV. Course Level Justification

This course builds on the conceptual foundation and vocabulary students acquire in the prerequisite, PARL 101 -- Introduction to Law. Commercial Law is designed to advance the critical thinking and writing skills of students by expanding the abilities students have already developed in their previous paralegal and general education coursework. It involves a rigorous reading and writing workload, and the synthesis of legal vocabulary, government theory, and public policy. Students are expected to enter the class with a working knowledge of legal research methods and the technical rules of legal writing, concepts of precedent and the hierarchy of legal authority, and the rules of professional conduct governing lawyers and paralegals.

V. Topical Course Outline

1. Business Organizations
   - 1.1. Sole proprietorships
   - 1.2. Principles of Partnerships
   - 1.3. Limited Partnerships
   - 1.4. Limited Liability Partnerships
   - 1.5. Principles of Corporations
   - 1.6. S Corporations
   - 1.7. Professional Corporations
   - 1.8. Limited Liability Companies
2. Law of Agency
   - 2.1. Formation
   - 2.2. Parties
   - 2.3. Duties of Parties
   - 2.4. Contract Liability
   - 2.5. Tort Liability
3. Introduction to Debt and Security for Debt
   - 3.1. How Debt Is Created
   - 3.2. Principles of Contract Formation
   - 3.3. Promissory Notes and Negotiable Instruments
   - 3.4. Loans and Credit Arrangements
   - 3.5. Consumer Protection Legislation
   - 3.6. Sales versus Leases
   - 3.7. Credit Reporting Practices
   - 3.8. Sureties
   - 3.9. Guarantors
   - 3.10. Mortgages and Deeds of Trust
   - 3.11. Security Interests in Personal Property
   - 3.12. Article 9 of the UCC
   - 3.13. Fixtures
   - 3.14. Financing Statements
   - 3.15. Filing and Recording Security Interests
   - 3.16. State Recording Statutes
   - 3.17. Lien Priorities
   - 3.18. Nonconsensual Liens (Statutory and Equitable Liens)
4. The Collection of Debt
   - 4.1. Principles of Contract Enforcement
   - 4.2. Remedies for Breach of Contract
   - 4.3. Prelitigation Efforts to Collect Delinquent Debt

4.4. Demand Letters
4.5. Debt Modification and Loan Workouts
4.6. Revival of Debt
4.7. Mortgage Foreclosure Procedures
4.8. Non-judicial Foreclosures and Trustees Sales
4.9. Reducing a Debt or Claim to Final Judgment
4.10. Executing on a Final Judgment
4.11. Stays of Judgment
4.12. Fair Debt Collection Legislation
4.13. Exemptions
4.14. Legal Ethics and Debt Collection

5. The Discharge or Reorganization of Debt in Bankruptcy
    5.1. Introduction to Bankruptcy
    5.2. The Automatic Stay and Motions for Relief
    5.3. Exemptions in Bankruptcy
    5.4. Discharges
    5.5. Bankruptcy and Legal Ethics
    5.6. Bankruptcy Reform and Public Policy
    5.7. The Chapter 7 Case: Liquidation
        5.7.1. The Means Test and Other Qualifications to File
        5.7.2. The Petition, Supporting Schedules, and Statements
        5.7.3. From the Order for Relief to the First Meeting of Creditors
        5.7.4. Creditor Claims and Property of the Estate
        5.7.5. Liquidation, Distribution, Reaffirmation or Redemption, and Final Discharge
    5.8. The Chapter 13 Case: Reorganization for an Individual with Regular Income
        5.8.1. Filing the Case
        5.8.2. Determining the Applicable Commitment Period and Debtor's Disposable Income
        5.8.3. Treatment of Secured and Unsecured Claims in the Plan
        5.8.4. Plan Confirmation, Modification, Discharge, and Comparisons with Chapter 12
    5.9. The Chapter 11 Business Reorganization
        5.9.1. Filing the Case
        5.9.2. Operating the Business Prior to Plan Approval
        5.9.3. The Plan of Reorganization

VI. Suggested Texts

Parsons, S. P. (2009). *The ABCs of debt: A case study approach to debtor/creditor relations and bankruptcy law*. New York, NY: Aspen.

Warren, E. (2011). *Commercial law* (8th ed.). Mineola, NY: Foundation Press.

Warren, E., & Westbrook, J. L. (2009). *Law of debtors and creditors* (6th ed.). New York, NY: Aspen.

VII. Bibliography

Baird, D. G. (2011). *Commercial and debtor-creditor law: Selected statutes 2011*. Mineola, NY: Foundation Press.

Blum, B. A. (2007). *Bankruptcy and debtor/creditor: Examination and explanations* (4th ed.). New York, NY: Aspen.

Buchbinder, D. L. (2009). *Basic bankruptcy law for paralegals* (7th ed.). New York, NY: Aspen.

Sealy, L. S., & Hooley, J. D. A. (2009). *Commercial law: Text, cases, and materials* (4th ed.). New York, NY: Oxford University Press.

Tabb, C. J. (2009). *Law of bankruptcy* (2nd ed.). Mineola, NY: Foundation Press.

Warren, W. D. (2009). *Bankruptcy* (8th ed.). Mineola, NY: Foundation Press.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
HW CHSW	ADHS Div of Human Svs Health Sci	HS

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
HS	A433	N/A	3.0	(3+0)

6. Complete Course Title
Health Education: Theory and Practice
Health Ed: Theory and Practice
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☒ Cross Listed with NS A433
☐ Stacked with N/A
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. BS, Physical Education	197-199	February 2011	Sandra Carroll-Cobb
2.			
3.			

Initiator Name (typed): Janet M. Johnston Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: March 3, 2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: March 3, 2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Provides the theoretical foundation for health education and health promotion. Develops students' abilities to design and deliver health education programs.

16a. Course Prerequisite(s) *(list prefix and number)*
(HS A220 or NS A300) with a minimum grade of C

16b. Test Score(s)
N/A

16c. Co-requisite(s) *(concurrent enrollment required)*
N/A

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
N/A

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Updating Course Content Guide (CCG) to reflect current approach to the class. This CCG for HS A433 was last updated in 1993 and the CCG for NS A433 was last updated in 1998.

Initiator (faculty only) Date
Janet M. Johnston, PhD, MPH, MS
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
College of Health and Social Welfare
Course Content Guide

I.	**Date of Initiation**	March 2011
II.	**Curriculum Action Request**	
	A. School	College of Health and Social Welfare
	B. Course Subject	Health Sciences
	C. Course Number	HS A433
	D. Number of Credits	3.0
	E. Contact Hours	3 + 0
	F. Course title	Health Education: Theory and Practice
	G. Grading Basis	A-F
	H. Implementation Date	Fall 2011
	I. Cross-listed/Stacked	NS A433
	J. Course Description	Provides the theoretical foundation for health education and health promotion. Develops students' abilities to design and deliver health education programs.
	K. Course Prerequisites	(HS A220 or NS A300) with a minimum grade of C
	L. Co-requisites	N/A
	M. Other restrictions	N/A
	N. Registration restrictions	N/A
	O. Course Fees	N/A

III. Instructional Goals and Student Outcomes

A. The instructor will:
1. Review the Certified Health Educator Specialist (CHES) responsibilities and competencies and the Health Education Code of Ethics.
2. Provide lectures and readings that explain how health behavior theories and program planning models are used in the practice of health education and health promotion.
3. Review commonly used theories of health behavior. Provide resources and assignments that allow students to locate published examples of health education programs based on these theories.
4. Provide in-class exercises and assignments that allow students to practice designing theory-based health education.
5. Present health education techniques and provide assignments that allow students to practice developing and delivering health education sessions.

B. Upon completion of this course, the student will be able to:

Outcomes and Assessment Measures	
Outcomes	**Measures**
1. Describe the Certified Health Educator Specialist (CHES) responsibilities and competencies and apply the Health Education Code of Ethics	Class discussion Case studies Test
2. Explain how health behavior theories and program planning models improve the practice of health education	Class discussion Test
3. Describe theories and models that are commonly used in health education and analyze examples of health education programs based on these theories	Small group discussions and presentations Written assignments Test
4. Design theory-based health education programs to address particular health issues	Small group discussions and presentations Written assignments Test
5. Develop and deliver effective health education sessions	Class presentations

IV. Course Level Justification

This course requires HS A220 or NS A300 as a prerequisite in order to ensure familiarity with the core concepts related to promoting health and preventing disease. The course requirements including mastery of theories of health behavior and design and delivery of health education sessions as demonstrated through class discussion, written assignments and class presentations are suitable to a 400 level course.

V. Topical Course Outline

1. Introduction to health education and theory
    a. Responsibilities and competencies for health educators
    b. Role of theory in health education
    c. Code of Ethics for health education profession
2. Planning models in health education
    a. Differences between a theory and a model
    b. PRECEDE-PROCEED model
    c. Resources for needs assessments
3. Commonly used theories of health behavior
    a. Health belief model
    b. Transtheoretical model
    c. Theory of reasoned action and theory of planned behavior
    d. Theories of stress and coping
    e. Social cognitive theory
4. Social marketing
    a. Comparison with commercial marketing
    b. Approach and constructs
    c. Applications of social marketing
5. Health education techniques: Group process skills
    a. Developing trust

   b. Developing listening skills
   c. Understanding roles of group members
   d. Incorporating cultural competence into health education and communication
6. Instructional strategies
   a. Exploring the relationship between values and health
   b. Providing age-appropriate and developmentally-appropriate information, learning strategies and teaching methods
   c. Managing stress related to health behavior change
   d. Building self-efficacy
7. Freire's model of adult education
   a. Three phases of Freire's model
   b. Approach and construct
   c. Applications of Freire's model

VI. Suggested Texts

Sharma, M., & Romas, J. A. (2012). *Theoretical foundations of health education and health promotion* (2nd ed.). Sudbury, MA: Jones and Bartlett.

VII. Bibliography

Bensley, R. J., & Brookins-Fisher, J. (2009). *Health program planning: An educational and ecological approach* (3rd ed.). Sudbury, MA: Jones and Bartlett.

Edberg, M. (2007). *Essentials of health behavior: Social and behavioral theory in public health*. Sudbury, MA: Jones and Bartlett.

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Green, L. W., & Kreuter, M. (2004). *Health program planning: An educational and ecological approach* (4th ed.). New York, NY: McGraw-Hill.

Greenberg, J. S. (2004). *Health education and health promotion: Learner-centered instructional strategies* (5th ed.). New York, NY: McGraw-Hill.

Timmreck, T. C. (2003). *Planning, program development, and evaluation: A handbook for health promotion, aging, and health services* (2nd ed.). Sudbury, MA: Jones and Bartlett.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
HW CHSW	ADSN Division of Nursing	NS

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
NS	A433	N/A	3.0	(3+0)

6. Complete Course Title
Health Education: Theory and Practice
Health Ed: Theory and Practice
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2011 To: /9999

12. ☒ Cross Listed with HS A433
☐ Stacked with N/A
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. BS, Physical Education	197-199	February 2011	Sandra Carroll-Cobb
2.			
3.			

Initiator Name (typed): Bernice Carmon Initiator Signed Initials: _________ Date:_______________

13b. Coordination Email Date: March 17, 2011
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: March 17, 2011

14. General Education Requirement
Mark *appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
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(HS A220 or NS A300) with a minimum grade of C

16b. Test Score(s)
N/A

16c. Co-requisite(s) *(concurrent enrollment required)*
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16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
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18. ☐ Mark if course is a selected topic course

19. Justification for Action
Updating Course Content Guide (CCG) to reflect current approach to the class. This CCG for HS A433 was last updated in 1993 and the CCG for NS A433 was last updated in 1998.

Initiator (faculty only) Date
Bernice Carmon
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
College of Health and Social Welfare
Course Content Guide

I.	**Date of Initiation**	March 2011

II. Curriculum Action Request

A.	School	College of Health and Social Welfare
B.	Course Subject	Nursing
C.	Course Number	NS A433
D.	Number of Credits	3.0
E.	Contact Hours	3 + 0
F.	Course title	Health Education: Theory and Practice
G.	Grading Basis	A-F
H.	Implementation Date	Fall 2011
I.	Cross-listed/Stacked	HS A433
J.	Course Description	Provides the theoretical foundation for health education and health promotion. Develops students' abilities to design and deliver health education programs.
K.	Course Prerequisites	(HS A220 or NS A300) with a minimum grade of C
L.	Co-requisites	N/A
M.	Other restrictions	N/A
N.	Registration restrictions	N/A
O.	Course Fees	N/A

III. Instructional Goals and Student Outcomes

A. The instructor will:
1. Review the Certified Health Educator Specialist (CHES) responsibilities and competencies and the Health Education Code of Ethics.
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5. Present health education techniques and provide assignments that allow students to practice developing and delivering health education sessions.

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Outcomes	**Measures**
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4. Design theory-based health education programs to address particular health issues	Small group discussions and presentations Written assignments Test
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    b. PRECEDE-PROCEED model
    c. Resources for needs assessments
3. Commonly used theories of health behavior
    a. Health belief model
    b. Transtheoretical model
    c. Theory of reasoned action and theory of planned behavior
    d. Theories of stress and coping
    e. Social cognitive theory
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    a. Comparison with commercial marketing
    b. Approach and constructs
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    a. Developing trust

    b. Developing listening skills
    c. Understanding roles of group members
    d. Incorporating cultural competence into health education and communication
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    a. Exploring the relationship between values and health
    b. Providing age-appropriate and developmentally-appropriate information, learning strategies and teaching methods
    c. Managing stress related to health behavior change
    d. Building self-efficacy
7. Freire's model of adult education
    a. Three phases of Freire's model
    b. Approach and construct
    c. Applications of Freire's model

VI. Suggested Texts

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VII. Bibliography

Bensley, R. J., & Brookins-Fisher, J. (2009). *Health program planning: An educational and ecological approach* (3rd ed.). Sudbury, MA: Jones and Bartlett.

Edberg, M. (2007). *Essentials of health behavior: Social and behavioral theory in public health*. Sudbury, MA: Jones and Bartlett.

Edberg, M. (2010). *Essential readings in health behavior: Theory and practice.* Sudbury, MA: Jones and Bartlett.

Glanz, K., & Rimer, B. K. (2005). *Theory at a glance: A guide for health promotion practice* (2nd ed.). Bethesda, MD: U.S. Department of Health and Human Service, National Institutes of Health.

Green, L. W., & Kreuter, M. (2004). *Health program planning: An educational and ecological approach* (4th ed.). New York, NY: McGraw-Hill.

Greenberg, J. S. (2004). *Health education and health promotion: Learner-centered instructional strategies* (5th ed.). New York, NY: McGraw-Hill.

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March 25, 2011

To: Toby Widdicombe, Chair, CAS Course and Curriculum Committee
Hillary Davies, Chair Undergraduate Academic Board

From: Deborah Tharp, Associate Professor
Department of Art Curriculum Committee

RE: Department of Art BA & BFA Degree Catalog Copy Changes

The Department of Art proposes the catalog copy changes for the 2011-2012 academic year. These changes are to clean up and clarify language problems in the catalog copy and inclusion of additional existing courses to program menus for the BA & BFA degrees.

Please feel free to contact me if you have any questions about these proposed changes.

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Division	1c. Department
AS CAS	AFAR Division of Fine Arts	ART

2. Complete Program Title/Prefix
Bachelor of Arts, ART

3. Type of Program
☐ OEC ☐ Undergrad Certificate ☐ AA/AAS ☒ Baccalaureate ☐ Minor
☐ Post Baccalaureate Certificate ☐ Graduate ☐ Graduate Certificate ☐ Doctoral ☐ Specialty

4. Type of Action:

PROGRAM	PREFIX
☐ Add	☐ Add
☒ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2011 To: 9999/9999

6a. Coordination with Affected Units — Department, School, or College: CASAO
Initiator Name (typed): Deborah Tharp — Initiator Signed Initials: _________ Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 3/4/2011

6c. Coordination with Library Liaison Date: 3/4/2011

7. Title and Program Description - Please attach the following:
☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
Catalog copy corrections and inclusion of additional existing courses to program menus for the BA degree.

Initiator (faculty only) ______ Date	☐ Approved ☐ Disapproved Dean/Director of School/College ______ Date
Deborah Tharp Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved Department Chairperson ______ Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson ______ Date
☐ Approved ☐ Disapproved Curriculum Committee Chairperson ______ Date	☐ Approved ☐ Disapproved Provost or Designee ______ Date

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Division	1c. Department
AS CAS	AFAR Division of Fine Arts	ART

2. Complete Program Title/Prefix
Bachelor of Fine Arts, ART

3. Type of Program
☐ OEC ☐ Undergrad Certificate ☐ AA/AAS ☒ Baccalaureate ☐ Minor
☐ Post Baccalaureate Certificate ☐ Graduate ☐ Graduate Certificate ☐ Doctoral ☐ Specialty

4. Type of Action:

PROGRAM	**PREFIX**
☐ Add	☐ Add
☒ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2011 To: 9999/9999

6a. Coordination with Affected Units — Department, School, or College: CASAO
Initiator Name (typed): Deborah Tharp — Initiator Signed Initials: _________ Date:________________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 3/4/2011

6c. Coordination with Library Liaison Date: 3/4/2011

7. Title and Program Description - Please attach the following:
☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
Catalog copy corrections and inclusion of additional existing courses to program menus for the BFA degree.

Initiator (faculty only) ________ Date	☐ Approved ☐ Disapproved ________ Dean/Director of School/College ________ Date
Deborah Tharp Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved ________ Department Chairperson ________ Date	☐ Approved ☐ Disapproved ________ Undergraduate/Graduate Academic Board Chairperson ________ Date
☐ Approved ☐ Disapproved ________ Curriculum Committee Chairperson ________ Date	☐ Approved ☐ Disapproved ________ Provost or Designee ________ Date

ART

Fine Arts Building (ARTS), Room 302A, (907) 786-1783
http://art.uaa.alaska.edu

The aim of the Department of Art is to prepare and empower students to use their artistic abilities to make a difference in society. A comprehensive multi-studio approach encourages independent thinking, strengthens creativity, and develops a knowledge of the critical and historical aspects of art.

Students acquire technical skills and gain confidence to work with a variety of materials while exploring and evaluating a broad heritage of past and contemporary art and design.

Program Outcomes

Students graduating with a Bachelor of Arts or Bachelor of Fine Arts will be able to demonstrate:

1. Effective communication and fiscal skills to be a practicing artist as applied to art proposals, exhibitions and business matters.
2. The expression of ideas in a cohesive body of work.
3. Critical thinking, writing and research skills allowing the discovery of original approaches to creative problem solving.
4. Mastery of techniques, composition, and the use of materials.

Students choose from several areas of study:

- **BA in Art** — Creative problem solving in a liberal arts context.
- **BFA in Art** — The Department of Art offers the Bachelor of Fine Arts Degree in Art with a Studio Emphasis in Ceramics, Drawing, Digital Art & Graphic Design, Fibers, Jewelry/Metalsmithing, Painting, Photography, Printmaking, or Sculpture. Refer to the Bachelor of Fine Arts section following for degree requirements.
- **Art Education** — The Department of Art offers a minor in Art Education for students interested in working in educational settings. The minor does not lead to initial teacher certification. UAA does not currently offer a teacher certification program in art.
- **Minor in Art** – Students majoring in another subject may minor in Art.
- **Minor in Art Education –** Students majoring in Art or other subjects may minor in Art Education.**.**
- **Continuing Education** — Either as a pre- or post-baccalaureate student. The Department of Art offers courses for teacher professional development and for the general community.

The Bachelor of Arts and the Bachelor of Fine Arts are accredited by the National Association of Schools of Art and Design.

Students must note the following:

1. Some courses do not apply to degree programs.
2. Some courses may be taken only twice for credit.
3. Many Art courses require completion of certain prerequisite Art courses. Non-Art majors who wish to enroll in an Art class without first having completed the recommended prerequisites are free to do so with appropriate instructor permission, but may find the classroom experience difficult or unrewarding.
4. Art majors must obtain pre-registration approval from Art faculty for upper division Art coursework undertaken each semester.

Bachelor of Arts, Art

Admission Requirements

Complete the Baccalaureate Degree Program Admission Requirements in the front of this chapter.

Graduation Requirements

Students must complete the following:

A. General University Requirements

Complete the General University Requirements for Baccalaureate Degrees in the front of this chapter. A maximum of 60 credits in Art may be applied toward the degree. Transfer students who are candidates for the BA degree with a major in Art must complete a minimum of 18 Art credits in residence.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees in the front of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences requirements in the front of this chapter.

D. Major Requirements

Lower Division Art (27 credits)

1. Complete the following core courses:

ART A105	Beginning Drawing (3)	
ART A111	Two-Dimensional Design (3)	
ART A113	Three-Dimensional Design (3)	
ART A205	Intermediate Drawing (3)	
ART A261	History of Western Art I (3)	
ART A262	History of Western Art II (3)	

2. Choose one two-dimensional course, one three-dimensional course, and one course from either list to total 9 credits:

Two-Dimensional Area:		3-6
ART A112	Color Design (3)	
ART A212	Beginning Watercolor (3)	
ART A213	Beginning Painting (3)	
ART A215	Beginning Printmaking (3)	
ART A224	Beginning Photography (3)	
ART A252	Beginning Graphic Design & Illustration (3)	
ART A257	Digital Art and Design I (3)	
ART A271	Beginning Surface Design (3)	
ART A273	Beginning Woven Forms (3)	
Three-Dimensional Area:		3-6
ART A201	Beginning Handbuilt Ceramics (3)	
ART A202	Beginning Wheelthrown Ceramics (3)	
ART A209	Beginning Metalsmithing and Jewelry (3)	
ART A211	Beginning Sculpture (3)	
ART A270	Beginning Alaska Native Art (3)	
ART A272	Beginning Fiber Structures (3)	

Upper Division Studio Art (15 credits)

3. Complete a total of 15 credits from the studio areas listed below, with a minimum of 9 credits from any one area:

Ceramics	Drawing
Digital Art & Graphic Design	Fibers
Jewelry/Metalsmithing	Painting
Photography	Printmaking
Sculpture	Alaska Native Art

Upper Division Art History (6 credits)

4. Select 6 credits from the following: 6

ART A360A	History of Non-Western Art I (3)
ART A360B	History of Non-Western Art II (3)
ART A361	History of Graphic Design (3)
ART A362	History of Modern Art (3)
ART A363	History of Contemporary Art (3)

ART A364	Italian Renaissance Art (3)	
ART A366	Asian Art (3)	
ART A367	History of Photography (3)	
ART A492	Art History Seminar (3)	

Additional Requirements (21 credits)

5. Complete the following:

ART A203	Introduction to Art Education	3
ART A491	Senior Seminar (Capstone) *(fall semesters only)*	3
PHIL A401	Aesthetics	3
Upper division general electives 12 credits		12

At least 6 of the 12 elective credits must have a prefix other than Art.

A total of 120 credits is required for the degree, of which 42 credits must be upper division.
A total of 60 credits in Art may be applied to the degree.

Bachelor of Fine Arts, Art

The Bachelor of Fine Arts degree is a professionally oriented program designed to prepare students for careers in art. Enrollment in the BFA program is recommended only for those students willing to make a considerable commitment of time and energy necessary to achieve professional competence in their primary area of studio emphasis. Students desiring to enter the BFA program should request a copy of the current program policy from the department.

Admission Requirements

Complete the Baccalaureate Degree Programs Admission Requirements at the beginning of this chapter. Admission into the BFA program, withdrawal from it, and granting of the degree are done at the discretion of the BFA Committee.

Students admitted into the BFA program must complete a minimum of 24 Art credits (upper or lower division courses) in residence at UAA after acceptance into the BFA program.

Transfer Students - need a minimum of 12 resident Art credits that must be completed in the primary area of studio emphasis, and a minimum of 3 resident Art credits completed in the secondary area of studio emphasis.

Applicants for admission into the BFA program must meet the following minimum requirements:

1. Applicants must have been officially admitted to UAA as a declared pre-major in the BFA program.
2. Applicants must have completed all lower division art major courses in the Foundation Core and the Beginning Studio categories required for the BFA degree.
3. Applicants must have been enrolled at UAA for at least one semester prior to application to the full major status in the BFA program.
4. Applicants must meet minimum academic GPA requirements of: 2.50 overall coursework and 3.00 overall Art coursework.

BFA Requirements

All materials must be submitted to the Department of Art at least two weeks prior to the BFA Committee's scheduled application review:

1. Application for admission into the BFA program.
2. Letter of intent stating objectives and qualifications in relation to either the BA in Art or BFA in Art degree programs.
3. Copies of all college transcripts.
4. A " Projected Plan of Study" signed by the College of Arts & Sciences Academic Advisor for the Fine Arts area.
5. A list of all college Art courses taken with grades received.
6. A portfolio of 15-20 pieces of studio work in primary and secondary concentrations showing technical skills, design abilities, and a potential for developing a conceptual vision. Applicants must submit work for consideration in digital formats (preferred) or slides. Applications will be reviewed only in the fall semester. Admission decisions are determined by a consensus of BFA Committee members in October.

Academic Progress

To graduate with a BFA in Art students must have met the following GPA requirements:

1. A minimum cumulative GPA of 3.00 in the major.
2. A minimum cumulative GPA of 3.50 in the primary area of studio emphasis.
3. A minimum cumulative GPA of 2.50 in all university coursework.

Semester Reviews

The progress of all BFA candidates will be reviewed a minimum of once a semester by the BFA Committee.

Thesis Project and Capstone Course

With approval, upon completion of all studio courses in the student's primary and secondary areas of emphasis, BFA candidates will enroll in ART A491 Senior Seminar offered fall semesters only, and ART A499 Thesis offered spring semesters only. ART A491 meets the capstone requirement for the GER. Students enrolled in the BFA program must submit their thesis proposal for approval during the fall semester of the academic year. Once the BFA Committee has reviewed and accepted the thesis proposals, candidates will be granted permission to register for ART A499 Thesis. During ART A499 Thesis students will complete a body of work that will culminate in a formal exhibition. BFA students enrolled in ART A499 Thesis will meet with the BFA Committee a minimum of twice a semester.

The BFA Committee's evaluation of the student's thesis project will be based on content, presentation, and the degree of success in visual realization of the written proposal. At least 10 slides or digital images of the student's thesis will be furnished to the Department of Art. These images must be acceptable to the BFA Committee and will become the property of the Department of Art. The slides or digital images must be received by the department before a grade for ART A499 Thesis is awarded.

Exhibitions and Presentations

BFA candidates will generally participate in the BFA Group Show to be held in the Kimura Gallery. All aspects of the thesis exhibition must be approved by the BFA Committee. Works will be selected by the BFA Committee. The BFA Group Show will be held during the spring semester each year. Graduating BFA students are invited, but not required, to donate one work of art to UAA's permanent collection. Acceptance of donated student work is left to the discretion of the BFA Committee. Prior to completing all BFA requirements, the student is responsible for submitting an Application for Graduation to obtain the degree.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for Baccalaureate Degrees in the front of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees in the front of this chapter.

C. College of Arts and Sciences Requirements

There are no additional college requirements for the BFA degree.

D. Major Requirements

Complete the following required Art courses with a minimum cumulative GPA of 3.00 in the major and a minimum cumulative GPA of 3.50 in the primary area of studio emphasis. A minimum cumulative GPA of 2.50 in all university coursework is required to graduate. A maximum of 84 credits in Art may be applied toward the degree.

Foundation Core Courses (24 credits)

1. Complete the following core courses:

ART A105	Beginning Drawing	3
ART A111	Two-Dimensional Design	3
ART A112	Color Design	3
ART A113	Three-Dimensional Design	3

ART A205	Intermediate Drawing	3
ART A261	History of Western Art I	3
ART A262	History of Western Art II	3
ART A307	Life Drawing and Composition I	3

Beginning Studio Electives (9 credits)

2. Choose one course from the two-dimensional list and one course from the three-dimensional list, and one course from either list to total 9 credits:

Two-Dimensional Area:		3-6
ART A212	Beginning Watercolor (3)	
ART A213	Beginning Painting (3)	
ART A215	Beginning Printmaking (3)	
ART A224	Beginning Photography (3)	
ART A252	Beginning Graphic Design and Illustration (3)	
ART A257	Digital Art and Design I (3)	
ART A271	Beginning Surface Design (3)	
ART A273	Beginning Woven Forms (3)	
Three-Dimensional Area:		3-6
ART A201	Beginning Handbuilt Ceramics (3)	
ART A202	Beginning Wheelthrown Ceramics (3)	
ART A209	Beginning Metalsmithing and Jewelry (3)	
ART A211	Beginning Sculpture (3)	
ART A272	Beginning Fiber Structures (3)	

Art History (9 credits)

3. Select three courses from the following: 9

ART A360A	History of Non-Western Art I (3)
ART A360B	History of Non-Western Art II (3)
ART A361	History of Graphic Design (3)
ART A362	History of Modern Art (3)
ART A363	History of Contemporary Art (3)
ART A364	Italian Renaissance Art (3)
ART A366	Asian Art (3)
ART A367	History of Photography (3)
ART A492	Art History Seminar (3)

Primary Studio Concentration (18 credits)

Select **Primary** and **Secondary** Studio Concentrations from the following:

Ceramics	Drawing
Digital Art & Graphic Design	Fibers
Jewelry/Metalsmithing	Painting
Photography	Printmaking
Sculpture	

4. Select a primary studio concentration from the list above and complete the following studio courses in the same concentration:

200 level	Beginning studio course	3

Note: Students must choose a beginning course in their emphasis. ***Exception:*** *students with a drawing concentration may choose from any 200 level two-dimensional class listed under* ***Beginning Studio Electives****.*

300 level	Intermediate studio course	6
400 level	Advanced studio course	6

5. Select a support course from following (3 credits): 3

ART A390	Selected Topics in Studio Art (3)
ART A490	Selected Topics in Studio Art (3)
ART A498	Individual Research (1-3)

or other by permission of advisor

Secondary Studio Concentration (9 credits)

6. Select a secondary studio concentration from the list above and complete the following studio courses in the same concentration:

200 level	Beginning studio course	3
Note: Must be other than a course selected to fill the beginning studio electives listed above.		
300 level	Intermediate studio course	3

7. Select a support course from following (3 credits): 3

300 level	Intermediate studio course (3)	
400 level	Advanced studio course (3)	
ART A390	Selected Topics in Studio Art (3)	
ART A490	Selected Topics in Studio Art (3)	
ART A498	Individual Research (1-3)	

Thesis Requirements (6 credits)

8. Complete the following courses:

ART A491	Senior Seminar (Capstone) *(fall semesters only)*	3
ART A499	Thesis *(spring semesters only)*	3

Additional Requirements (12 credits)

9. ART A203 Introduction to Art Education 3

10. Complete PHIL A401 Aesthetics 3

11. Art electives (6 credits) 6
    Complete 6 credits of electives selected from art history, art education or art studio courses.

    A total of 121 credits is required for the degree, of which 42 credits must be upper division.

    A total of 84 credits in Art may be applied to the degree.

Minor, Art

Students majoring in another subject who wish to minor in Art must complete the following requirements. A total of 18 credits is required for the minor, 6 credits of which must be upper division.

Art History (6 credits)		6
ART A261	History of Western Art I (3)	
ART A262	History of Western Art II (3)	
Design (3 credits)		3
ART A111	Two-Dimensional Design (3)	
ART A113	Three-Dimensional Design (3)	
Drawing (3 credits)		3
ART A105	Beginning Drawing (3)	
ART A205	Intermediate Drawing (3)	
ART A305	Advanced Drawing (3)	
ART A307	Life Drawing and Composition I (3)	
ART A405	Experimental Drawing (3)	
ART A407	Life Drawing and Composition II (3)	
Studio (6 credits)		6
Studio emphasis courses		

Minor, Art Education

Students majoring in Art or in another subject must complete the following sequence of six courses for a minor in Art Education. A total of 18 credits is required for the minor of which 6 credits must be upper division

ART A203	Introduction to Art Education	3
ART A204	History and Philosophy of Art Education	3
ART A303	Curriculum Planning and Interpretation in Art	3
ART A304	Art Experience: Social, Cultural, and	

	Educational	3
ART A403	Arts and Technology	3
ART A404	Diversity and Visual Culture	3

FACULTY

Alvin Amason, Associate Term Professor of Alaska Native Art, alvinamason@hotmail.com
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Steven Godfrey, Associate Professor of Ceramics, AFSMG@uaa.alaska.edu
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Charles "Sean" Licka, Professor of Art History, kanchiku@gci.net
Garry Mealor, Assistant Professor/Head of Foundations, AFGRM@uaa.alaska.edu
B. Hugh McPeck, Associate Professor of Sculpture, AFBHM@uaa.alaska.edu
Deborah Tharp, Associate Professor of Photography, AFDKT@uaa.alaska.edu
Kat Tomka, Professor of Painting , AFKAT@uaa.alaska.edu

ART

Fine Arts Building (ARTS), Room 302A, (907) 786-1783
http://art.uaa.alaska.edu

The aim of the Department of Art is to prepare and empower students to use their artistic abilities to make a difference in society. A comprehensive multi-studio approach encourages independent thinking, strengthens creativity, and develops a knowledge of the critical and historical aspects of art.

Students acquire technical skills and gain confidence to work with a variety of materials while exploring and evaluating a broad heritage of past and contemporary art and design.

Program Outcomes

Students graduating with a Bachelor of Arts or Bachelor of Fine Arts will be able to demonstrate:

1. Effective communication and fiscal skills to be a practicing artist as applied to art proposals, exhibitions and business matters.
2. The expression of ideas in a cohesive body of work.
3. Critical thinking, writing and research skills allowing the discovery of original approaches to creative problem solving.
4. Mastery of techniques, composition, and the use of materials.

Students choose from several areas of study:

- **BA in Art** — Creative problem solving in a liberal arts context.
- **BFA in Art** — The Department of Art offers the Bachelor of Fine Arts Degree in Art with a Studio Emphasis in Ceramics, Drawing, Digital Art & Graphic Design, Fibers, Jewelry/Metalsmithing, Painting, Photography, Printmaking, or Sculpture. ~~Graphic Design.~~ Refer to the Bachelor of Fine Arts section following for degree requirements.
- **Art Education** — The Department of Art offers a minor in Art Education for students interested in working in educational settings. The minor does not lead to initial teacher certification. UAA does not currently offer a teacher certification program in art.
- **Minor in Art** – Students majoring in another subject may minor in Art.
- **Minor in Art Education** – Students majoring in Art or other subjects may minor in Art Education. ~~Students interested in becoming K-12 art teachers may complete the BA or BFA in Art at UAA and pursue teacher certification through the UAF School of Education post-baccalaureate licensure program.~~
- **Continuing Education** — Either as a pre- or post-baccalaureate student. The Department of Art offers courses for teacher professional development and for the general community.

The Bachelor of Arts and the Bachelor of Fine Arts are accredited by the National Association of Schools of Art and Design.

Students must note the following:

1. Some courses do not apply to degree programs.
2. Some courses may be taken only twice for credit. ~~for repeat credit.~~
3. Many Art courses require completion of certain prerequisite Art courses. Non-Art majors who wish to enroll in an Art class without first having completed the recommended prerequisites are free to do so with appropriate instructor permission, but may find the classroom experience difficult or unrewarding.
4. Art majors must obtain pre-registration approval from Art faculty for upper division Art coursework undertaken each semester.

Bachelor of Arts, Art

Admission Requirements

Complete the Baccalaureate Degree Program Admission Requirements in the front of this chapter.

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Graduation Requirements

Students must complete the following:

A. General University Requirements

Complete the General University Requirements for Baccalaureate Degrees in the front of this chapter. A maximum of 60 credits in Art may be applied toward the degree. Transfer students who are candidates for the BA degree with a major in Art must complete a minimum of 18 Art credits in residence.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees in the front of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences requirements in the front of this chapter.

D. Major Requirements

Lower Division Art (27 credits)

1. Complete the following core courses:

ART A105	Beginning Drawing (3)	
ART A111	Two-Dimensional Design (3)	
ART A113	Three-Dimensional Design (3)	
ART A205	Intermediate Drawing (3)	
ART A261	History of Western Art I (3)	
ART A262	History of Western Art II (3)	

2. Choose one two-dimensional course, one three-dimensional course, and one course from either list to total 9 credits:

Two-Dimensional Area:		3-6
ART A112	Color Design (3)	
ART A212	Beginning Watercolor (3)	
ART A213	Beginning Painting (3)	
ART A215	Beginning Printmaking (3)	
ART A224	Beginning Photography (3)	
ART A252	Beginning Graphic Design & Illustration (3)	
ART A257	Digital Art and Design I (3)	
ART A271	Beginning Surface Design (3)	
ART A273	Beginning Woven Forms (3)	
Three-Dimensional Area:		3-6
ART A201	Beginning Handbuilt Ceramics (3)	
ART A202	Beginning Wheelthrown Ceramics (3)	
ART A209	Beginning Metalsmithing and Jewelry (3)	
ART A211	Beginning Sculpture (3)~~)~~	
ART A270	Beginning Alaska Native Art (3)	
ART A272	Beginning Fiber Structures (3)	

Upper Division Studio Art (15 credits)

3. Complete a total of 15 credits from~~in~~ the ~~areas of~~ studio areas ~~emphasis~~ listed below, with a minimum of 9 credits ~~must be taken~~ from any one ~~of the following studio~~ area~~s~~:

Ceramics	Drawing
Digital Art & Graphic Design	Fibers
Jewelry/Metalsmithing	Painting
Photography	Printmaking
Sculpture	Alaska Native Art

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Upper Division Art History (6 credits)

4. Select 6 credits from the following: 6

ART A360A	History of Non-Western Art I (3)	
ART A360B	History of Non-Western Art II (3)	

ART A361	History of Graphic Design (3)
ART A362	History of Modern Art (3)
ART A363	History of Contemporary Art (3)
ART A364	Italian Renaissance Art (3)
ART A366	Asian Art (3)
ART A367	History of Photography (3)
ART A492	Art History Seminar (3)

Additional~~Miscellaneous~~ Requirements (21 credits)

5. Complete the following:

ART A203	Introduction to Art Education	3
~~PHIL A401~~	~~Aesthetics~~	~~3~~
ART A491	Senior Seminar (Capstone) *(fall semesters only)*	3
PHIL A401	Aesthetics	3
~~BA A166~~	~~Small Business Management~~	~~3~~
Upper division general electives 12~~5~~ credits		12~~5~~

At least 6 of the 12 elective credits must have a prefix other than Art.

~~6.~~**A total of 120 credits is required for the degree, of which**

42 credits must be upper division.

A total of 60 credits in Art may be applied to the degree.

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Bachelor of Fine Arts, Art

The Bachelor of Fine Arts degree is a professionally oriented program designed to prepare students for careers in art. Enrollment in the BFA program is recommended only for those students willing to make a~~the~~ considerable commitment of time and energy necessary to achieve professional competence in their primary area of studio emphasis. Students desiring to enter the BFA program should request a copy of the current program policy from the department.

Admission Requirements

Complete the Baccalaureate Degree Programs Admission Requirements at the beginning of this chapter. Admission into the BFA program, withdrawal~~termination~~ from it, and granting of the degree are done at the discretion of the BFA Committee.

Students admitted into the BFA program must complete a minimum of 24 A~~a~~rt credits (upper or lower division courses) in residence at UAA after acceptance into the BFA program.

T~~For the t~~ransfer S~~s~~tudents ~~,~~ need a minimum of 12 resident Art credits that must be completed in the primary area of studio emphasis, and a minimum of 3 resident Art credits completed in the secondary area of studio emphasis.

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Applicants for admission into the BFA program must meet the following minimum requirements:

1. Applicants must have been officially admitted to UAA ~~-~~ as a declared pre-major in the BFA program~~and declared an intention to pursue the BFA degree~~.
2. Applicants must have completed all lower division art major courses in the F~~f~~oundation C~~c~~ore and the Beginning Studio categories required for the BFA degree~~course requirements for the BFA degree~~.
3. Applicants must have been enrolled at UAA for at least one semester prior to application to the full major status in the BFA program.
4. Applicants must meet minimum academic GPA requirements of: 2.50 overall coursework and 3.00 overall Art coursework.

BFA Requirements

All materials must be submitted to the Department of Art at least two weeks prior to the BFA Committee's scheduled application review:

1. Application for admission into the BFA program.
2. Letter of intent stating objectives and qualifications in relation to either the BA in Art or BFA in Art degree

programs.

3. Copies of all college transcripts.
4. A " Projected Plan of Study" signed by the College of Arts & Sciences Academic Advisor for the Fine Arts area.
5. A list of all college A~~a~~rt courses taken with grades received.
6~~5~~. A p~~P~~ortfolio of 15-20 pieces of studio work in primary and secondary concentrations showing technical skills, design abilities, and a potential for developing a conceptual vision. Applicants must submit work for consideration in digital formats (preferred) or~~both~~ slides. ~~or digital formats and original works of art.~~ Applications will be reviewed only in the fall semester. ~~once a semester, and~~ A~~a~~dmission decisions are determined ~~in October and March. Acceptance into the BFA program will be determined~~ by a consensus of BFA Committee members in October~~at the meeting~~.

Academic Progress

To graduate with a BFA in Art students must have met the following GPA requirements:

1. A minimum cumulative~~overall major~~ GPA of 3.00 in the major.
2. A minimum cumulative GPA of 3.50 in the primary area of studio emphasis.
3. A minimum cumulative GPA of 2.50 in all university coursework.

Semester Reviews

The progress of all BFA candidates will be reviewed a minimum of once a semester by the BFA Committee.

Thesis Project and Capstone Course

With approval, upon completion of all studio courses in the student's primary and secondary areas of emphasis, BFA candidates will enroll in ART A491 Senior Seminar offered fall semesters only, and ART A499 Thesis offered spring semesters only. ART A491 meets the capstone requirement for the GER. Students enrolled in the BFA program must submit their thesis proposal for approval during the fall semester of the academic year. Once the BFA Committee has reviewed and accepted the thesis proposals, candidates will be granted permission to register for ART A499 Thesis. During ART A499 Thesis students will complete a body of work that will culminate in a formal exhibition. BFA students enrolled in ART A499 Thesis will meet with the BFA Committee a minimum of twice a semester.

The BFA Committee's evaluation of the student's thesis project will be based on content, presentation, and the degree of success in visual realization of the written proposal. At least 10 slides or digital images of the student's thesis will be furnished to the Department of Art. These images must be acceptable to the BFA Committee and will become the property of the Department of Art. The slides or digital images must be received by the department before a grade for ART A499 Thesis is awarded.

Exhibitions and Presentations

BFA candidates will generally participate in the BFA Group Show to be held in the Kimura Gallery. All aspects of the thesis exhibition must be approved by the BFA Committee. Works will be selected by the BFA Committee. The BFA Group Show will be held during the spring semester each year. Graduating BFA students are invited, but not required, to donate one work of art to UAA's permanent collection. Acceptance of donated student work is left to the discretion of the BFA Committee. Prior to completing all BFA requirements, the student is responsible for submitting an Application for Graduation to obtain the degree.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for Baccalaureate Degrees in the front of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees in the front of this chapter.

C. College of Arts and Sciences Requirements

There are no additional college requirements for the BFA degree.

D. Major Requirements

Complete the following required Art courses with a minimum ~~overall~~ cumulative~~major~~ GPA of 3.00 in the major and a minimum cumulative GPA of 3.50 in the primary area of studio emphasis. A minimum cumulative GPA of 2.50 in all university coursework is required to graduate. A maximum of 84 credits in Art may be applied toward the degree.

Foundation Core Courses (24 credits)

1. Complete the following core courses:

ART A105	Beginning Drawing	3
ART A111	Two-Dimensional Design	3
ART A112	Color Design	3
ART A113	Three-Dimensional Design	3
ART A205	Intermediate Drawing	3
ART A261	History of Western Art I	3
ART A262	History of Western Art II	3
ART A307	Life Drawing and Composition I	3

Beginning Studio Electives (9 credits)

2. Choose one course from the two-dimensional list and one course from the three-dimensional list, and one course from either list to total 9 credits:

Two-Dimensional Area:		3-6
ART A212	Beginning Watercolor (3)	
ART A213	Beginning Painting (3)	
ART A215	Beginning Printmaking (3)	
ART A224	Beginning Photography (3)	
ART A252	Beginning Graphic Design and Illustration (3)	
ART A257	Digital Art and Design I (3)	
ART A271	Beginning Surface Design (3)	
ART A273	Beginning Woven Forms (3)	
Three-Dimensional Area:		3-6
ART A201	Beginning Handbuilt Ceramics (3)	
ART A202	Beginning Wheelthrown Ceramics (3)	
ART A209	Beginning Metalsmithing and Jewelry (3)	
ART A211	Beginning Sculpture (3)	
ART A272	Beginning Fiber Structures (3)	

Art History (9 credits)

3. Select three courses from the following: 9

ART A360A	History of Non-Western Art I (3)
ART A360B	History of Non-Western Art II (3)
ART A361	History of Graphic Design (3)
ART A362	History of Modern Art (3)
ART A363	History of Contemporary Art (3)
ART A364	Italian Renaissance Art (3)
ART A366	Asian Art (3)
ART A367	History of Photography (3)
ART A492	Art History Seminar (3)

Primary Studio Concentration (18 credits)

Select **Primary** and **Secondary** Studio Concentrations from the following:

Ceramics	Drawing
Digital Art & Graphic Design	Fibers
Jewelry/Metalsmithing	Painting
Photography	Printmaking
Sculpture	

4. Select a primary studio concentration from the list above and complete the following studio courses in the same concentration~~discipline~~:

200 level Beginning studio course 3

Note: Students m~~M~~ust choose a beginning course in their emphasis. ***Exception:*** *students with a drawing concentration may choose from any 200 level two-dimensional class listed under* ***Beginning Studio Electives.*** ~~*be other than a course selected to fill the beginning studio electives listed above.*~~

300 level Intermediate studio course 6

400 level Advanced studio course 6

5. Select a support course from following (3 credits): 3

ART A390	Selected Topics in Studio Art (3)	
ART A490	Selected Topics in Studio Art (3)	
ART A498	Individual Research (1-3)	

or other by permission of advisor

Secondary Studio Concentration (9 credits)

6. Select a secondary studio concentration from the list above and complete the following studio courses in the same concentration~~discipline~~:

200 level Beginning studio course 3

Note: Must be other than a course selected to fill the beginning studio electives listed above.

300 level Intermediate studio course 3

7. Select a support course from following (3 credits): 3

300 level Intermediate studio course (3)

400 level Advanced studio course (3)

ART A390	Selected Topics in Studio Art (3)	
ART A490	Selected Topics in Studio Art (3)	
ART A498	Individual Research (1-3)	

Thesis Requirements (6 credits)

8. Complete the following courses:

ART A491	Senior Seminar (Capstone) *(fall semesters only)*	3
ART A499	Thesis *(spring semesters only)*	3

Additional~~Miscellaneous~~ Requirements (12 credits)

9. ART A203 Introduction to Art Education 3

10. Complete PHIL A401 Aesthetics 3

11~~0~~. Art electives (6~~9~~ credits) 6~~9~~

Complete 6~~9~~ credits of electives selected from art history, art education or art studio courses.

~~11.~~ **A total of 121 credits is required for the degree, of which 42 credits must be upper division.**

A total of 84 credits in Art may be applied to the degree.

Minor, Art

Students majoring in another subject who wish to minor in Art must complete the following requirements. A total of 18 credits is required for the minor, 6 credits of which must be upper division.

Art History (6 credits) 6

ART A261	History of Western Art I (3)	~~3~~
ART A262	History of Western Art II (3)~~I~~	~~3~~

Design (3 credits) 3~~3~~

ART A111	Two-Dimensional Design (3)	
ART A113	Three-Dimensional Design (3)	

Drawing (3 credits) 3

ART A105	Beginning Drawing (3)	
ART A205	Intermediate Drawing (3)	
ART A305	Advanced Drawing (3)	

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ART A307	Life Drawing and Composition I (3)	
ART A405	Experimental Drawing (3)	
ART A407	Life Drawing and Composition II (3)	
Studio (6 credits)		6
Studio emphasis courses		~~6~~

Minor, Art Education

Students majoring in Art or in another subject~~discipline and Art students in the Art progr am~~ must complete the following sequence of six courses for a minor in Art Education. A total of 18 credits is required for the minor~~.~~ ~~Six courses are being added as a minor in the Art Department under the heading of Art Education. The minor constitutes 18 credits~~ of which 6 credits must be upper division~~and is made up of the following courses:~~

ART A203	Introduction to Art Education	3
ART A204	History and Philosophy of Art Education	3
ART A303	Curriculum Planning and Interpretation in Art	3
ART A304	Art Experience: Social, Cultural, and Educational	3
ART A403	Arts and Technology	3
ART A404	Diversity and Visual Culture	3

FACULTY

Alvin Amason, Associate Term Professor of Alaska Native Art, alvinamason@hotmail.com
~~*Charles "Sean" Licka, Professor of Art History, kanchiku@gci.net*~~
Herminia Din, Associate Professor of Art Education, HDIN@uaa.alaska.edu
Steven Godfrey, Associate Professor of Ceramics, AFSMG@uaa.alaska.edu
Mariano Gonzales, ~~Associate~~ Professor of Digital Art & Graphic Design/Chair, mariano@gci.net
Garry Kaulitz, Professor of Printmaking, AFGCK@uaa.alaska.edu
Charles "Sean" Licka, Professor of Art History, kanchiku@gci.net
Garry Mealor, Assistant Professor/Head of Foundations, AFGRM@uaa.alaska.edu
B. Hugh McPeck, Associate Professor of Sculpture, AFBHM@uaa.alaska.edu
~~*Garry Mealor, Assistant Professor/Foundation Coordinator, AFGRM@uaa.alaska.edu*~~
Deborah Tharp, Associate Professor of Photography, AFDKT@uaa.alaska.edu
Kat Tomka, Professor of Painting , AFKAT@uaa.alaska.edu

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Date: February 21, 2011
From: Hilary Davies
Subj: Topics for discussion

Page 43. Box 13a. Impacted Courses or Programs
See separate memo.

Page 45, Box 16a. Include more examples of wording for prerequisites and corequisites. Here are some examples from recently approved courses:

- [ENGL A211 or ENGL A212 or ENGL A213 or ENGL A214] with a minimum grade of C
- Grades of C or higher in the following: (PSY A111, PSY A150, PSY A260, PSY A260L, PSY A261, and ENGL A111) and either (ENGL A211, ENGL A212, ENGL A213 or ENGL A214).
- [PSY A111 or PSY A150] and Grade of C or higher in ENGL A111
- Grades of C or higher in (ENGL A111), and either (PSY A111 or PSY A150), and either (BIOL A102; BIOL A111 or BIOL A115), and either (ENGL A211, ENGL A212, ENGL A213, or ENGL A214)
- Grades of C or higher in (PSY A111, PSY A150, PSY A260, PSY A260L, PSY A261, ENGL A111) and grade of C or higher in either (ENGL A211, ENGL A212, ENGL A213 or ENGL A214)

Samples of well written CCGs.
I recommend that we select some recent well written CCGs from various schools and colleges.

Course Action Request (CAR). Box 16a. See separate memo.

Catalog Issues

- Incomplete (I) grade (BOR question). At UAF, an I is changed to an F if course is not completed
- Offered at KPC only in course descriptions?
- Grading system: + and – grades (in the 2010-2011 catalogs, UAS has + and - grades, UAA and UAF do not)
- International course work (90 credits-no degree, 120 credits-degree) - Lora Volden
- Change UAA email information to reflect current practice (gmail)
- Transfer grades of C-. Clarification of policy needed
- Faculty listing in program catalog copy. Should these be faculty who teach on a regular basis?

Faculty Grading and Advising Issues

- Deadline for faculty to submit grades - do we need policy?