

Graduate Academic Board

Agenda

October 28, 2005

9:30 – 11:30 am

COMMONS 106

I. Roll Call

<input type="checkbox"/> Carlos Alsua	<input type="checkbox"/> Jocelyn Krebs	<input type="checkbox"/> Peter Olsson	<input type="checkbox"/> FS Vacant
<input type="checkbox"/> Tracey Burke	<input type="checkbox"/> He Liu	<input type="checkbox"/> Patricia Sandberg	<input type="checkbox"/> Vanessa von Biela - USUAA
<input type="checkbox"/> Alpana Desai	<input type="checkbox"/> George Mastroyanis	<input type="checkbox"/> Arlene Schmuland	
<input type="checkbox"/> Tim Hinterberger	<input type="checkbox"/> Terri Olson	<input type="checkbox"/> Toby Widdicombe	

II. Approval of Agenda (page 1-2)

III. Approval of Meeting Summary – September 23, 2005 (page 3-5)

IV. Administrative Report

1. Interim Provost Jan Gehler
2. Vice Provost Tom Miller
3. Vice Provost for Research and Graduate Studies Doug Causey

V. Chair's Report

- Faculty Alliance

VI. Program/Course Action Requests - Second Reading

A. CAS

Chg	STAT	A601	Statistical Methods
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VII. Program/Course Action Request – First Reading

A. CAS

Chg	MUS	A668A	Methods for Teaching Music I, K-12 (3cr)(3+0) TABLED Until 11.11.05
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Chg	MUS	A668B	Methods for Teaching Music II, K-12 (3cr)(3+0) TABLED Until 11.11.05
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B. SOENGR

Del			Environmental Quality Engineering – Environmental Quality Science
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Del	EQE	A684	EQE Project
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Add			Applied Environmental Science & Technology
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Add	AEST		Applied Environmental Science & Technology
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Chg	AEST	A601	Aquatic Process Chemistry
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Chg	AEST	A602	Water Quality Management
Chg	AEST	A603	Solid Waste Management
Chg	AEST	A604	Environmental Law, Regulations & Permitting
Chg	AEST	A608	Fundamentals of Air Pollution
Chg	AEST	A613	Remediation
Chg	AEST	A698	Individual Research
Chg	AEST	A699	AEST Thesis
Chg	CE	A600	Fundamentals of Environmental Science & Engineering
Chg	CE	A605	Chemical and Physical Water & Wastewater Treatment Processes
Chg	CE	A606	Biological Treatment Processes

VIII. Old Business

- A. Graduate School / College Discussion
- B. [Academic Master Plan](#)
- C. 2005-2006 Goals and Objectives

IX. New Business

X. Informational Items and Adjournment

- Council of Graduate School Consultants Final Report – August 2004 (35 page document)
- Current Issues in Graduate Education at UAA (Jim Liszka) (27 page document)
- Graduate Program Analysis (45 page document)

[Curriculum Log](#)

Graduate Academic Board

Summary

October 14, 2005

9:30 – 11:30 am

ADM 204

XI. Roll Call

(*) Carlos Alsua	(*) Jocelyn Krebs	() Peter Olsson	() FS Vacant
(*) Tracey Burke	(*) He Liu	(*) Patricia Sandberg	(*) Vanessa von Biela - USUAA
(*) Alpana Desai	(*) George Mastroyanis	(*) Arlene Schmuland	
(*) Tim Hinterberger	() Terri Olson	(*) Toby Widdicombe	

XII. Approval of Agenda (page 1)

Add STAT A601 to First Reading. Approved unanimously.

XIII. Approval of Meeting Summary – September 23, 2005 (page 2-4)

Approved unanimously.

XIV. Administrative Report

4. Interim Provost Jan Gehler

Accreditation visit will take place October 17-18. Information about the accreditation visit, white paper, and Metrics 1/2 can be located on the Academic Affairs website <http://www.uaa.alaska.edu/academicaffairs/index.cfm>

President Hamilton and his executive staff will visit UAA on October 28 for the operational review.

UAA is under-funded. We need to be strategic in asking the Legislature for money.

5. Vice Provost Tom Miller

Two evaluators will take part in the accreditation visit; the itinerary has been finalized. The primary purpose of the visit is to verify the University's compliance with the standards that are set by the NW Commission on Colleges and Universities, and compare progress with the recommendations from the 2000 accreditation visit. The feedback from the written reports has been favorable so far. The evaluators will make a final report after the visit and forward it to the Commission. The Commission will make their final recommendations based upon the report.

The new programs that have been passed by this board will go to SAC. From SAC, they will go to the Board of Regents for final approval.

There is a review of the Board of Regents' policies underway.

Distance education technology enables collaboration and extends resources.

6. Vice Provost for Research and Graduate Studies Doug Causey

XV. Chair's Report

At the last e-Board meeting, distance education technology was discussed. There are eight distance education committees on campus. The Academic Computing, Distance Learning, & Instructional Technology Committee (ACDLITC) should look into what these committees are doing, determine overlaps, and determine which committee(s) GAB should be involved in. Synchronous Tools workshop will take place on October 28. If adopted, it would be the exclusive tool used for distance education. UA Statewide must give final approval for this. It should be determined what percentage of courses are offered via distance education by UAA.

Faculty Alliance retreat with President Hamilton took place this week. Issues discussed included the budget request to the Legislature, University of Alaska's future, and distance education. Statewide academic planning is essential, but implementations are done by the three *individual* Universities. They are in the early stages of monitoring the various Statewide councils. Statewide Distance Education is looking into tracking where the distance education money has been spent.

XVI. Program/Course Action Requests - Second Reading

XVII. Program/Course Action Request – First Reading

A. CAS

Chg MUS A668A Methods for Teaching Music I, K-12 (3cr)(3+0)
TABLED Until 11.11.05

Chg MUS A668B Methods for Teaching Music II, K-12 (3cr)(3+0)
TABLED Until 11.11.05

Add STAT Statistics
Motion: Waive first reading, accept second reading. **Approved unanimously.**

- Add additional justification for action

Delete AS Applied Statistics
Motion: Waive first reading, accept second reading. **Approved unanimously.**

- Add additional justification for action

Chg STAT A601 Statistical Methods
Approved 1st reading

- Course description
- Registration restrictions

XVIII. Old Business

D. Graduate School / College Discussion

Issues discussed include:

- Director of Graduate School should be filled with a faculty member with a PhD.
- Policy making should remain with each department. Administrative functions should go to the Graduate School.
- A Graduate School has the potential to improve the image of the graduate programs at UAA.
- There is a concern with the over-burdening of Enrollment Services (admissions process.)
- There is a concern with the faculty member buy-out for Director of Graduate School position.
- There is a concern that humanities might be pushed aside for sciences if a Graduate School is established.
- Policy should be changed to require all graduate theses to be submitted and

published at the Library. The Graduate School could make Library theses available as well.

- E. [Academic Master Plan](#)
 - F. 2005-2006 Goals and Objectives
- XIX. New Business
- XX. Informational Items and Adjournment
- Council of Graduate School Consultants Final Report – August 2004 (35 page document)
 - Current Issues in Graduate Education at UAA (Jim Liszka) (27 page document)
 - Graduate Program Analysis (45 page document)
- [Curriculum Log](#)

Comments from Biology (via Jocelyn):

Functions of a Graduate School

- Identify graduate faculty (optional for each program/dept?)
- Administratively support and advocate graduate programs
- Build the resources and governance for graduate assistantships
- Shoulder the administrative burden of managing the growth in numbers and quality of graduate programs, including joint programs with other Universities

- Act as central clearing house for all applications and paperwork
- Provide assistance to grad students with paperwork / financial aid/ etc. etc.
- Track student progress and eligibility for funding and awards
- Notify grad students of fellowships/training awards/ travel funds etc.
- Have some funding available for graduate student fellowships/ awards
- Create guidelines for thesis and do final review of thesis for consistency with UAA guidelines (now done by CAS)
- Create guidelines for stipend rates etc
- Be an advocate for graduate research on campus by supporting BOTH the students and the faculty who mentor the students
- Create a mechanism by which faculty are recognized / receive credit for their training of students

- a graduate school could be responsible for helping students to meet all their requirements and maintain handbooks for each program, etc.
- a graduate school could help students apply for fellowships and scholarships by maintaining a database of these and alerting students about them.
- a graduate school could coordinate cross-campus students (UAA- UAF).

- Separate graduate catalog

Benefits

- Opportunity to facilitate faculty design and implementation of graduate programs that cross college boundaries
- Opportunity to recognize the distinction between costs and teaching loads associated with graduate programs
- Opportunity to set higher standards for faculty engaged in graduate level teaching.

In the end, the responsibility for creation and delivery of graduate programs must remain with the faculty; however, this could be greatly improved if the graduate programs were administered separately from the many competing demands of undergraduate education.

Pitfalls to avoid

- Creating an unfunded mandate to administer graduate programs

- Creating a dual reporting system with conflicting expectations for graduate faculty
- Assuming all graduate programs are equal and failing to recognize the diversity of cultures and expectations among graduate disciplines at UAA
- Excusing the existing colleges and Deans from responsibility for graduate education at UAA.

Comments from English (via Toby):

1. It would need office space and staff
2. It should lead to an increase in interdisciplinarity
3. The humanities should be balanced with the sciences
4. The issue of grad. faculty needs to be worked out.
5. An FT buyout is doing the task on the cheap and has curricular repercussions for the affected dept.
6. Funding shouldn't come out of other programs
7. Effort should be put into this rather than into the Honors Program (good in theory, terrible in practice)
8. The graduate office needs to increase funding for scholarship

Comments from CBPP (via Alpana and Carlos):

Main issue:

They would like policy making to remain within the departments. They are in favor of the administrative functions moving to the Graduate School/College provided the entire application process becomes more efficient for the student and the departments that offer the masters programs.

Some of the other issues are:

1. Obtaining information should be easier. For example, getting information regarding how many students have applied to the masters programs is not known currently
2. Graduate Admissions, Financial Aid application, thesis/dissertation, assistantship/scholarships, and so on should all be handled by the Graduate School
3. Issues and decisions involving students transferring to/from other UA campuses should be handled by the Graduate School
4. Decisions when student is out of the 7 year rule should be handled by the Graduate school

5. Issues with the interdisciplinary masters programs should be handled by the Graduate School
6. It would be helpful to have a separate Graduate Studies Catalog

Comments from Library (via Arlene):

Theses. Currently handled by the library: i.e. arranging for binding, copyright filing, standards.

Why give it up? As long as the library gets two copies to their specifications (bound to appropriate standards, 1 copy with original signature page) the thesis process pretty much has nothing to do with the library. Additionally, students have no ability to get a bound copy of their thesis themselves nor do their thesis committees or departments—short of them making their own copy and contacting a company that can bind it for them. In terms of budget, though this is not a huge drain on the library budget, it is growing. My graduate institution required that I pay for 2 copies for the library (including the original signed copy and both of these on a certain type of paper), 1 copy for my thesis chair, and several departments required the student to provide one to them as well. It's not unusual to expect the student to cover these costs rather than the university. This also allowed me to order as many bound copies of my thesis for myself as I chose. In the past, the library had a lot of binding done and it made sense to include theses for efficiency's sake and probably some cost savings. As this is the only binding being done for the library anymore, the efficiency & cost savings arguments are gone.

As for other thesis tasks, the student need not apply for copyright status with LC (Library of Congress) in order to give copyright protection for their thesis, and all we currently do is collect the fee for that and have the student fill in the application that we then send in to LC. The microfilming of the thesis is required (through UMI) and is basically the same type of process. There's no particular reason to have the Library handle these tasks instead of another UAA body (or in the case of LC copyright filing, the student him or herself)—the Library doesn't have any special "arrangements" with either LC or UMI that gives us some sort of special access to these services.

My personal opinion is that I'd like to see a central body with a little more "authority" handle this process. The library receipt just means that the library has received the thesis—though I'm sure the original assumption was that this automatically translated to a copy of the thesis being placed in the library's collections, this has not always proven to be the case. In at least one incident, a student refused to have his/her thesis added to the collection because of concerns over the availability of sensitive content within the thesis. My view is that one of the reasons we make students write theses is to get them to create a publication-worthy product and having it placed in the library is a part of that process. To have a thesis that is inaccessible to the public, other students, or faculty is to ignore that aim. While each graduate program will have ideas and should be primarily responsible for policy regarding what is acceptable as a thesis topic, having a central body to enforce those policies would be a good idea.

Now for something else I didn't mention in the meeting that isn't library-specific: university services. One of our extended campus librarians contacted me with a concern she has about UAA grad students who live & work in her area. They apparently come on campus and expect to have all the same privileges that are accessible to them at the Goose Lake campus made available to them there. Many UAA grad students are working on their degrees and living near our extended campuses, but they have no official student status on the extended campuses which MAY (I'm not sure here) limit the UAA services they can obtain on those campuses. For example (and I have no idea if this is true or not), students pay a yearly tech fee which among other things, puts a few dollars worth of copying on their wolf card. Are their UAA wolf cards useable at KPC or Kodiak College to make copies? What services do grad students have available to them on the Goose Lake campus that aren't extendable to other UAA campuses? Can they use computer labs in Glennallen or Valdez if they happen to live/work/be doing field studies there? (Again, I don't know if this is a problem or not. The library-specific question that was raised by my colleague was something which we had already handled internally and isn't a problem, so I haven't mentioned it here.)



Curriculum Action Request University of Alaska Anchorage

Proposal to Initiate, Add, Change, or Delete a Course or Program of Study

1a. School or College AS CAS		1b. Division AMSC		1c. Department Mathematical Sciences	
2. Course Prefix STAT	3. Course Number A601	4. Previous Course Prefix & Number AS A601		5a. Credits/CEU 3	5b. Contact Hours (Lecture + Lab) (3+0)
6. Complete Course/Program Title Statistical Methods Statistical Methods <small>Abbreviated Title for Transcript (30 character)</small>					
7. Type of Course <input checked="" type="checkbox"/> Academic <input type="checkbox"/> Non-credit <input type="checkbox"/> CEU <input type="checkbox"/> Professional Development					
8. Type of Action <input checked="" type="checkbox"/> Course <input type="checkbox"/> Program			9. Repeat Status No # of Repeats Max Credits		
<input type="checkbox"/> Add <input checked="" type="checkbox"/> Prefix <input type="checkbox"/> Course Number <input checked="" type="checkbox"/> Change <input type="checkbox"/> Credits <input type="checkbox"/> Contact Hours <small>(mark appropriate boxes)</small> <input type="checkbox"/> Title <input type="checkbox"/> Repeat Status <input type="checkbox"/> Delete <input type="checkbox"/> Grading Basis <input type="checkbox"/> Cross-Listed/Stacked <input checked="" type="checkbox"/> Course Description <input checked="" type="checkbox"/> Course Prerequisites <input type="checkbox"/> Test Score Prerequisites <input type="checkbox"/> Co-requisites <input type="checkbox"/> Other Restrictions <input checked="" type="checkbox"/> Registration Restrictions <input type="checkbox"/> Class <input type="checkbox"/> Level <input type="checkbox"/> College <input type="checkbox"/> Major <input type="checkbox"/> Other			10. Grading Basis <input checked="" type="checkbox"/> A-F <input type="checkbox"/> P/NP <input type="checkbox"/> NG		
			11. Implementation Date semester/year From: Fall/2006 To: /9999		
12. <input type="checkbox"/> Cross Listed with _____ <input type="checkbox"/> Stacked with _____ Cross-Listed Coordination Signature					
			13. List any programs or college requirements that require this course		
14. Coordinate with Affected Units: Faculty Listserve Department, School, or College					
Initiator Signature _____ Date _____					
15. <input type="checkbox"/> General Education Requirement <input type="checkbox"/> Oral Communication <input type="checkbox"/> Written Communication <input type="checkbox"/> Quantitative Skills <input type="checkbox"/> Humanities <input type="checkbox"/> Fine Arts <input type="checkbox"/> Social Sciences <input type="checkbox"/> Natural Sciences <input type="checkbox"/> Integrative Capstone					
16. Course Description Parametric and nonparametric statistical methods in research for graduate students majoring in natural sciences or social sciences. The topics are selected from, but not restricted to, contingency tables and Chi-square tests, correlation, simple linear regression and multiple regression, design and analysis of experiments, logistic regression, and introduction to multivariate statistics. A major statistical software package is used as a tool to aid calculations for many of the techniques. A research project is required from each student as part of the course requirement.					
17a. Course Prerequisite(s) (list prefix and number) STAT A252 or STAT A253		17b. Test Score(s) N/A		17c. Co-requisite(s) (concurrent enrollment required) N/A	
17d. Other Restriction(s) <input type="checkbox"/> College <input type="checkbox"/> Major <input type="checkbox"/> Class <input type="checkbox"/> Level			17e. Registration Restriction(s) (non-codable) Instructor approved introductory statistics course.		
18. <input checked="" type="checkbox"/> Mark if course has fees					
19. Justification for Action Change prefix from AS to STAT to agree with UAF and UAS, and to be consistent with other universities across the United States. AS A253 added to the prerequisite list, as AS A253 did not exist when STAT A601 was originated. Course description updated.					

Course Content Guide
University of Alaska Anchorage
College of Arts and Sciences
Department of Mathematical Sciences

Date: October 14, 2005

Course Information:

Course Subject/Number: STAT A601

Credits and Contact Hours: 3.0 Credits, 3+0 Contact Hours

Course Title: Statistical Methods

Course Description:

Parametric and nonparametric statistical methods in research for graduate students majoring in natural sciences or social sciences. The topics are selected from, but not restricted to, contingency tables and Chi-square tests, correlation, simple linear regression and multiple regression, design and analysis of experiments, logistic regression, and introduction to multivariate statistics. A major statistical software package is used as a tool to aid calculations for many of the techniques. A research project is required from each student as part of the course requirement.

Prerequisites: STAT A252 or STAT A253.

Registration Restriction: Instructor approved introductory statistics course.

Grading Basis: A-F

1. Instructional Goals and Student Outcomes.

(a) Instructional Goals. The Instructor will:

- Discuss parametric and nonparametric hypothesis testing.
- Discuss design of experiments, analysis of variance and regression analysis.
- Explain analysis of contingency tables.
- Provide an introduction to multivariate statistics.

(b) Student Outcomes:

Student Outcome	Assessment Metric
The student will be able to perform hypothesis tests for designed experiments or reliable observational studies and understand the results.	Midterm and final exams
The student will be able to demonstrate the tools of regression analysis and use variable selection techniques in regression	Midterm and final exams
The student will be able to write a report summarizing the statistical analysis of a research problem.	Final research project

Library Resource Form

Excerpts from the Northwest Association of Schools and Colleges Accreditation Handbook 1999 Edition

Standard Five - Library And Information Resources

Standard 5.A - Purpose and Scope

The primary purpose for library and information resources is to support teaching, learning, and, if applicable, research in ways consistent with, and supportive of, the institution's mission and goals. Adequate library and information resources and services, at the appropriate level for degrees offered, are available to support the intellectual, cultural, and technical development of students enrolled in courses and programs wherever located and however delivered.

Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: AS A601: Statistical Methods

1. Please identify the library liaison consulted in preparation of this proposal.

Name: Susan Elliott

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liaison.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

2. Please list any new library and information recommended to support proposal.

Suggested Text(s)

Dowdy Shirley, Wearden Stanley and Chilko Daniel. 2004. *Statistics for Research*, 3rd Edition. Wiley

Ott Lyman and Michael Longnecker. 2002. *Introduction to Statistical Methods and Data Analysis*, 5th edition. Duxbury.

Bibliography

Ostle, Bernard & Malone, Linda. 1988. *Statistics in Research*. Iowa State University Press.

Rao, R.V., 1998. *Statistical Research Methods in Life Sciences*. Duxbury.

Kleinbaum David, Kupper Lawrence and Muller Keith, 1998. *Applied Regression Analysis and other Multivariate Methods*, 3rd edition. Duxbury..

Initiator signature

University of Alaska Anchorage
School of Engineering



**Applied Environmental Science and
Technology**
Masters of Science Degree

Prospectus

Prepared by Craig Woolard
Associate Dean of Graduate Studies and Research
University of Alaska Anchorage
Revised - October 25, 2005

Applied Environmental Science and Technology

Masters of Science Degree
University of Alaska Anchorage – School of Engineering

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Appendix A: Assessment Plan

Appendix B: Curriculum Documents

Appendix C: Coordination Documents

Cover Letter with Program Description and Intent



UNIVERSITY *of* ALASKA ANCHORAGE

SCHOOL of ENGINEERING

3211 Providence Drive
Anchorage, Alaska 99508

To: Graduate Academic Board

From: AEST Design Committee
School of Engineering

The School of Engineering proposes to initiate a new interdisciplinary graduate degree program entitled Applied Environmental Science & Technology (AEST). The new program is designed to supplant the existing Environmental Quality Science (EQS) graduate program, and is expected to provide a curriculum flexible enough to keep pace with the ever-broadening field of environmental science. The new program is designed to serve students with career interests in environmental research, environmental regulation, government environmental services, or private consulting.

The interdisciplinary nature of the AEST program is one of its most striking characteristics. The program was designed by a team of faculty members from the School of Engineering, Department of Biological Sciences, Department of Chemistry, and Department of Geology. The AEST curriculum reflects this diverse input, as students are expected to engage in coursework from all of those areas during the course of their studies. It is our contention, as well as the contention of our collaborators and community advisory board, that such curricular diversity is crucial to the understanding of modern complex environmental issues.

Although the program by its very nature stipulates that the students' coursework will be broad, it does not stipulate which specific courses are to be taken in pursuit of the degree. Specific coursework will be outlined by the students' interdisciplinary graduate committees on an individual basis during the first semester of coursework. In this fashion, the program will allow students to customize their degree to their career interests yet still maintain the breadth and integrity of the degree.

The proposed AEST program will allow faculty members from Science and Engineering to pool their teaching resources in order to provide a stronger, more diverse environmental science program than is currently available. The program will not only benefit the students, but will also benefit the participating faculty members through the creation and encouragement of collaborative research opportunities.

Proposed Catalog Copy

Master of Applied Environmental Science & Technology
School of Engineering
Engineering Building (ENGR), Room 201, (907) 786-1900
www.engr.uaa.alaska.edu/soe/

The graduate program in Applied Environmental Science & Technology (AEST) is designed for students seeking careers as practicing environmental professionals in the academic, regulatory, industrial, military, or consulting sectors. The program is interdisciplinary in nature, and encourages candidates to develop an understanding of environmental principles through advanced studies in biology, chemistry, geology, statistics and environmental engineering.

This degree program offers a thesis option for students interested in pursuing original research (Master of Science – Applied Environmental Science & Technology) as well as a non-thesis option for students desiring to focus their efforts upon non-research oriented professional development (Master – Applied Environmental Science & Technology). Both options promote meaningful collaboration between the students and an interdisciplinary faculty team, and both options provide an excellent foundation for a career in the applied environmental fields.

Program Objectives and Expected Outcomes

The objectives of the MS-AEST and M-AEST programs are to produce graduates who:

1. Have an advanced technical knowledge of environmentally-related disciplines within the life sciences, physical sciences, geosciences, mathematics and environmental engineering;
2. Are capable of integrating advanced technical information from different science and engineering disciplines;
3. Are capable of conceiving and conducting a research project (MS-AEST option); and
4. Are capable of working in a professional environment.

In keeping with these objectives, the expected outcome of the AEST program is that the graduates will have:

1. An ability to use advanced methods of analysis;
2. An ability to understand advanced environmental engineering theory;
3. An ability to understand advanced scientific theory;
4. An ability to integrate advanced technical information from different science and engineering disciplines;
5. An ability to conduct advanced environmental science research (MS-AEST option); and

6. An ability to manage projects and function in a professional environment.

Admission Requirements

Application materials required for admissions consideration include undergraduate/graduate transcripts, official GRE scores, three letters of recommendation from people familiar with the applicant's technical aptitude, and a one-page statement of career goals prepared by the applicant. These items are required in addition to any other material required by the university admissions office. Application materials must be received by the university prior to March 1st for matriculation in the Fall semesters, and October 1st for matriculation in the Spring semesters.

Students admitted into the program will have a minimum undergraduate GPA of 3.0 from an accredited BS program in the natural/physical sciences or engineering. Undergraduate work must have included successful completion of two or more consecutive semesters (or equivalent) in two of the following subject areas: Chemistry, Physics, Biology, or Geology. In addition, the candidates must have successfully completed one year of calculus. Alternatively, a graduate degree in the natural/physical sciences or engineering (3.0 or better GPA) would fulfill this. In most instances, undergraduate degrees in the physical sciences, life sciences, or engineering will provide sufficient background to meet course prerequisites. Students without the appropriate background to meet course prerequisites may be required to complete undergraduate courses that will not be applied towards the graduate degree.

In addition to the required coursework, students will have satisfactory verbal and quantitative GRE scores as determined by the admissions committee. The GRE requirement may be waived at the discretion of the admissions committee for applicants with significant professional experience.

Applicants not meeting the admissions requirements may be provisionally accepted at the discretion of the admissions committee. In this case, the candidate's continuation in the program past the first semester will be contingent upon successful completion of a student-specific remedial plan formulated by the admissions committee.

Upon admission, each student will be assigned to an advisor based upon his or her academic interests. The advisor will work with the student to plan coursework for the first semester of matriculation. Coursework selection beyond the first semester of matriculation will require approval from the student's graduate committee.

Graduation Requirements

In order to receive an MS-AEST or M-AEST degree, students must:

1. *(All Students)* Satisfy all university requirements for the master's degrees listed at the beginning of this chapter;
2. *(MS-AEST Students Only)* Complete 24 credits of course work approved in advance by the student's graduate committee, and 6 credits of thesis work approved through the Advancement to Candidacy process;
3. *(M-AEST Students Only)* Complete 30 credits of course work approved in advance by the student's graduate committee; and
4. *(All Students)* Satisfactorily complete an oral (MS-AEST) or written (M-AEST) comprehensive examination during the final semester prior to graduation.

Detailed descriptions of the course, thesis and comprehensive examination requirements are provided in the following sections.

Course Requirements

Courses for the AEST program must be selected from the following list of approved courses. In order to ensure that the students achieve a balanced graduate education, at least one course must be completed with a grade of "B" or better in each of the core competency areas: Analysis, Environmental Engineering, Chemistry, Biology and Geology. The remaining technical elective credits can be selected from any of the approved courses listed below. A minimum of 21 credits must be drawn from existing, approved 600-level courses. During the first semester of study, each student will meet with an academic advisor, form a graduate committee, and develop a program plan that suits the student's interests and career goals. The selection of core competency courses and technical electives must be approved by the student's graduate committee prior to enrollment in the courses.

Analysis

- 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 Analysis (3)
- STAT A601 Statistical Methods (3)
- ESM A620 Statistics for ESM (3)

Environmental Engineering

- AEST A602 Water Quality Management (3)
- AEST A603 Solid Waste Management (3)
- AEST A604 Environmental Law, Regulations and Permitting (3)
- AEST A608 Fundamentals of Air Pollution (3)
- AEST A613 Remediation (3)
- AEST A694 Environmental Law (3)
- CE A441 Introduction to Environmental Engineering (3)
- CE A600 Fundamentals of Environmental Engineering (3)
- CE A662 Surface Water Dynamics (3)
- CE A663 Ground Water Dynamics (3)
- CE A683 Arctic Hydrology and Hydraulic Engineering (3)
- CE A674 Waves, Tides and Ocean Processes for Engineers (3)
- CE A677 Coastal Measurements and Analysis (3)
- ENVE 652 Introduction to Toxicology (3) (UAF On-Line Course)
- ENVE 651 Risk Assessment (3) (UAF On-line Course)
- ESM 450 Economic Analysis and Operations (3)
- ESM A601 Engineers and Organizations (3)
- ESM A605 Engineering Economy (3)
- PM A601 Project Management (3)

Chemistry

- AEST A601 Aquatic Process Chemistry (3)
- CHEM A450 Environmental Chemistry (3)
- CHEM A634 Advanced Instrumental Methods (4)
- CHEM A698 Individual Research (1-9)

Biology

BIOL A661	Molecular Biology (3)
BIOL A465	Selected Topics in Biology (1-4)
BIOL A478	Biological Oceanography (4)
BIOL A614	Advanced Biochemistry I (4)
BIOL A648	Ecological Modeling (3)
BIOL A650	Advanced Microbial Ecology (3)
BIOL A668	Advanced Biogeochemistry (3)
BIOL A675	Advanced Arctic Tundra Ecosystems (3)
BIOL A685	Advanced Topics in Biology (1-5)

Geology

GEOL A455	Permafrost and Periglacial Geomorphology (4)
GEOL A457	Soil Genesis and Classification (4)
GEOL A460	Environmental Geochemistry (3)
GEOL A481	Environmental Geophysics (3)
GEOL A690	Graduate Topics in Geology (1-4)

Alternate courses may be used to meet the course requirement(s) on approval by the student's graduate committee.

Thesis Requirement (*MS-AEST Students Only*)

Each student must complete a six-credit thesis after advancement to candidacy is approved by their graduate committee. Candidacy is described in more detail at the beginning of this chapter. Advancement to candidacy requires the submission of a written proposal detailing the research objectives and methods and an oral defense of the thesis proposal to the candidate's graduate committee. Thesis credits are accumulated under the course number AEST A699. Once a student has successfully advanced to candidacy for the MS-AEST degree, that student may not opt to complete their degree under the non-thesis option (M-AEST).

All thesis research must meet the following requirements:

- The work must contribute to the body of knowledge in the candidate's graduate field of study. A literature search is required to demonstrate how the work is associated with the current state of the art in the candidate's graduate

field of study.

- The thesis, as judged by the graduate committee, must be publishable in either a peer reviewed technical conference proceeding or a peer reviewed journal.
- The work must demonstrate command of knowledge and skills associated with the candidate's graduate program of study.
- The work must require a level of effort consistent with six credit hours (Approximately 45 to 60 hours per credit hour, 270 hrs to 360 hrs total).
- The thesis format must meet general UAA requirements for format as determined by the UAA Consortium Library.

The student must defend the thesis in an oral presentation to the student's graduate committee and invited guests. The thesis defense serves as the student's programmatically-required comprehensive examination. The student may select an outside reviewer approved by the Dean or designee of the program to participate in the oral comprehensive examination to assure that the examination, defense, or scholarship evaluation is fair and appropriate. The outside reviewer is a faculty member from another department in the university or other qualified individual in the area in which the student is seeking a degree.

Comprehensive Examination Requirement

When a student is within 1 semester of completing the course requirements, the graduate committee will administer a comprehensive exam to evaluate the candidate's knowledge of advanced environmental science principles. The exam will be developed by a graduate faculty committee and will contain questions consistent with the student's coursework areas of concentration. The student may select an outside reviewer approved by the Dean or designee of the program to participate in the examination to assure that the examination is fair and appropriate. The outside reviewer is a faculty member from another department in the university or other qualified individual in the area in which the student is seeking a degree. The oral thesis defense will serve as the comprehensive exam for students seeking an MS-AEST degree. Non-thesis students (M-AEST option) will take a written comprehensive exam.

Students who fail to pass the comprehensive exam will work with their graduate advisor to develop an action plan to correct any deficiencies noted in the comprehensive exam. This action plan may require additional coursework, research and/or independent and directed study. After completing the items identified in the corrective action plan, the student will again take the comprehensive exam. Failure to pass a second time will result in dismissal from the program.

Memorandum of Understanding between SOE and CAS

**Memorandum of Understanding
between
School of Engineering and College of Arts and Sciences**

It is the common goal of SOE and CAS to implement a collaborative graduate degree in Applied Environmental Science and Technology to be in effect Fall 2006. By design the program will be co-managed by a committee of representatives from the School of Engineering, Biology, Chemistry and Geology.

New graduate students will be assigned to advisors at the time of committee acceptance to AEST and will be apportioned equally among the participating faculty.

There should be no impact on teaching courses as the program is being developed by integrating existing faculty and coursework from both SOE and CAS into the new AEST degree.

For School of Engineering

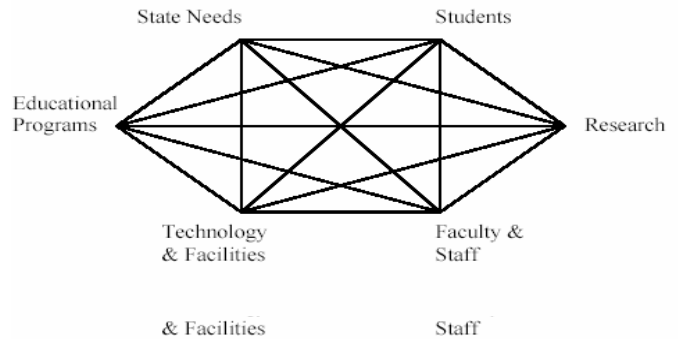
Rob Lang, Dean of SOE

For College of Arts and Sciences

Jim Liska, Dean of CAS

Board of Regents Summary

University of Alaska Board of Regents



Board of Regents Summary Form

University of Alaska Anchorage
School of Engineering
Masters of Applied Environmental Science and Technology

Title and brief description

The School of Engineering (SOE) proposes to offer a Masters in **Applied Environmental Science and Technology Degree (AEST)** to address the ever growing need in Alaska and the world for advanced knowledge in applied environmental science and technology. Graduates will develop an understanding of environmental principles through advanced studies in the life sciences, physical sciences, geosciences, environmental engineering, and project management.

The degree program will utilize existing faculty and repackage existing class offerings in a new curriculum designed to meet the changing needs of this industry. The AEST degree will replace the existing Environmental Quality Engineering/Environmental Quality Science (EQE/EQS) Program in the SOE with a program that requires students to take courses from engineering, biology, chemistry and geology. The collaborative, interdisciplinary nature is the most effective means for preparing applied environmental scientists for the professional workforce.

Target admission date

Fall 2006

Relation to the Academic Mission of the University of Alaska Anchorage

Environmental professionals play several important roles in enhancing Alaska's economy. First, the sale of environmental services and technologies provide jobs for Alaskans. Trends in the national and international economy place Alaska in a position to develop a more extensive environmental service industry. Second, the services provided by trained environmental professionals makes our existing base industries more competitive. Corporate leaders realize that sound environmental policies mean improved profits and it is fair to say that no natural resource development can occur without sound

environmental practices. Trained environmental professionals are thus a critical part of Alaska's current and future economy.

What State Needs met by this program

The AEST Master's degree is designed to produce a pool of graduate students qualified for professional practice in the environmental service industry. These graduates will practice as environmental professionals in the academic, regulatory, industrial, military, or consulting sectors.

An analysis of the market for these graduates is compelling. Environmental goods and services is one of the most rapidly growing sectors of the global economy. The global market for equipment and techniques to clean-up polluted air, water and land is estimated to be \$250 billion. In 1995, the top 25 environmental service firms in Alaska employed 930 people and reported (Alaska Journal of Commerce, May 22, 1995). In 2003, Alaska Business Monthly (March, 2005) reported that over 2400 professionals worked in the environmental services sector. Large development projects like the gas pipeline and the Pebble Gold Mine will undoubtedly increase the need for environmental professionals with a background in the sciences and engineering.

What State Needs are not met by the existing program

The existing EQE/EQS program which will be replaced by the proposed AEST program does not formally recognize the interdisciplinary nature of environmental science. As a result, students in the existing program are not as well prepared as they could be for professional job opportunities.

The AEST program will also provide graduate students for the Geology and Chemistry programs which do not have graduate programs. In many cases, undergraduate students from these disciplines are excellent candidates for further study.

Program Planning

The design of the program officially originated with a meeting held in December 2004 with faculty from the School of Engineering and the College of Arts and Sciences departments of Biological Science, Chemistry and Geology. A steering committee was formed and an implementation plan was created. The curriculum in the proposed package was developed during the spring and summer of 2005. In addition, faculty from biology, chemistry and geology became involved in managing the existing EQE/EQS program housed within the School of Engineering. This faculty team was charged with making admissions decisions and assigning academic advisors for students with baccalaureate degrees in the sciences.

There will be no short-term impact on existing programs statewide or on existing GER's. The curriculum proposed integrates existing courses into a coherent program that, in the long-term, as the success of an interdisciplinary curriculum facilitation model grows and gains recognition the University of Alaska system could establish itself as a trend setter in this area. In addition, an increase of student enrollment should be realized as there will be more exposure to the program by the vary nature of the interdisciplinary design.

Student opportunities

The AEST Master's degree would be designed for students planning to seek employment as practicing environmental professionals in the academic, regulatory, industrial, military, or consulting sectors. Students in the program would develop an understanding of environmental principles through advanced studies in the life sciences, physical sciences, geosciences, environmental engineering, and project management. This degree program will offer a thesis option for students interested in pursuing original research during the course of their studies, and will also offer a non-thesis option for students desiring to focus their efforts upon non-research oriented professional development. Both options will promote meaningful collaboration between the students and an interdisciplinary faculty team, and both options will provide an excellent foundation for a career in the applied environmental sciences. The AEST degree program is intended to supplement and enhance the current discipline specific graduate degrees offered at UAA.

This degree program has several advantages for UAA students. These include:

- The AEST degree will provide a structure for interdisciplinary collaboration. By collectively evaluating and admitting students, the AES faculty can ensure that students are directed to the best courses and most qualified faculty to help them realize their educational objectives.
- The AEST degree will provide access to a graduate program for faculty and students in departments without a graduate program (e.g., Chemistry, Geology).
- The AEST degree will open many of our existing graduate courses to a new group of students which should increase enrolments.

Student outcomes

It is the objective of the AEST Masters program to produce graduates that:

1. Have an advanced technical knowledge of environmentally-related disciplines within the life sciences, physical sciences, geosciences, mathematics and environmental engineering;
2. Are capable of integrating advanced technical information from different science and engineering disciplines;

3. Are capable of conceiving and conducting a research project (MS-AEST students only); and
4. Are capable of working in a professional environment.

In keeping with these objectives, the expected outcome of the AEST program is that graduates will have:

1. An ability to use advanced methods of analysis;
2. An ability to understand advanced environmental engineering theory;
3. An ability to understand advanced scientific theory;
4. An ability to integrate advanced technical information from different science and engineering disciplines;
5. An ability to conduct advanced environmental science research (MS-AEST option); and
6. An ability to manage projects and function in a professional environment.

A brief description of the tools used in the assessment of the program outcomes and objectives and their implementation are summarized in Table 1. A complete assessment plan has been developed for the AEST degree program and is presented in detail in Appendix A.

Table 1 - Program Objectives and Outcomes Assessment Tools and Administration

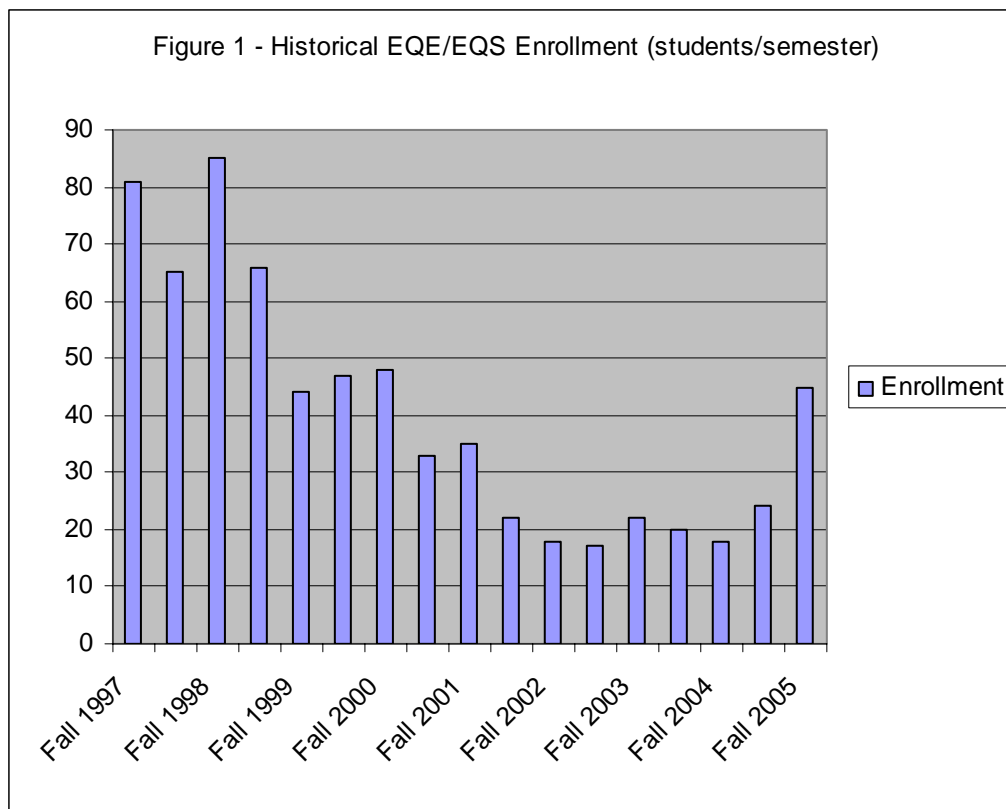
Tool	Description	Frequency	Collection Method	Administered by
Advisory Board Review	Annual AEST Advisory Board Meeting	Administered yearly	Group discussion	Program Faculty and Staff
Instructor Evaluation	Attainment of the outcomes of each course are evaluated by instructor completing each course	Each time the course is offered	Online survey	Program faculty and staff
Student Course Evaluation	Outcomes and objectives of each course are evaluated by students completing each course	Each time the course is offered	Online survey	Program faculty and staff
Master's Thesis (MSCE only)	Quality of Master's thesis work as judged by publication in peer reviewed journals or conference proceedings	Annually	Program Faculty	Program faculty and peer reviewers
Comprehensive Final Exam (non-thesis option only)	Scores on comprehensive final exam administered by interdisciplinary graduate faculty committee	Annually	Program faculty	Program faculty
Alumni Survey	Alumni will be surveyed one and three years after graduation to evaluate program and course objectives	One and three years after graduation	Online survey	Program faculty and staff
Focus Group of Recent Graduates	A select group of recent graduates are assembled to discuss program outcomes and objectives	Annually	Group Interview	Program Faculty and Staff

Enrollment Projections

Enrollment projections for the proposed AEST are based upon the historical enrollments in the existing EQE/EQS program coupled with estimates of the numbers of students who will be attracted to the program once it is formally established as an interdisciplinary program.

Figure 1 plots the historical enrollment in the EQE/EQS program since 1997. Large enrollments were experienced in the late 1990's, a trend that was consistent in the environmental science/engineering programs across the nation. Enrollment numbers dropped between 1999 and 2002. Since 2002 enrollments have been consistent with a recent increase in student numbers during the latter half of 2005.

Table 1 – Enrollment



The average enrollment in the EQE/EQS program over the previous four semesters is indicative of the student demand from the School of Engineering alone. Implementation of the AEST degree will allow additional graduate students to be fed into the program from CAS. Estimates of the increased enrollments due to improved collaboration between CAS and the SOE are summarized in Table 5. Based on estimates by the faculty from Geology, Chemistry and Biology, an additional 10 students could be enrolled in the program immediately after implementation (an increase in enrollment of 66% relative to that produced by the SOE alone). Projections of enrollment growth after 2006 have assumed a 5% growth rate.

Table 2 – Enrollment Projections

Department/School	Projected Enrollment (Students/semseter)					
	2005	2006	2007	2008	2009	2010
School of Engineering	27	27	28	30	31	33
Biology	0	10	11	11	12	12
Chemistry	0	3	3	3	3	4
Geology	0	5	5	6	6	6
Total Enrollment	27	45	47	50	52	55
% increase in enrollment	-	67	5	5	5	5

Faculty and Staff

Because of the integrated nature of the AEST program, this program will take maximum advantage of existing courses and faculty expertise within the University. In fact, no new courses will need to be developed to implement the program. Slight modifications of certain existing courses may be required to make the content relevant to AEST students with diverse backgrounds. Although new courses and faculty will not be required to implement the program, the AEST degree will provide a framework for recruiting new faculty who can fill interdisciplinary roles and work with multiple departments on campus in both teaching and research.

Regular SOE and CAS faculty and well qualified adjuncts will be teaching all of the AEST courses. Currently the SOE and CAS have strong faculty resources. One person from each the SOE and from the department of Biology, Chemistry and Geology will serve as the AEST committee. This committee will be responsible for evaluating student applications, developing graduate programs and graduate committees and directing the producing the comprehensive exam. Overall administrative responsibility for the program will remain within the SOE.

Each participating academic unit will have a representative. These faculty include:

Bill Schnabel – Assistant Professor, School of Engineering
 John Olofsson – Professor, School of Engineering
 Andy Kilskey- Assistant Professor, Department of Biology
 LeeAnn Munk- Assistant Professor and Chair, Department of Biology
 John Kennish – Professor, Department of Chemistry

Program Administration
 Craig Woolard, Professor and Associate Dean of Research and Graduate Studies, School of Engineering

Impacts on existing Technology & Facilities

The AEST program will be delivered on the main UAA campus using existing classrooms and laboratories. No new facilities will be required for the program.

Research opportunities

Due to the complexity of natural processes observed in the biosphere, funding agencies are recognizing that the interdisciplinary approach to environmental research is often more effective than the traditional field-specific approach. The National Science Foundation, for example, has identified Biocomplexity in the Environment as one of its five major areas of research emphasis for the fiscal year 2006. As stated in the NSF program description, the primary long-term goal of Biocomplexity in the Environment is to “synthesize environmental knowledge across disciplines, systems, time, and space.” A similar initiative is being pursued by the Environmental Protection Agency through a program titled “Collaborative Science and Technology Network for Sustainability.” Indeed, it is widely accepted among environmental researchers that the odds of funding for any given grant proposal will be increased through the inclusion of an interdisciplinary component.

Researchers associated with the current EQE/EQS program have acknowledged this push towards collaborative research, and have made an effort in recent years to submit interdisciplinary grant proposals. Consequently, over 90% of the approximately \$200,000 per year of EQE/EQS research funds currently generated involve collaborative efforts with other departments. As the new AEST program will provide a convenient mechanism for environmental researchers to share resources such as expertise, graduate students, and facilities, it is expected that establishment of the program will encourage an even higher level of interdisciplinary cooperation. Given the national push towards interdisciplinary environmental research by funding agencies, this will ultimately yield more research funds for UAA.

Fiscal Plan for development and implementation

Since the proposed AEST plan replaces the existing EQE/EQS program, no additional resources will be required to develop or implement the program. The following worksheets summarize the financial viability of the program. This estimate was developed using the following assumptions:

- 80% of the \$244/graduate credit hour is returned to the SOE for the AEST program (current UAA policy). Credit hour production was calculated based on the enrollment numbers provided in Table 5.
- Collaborative research (based on the 2005 value of \$200,000) was assumed to grow annually at 5%. Increased collaboration facilitated by the AEST program should allow for this modest growth at a minimum.
- Faculty costs were calculated by prorating the salary and benefits costs for the faculty listed above based on an estimate of the fraction of their workload that will be devoted to the degree program.

- Expenses were conservative estimates of current travel, equipment, commodities and contractual costs incurred by the faculty currently involved in interdisciplinary environmental research

From this simple analysis, it is clear that the existing EQE/EQS program is financially viable and that the increased collaboration and student credit hours generated by the interdisciplinary AEST program will improve program finances.

Table 3 – Program Implementation Costs

University of Alaska Anchorage
UAA Applied Environmental Science and Technology Graduate Program - Cost of program implementation

FY06	Expected Expenses	Current Budget		Statewide Distribution		Special Legislative Appropriation		Expected Revenue Increases Tuition, Enrollment, Fees	Revenue	
		Base	Non-Base	Base	Non-Base	Base	Non-Base		Industry Contributions	Other Revenue
Personal Services	117,867			0				31,622	0	
Direct Expenses										
Travel	10,000									
Contractual	35,000									
Commodities	25,000							0		
Equipment	40,000									
Facilities	0									
Total	227,867	0	0	0	300,000	0	0	31,622	0	0
FY07	Expected Expenses	Current Budget		Statewide Appropriation		Special Legislative Appropriation		Expected Revenue Increases Tuition, Enrollment, Fees	Revenue	
Personal Services	123,761	0		0					52,704	0
Direct Expenses										
Travel	10,500									
Contractual	36,750									
Commodities	26,250							0		
Equipment	42,000									
Facilities	0									
Total	239,261	0	0	0	315,000	0	0	52,704	0	0
FY08	Expected Expenses	Current Budget		Statewide Appropriation		Special Legislative Appropriation		Expected Revenue Increases Tuition, Enrollment, Fees	Revenue	
Personal Services	129,949	0							55,339	0
Direct Expenses										
Travel	11,025									
Contractual	38,588									
Commodities	27,563							0		
Equipment	44,100									
Facilities	0									
Total	251,224	0	0	0	330,750	0	0	55,339	0	0
FY09	Expected Expenses	Current Budget		Statewide Appropriation		Special Legislative Appropriation		Expected Revenue Increases Tuition, Enrollment, Fees	Revenue	
Personal Services	136,446	0							58,106	0
Direct Expenses										
Travel	11,576									
Contractual	40,517									
Commodities	28,941							0		
Equipment	46,305									
Facilities	0									
Total	263,785	0	0	0	347,288	0	0	58,106	0	0

- If revenue or expenses are not yet designated by object code, simply include the **Total** amounts.
- 1.) How will expenses be covered with budgeted & expected funds and with new revenue.
 - 2.) Include local (College) reallocation in your current budget column.
 - 3.) Determine any reallocation request at UAA level.
 - 4.) Call with questions.

Table 4 - Program Expenses

UAA Applied Environmental Science and Technology Graduate Program	FY06	FY07	FY08	FY09
	Salary + Benefits	Salary + Benefits	Salary + Benefits	Salary + Benefits
Program Expense:				
Faculty 1: Engineering	61,322	64,388	67,608	70,988
Faculty 2: Biology	16,798	17,637	18,519	19,445
Faculty 3: Chemistry	22,950	24,098	25,302	26,567
Faculty 4: Geology	16,798	17,637	18,519	19,445
Personnel Total	117,867	123,761	129,949	136,446
Travel	10,000	10,500	11,025	11,576
Contractual	35,000	36,750	38,588	40,517
Commodities	25,000	26,250	27,563	28,941
Equipment	40,000	42,000	44,100	46,305
Facilities (new or modified)	0	0	0	0
Total Expenses	227,867	239,261	251,224	263,785

Table 5 - Program Resources

UAA Applied Environmental Science and Technology Graduate Program		FY06	FY07	FY08	FY09
Program Resources					
Unrestricted General Fund	Base				
Estimated tuition generated for all courses in AEST Program	Non Base	31622	52704	55339	58106
Total tuition		31622	52704	55339	58106
Total tuition		31622	52704	55339	58106
Indirect ²					
Total Unrestricted Appropriation		31622	52704	55339	58106
UA and Restricted Resources					
Grants - Initiative and research support	Non Base	300,000	315,000	330,750	347,288
Contracts ²					
Foundation ²					
UA Reallocation	Base	0	0		
	Non Base	0			
Other ²					
Total UA Revenue		300,000	315,000	330,750	347,288
UAA Required Revenue (Do not include in Appropriations above)					
Reallocation from UAA	Base	0	0		
Fees ²		0	0	0	0
Other - Industry grants		0	0	0	0
Total Revenue Expected		-	-	-	-
Total Resources		331,622	367,704	386,089	405,394

Resource Implication Form

Resource Implication Form

1. School/College: School of Engineering

2. Program/Course: AEST

3. Course Prefix: Program Change

4. Course Number: Program Change

5. Implementation Date: Fall 2006

6. Type of Action and Category

Course addition Course change Program addition Program change

7. Consequences of Actions and Costs: Check all appropriate categories and provide an explanation of how it will be funded and by whom.

<input type="checkbox"/> part-time faculty	\$n/a
<input type="checkbox"/> new full-time faculty	\$n/a
<input type="checkbox"/> reassignment of full-time faculty	\$n/a
<input type="checkbox"/> additional class/lab space	\$n/a
<input type="checkbox"/> modification of class/lab space	\$n/a
<input type="checkbox"/> additional library resources	\$n/a
<input type="checkbox"/> additional computer equipment	\$n/a
<input type="checkbox"/> other costs	\$n/a

8. Explanation:

There will be no additional costs associated with the AEST masters degree as it is utilizing existing faculty and repackaging existing EQE class offerings in a new curriculum designed to meet the changing needs of this industry. The AEST degree will replace the existing Environmental Quality Engineering/Environmental Quality Science (EQE/EQS) Program in the SOE with a program that requires students to take courses from engineering, biology, chemistry and geology.

____ Approved

____ Disapproved

Department Chair

Date

____ Approved

____ Disapproved

Dean/Director of School/College

Date

____ Approved

____ Disapproved

Provost

Date

Budget

Table 6 – Program Implementation Costs

University of Alaska Anchorage
UAA Applied Environmental Science and Technology Graduate Program - Cost of program implementation

FY06	Expected Expenses	Current Budget		Statewide Distribution		Special Legislative Appropriation		Expected Revenue Increases Tuition, Enrollment, Fees	Revenue	
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Personal Services	117,867			0				31,622	0	
Direct Expenses										
Travel	10,000									
Contractual	35,000									
Commodities	25,000							0		
Equipment	40,000									
Facilities	0									
Total	227,867	0	0	0	300,000	0	0	31,622	0	0
FY07	Expected Expenses	Current Budget		Statewide Appropriation		Special Legislative Appropriation		Expected Revenue Increases Tuition, Enrollment, Fees	Revenue	
		Base	Non-Base	Base	Non-Base	Base	Non-Base		Industry Contributions	Other Revenue
Personal Services	123,761	0		0				52,704	0	
Direct Expenses										
Travel	10,500									
Contractual	36,750									
Commodities	26,250							0		
Equipment	42,000									
Facilities	0									
Total	239,261	0	0	0	315,000	0	0	52,704	0	0
FY08	Expected Expenses	Current Budget		Statewide Appropriation		Special Legislative Appropriation		Expected Revenue Increases Tuition, Enrollment, Fees	Revenue	
		Base	Non-Base	Base	Non-Base	Base	Non-Base		Industry Contributions	Other Revenue
Personal Services	129,949	0						55,339	0	
Direct Expenses										
Travel	11,025									
Contractual	38,588									
Commodities	27,563							0		
Equipment	44,100									
Facilities	0									
Total	251,224	0	0	0	330,750	0	0	55,339	0	0
FY09	Expected Expenses	Current Budget		Statewide Appropriation		Special Legislative Appropriation		Expected Revenue Increases Tuition, Enrollment, Fees	Revenue	
		Base	Non-Base	Base	Non-Base	Base	Non-Base		Industry Contributions	Other Revenue
Personal Services	136,446	0						58,106	0	
Direct Expenses										
Travel	11,576									
Contractual	40,517									
Commodities	28,941							0		
Equipment	46,305									
Facilities	0									
Total	263,785	0	0	0	347,288	0	0	58,106	0	0

- If revenue or expenses are not yet designated by object code, simply include the **Total** amounts.
- 1.) How will expenses be covered with budgeted & expected funds and with new revenue.
 - 2.) Include local (College) reallocation in your current budget column.
 - 3.) Determine any reallocation request at UAA level.
 - 4.) Call with questions.

Table 7 - Program Expenses

UAA Applied Environmental Science and Technology Graduate Program	FY06 Salary + Benefits	FY07 Salary + Benefits	FY08 Salary + Benefits	FY09 Salary + Benefits
<u>Program Expense:</u>				
Faculty 1: Engineering	61,322	64,388	67,608	70,988
Faculty 2: Biology	16,798	17,637	18,519	19,445
Faculty 3: Chemistry	22,950	24,098	25,302	26,567
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Commodities	25,000	26,250	27,563	28,941
Equipment	40,000	42,000	44,100	46,305
Facilities (new or modified)	0	0	0	0
Total Expenses	227,867	239,261	251,224	263,785

Table 8 - Program Resources

UAA Applied Environmental Science and Technology Graduate Program		FY06	FY07	FY08	FY09
<u>Program Resources</u>					
Unrestricted General Fund	Base				
Estimated tuition generated for all courses in AEST Program	Non Base	31622	52704	55339	58106
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Total tuition		31622	52704	55339	58106
Indirect ²					
Total Unrestricted Appropriation		31622	52704	55339	58106
<u>UA and Restricted Resources</u>					
Grants - Initiative and research support	Non Base	300,000	315,000	330,750	347,288
Contracts ²					
Foundation ²					
UA Reallocation	Base	0	0		
	Non Base	0			
Other ²					
Total UA Revenue		300,000	315,000	330,750	347,288
<u>UAA Required Revenue</u> (Do not include in Appropriations above)					
Reallocation from UAA	Base	0	0		
Fees ²		0	0	0	0
Other - Industry grants		0	0	0	0
Total Revenue Expected		-	-	-	-
Total Resources		331,622	367,704	386,089	405,394

Faculty Matrix

UAA Masters of Science in Applied Environmental Science and Technology

Faculty planning table

Faculty Name, Highest Degree	Areas of expertise	Courses/Credits- Fall	Courses/Credits - Spring	Semester of Hire
Craig R. Woolard, PhD, Notre Dame	Civil Engineering, Water and waste water treatment	ES 209, 3cr. CE 470, 3cr	CE 438, 3cr.	Current Professor
William Schnabel, PhD, University of Alaska Fairbanks	Civil Engineering, Water quality mgt and remediation of contaminated sites	EQE 602, 3cr.	CE 663, 3cr.	Current Assistant Professor
John Olofsson, PhD, University of Maine	Civil Engineering, Environmental Engineering	CE 441, 3cr.	CE 442, 3cr EQE 606, 3cr.	Current Professor
LeeAnn Munk, PhD, Ohio State University	Geology, Geo-chemistry and Geology	GEOL 340, 3cr, GEOL 115, 3cr	GEOL 115, 3 cr. GEOL 460, 3 cr.	Current Assistant Professor
John Kennish, PhD, Portland State University	Chemistry, Environmental analytical chemistry	CHEM 212, 5 cr. CHEM 212I, 0 cr. CHEM 450, 3 cr	CHEM 434, 3cr. CHEM 634, 3 cr.	Current Professor
Andy Klisky, Ph.D.	Biology and Environmental Studies	ENVI 492, 3cr. BIOL 485, 3 cr. BIOL 498	BIOL 394, 3 cr.	Current Assistant Professor

Four Year Course Offering Plan

Proposed Course Prefix and Number	Course Title		2006			2007			2008			2009		
			Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer
AS A402	Scientific Sampling		X			X			X			X		
AS A403	Regression Analysis		X			X			X			X		
AS A404	Analysis of Variance			X			X			X			X	
AS A405	Nonparametric Statistics			X			X			X			X	
AS A407	Time Series Analysis			X			X			X			X	
AS A408	Multivariate Analysis		X			X			X			X		
AS A601	Statistical Methods	Math - Thiru	X			X			X			X		
ES A694	Advanced Engineering Math	McDonald	X			X			X			X		
ESM A620	Statistics for ESM	Adj.	X			X			X			X		
CE A441	Introduction to Environmental Engineering	Schnabel	X			X			X			X		
CE A662	Surface Water Dynamics	Adj.	X			X			X			X		
CE A663	Ground Water Dynamics	Adj.												
CE A683	Arctic Hydrology and Hydraulic Engineering	Adj.	X			X			X			X		
CE A674	Waves, Tides and Ocean Processes for Engineers	Smith												
CE A677	Coastal Measurements and Analysis	Smith		X			X			X			X	
ENVE 651(UAF)	Environmental Risk Management	UAF		X			X			X			X	
ENVE 652 (UAF)	Intro. to Toxicology for Engr. and Scientists	UAF		X			X			X			X	
CE A600	Fundamentals of Environmental Engineering and Science	Olofsson	X			X			X			X		
AEST A602	Water Quality Management	Schnabel	X			X			X			X		
AEST A603	Solid Waste Management	Adj.												
AEST A608	Fundamentals of Air Pollution	Adj.	X			X			X			X		
AEST A613	Remediation	Schnabel		X			X			X			X	
AEST A694	Regulatory and Permitting Processes	Adj.	X			X			X			X		
ESM 450	Economic Analysis and Operations	Adj.		X			X			X			X	
ESM A601	Engineers and Organizations	Adj.	X			X			X			X		
ESM A605	Engineering Economy	Adj.		X			X			X			X	
PM A601	Project Management	Ra	X	X		X	X		X	X		X	X	
CE A605	Chemical and Physical Water and Wastewater Treatment	Woolard												
CHEM A450	Environmental Chemistry		X			X			X			X		
CHEM A634	Advanced Instrumental Methods													
AEST A601	Aquatic Process Chemistry	Woolard		X			X			X			X	
BIOL A461	Molecular Biology	Various	X			X			X			X		
BIOL A614	Advanced Biochemistry I		X			X			X			X		
BIOL A685	Advanced Topics in Biology (Examples of varied semester offerings: Ecological Modeling, Advanced Microbial Ecology, Advanced Biogeochemistry and Advanced Arctic Tundra Ecosystems)	Various	X	X	X	X	X	X	X	X	X	X	X	X
GEOL A455	Permafrost and Periglacial Geomorphology	Heiser or Crossen	X						X					
GEOL A457	Soil Genesis and Classification	Heiser of Adjunct		X						X				
GEOL A460	Environmental Geochemistry	L. Munk					X						X	
GEOL A481	Environmental Geophysics	J. Munk		X						X				
GEOL A690	Graduate Topics in Geology	Varies based on topic												
AEST A699	Thesis		X	X		X	X		X	X		X	X	

Appendix A:

Assessment Plan

Applied Environmental Science and Technology Master's Program

Educational Effectiveness

Assessment Plan

2005-2006

Adopted by

The Civil Engineering faculty:

Submitted to

**The Dean of the School of Engineering :
The Office of Academic Affairs:**

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INTRODUCTION

The graduate program in Applied Environmental Science and Technology (AEST) degree is designed for students seeking careers as practicing environmental professionals in the academic, regulatory, industrial, military, or consulting sectors. The program is interdisciplinary in nature, and encourages candidates to develop an understanding of environmental principles through advanced studies in the life sciences, physical sciences, geosciences, mathematics and environmental engineering. This degree program offers a thesis option for students interested in pursuing original research and also a non-thesis option for students desiring to focus their efforts upon non-research oriented professional development. Both options promote meaningful collaboration between the students and an interdisciplinary faculty team, and both options provide an excellent foundation for a career in the applied environmental sciences.

Graduate students in the ASET program have two degree options. The Masters of Science in Applied Environmental Science and Technology (MSASEST) degree is designed for those students who wish to pursue specialized advanced study and original research. The MSASEST is excellent preparation for both the practicing professional and the doctoral candidate. The Masters of Applied Environmental Science and Technology (MAEST) is a degree designed for students who seek additional education suitable for professional practice without having to conduct original research. Both degree programs prepare students for professional practice in Alaska.

PROGRAM OBJECTIVES

It is the objective of the AEST Masters program to produce graduates that:

5. Have an advanced technical knowledge of environmentally-related disciplines within the life sciences, physical sciences, geosciences, mathematics and environmental engineering;
6. Are capable of integrating advanced technical information from different science and engineering disciplines;
7. Are capable of conceiving and conducting a research project (MS-AEST option);
and
8. Are capable of working in a professional environment.

PROGRAM OUTCOMES

The graduates of the AEST Masters program will have:

7. An ability to use advanced methods of analysis;
8. An ability to understand advanced environmental engineering theory;
9. An ability to understand advanced scientific theory;
10. An ability to integrate advanced technical information from different science and engineering disciplines;
11. An ability to conduct advanced environmental science research (MS-AEST option); and
12. An ability to manage projects and function in a professional environment.

ASSESSMENT TOOLS

A description of the tools used in the assessment of the program objectives and their implementation are summarized in Table 1. The tools and their relationships to the program objectives are listed in Table 2.

A description of the tools used in the assessment of the program outcomes and their implementation are summarized in Table 3. The tools and their relationships to the program outcomes are listed in Table 4.

There is a separate appendix for each tool that includes a more detailed description than is provided here and also describes the factors that affect the results and give examples of the tools and how they will be implemented.

Table 1
Program Objectives Assessment Tools and Administration

Tool	Description	Frequency/ Start Date	Collection Method	Administere d by
Advisory Board Review	Annual AEST Advisory Board Meeting	Administered yearly beginning Spring 2006	Group discussion	Program Faculty and Staff
Master's Thesis (MSCE only)	Quality of Master's thesis work as judged by publication in peer reviewed journals or conference proceedings	Annually beginning Spring 2006	Program Faculty	Program faculty and peer reviewers
Alumni Survey	Alumni will be surveyed one and three years after graduation to evaluate program and course objectives	One and three years after graduation beginning Spring 2006	Online survey	Program faculty and staff
Focus Group of Recent Graduates	A select group of recent graduates are assembled to discuss program outcomes and objectives	Annually, Spring 2006	Group Interview	Program Faculty and Staff

TABLE 2

Association of Assessment Tools to Program Objectives

0 = Tool is not used to measure the associated objective.

1 = Tool is used to measure the associated objective.

	Advisory Board Review	Master's Thesis	Alumni Survey	Focus Group of Recent Grads
Have an advanced technical knowledge of environmentally-related disciplines within the life sciences, physical sciences, geosciences, mathematics and environmental engineering	1	1	1	1
Are capable of integrating advanced technical information from different science and engineering disciplines	1	1	1	1
Are capable of conceiving and conducting a research project (MS-AEST option)	1	1	1	1
Are capable of working in a professional environment;	1	1	1	1

Table 3

Program Outcomes Assessment Tools and Administration

Tool	Description	Frequency/ Start Date	Collection Method	Administere d by
Advisory Board Review	Annual Civil Engineering Advisory Board Meeting	Administered yearly beginning Spring 2006	Group discussion	Program Faculty and Staff
Instructor Evaluation	Attainment of the outcomes of each course are evaluated by instructor completing each course	Each time the course is offered	Online survey	Program faculty and staff
Student Course Evaluation	Outcomes and objectives of each course are evaluated by students completing each course	Each time the course is offered	Online survey	Program faculty and staff
Master's Thesis (MSCE only)	Quality of Master's thesis work as judged by publication in peer reviewed journals or conference proceedings	Annually beginning Spring 2006	Program Faculty	Program faculty and peer reviewers
Focus Group of Recent Graduates	A select group of recent graduates are assembled to discuss program outcomes and objectives	Annually, Spring 2006	Group Interview	Program Faculty and Staff

TABLE 4
Association of Assessment Tools to Program Outcomes

	Advisory Board Review	Instructor Evaluation	Student Course Evaluation	Master's Thesis	Focus Group of Recent Grads
An ability to use advanced methods of analysis	1	1	1	1	1
An ability to understand advanced environmental engineering theory	1	1	1	1	1
An ability to understand advanced scientific theory	1	1	1	1	1
An ability to integrate advanced technical information from different science and engineering disciplines	1	0	0	1	1
An ability to conduct advanced environmental science research (MS-AEST option)	1	1	1	1	1
An ability to manage projects and function in a professional environment.	1	0	0	0	1

0 = Tool is not used to measure the associated objective.

1 = Tool is used to measure the associated objective.

APPENDIX: ADVISORY BOARD REVIEW

Tool Description:

The AEST Advisory Board consists of industry leaders. Their knowledge and expertise will keep the department focused on the changing needs of the professional community.

The Advisory Board members were instrumental in the development of the program offering many suggestions for program content. As practicing professionals, they are able to give insight into the areas of civil engineering that need more support in which to ensure program objectives are met.

The advisory board typically meets once each quarter for 2-4 hours. One of the meetings each year will be devoted to a detailed review of the AEST graduate program outcomes, objectives and student performance.

Factors that affect the collected data:

The Advisory Board members are active in many different areas of business and industry where civil engineering is practiced. There may be other areas of applied environmental science that may not be represented in our board members. This may leave out or inappropriately weight opinions on program objectives and outcomes.

How to interpret the data:

Input from Advisory Board members should be discussed and outcomes should be compared against professional community needs.

Sample Survey.

A sample survey is provided on the next page.

Tabulating and Reporting Results

Results will be gathered via email or in person at annual advisory board meetings and evaluated by faculty. A review of results will take place by the advisory board.

Sample Advisory Board Program Review

AEST Advisory Board Annual Program Review

1. Do you feel the program objectives are being achieved?
2. Are the objectives appropriate for this program?
3. Are additional resources needed to meet program objectives?
4. Are there any areas of weakness in the program as related to civil engineering practices, tools and techniques that you see in your work environment?
5. Are there any civil engineering areas of weakness in the program as related to the national trend as you see in your work environment?

APPENDIX: MASTER'S THESIS

Tool Description:

For those students pursuing the Master of Science in ASET degree, the Master's Thesis is the ultimate tool to determine if the student is capable of conducting research at a level that represents a contribution to the profession. All MSAEST students will be required to submit a paper based on their thesis to a peer reviewed journal or conference proceedings.

Factors that affect the collected data:

Bias of the external peer reviewers

How to interpret the data:

Acceptance of paper will indicate quality of research work

Tabulating and Reporting Results

Evaluation scores will be gathered by staff and tabulated and results given to faculty for review and discussion.

APPENDIX: ALUMNI SURVEY

Tool Description:

An online survey will ask graduates to evaluate the program and course objectives as related to their individual work environments.

Factors that affect the collected data:

Some graduates may not respond to the survey. The data may not reflect all areas of civil engineering they do not respond.

How to interpret the data:

The survey results will be compiled and discussed among faculty members and the advisory board. These results should be compared with student surveys to see if they are inline with alumni evaluations.

Sample Survey.

A sample survey is provided on the next page.

Tabulating and Reporting Results

The survey is prepared by faculty, administered and collected online. Staff will tabulate the result and submit them for review to faculty.

Sample Alumni Survey
AEST Masters Program

Name: _____
Address: _____
Phone: _____ Email: _____
Employer: _____
Year Graduated: _____

The following questions are to be rated on a scale of 1 – 5, with 1 being least and 5 being best.

1. What was the overall program quality in terms of application to your professional work environment?

1 2 3 4 5

2. Evaluate your course work in terms of your professional work environment:

a) _____ 1 2 3 4 5

b) _____ 1 2 3 4 5

c) _____ 1 2 3 4 5

d) _____ 1 2 3 4 5

e) _____ 1 2 3 4 5

f) _____ 1 2 3 4 5

g) _____ 1 2 3 4 5

h) _____ 1 2 3 4 5

i) _____ 1 2 3 4 5

j) _____ 1 2 3 4 5

3. What suggestions do you have for course or program improvements?

APPENDIX: FOCUS GROUP OF RECENT GRADUATES

Tool Description:

A group interview of selected recent graduates is conducted to qualitatively assess both the program outcomes and program objectives and to provide insights into “gaps” in the assessment process.

Factors that affect the collected data:

The group that is invited and eventually participates in the focus group may not be representative of the entire class of recent graduates.

How to interpret the data:

The data are subject to the interpretation of the facilitator, the students who participate and the questions/discussions that ensue.

Tabulating and Reporting Results:

The central discussion points are the AEST Master’s program objectives and outcomes. Participants are allowed to also bring up additional subject areas that may improve the AEST Master’s program.

APPENDIX: STUDENT COURSE EVALUATION

Tool Description:

Students will be surveyed to determine their opinion of whether or not course objectives have been met. An online survey will be developed for each course (see attached sample) that asks for student perceptions on how well they achieved the course objectives and how well the objectives were taught.

Factors that affect the collected data:

Some students may not be present when the evaluation is given. In addition, the survey is voluntary and some students may choose not to participate.

How to interpret the data:

The survey should be reviewed for course weaknesses and suggestions for change and improvements be discussed with faculty and advisory board members. These results should be compared with current with educational and community needs as perceived by the faculty and the advisory board.

Tabulating and Reporting Results

Results will be tabulated via school staff. The attachment to the survey will be sent to the department chair and the instructor for evaluation.

Sample Student Course Evaluation Form

CE 677 (Coastal Measurements and Analysis) Outcomes Survey

The purpose of this survey is to get your perceptions about how well the outcomes of this course were met. These perceptions will be used to improve the course. Your honest responses will be a great assistance to the continual improvement of the programs at UAA. Choose the appropriate response.

Please do not use commas in your submission, this will cause errors in the record. Student ID numbers are used only to verify that a student has completed the survey. Student identifying information will not be recorded with the response to maintain student's anonymity.

Enter your School ID Number (do not include the initial 0): Section

Stated Outcome	How well did the course cover this?	Your understanding related to this outcome
Gives the student the ability to specify instrumentation and sampling equipment from commercial sources to accomplish particular coastal measurement objectives.	<input type="text" value="Poor"/>	<input type="text" value="Fair"/>
Gives the student the ability to prepare a practical logistics plan for coastal and shipboard measurements and sampling.	<input type="text" value="Fair"/>	<input type="text" value="Good"/>
Gives the student the ability to operate commonly used marine instrumentation and equipment.	<input type="text" value="Good"/>	<input type="text" value="Very Good"/>
Gives the student the ability to manage typical oceanographic data during and after field operations.	<input type="text" value="Very Good"/>	<input type="text" value="Excellent"/>
Gives the student the ability to prepare a report of coastal or shipboard field activities in a format and style typical of recent professional reports of this type.	<input type="text" value="Good"/>	<input type="text" value="Good"/>
Gives the student the ability to edit and reduce marine measurements for archiving and subsequent analyses.	<input type="text" value="Good"/>	<input type="text" value="Good"/>
Gives the student the ability to perform conventional analyses of marine data for evidence of sampling or measurement errors and of significant natural trends.	<input type="text" value="Good"/>	<input type="text" value="Good"/>
Gives the student the ability to prepare a data report of oceanographic measurements that includes current professional presentation and visualization methods.	<input type="text" value="Good"/>	<input type="text" value="Good"/>

What grade do you expect from this course?

APPENDIX: INSTRUCTOR COURSE EVALUATION

Tool Description:

Instructors will be surveyed to determine their opinion of whether or not course objectives have been met. An online survey will be developed for each course (similar to the evaluation sheet used for student course evaluations) that asks for instructor perceptions on how well they believe the students achieved the course objectives and how well they were able to teach the course objectives.

Factors that affect the collected data:

Some instructors may not understand the academic background of their students and as a result may be biased in their evaluations.

How to interpret the data:

The survey should be reviewed for course weaknesses and suggestions for change and improvements be discussed with faculty and advisory board members. These results should be compared with current with educational and community needs as perceived by the faculty and the advisory board.

Tabulating and Reporting Results

Results will be tabulated via school staff. The attachment to the survey will be sent to the department chair and the instructor for evaluation.

Appendix B:

Curriculum Documents

Library Resource Form

Excerpts from the Northwest Association of Schools and Colleges Accreditation Handbook 1999 Edition

Standard Five - Library And Information Resources

Standard 5.A - Purpose and Scope

The primary purpose for library and information resources is to support teaching, learning, and, if applicable, research in ways consistent with, and supportive of, the institution's mission and goals. Adequate library and information resources and services, at the appropriate level for degrees offered, are available to support the intellectual, cultural, and technical development of students enrolled in courses and programs wherever located and however delivered.

Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: AEST A601 – Aquatic Process Chemistry

1. Please identify the library liaison consulted in preparation of this proposal.

Name: Kate Gordon, the SOE library liaison, has been consulted with regard to this proposal.

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liaison.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

2. Please list any new library and information recommended to support the proposal.

- 1.
- 2.
- 3.

Initiator signature

COURSE CONTENT GUIDE
University of Alaska Anchorage
School of Engineering

Date: July 12, 2005

Course Title: Aquatic Process Chemistry

Course Number: AEST A601

Credits: 3.0

Contact Hours: 3 + 0

I. Course Description:

An introduction to fundamental aquatic chemistry concepts frequently encountered in environmental science and engineering. An equilibrium approach with an emphasis on treatment process and natural water chemistry is employed. Both a qualitative and quantitative understanding of equilibrium calculations and the ability to apply both graphical and algebraic/numerical solution techniques to chemistry problems.

II. Course Design:

A. Course Intent: Designed for graduate students majoring in engineering or environmental-related fields of study.

B. Course Credits: Three (3) credit course (3 lecture + 0 laboratory)

C. Total time of student participation:

1) Lecture: 45 hours/semester (3 hours/week)

2) Lab: 0

3) Outside: 90 hours/semester (6hours/week)

D. Degree Program Status: Elective course for graduate degrees in Civil Engineering or Applied Environmental Science & Technology.

E. Fees: None

F. Grading Basis: A - F

G. Time Frame: May be scheduled in any time frame but not less than 1 week per credit.

H. Previous Course: The original course number for this course was EQE A601.

I. Coordination with other schools or colleges: School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve

J. Course Level Justification: Course outcomes meet the criteria for a 600 level course.

III. Course Activities:

Class activities consist of lectures, assignments, and exams.

IVa. Course Prerequisites:

none

IVb. Registration Restrictions:

Registration is contingent upon enrollment in the CE or AEST graduate programs, or instructor approval.

V. Course Evaluation:

Methods of evaluation may include, but are not limited to: assignments, exams, and quizzes.

VI. Course Outline:

1. The Equilibrium Approach
2. Thermodynamic Fundamentals
 - a. First and Second Laws of Thermodynamics
 - b. Free Energy
 - c. Equilibrium Constants
3. Acid/Base Chemistry
 - a. Exact Analytical Solutions
 - b. pC-pH Diagrams
 - c. Titrations
 - d. Carbonate System
 - e. Alkalinity and Acidity
4. Precipitation, Dissolution, and Chelation
 - a. Solubility Product
 - b. Ion Activity Product
 - c. Critical Environmental Reactions
 - d. Stability Diagrams
 - e. Chelation
5. Oxidation/Reduction
 - a. pe-pH Diagrams
 - b. Microbial Redox Reactions
 - c. Redox Measurement and Interpretation

VII. Instructional Goals and Student Outcomes:

A. Instructional Goals

The instructional goals of this course are to:

1. promote the ability to solve water chemistry problems related to thermodynamics, acid/base chemistry, solubility, and oxidation/reduction; and
2. enhance the ability to organize and communicate aquatic chemistry results to a technical audience.

B. Student Outcomes

Upon successful completion of this course, students will be able to:

1. qualitative and quantitative understanding of equilibrium calculations
2. employ both graphical and algebraic/numerical solution techniques to chemistry problems
3. apply and illustrate fundamental aquatic chemistry concepts covered in the text and the lecture.

VIII. Suggested Texts:

1. Chemistry for Environmental Engineering and Science, Sawyer, McCarty, and Parkin, 5th ed., 2002. McGraw-Hill, New York.
2. Water Chemistry, Benjamin, 1st ed., 2002. McGraw-Hill, New York.

IX. References/Bibliography:

1. Chemistry of the Environment, Spiro and Stigliani, 2nd ed., 2003. Prentice-Hall, Upper Saddle River, NJ.
2. Environmental Organic Chemistry, Schwarzenbach, Gschwend and Imboden, 2nd ed., 2002. John Wiley & Sons, New York.

Curriculum Coordination Form

Notification Date: 10-10-2005

Initiating unit: School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve

Affected unit(s): SOE

Course Prefix and Number: AEST A601 Previous Prefix and Number: EQE A601

Complete Course/Program Title: Aquatic Process Chemistry

Previous Course/Program Title: Aquatic Process Chemistry

Description of Action: Change in Registration Restriction

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

Any questions concerning the proposed changes may be addressed to the appropriate department chair, or the chair of the appropriate curriculum committee. Written comments may also be sent to the UAB or GAB, in care of the Governance Office, at the following address:

University of Alaska Anchorage
Governance Office, ADM 213
3211 Providence Drive
Anchorage, AK 99508

If no written comments are received by the UAB or GAB within ten (10) days of notification date shown above, it is assumed that there are no objections to the proposal.

Note: Acknowledgement of coordination does not mean approval, it is only meant to verify that coordination has occurred.

Fee Request Form

1. School/College School of Engineering
2. Course Prefix and Number AEST A601
3. Title Aquatic Process Chemistry
4. Lab Fee Account Number:
Org Obj Fund
5. Type of Action:
Add Deletion Change (Increase or Decrease)
6. Fee Amount: \$ 0.00 If a Change, please indicate the *current* approved lab fee \$
7. Anticipated Student enrollment per class section:
8. Projected costs of material per class section: \$
(Provide details under #10 Justification for lab fee)
9. Implementation Date Fall 2006
10. Justification for fee (include materials/supplies used and the cost per item).

Library Resource Form

Excerpts from the Northwest Association of Schools and Colleges Accreditation Handbook 1999 Edition

Standard Five - Library And Information Resources

Standard 5.A - Purpose and Scope

The primary purpose for library and information resources is to support teaching, learning, and, if applicable, research in ways consistent with, and supportive of, the institution's mission and goals. Adequate library and information resources and services, at the appropriate level for degrees offered, are available to support the intellectual, cultural, and technical development of students enrolled in courses and programs wherever located and however delivered.

Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: AEST A602 / Water Quality Management

3. Please identify the library liaison consulted in preparation of this proposal.

Name: Kate Gordon, the SOE library liaison, has been consulted with regard to this proposal.

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liaison.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

4. Please list any new library and information recommended to support the proposal.

- 1.
- 2.
- 3.

Initiator signature



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

1a. School or College SOENGR		1b. Division	1c. Department Applied Environmental Science & Technology	
2. Course Prefix AEST	3. Course Number A602	4. Previous Course Prefix & Number EQE A602	5a. Credits/CEU 3	5b. Contact Hours (Lecture + Lab) (3+0)
6. Complete Course/Program Title Water Quality Management <small>Abbreviated Title for Transcript (30 character)</small>				
7. Type of Course <input checked="" type="checkbox"/> Academic <input type="checkbox"/> Non-credit <input type="checkbox"/> CEU <input type="checkbox"/> Professional Development				
8. Type of Action <input checked="" type="checkbox"/> Course <input type="checkbox"/> Program		9. Repeat Status No Limit Max Credits		
<input type="checkbox"/> Add <input checked="" type="checkbox"/> Prefix <input type="checkbox"/> Course Number <input checked="" type="checkbox"/> Change <input type="checkbox"/> Credits <input type="checkbox"/> Contact Hours <small>(mark appropriate boxes)</small> <input type="checkbox"/> Title <input type="checkbox"/> Repeat Status <input type="checkbox"/> Delete <input type="checkbox"/> Grading Basis <input type="checkbox"/> Cross-Listed/Stacked <input checked="" type="checkbox"/> Course Description <input type="checkbox"/> Course Prerequisites <input type="checkbox"/> Test Score Prerequisites <input type="checkbox"/> Corequisites <input type="checkbox"/> Other Restrictions <input checked="" type="checkbox"/> Registration Restrictions <input type="checkbox"/> Class <input type="checkbox"/> Level <input type="checkbox"/> College <input type="checkbox"/> Major <input type="checkbox"/> Other		10. Grading Basis <input checked="" type="checkbox"/> A-F <input type="checkbox"/> P/NP <input type="checkbox"/> NG		
		11. Implementation Date semester/year From: Fall/2006 To: 9999/		
		12. <input type="checkbox"/> Cross Listed with _____ <input type="checkbox"/> Stacked with _____ Cross-Listed Coordination Signature		
13. Coordinate with Affected Units: School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve Department, School, or College _____ Initiator Signature Date				
14. List any programs or college requirements that require this course				
15. <input type="checkbox"/> General Education Requirement <input type="checkbox"/> Oral Communication <input type="checkbox"/> Written Communication <input type="checkbox"/> Quantitative Skills <input type="checkbox"/> Humanities <input type="checkbox"/> Fine Arts <input type="checkbox"/> Social Sciences <input type="checkbox"/> Natural Sciences				
16. Course Description An assessment of the rationale, concepts, institutions, and engineering aspects of water quality management. Regulatory processes, monitoring strategies and statistics, flow and mixing characteristics, pollutant chemistry, assessment strategies, point and nonpoint source characteristics, the Total Maximum Daily Load (TMDL) process, and mitigation measures are covered.				
17a. Course Prerequisite(s) (list prefix and number)		17b. Test Score(s)	17c. Corequisite(s) (concurrent enrollment required)	
17d. Other Restriction(s) <input type="checkbox"/> College <input checked="" type="checkbox"/> Major <input type="checkbox"/> Class <input checked="" type="checkbox"/> Level		17e. Registration Restriction(s) (non-codable) Registrants must be enrolled in the AEST, CE or BIOL graduate programs, or gain instructor approval.		
18. <input type="checkbox"/> Mark if course has fees				
19. Justification for Action The changes to this course are proposed in support of the new AEST interdisciplinary graduate degree program.				

COURSE CONTENT GUIDE
University of Alaska Anchorage
School of Engineering

Date: May 30, 2005

Course Title: Water Quality Management

Course Number: AEST A602

Credits: 3.0

Contact Hours: 3 + 0

I. Course Description:

An assessment of the rationale, concepts, institutions, and engineering aspects of water quality management. Regulatory processes, monitoring strategies and statistics, flow and mixing characteristics, pollutant chemistry, assessment strategies, point and nonpoint source characteristics, the Total Maximum Daily Load (TMDL) process, and mitigation measures are covered.

II. Course Design:

A. Course Intent: Designed for graduate students majoring in engineering or environmental-related fields of study.

B. Course Credits: Three (3) credit course (3 lecture + 0 laboratory)

C. Total time of student participation:

1) Lecture: 45 hours/semester (3 hours/week)

2) Lab: 0

3) Outside: 90 hours/semester (6hours/week)

D. Degree Program Status: Elective course for graduate degrees in Civil Engineering or Applied Environmental Science & Technology.

E. Fees: None

F. Grading Basis: A - F

G. Time Frame: May be scheduled in any time frame but not less than 1 week per credit.

H. Previous Course: The original course number for this course was EQE A602.

I. Coordination with other schools or colleges: School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve

J. Course Level Justification: Course outcomes meet the criteria for a 600 level course.

III. Course Activities:

Class activities consist of lectures, assignments, and exams.

IVa. Course Prerequisites:

none

IVb. Registration Restrictions:

Registration is contingent upon enrollment in the CE or AETS graduate programs, or instructor approval.

V. Course Evaluation:

Methods of evaluation may include, but are not limited to: assignments, exams, and quizzes.

VI. Course Outline:

1. Water Quality Laws and Regulations
2. Chemical Properties of Aquatic Pollutants
3. Reactor Concepts
 - a. Complete and Incomplete Mixing
 - b. Reaction Kinetics
 - c. Mass Balances
4. Water Body Flow and Mixing Characteristics
 - a. Rivers
 - b. Lakes
 - c. Streams
 - d. Estuaries
5. Diffuse Pollution Concepts
 - a. Pollution Load Types
 - b. Statistical Characteristics of Diffuse Loads
6. Precipitation-Runoff Relationships
7. Control of Urban Diffuse Pollution
8. Control of Agricultural Diffuse Pollution
9. Water Body Assessment
 - a. TMDL Process
 - b. Water Quality Standards
10. Water Quality Modeling

VII. Instructional Goals and Student Outcomes:

A. Instructional Goals

The instructional goals of this course are to:

1. promote the ability to apply fundamental physical, chemical, and biological principals in the formulation of water quality management strategies;
2. enhance the ability to seek and evaluate information from printed and electronic resources regarding regulations, pollutant properties, and management strategies;
3. provide the ability to evaluate individual water quality management strategies with respect to site-specific pollutant characteristics and cleanup goals; and
4. enhance the ability to organize and communicate water quality management information through written and oral reports.

B. Student Outcomes

Upon successful completion of this course, students will be able to:

1. evaluate the quality of surface water bodies through sampling and statistical assessment;
2. utilize fundamental reactor concepts to characterize pollutant mixing and degradation processes in rivers, lakes, streams, and estuaries;
3. predict the effectiveness of specific management technologies based upon an evaluation of prevention, degradation or removal rates with respect to pollutant properties and water body characteristics; and

4. compile lists of novel and/or conventional technologies appropriate to meet water quality standards, and select from those lists the most appropriate technologies based upon appraisals of economic, social, and temporal factors.

VIII. Suggested Texts:

1. Surface Water Quality Modeling, Chapra, 1st ed., 1997. McGraw-Hill, Boston.
2. Water Quality: Characteristics, Modeling, Modification, Tchobanoglous and Schroeder, 1st ed., 1987. Addison-Wesley, Reading, MA.
3. Water Quality: Diffuse Pollution and Watershed Management, Novotny, 2nd ed., 2003. John Wiley & Sons, New York.

IX. References/Bibliography:

1. An Introduction to the Environmental Physics of Soil, Water, and Watersheds, Rose, 1st ed., 2004. Cambridge University Press, Cambridge, UK.
2. The Practice of Watershed Protection, Schueler and Holland, 1st ed., 2000. Center for Watershed Protection, Ellicott City, MD.

Curriculum Coordination Form

Notification Date: 10-10-2005

Initiating unit: School of Engineering

Affected unit(s): School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve

Course Prefix and Number: AEST A602 Previous Prefix and Number: EQE A602

Complete Course/Program Title: Water Quality Management

Previous Course/Program Title: Water Quality Management

Description of Action: Change in course description and registration restrictions

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

Any questions concerning the proposed changes may be addressed to the appropriate department chair, or the chair of the appropriate curriculum committee. Written comments may also be sent to the UAB or GAB, in care of the Governance Office, at the following address:

University of Alaska Anchorage
Governance Office, ADM 213
3211 Providence Drive
Anchorage, AK 99508

If no written comments are received by the UAB or GAB within ten (10) days of notification date shown above, it is assumed that there are no objections to the proposal.

Note: Acknowledgement of coordination does not mean approval, it is only meant to verify that coordination has occurred.

Fee Request Form

1. School/College School of Engineering
2. Course Prefix and Number AEST A602
3. Title Water Quality Management
4. Lab Fee Account Number:
Org Obj Fund
5. Type of Action:
Add Deletion Change (Increase or Decrease)
6. Fee Amount: \$ 0.00 If a Change, please indicate the *current* approved lab fee \$
7. Anticipated Student enrollment per class section:
8. Projected costs of material per class section: \$
(Provide details under #10 Justification for lab fee)
9. Implementation Date Fall 2006
10. Justification for fee (include materials/supplies used and the cost per item).

Library Resource Form

Excerpts from the Northwest Association of Schools and Colleges Accreditation Handbook 1999 Edition

Standard Five - Library And Information Resources

Standard 5.A - Purpose and Scope

The primary purpose for library and information resources is to support teaching, learning, and, if applicable, research in ways consistent with, and supportive of, the institution's mission and goals. Adequate library and information resources and services, at the appropriate level for degrees offered, are available to support the intellectual, cultural, and technical development of students enrolled in courses and programs wherever located and however delivered.

Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: AEST A603 / Solid Waste Management

5. Please identify the library liaison consulted in preparation of this proposal.

Name: Kate Gordon, the SOE library liaison, has been consulted with regard to this proposal.

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liaison.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

6. Please list any new library and information recommended to support the proposal.

- 1.
- 2.
- 3.

Initiator signature

COURSE CONTENT GUIDE
University of Alaska Anchorage
School of Engineering

Date: July 12, 2005

Course Title: Solid Waste Management

Course Number: AEST A603

Credits: 3.0

Contact Hours: 3 + 0

I. Course Description:

Planning, collecting and disposing of solid waste; techniques of collection, transportation, disposal and resource recovery; solid waste environmental regulations and relationships to water, air, and land pollution; hazardous waste management.

II. Course Design:

A. Course Intent: Designed for graduate students majoring in engineering or environmental-related fields of study.

B. Course Credits: Three (3) credit course (3 lecture + 0 laboratory)

C. Total time of student participation:

1) Lecture: 45 hours/semester (3 hours/week)

2) Lab: 0

3) Outside: 90 hours/semester (6hours/week)

D. Degree Program Status: Elective course for graduate degrees in Civil Engineering or Applied Environmental Science & Technology.

E. Fees: None

F. Grading Basis: A - F

G. Time Frame: May be scheduled in any time frame but not less than 1 week per credit.

H. Previous Course: The original course number for this course was EQE A603.

I. Coordination with other schools or colleges: School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve

J. Course Level Justification: Course outcomes meet the criteria for a 600 level course.

III. Course Activities:

Class activities consist of lectures, assignments, and exams.

IVa. Course Prerequisites:

none

IVb. Registration Restrictions:

Registration is contingent upon enrollment in the CE or AEST graduate programs, or instructor approval.

V. Course Evaluation:

Methods of evaluation may include, but are not limited to: assignments, exams, and quizzes.

VI. Course Outline:

1. Solid Waste Collection
2. Solid Waste Separation
3. Biochemical Processes
4. Incineration and Energy Recovery
5. Recycling and Resource Recovery
6. Landfill Design Concepts
7. Solid Waste Management in Remote locations
8. Impacts and Properties of Hazardous Wastes
8. New Developments in Solid Waste Management

VII. Instructional Goals and Student Outcomes:

A. Instructional Goals

The instructional goals of this course are to:

1. promote the ability to apply fundamental physical, chemical, and biological principals to the life cycle processes of solid wastes;
2. enhance the ability to seek and evaluate information from printed and electronic resources concerning regulations and local practices with respect to the management and disposal of solid wastes; and
3. provide the ability to evaluate the effectiveness of solid waste practices at specific locations, and generate recommendations for improvement.

B. Student Outcomes

Upon successful completion of this course, students will be able to:

1. deconstruct the individual components of the solid waste strategy within a given locality, and evaluate each component's effectiveness with regard to monetary and environmental costs;
2. predict the effectiveness of proposed solid waste technologies to be implemented into new solid waste strategies for individual localities; and
3. design a cost effective, environmentally sound solid waste strategy for a given locality with a well-defined solid waste stream.

VIII. Suggested Texts:

1. Design of Landfills and Integrated Solid Waste Management, Bagchi, 3rd ed., 2004. John Wiley and Sons, New York.
2. Solid Waste Landfill Engineering and Design, McBean, Rovers, and Farquhar, 1st ed., 1995. Prentice-Hall, Upper Saddle River, NJ.

IX. References/Bibliography:

1. Handbook of Complex Environmental Remediation Problems, Lehr, Hyman, Gass, and SeEVERS, 1st ed., 2001. McGraw-Hill, Boston.
2. Hazardous Wastes: Sources, Pathways, and Receptors, Watts, 1st ed., 1998. John Wiley & Sons, New York.

Curriculum Coordination Form

Notification Date: 10-10-2005

Initiating unit: School of Engineering

Affected unit(s): School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve

Course Prefix and Number: AEST A603

Previous Prefix and Number: EQE A603

Complete Course/Program Title: Solid Waste Management

Previous Course/Program Title: Solid Waste Management

Description of Action: Change in prefix and registration restrictions

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

Any questions concerning the proposed changes may be addressed to the appropriate department chair, or the chair of the appropriate curriculum committee. Written comments may also be sent to the UAB or GAB, in care of the Governance Office, at the following address:

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Fee Request Form

1. School/College School of Engineering
2. Course Prefix and Number AEST A603
3. Title Solid Waste Management
4. Lab Fee Account Number:
Org Obj Fund
5. Type of Action:
Add Deletion Change (Increase or Decrease)
6. Fee Amount: \$ 0.00 If a Change, please indicate the *current* approved lab fee \$
7. Anticipated Student enrollment per class section:
8. Projected costs of material per class section: \$
(Provide details under #10 Justification for lab fee)
9. Implementation Date Fall 2006
10. Justification for fee (include materials/supplies used and the cost per item).

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Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: AEST A604 / Environmental Law, Regulations and Permitting

7. Please identify the library liaison consulted in preparation of this proposal.

Name: Kate Gordon, the SOE library liaison, has been consulted with regard to this proposal.

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liaison.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

8. Please list any new library and information recommended to support the proposal.

- 1.
- 2.
- 3.

Initiator signature

COURSE CONTENT GUIDE/OUTLINE
University of Alaska Anchorage
School of Engineering

Date: 1/25/05

Course Title: Environmental Law, Regulations and Permitting

Course Number: AEST A604

Credits: 3.0

Contact Hours: 3+0

I. Course Description:

Introductory graduate level course on understanding and navigating environmental laws and regulations. Students will learn the principles of the major environmental laws in the U.S., practice interpreting regulations and prepare permits.

II. Course Design:

A. Course Intent: Provide environmental engineering students with background in regulatory and permitting processes.

B. Course credits: 3.0 semester hours

C. Total time of student involvement:

1. Lecture: 45 hours/semester (3 hours/week)
2. Lab: 0
3. Outside: 90 hours/semester (6 hours/week)

D. Degree program status: Elective course for graduate degrees in Civil Engineering or Applied Environmental Science & Technology

E. Fees: none

F. Grading Basis: A - F

G. Time frame: standard semester

H. Previous course: The original course number for this course was EQE A694.

I. Coordination with other schools or colleges: School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology , Faculty List-serve

J. Course Level Justification: Course outcomes meet the criteria for a 600 level course.

III. Course activities: Course activities include classroom lectures, outside reading and homework assignments.

IV. Registration Restriction: Registration is contingent upon enrollment in the CE or AEST graduate programs, or instructor approval.

V. Course evaluation: Methods of evaluation may include, but are not limited to: assignments, exams, and quizzes.

VI. Course Outline

- A. Overview of Common Law Principles
- B. Clean Water Act
- C. Clean Air Act
- D. RCRA & Solid Waste
- E. Superfund
- F. Wetlands, Coastal Zone & Endangered Species
- G. Managing Relationships with Agencies
- H. Environmental Management Programs

VII. Instructional Goals and Defined Outcomes

Instructional Goals (Objectives)

The objectives of this course are provide an opportunity for students as individuals and as members of teams to:

- Become conversant with selected environmental laws
- Be able to interpret and apply selected regulations
- Practice reading permits and preparing to write permits

Defined Outcomes

At the conclusion of this course, the students will have the ability to:

- a. Determine what regulations apply to a specific situation
- b. Find the regulations on the Internet
- c. Write a permit
- d. Know how to work with regulators and the regulated community

VIII. Text and References

1. Environmental Law and Policy, Stephen R. Chapman, 1st ed., 1998. Prentice Hall, Upper Saddle River, NJ.
2. Prentice Hall's Environmental Technology Series Volume II: Environmental Regulations Overview., Ostler and Nielson, 1996. Prentice Hall, Upper Saddle River, NJ.

Curriculum Coordination Form

Notification Date: 10-10-2005

Initiating unit: School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve,

Affected unit(s): School of Engineering

Course Prefix and Number: AEST A604 Previous Prefix and Number: EQE A694

Complete Course/Program Title: Environmental Law, Regulations and Permitting

Previous Course/Program Title: Regulatory and Permitting Processes

Description of Action: Change in course description, prefix, title and registration restrictions.

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

Any questions concerning the proposed changes may be addressed to the appropriate department chair, or the chair of the appropriate curriculum committee. Written comments may also be sent to the UAB or GAB, in care of the Governance Office, at the following address:

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Governance Office, ADM 213
3211 Providence Drive
Anchorage, AK 99508

If no written comments are received by the UAB or GAB within ten (10) days of notification date shown above, it is assumed that there are no objections to the proposal.

Note: Acknowledgement of coordination does not mean approval, it is only meant to verify that coordination has occurred.

Fee Request Form

1. School/College School of Engineering
2. Course Prefix and Number AEST A604
3. Title Environmental Law, Regulations and Permitting
4. Lab Fee Account Number:
Org Obj Fund
5. Type of Action:
Add Deletion Change (Increase or Decrease)
6. Fee Amount: \$ 0.00 If a Change, please indicate the *current* approved lab fee \$
7. Anticipated Student enrollment per class section:
8. Projected costs of material per class section: \$
(Provide details under #10 Justification for lab fee)
9. Implementation Date Fall 2006
10. Justification for fee (include materials/supplies used and the cost per item).

Library Resource Form

Excerpts from the Northwest Association of Schools and Colleges Accreditation Handbook 1999 Edition

Standard Five - Library And Information Resources

Standard 5.A - Purpose and Scope

The primary purpose for library and information resources is to support teaching, learning, and, if applicable, research in ways consistent with, and supportive of, the institution's mission and goals. Adequate library and information resources and services, at the appropriate level for degrees offered, are available to support the intellectual, cultural, and technical development of students enrolled in courses and programs wherever located and however delivered.

Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: AEST A608 / Fundamentals of Air Pollution

9. Please identify the library liaison consulted in preparation of this proposal.

Name: Kate Gordon, the SOE library liaison, has been consulted with regard to this proposal.

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liaison.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

10. Please list any new library and information recommended to support the proposal.

- 1.
- 2.
- 3.

Initiator signature



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

1a. School or College SOENGR		1b. Division		1c. Department Applied Environmental Science & Technology	
2. Course Prefix AEST	3. Course Number A608	4. Previous Course Prefix & Number EQE A608		5a. Credits/CEU 3	5b. Contact Hours (Lecture + Lab) (3+0)
6. Complete Course/Program Title Fundamentals of Air Pollution <small>Abbreviated Title for Transcript (30 character)</small>					
7. Type of Course <input checked="" type="checkbox"/> Academic <input type="checkbox"/> Non-credit <input type="checkbox"/> CEU <input type="checkbox"/> Professional Development					
8. Type of Action <input checked="" type="checkbox"/> Course <input type="checkbox"/> Program			9. Repeat Status No Limit Max Credits		
<input type="checkbox"/> Add <input checked="" type="checkbox"/> Prefix <input type="checkbox"/> Course Number <input checked="" type="checkbox"/> Change <input type="checkbox"/> Credits <input type="checkbox"/> Contact Hours <small>(mark appropriate boxes)</small> <input type="checkbox"/> Title <input type="checkbox"/> Repeat Status <input type="checkbox"/> Delete <input type="checkbox"/> Grading Basis <input type="checkbox"/> Cross-Listed/Stacked <input type="checkbox"/> Course Description <input type="checkbox"/> Course Prerequisites <input type="checkbox"/> Test Score Prerequisites <input type="checkbox"/> Corequisites <input type="checkbox"/> Other Restrictions <input checked="" type="checkbox"/> Registration Restrictions <input type="checkbox"/> Class <input type="checkbox"/> Level <input type="checkbox"/> College <input type="checkbox"/> Major <input type="checkbox"/> Other			10. Grading Basis <input checked="" type="checkbox"/> A-F <input type="checkbox"/> P/NP <input type="checkbox"/> NG		
			11. Implementation Date <small>semester/year</small> From: Fall/2006 To: 9999/		
			12. <input type="checkbox"/> Cross Listed with _____ <input type="checkbox"/> Stacked with _____ Cross-Listed Coordination Signature		
13. Coordinate with Affected Units: School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve <div style="display: flex; justify-content: space-between;"> Department, School, or College _____ _____ </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Initiator Signature Date </div>					
14. List any programs or college requirements that require this course					
15. <input type="checkbox"/> General Education Requirement <input type="checkbox"/> Oral Communication <input type="checkbox"/> Written Communication <input type="checkbox"/> Quantitative Skills <input type="checkbox"/> Humanities <input type="checkbox"/> Fine Arts <input type="checkbox"/> Social Sciences <input type="checkbox"/> Natural Sciences					
16. Course Description Air pollution terminology and their definitions. Sources and effects of air pollution. Meteorology and its relationship to air pollution. Pollution modeling and prediction. Combustion generated air pollution. Energy and air pollution. Regulations at the federal, state, and local levels. Indoor air quality.					
17a. Course Prerequisite(s) (list prefix and number)		17b. Test Score(s)		17c. Corequisite(s) (concurrent enrollment required)	
17d. Other Restriction(s) <input type="checkbox"/> College <input checked="" type="checkbox"/> Major <input type="checkbox"/> Class <input checked="" type="checkbox"/> Level			17e. Registration Restriction(s) (non-codable) Registrants must be enrolled in the AEST, CE or BIOL graduate programs, or gain instructor approval.		
18. <input type="checkbox"/> Mark if course has fees					
19. Justification for Action The changes to this course are proposed in support of the new AEST interdisciplinary graduate degree program.					

COURSE CONTENT GUIDE
University of Alaska Anchorage
School of Engineering

Date: July 12, 2005

Course Title: Fundamentals of Air Pollution

Course Number: AEST A608

Credits: 3.0

Contact Hours: 3 + 0

I. Course Description:

Air pollution terminology and their definitions. Sources and effects of air pollution. Meteorology and its relationship to air pollution. Pollution modeling and prediction. Combustion generated air pollution. Energy and air pollution. Regulations at the federal, state, and local levels. Indoor air quality.

II. Course Design:

A. Course Intent: Designed for graduate students majoring in engineering or environmental-related fields of study.

B. Course Credits: Three (3) credit course (3 lecture + 0 laboratory)

C. Total time of student participation:

1) Lecture: 45 hours/semester (3 hours/week)

2) Lab: 0

3) Outside: 90 hours/semester (6hours/week)

D. Degree Program Status: Elective course for graduate degrees in Civil Engineering or Applied Environmental Science & Technology.

E. Fees: None

F. Grading Basis: A - F

G. Time Frame: May be scheduled in any time frame but not less than 1 week per credit.

H. Previous Course: The original course number for this course was EQE A608.

I. Coordination with other schools or colleges: School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve

J. Course Level Justification: Course outcomes meet the criteria for a 600 level course.

III. Course Activities:

Class activities consist of lectures, assignments, and exams.

IVa. Course Prerequisites:

none

IVb. Registration Restrictions:

Registration is contingent upon enrollment in the CE or AEST graduate programs, or instructor approval.

V. Course Evaluation:

Methods of evaluation may include, but are not limited to: assignments, exams, and quizzes.

VI. Course Outline:

1. Definitions and Characteristics of Criteria and Non-Criteria Pollutants
2. Sources of Air Pollution
3. Impacts of Air Pollution on Living Organisms and Infrastructure
4. Meteorology of Air Pollution
 - a. Pseudoadiabatic Chart
 - b. Atmospheric Radiation
 - c. Wind and Convective Transfer
 - d. Atmospheric Motion and Plumes
5. Modeling and Prediction
 - a. Gaussian Dispersion Model
 - b. Computer Modeling
6. Combustion Generated Air Pollution
 - a. Combustion Facilities
 - b. Products of Combustion Process
 - c. Energy Production via Combustion
7. Air Pollution Regulations
8. Indoor Air Quality

VII. Instructional Goals and Student Outcomes:

A. Instructional Goals

The instructional goals of this course are to:

1. promote the ability to apply fundamental physical and chemical principals in the evaluation of air pollution problems;
2. enhance the ability to seek and evaluate information from printed and electronic resources regarding regulations, pollutant properties, and abatement technologies; and
3. provide the ability to collect and calculate the information necessary to make sound decisions regarding air pollution abatement technologies and strategies.

B. Student Outcomes

Upon successful completion of this course, students will be able to:

1. formulate strategies to characterize and mitigate criteria and non-criteria pollutants in ambient air;
2. predict the distribution of pollutant plumes using meteorological data and computer models; and
3. predict the effectiveness of proposed abatement technologies and/or strategies using computer models.

VIII. Suggested Texts:

1. Air Pollution: Its Origin and Control, Wark, Warner, and Davis, 3rd ed., 1998. Prentice-Hall, Upper Saddle River, NJ.
2. Sources and Control of Air Pollution, Heinsohn and Kabel, 1st ed., 1999. Prentice-Hall, Upper Saddle River, NJ.

IX. References/Bibliography:

1. Air Pollution Engineering Manual, Davis, 2nd ed., 2000. John Wiley and Sons, New York.
2. Process Engineering and Design for Air Pollution Control, Benitez, 2nd ed., 1993. Prentice-Hall, Upper Saddle River, NJ.

Curriculum Coordination Form

Notification Date: 10-10-2005

Initiating unit: School of Engineering

Affected unit(s): School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve

Course Prefix and Number: AEST A608 Previous Prefix and Number: EQE A608

Complete Course/Program Title: Fundamentals of Air Pollution

Previous Course/Program Title: Fundamentals of Air Pollution

Description of Action: Change of course prefix and registration restrictions.

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

Any questions concerning the proposed changes may be addressed to the appropriate department chair, or the chair of the appropriate curriculum committee. Written comments may also be sent to the UAB or GAB, in care of the Governance Office, at the following address:

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If no written comments are received by the UAB or GAB within ten (10) days of notification date shown above, it is assumed that there are no objections to the proposal.

Note: Acknowledgement of coordination does not mean approval, it is only meant to verify that coordination has occurred.

Fee Request Form

1. School/College School of Engineering
2. Course Prefix and Number AEST A608
3. Title Fundamentals of Air Pollution
4. Lab Fee Account Number:
Org Obj Fund
5. Type of Action:
Add Deletion Change (Increase or Decrease)
6. Fee Amount: \$ 0.00 If a Change, please indicate the *current* approved lab fee \$
7. Anticipated Student enrollment per class section:
8. Projected costs of material per class section: \$
(Provide details under #10 Justification for lab fee)
9. Implementation Date Fall 2006
10. Justification for fee (include materials/supplies used and the cost per item).

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Standard Five - Library And Information Resources

Standard 5.A - Purpose and Scope

The primary purpose for library and information resources is to support teaching, learning, and, if applicable, research in ways consistent with, and supportive of, the institution's mission and goals. Adequate library and information resources and services, at the appropriate level for degrees offered, are available to support the intellectual, cultural, and technical development of students enrolled in courses and programs wherever located and however delivered.

Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: AEST A613 / Remediation

11. Please identify the library liaison consulted in preparation of this proposal.

Name: Kate Gordon, the SOE library liaison, has been consulted with regard to this proposal.

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liaison.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

12. Please list any new library and information recommended to support the proposal.

- 1.
- 2.
- 3.

Initiator signature



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

1a. School or College SOENGR		1b. Division		1c. Department Applied Environmental Science & Technology	
2. Course Prefix AEST	3. Course Number A613	4. Previous Course Prefix & Number EQE A613		5a. Credits/CEU 3	5b. Contact Hours (Lecture + Lab) (3+0)
6. Complete Course/Program Title Remediation <small>Abbreviated Title for Transcript (30 character)</small>					
7. Type of Course <input checked="" type="checkbox"/> Academic <input type="checkbox"/> Non-credit <input type="checkbox"/> CEU <input type="checkbox"/> Professional Development					
8. Type of Action <input checked="" type="checkbox"/> Course <input type="checkbox"/> Program			9. Repeat Status No Limit Max Credits		
<input type="checkbox"/> Add <input checked="" type="checkbox"/> Prefix <input type="checkbox"/> Course Number <input checked="" type="checkbox"/> Change <input type="checkbox"/> Credits <input type="checkbox"/> Contact Hours <small>(mark appropriate boxes)</small> <input type="checkbox"/> Title <input type="checkbox"/> Repeat Status <input type="checkbox"/> Delete <input type="checkbox"/> Grading Basis <input type="checkbox"/> Cross-Listed/Stacked <input checked="" type="checkbox"/> Course Description <input type="checkbox"/> Course Prerequisites <input type="checkbox"/> Test Score Prerequisites <input type="checkbox"/> Corequisites <input type="checkbox"/> Other Restrictions <input checked="" type="checkbox"/> Registration Restrictions <input type="checkbox"/> Class <input type="checkbox"/> Level <input type="checkbox"/> College <input type="checkbox"/> Major <input type="checkbox"/> Other			10. Grading Basis <input checked="" type="checkbox"/> A-F <input type="checkbox"/> P/NP <input type="checkbox"/> NG		
			11. Implementation Date <small>semester/year</small> From: Fall/2006 To: 9999/		
			12. <input type="checkbox"/> Cross Listed with _____ <input type="checkbox"/> Stacked with _____ Cross-Listed Coordination Signature		
13. Coordinate with Affected Units: School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve <div style="display: flex; justify-content: space-between;"> Department, School, or College _____ _____ </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Initiator Signature Date </div>					
14. List any programs or college requirements that require this course					
15. <input type="checkbox"/> General Education Requirement <input type="checkbox"/> Oral Communication <input type="checkbox"/> Written Communication <input type="checkbox"/> Quantitative Skills <input type="checkbox"/> Humanities <input type="checkbox"/> Fine Arts <input type="checkbox"/> Social Sciences <input type="checkbox"/> Natural Sciences					
16. Course Description Fundamentals and applications of technologies for the remediation of contaminated sites. Site characterization techniques and fundamental microbial, chemical, and physical concepts are presented to provide a basis for the design and operation of specific on-site and in-situ technologies.					
17a. Course Prerequisite(s) (list prefix and number)		17b. Test Score(s)		17c. Corequisite(s) (concurrent enrollment required)	
17d. Other Restriction(s) <input type="checkbox"/> College <input checked="" type="checkbox"/> Major <input type="checkbox"/> Class <input checked="" type="checkbox"/> Level		17e. Registration Restriction(s) (non-codable) Registrants must be enrolled in the AEST, CE or BIOL graduate programs, or gain instructor approval.			
18. <input type="checkbox"/> Mark if course has fees					
19. Justification for Action The changes to this course are proposed in support of the new AEST interdisciplinary graduate degree program.					

COURSE CONTENT GUIDE
University of Alaska Anchorage
School of Engineering

Date: May 30, 2005

Course Title: Remediation

Course Number: AEST A613

Credits: 3.0

Contact Hours: 3 + 0

I. Course Description:

Fundamentals and applications of technologies for the remediation of contaminated sites. Site characterization techniques and fundamental microbial, chemical, and physical concepts are presented to provide a basis for the design and operation of specific on-site and in-situ technologies.

II. Course Design:

A. Course Intent: Designed for graduate students majoring in engineering or environmental-related fields of study.

B. Course Credits: Three (3) credit course (3 lecture + 0 laboratory)

C. Total time of student participation:

1) Lecture: 45 hours/semester (3 hours/week)

2) Lab: 0

3) Outside: 90 hours/semester (6hours/week)

D. Degree Program Status: Elective course for graduate degrees in Civil Engineering or Applied Environmental Science & Technology.

E. Fees: None

F. Grading Basis: A - F

G. Time Frame: May be scheduled in any time frame but not less than 1 week per credit.

H. Previous Course: The original course number for this course was EQE A613.

I. Coordination with other schools or colleges: School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve

J. Course Level Justification: Course outcomes meet the criteria for a 600 level course.

III. Course Activities:

Class activities consist of lectures, assignments, and exams.

IVa. Course Prerequisites:

none

IVb. Registration Restrictions:

Registration is contingent upon enrollment in the CE or AEST graduate programs, or instructor approval.

V. Course Evaluation:

Methods of evaluation may include, but are not limited to: assignments, exams, and quizzes.

VI. Course Outline:

1. Remediation Laws and Regulations
2. Chemical Properties of Contaminants
3. Physical Properties of Contaminants
4. Characteristics of Soils
5. Characteristics of Groundwater
6. Contaminant Transport
 - a. Transport in Water Phase
 - b. Transport in NAPL Phase
 - c. Transport in Vapor Phase
7. Contaminant Degradation Properties
 - a. Abiotic
 - b. Biotic
8. Site Characterization
 - a. Sampling Techniques
 - b. Sampling Statistics
 - c. Risk Assessment
 - d. Cleanup Levels
9. Remediation Technologies
 - a. In Situ Technologies
 - b. Ex Situ Technologies

VII. Instructional Goals and Student Outcomes:

A. Instructional Goals

The instructional goals of this course are to:

1. promote the ability to apply fundamental physical, chemical, and biological principals in the formulation of contaminant remediation systems;
2. enhance the ability to seek and evaluate information from printed and electronic resources regarding regulations, contaminant properties, and remediation technologies;
3. provide the ability to evaluate individual remediation technologies with respect to site-specific contaminant characteristics and cleanup goals; and
4. enhance the ability to organize and communicate site cleanup information through written and oral reports.

B. Student Outcomes

Upon successful completion of this course, students will be able to:

1. formulate strategies to characterize the level of contamination and routes of migration at contaminated sites;
2. evaluate the level of risk to humans and the environment associated with contaminants at a given site;
3. predict the effectiveness of specific remediation technologies based upon an evaluation of degradation or removal rates with respect to chemical properties and site characteristics; and
4. compile lists of novel and/or conventional technologies appropriate to meet site cleanup goals, and select from those lists the most appropriate technologies based upon appraisals of economic, social, and temporal factors.

VIII. Suggested Texts:

1. Hazardous Wastes: Sources, Pathways, and Receptors, Watts, 1st ed., 1998. John Wiley & Sons, New York.

IX. References/Bibliography:

1. Contaminant Hydrogeology, Fetter, 2nd ed., 1999. Prentice-Hall, Upper Saddle River, NJ.
2. Handbook of Complex Environmental Remediation Problems, Lehr, Hyman, Gass, and SeEVERS, 1st ed., 2001. McGraw-Hill, Boston.
3. Reclamation of Contaminated Land, Nathanail and Bardos, 1st ed., 2004. John Wiley & Sons, Chichester, England.

Curriculum Coordination Form

Notification Date: 10-10-2005

Initiating unit: School of Engineering

Affected unit(s): School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve

Course Prefix and Number: AEST A613

Previous Prefix and Number: EQE A613

Complete Course/Program Title: Remediation

Previous Course/Program Title: Remediation

Description of Action: Change in course description and registration restrictions.

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

Any questions concerning the proposed changes may be addressed to the appropriate department chair, or the chair of the appropriate curriculum committee. Written comments may also be sent to the UAB or GAB, in care of the Governance Office, at the following address:

University of Alaska Anchorage
Governance Office, ADM 213
3211 Providence Drive
Anchorage, AK 99508

If no written comments are received by the UAB or GAB within ten (10) days of notification date shown above, it is assumed that there are no objections to the proposal.

Note: Acknowledgement of coordination does not mean approval, it is only meant to verify that coordination has occurred.

Fee Request Form

1. School/College School of Engineering
2. Course Prefix and Number AEST A613
3. Title Remediation
4. Lab Fee Account Number:
Org Obj Fund
5. Type of Action:
Add Deletion Change (Increase or Decrease)
6. Fee Amount: \$ 0.00 If a Change, please indicate the *current* approved lab fee \$
7. Anticipated Student enrollment per class section:
8. Projected costs of material per class section: \$
(Provide details under #10 Justification for lab fee)
9. Implementation Date Fall 2006
10. Justification for fee (include materials/supplies used and the cost per item).

Library Resource Form

Excerpts from the Northwest Association of Schools and Colleges Accreditation Handbook 1999 Edition

Standard Five - Library And Information Resources

Standard 5.A - Purpose and Scope

The primary purpose for library and information resources is to support teaching, learning, and, if applicable, research in ways consistent with, and supportive of, the institution's mission and goals. Adequate library and information resources and services, at the appropriate level for degrees offered, are available to support the intellectual, cultural, and technical development of students enrolled in courses and programs wherever located and however delivered.

Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: AEST A698 / Individual Research

13. Please identify the library liaison consulted in preparation of this proposal.

Name: Kate Gordon, the SOE library liaison, has been consulted with regard to this proposal.

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liaison.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

14. Please list any new library and information recommended to support the proposal.

- 1.
- 2.
- 3.

Initiator signature



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

1a. School or College SOENGR		1b. Division		1c. Department Applied Environmental Science & Technology	
2. Course Prefix AEST	3. Course Number A698	4. Previous Course Prefix & Number EQE A698		5a. Credits/CEU 1-6	5b. Contact Hours (Lecture + Lab) (1-6+0)
6. Complete Course/Program Title Individual Research <small>Abbreviated Title for Transcript (30 character)</small>					
7. Type of Course <input checked="" type="checkbox"/> Academic <input type="checkbox"/> Non-credit <input type="checkbox"/> CEU <input type="checkbox"/> Professional Development					
8. Type of Action <input checked="" type="checkbox"/> Course <input type="checkbox"/> Program			9. Repeat Status No Limit Max Credits		
<input type="checkbox"/> Add <input checked="" type="checkbox"/> Prefix <input type="checkbox"/> Course Number <input checked="" type="checkbox"/> Change <input type="checkbox"/> Credits <input type="checkbox"/> Contact Hours <small>(mark appropriate boxes)</small> <input type="checkbox"/> Title <input type="checkbox"/> Repeat Status <input type="checkbox"/> Delete <input type="checkbox"/> Grading Basis <input type="checkbox"/> Cross-Listed/Stacked <input checked="" type="checkbox"/> Course Description <input type="checkbox"/> Course Prerequisites <input type="checkbox"/> Test Score Prerequisites <input type="checkbox"/> Corequisites <input type="checkbox"/> Other Restrictions <input checked="" type="checkbox"/> Registration Restrictions <input type="checkbox"/> Class <input type="checkbox"/> Level <input type="checkbox"/> College <input type="checkbox"/> Major <input type="checkbox"/> Other			10. Grading Basis <input checked="" type="checkbox"/> A-F <input type="checkbox"/> P/NP <input type="checkbox"/> NG		
			11. Implementation Date <small>semester/year</small> From: Fall/2006 To: 9999/		
			12. <input type="checkbox"/> Cross Listed with _____ <input type="checkbox"/> Stacked with _____ Cross-Listed Coordination Signature		
13. Coordinate with Affected Units: School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve <div style="text-align: center;">Department, School, or College _____</div> <div style="text-align: right;">Initiator Signature _____ Date _____</div>					
14. List any programs or college requirements that require this course					
15. <input type="checkbox"/> General Education Requirement <input type="checkbox"/> Oral Communication <input type="checkbox"/> Written Communication <input type="checkbox"/> Quantitative Skills <input type="checkbox"/> Humanities <input type="checkbox"/> Fine Arts <input type="checkbox"/> Social Sciences <input type="checkbox"/> Natural Sciences					
16. Course Description A course to be designed between the student and faculty member to allow the student the chance to pursue special advanced interests in engineering at the graduate level.					
17a. Course Prerequisite(s) (list prefix and number)		17b. Test Score(s)		17c. Corequisite(s) (concurrent enrollment required)	
17d. Other Restriction(s) <input type="checkbox"/> College <input checked="" type="checkbox"/> Major <input type="checkbox"/> Class <input checked="" type="checkbox"/> Level		17e. Registration Restriction(s) (non-codable) Registrants must be enrolled in the AEST, CE or BIOL graduate programs, or gain instructor approval.			
18. <input type="checkbox"/> Mark if course has fees					
19. Justification for Action The changes to this course are proposed in support of the new AEST interdisciplinary graduate degree program.					

COURSE CONTENT GUIDE
University of Alaska Anchorage
School of Engineering

Date: July 12, 2005

Course Title: AEST Individual Research

Course Number: AEST A698

Credits: 1.0 – 6.0

Contact Hours: 1-6 + 0

I. Course Description:

A course to be designed between the student and faculty member to allow the student the chance to pursue special advanced interests in engineering at the graduate level.

II. Course Design:

A. Course Intent: Designed for graduate students majoring in engineering or environmental-related fields of study.

B. Course Credits: Ranges from One to Six (1-6) credits (1-6 lecture + 0 laboratory)

C. Total time of student participation:

1) Lecture: variable

2) Lab: 0

3) Outside: variable

D. Degree Program Status: Elective course for graduate degrees in Civil Engineering or Applied Environmental Science & Technology.

E. Fees: None

F. Grading Basis: A - F

G. Time Frame: May be scheduled in any time frame but not less than 1 week per credit.

H. Previous Course: The original course number for this course was EQE A698.

I. Coordination with other schools or colleges: School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve

J. Course Level Justification: Course outcomes meet the criteria for a 600 level course.

III. Course Activities:

Class activities consist primarily of assignments, and exams.

IVa. Course Prerequisites:

none

IVb. Registration Restrictions:

Faculty permission is required.

V. Course Evaluation:

Methods of evaluation may include, but are not limited to: assignments, exams, and quizzes.

VI. Course Outline:

Outline is dependant upon the material covered.

VII. Instructional Goals and Student Outcomes:

A. Instructional Goals

The instructional goals of this course are dependant upon the material covered.

B. Student Outcomes

The student outcomes of this course are dependant upon the material covered.

VIII. Suggested Texts:

Texts are dependant upon the material covered.

IX. References/Bibliography:

References are dependant upon the material covered.

Curriculum Coordination Form

Notification Date: 10-10-2005

Initiating unit: School of Engineering

Affected unit(s): School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve

Course Prefix and Number: AEST A698 Previous Prefix and Number: EQE A698

Complete Course/Program Title: Individual Research

Previous Course/Program Title: Individual Research

Description of Action: Change in prefix and registration restrictions.

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

Any questions concerning the proposed changes may be addressed to the appropriate department chair, or the chair of the appropriate curriculum committee. Written comments may also be sent to the UAB or GAB, in care of the Governance Office, at the following address:

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Governance Office, ADM 213
3211 Providence Drive
Anchorage, AK 99508

If no written comments are received by the UAB or GAB within ten (10) days of notification date shown above, it is assumed that there are no objections to the proposal.

Note: Acknowledgement of coordination does not mean approval, it is only meant to verify that coordination has occurred.

Fee Request Form

1. School/College School of Engineering
2. Course Prefix and Number AEST a698
3. Title Individual Research
4. Lab Fee Account Number:
Org Obj Fund
5. Type of Action:
Add Deletion Change (Increase or Decrease)
6. Fee Amount: \$ 0.00 If a Change, please indicate the *current* approved lab fee \$
7. Anticipated Student enrollment per class section:
8. Projected costs of material per class section: \$
(Provide details under #10 Justification for lab fee)
9. Implementation Date Fall 2006
10. Justification for fee (include materials/supplies used and the cost per item).

Library Resource Form

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Standard Five - Library And Information Resources

Standard 5.A - Purpose and Scope

The primary purpose for library and information resources is to support teaching, learning, and, if applicable, research in ways consistent with, and supportive of, the institution's mission and goals. Adequate library and information resources and services, at the appropriate level for degrees offered, are available to support the intellectual, cultural, and technical development of students enrolled in courses and programs wherever located and however delivered.

Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: AEST A699 / AEST Thesis

15. Please identify the library liaison consulted in preparation of this proposal.

Name: Kate Gordon, the SOE library liaison, has been consulted with regard to this proposal.

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liaison.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

16. Please list any new library and information recommended to support the proposal.

- 1.
- 2.
- 3.

Initiator signature

COURSE CONTENT GUIDE
University of Alaska Anchorage
School of Engineering

Date: July 12, 2005

Course Title: AEST Thesis

Course Number: AEST A699

Credits: 1.0 – 6.0

Contact Hours: 1-6 + 0

I. Course Description:

Arranged between the advisor and the student. Generally the student has been admitted to candidacy for the master's degree and a thesis committee is formed. The student must take an oral exam defending the thesis.

II. Course Design:

A. Course Intent: Designed for graduate students majoring in Applied Environmental Science & Technology (Thesis Option).

B. Course Credits: Ranges from One to Six (1-6) credits (1-6 lecture + 0 laboratory)

C. Total time of student participation:

1) Lecture: variable

2) Lab: 0

3) Outside: variable

D. Degree Program Status: Required course for graduate degrees in Applied Environmental Science & Technology (Thesis Option).

E. Fees: None

F. Grading Basis: A - F

G. Time Frame: May be scheduled in any time frame but not less than 1 week per credit.

H. Previous Course: The original course number for this course was EQE A699.

I. Coordination with other schools or colleges: School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve

J. Course Level Justification: Course outcomes meet the criteria for a 600 level course.

III. Course Activities:

Course activities consist of conducting research and communicating results.

IVa. Course Prerequisites:

none

IVb. Registration Restrictions:

Students must have advanced to candidacy in the AEST graduate program or have gained the instructor's approval.

V. Course Evaluation:

Methods of evaluation may include assessment of the thesis and a written and/or oral examination..

VI. Course Outline:

Specific to candidate requirements.

VII. Instructional Goals and Student Outcomes:

A. Instructional Goals

The instructional goals of this course are to:

1. promote the ability to conceive of and conduct a research project;
2. enhance the ability to work in a professional environment; and
3. enhance the ability to effectively communicate technical research results.

B. Student Outcomes

Upon successful completion of this course, students will be able to:

1. employ advanced methods of analysis;
2. utilize advanced scientific theory for the completion of a research project;
3. effectively manage long term research projects; and
4. effectively communicate technical results.

VIII. Suggested Texts:

n/a

IX. References/Bibliography:

n/a

Curriculum Coordination Form

Notification Date: 10-10-2005

Initiating unit: School of Engineering

Affected unit(s): School of Engineering, Department of Biological Sciences, Department of Chemistry, Department of Geology, Faculty List-serve

Course Prefix and Number: AEST A699

Previous Prefix and Number: EQE A699

Complete Course/Program Title:AEST Thesis

Previous Course/Program Title: AEST Thesis

Description of Action: Change of prefix and registration restrictions.

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

Any questions concerning the proposed changes may be addressed to the appropriate department chair, or the chair of the appropriate curriculum committee. Written comments may also be sent to the UAB or GAB, in care of the Governance Office, at the following address:

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Governance Office, ADM 213
3211 Providence Drive
Anchorage, AK 99508

If no written comments are received by the UAB or GAB within ten (10) days of notification date shown above, it is assumed that there are no objections to the proposal.

Note: Acknowledgement of coordination does not mean approval, it is only meant to verify that coordination has occurred.

Fee Request Form

1. School/College School of Engineering
2. Course Prefix and Number AEST A699
3. Title AEST Thesis
4. Lab Fee Account Number:
Org Obj Fund
5. Type of Action:
Add Deletion Change (Increase or Decrease)
6. Fee Amount: \$ 0.00 If a Change, please indicate the *current* approved lab fee \$
7. Anticipated Student enrollment per class section:
8. Projected costs of material per class section: \$
(Provide details under #10 Justification for lab fee)
9. Implementation Date Fall 2006
10. Justification for fee (include materials/supplies used and the cost per item).

Library Resource Form

Excerpts from the Northwest Association of Schools and Colleges Accreditation Handbook 1999 Edition

Standard Five - Library And Information Resources

Standard 5.A - Purpose and Scope

The primary purpose for library and information resources is to support teaching, learning, and, if applicable, research in ways consistent with, and supportive of, the institution's mission and goals. Adequate library and information resources and services, at the appropriate level for degrees offered, are available to support the intellectual, cultural, and technical development of students enrolled in courses and programs wherever located and however delivered.

Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: CE A600 / Fundamentals of Environmental Science and Engineering

17. Please identify the library liaison consulted in preparation of this proposal.

Name: Kate Gordon, the SOE library liaison, has been consulted with regard to this proposal.

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liaison.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

18. Please list any new library and information recommended to support the proposal.

- 1.
- 2.
- 3.

Initiator signature

COURSE CONTENT GUIDE
University of Alaska Anchorage
School of Engineering

Date: July 12, 2005

Course Title: Fundamentals of Environmental Science and Engineering

Course Number: CE A600

Credits: 3.0

Contact Hours: 3 + 0

I. Course Description:

A fundamental course in environmental science and engineering for students who have strong undergraduate training in the sciences or engineering. Provides basic and specialized understanding of essentially all fundamental aspects of the field with a focus upon aquatic and terrestrial environments. Emphasis is placed upon the fundamentals of biological, chemical, and physical science which underlie both natural and cultural environmental effects. Includes the use and application of equilibrium processes, mass and energy balances, processes that occur in natural systems and others.

II. Course Design:

A. Course Intent: Designed for graduate students majoring in engineering or environmental-related fields of study.

B. Course Credits: Three (3) credit course (3 lecture + 0 laboratory)

C. Total time of student participation:

1) Lecture: 45 hours/semester (3 hours/week)

2) Lab: 0

3) Outside: 90 hours/semester (6hours/week)

D. Degree Program Status: Elective course for graduate degrees in Civil Engineering or Applied Environmental Science & Technology.

E. Fees: None

F. Grading Basis: A - F

G. Time Frame: May be scheduled in any time frame but not less than 1 week per credit.

H. Previous Course: The original course number for this course was EQE A600.

I. Coordination with other schools or colleges: School of Engineering, Faculty List-serve

J. Course Level Justification: Course outcomes meet the criteria for a 600 level course.

III. Course Activities:

Class activities consist of lectures, assignments, and exams.

IVa. Course Prerequisites:

none

IVb. Registration Restrictions:

Registration is contingent upon enrollment in the CE or AEST graduate programs, or instructor approval.

V. Course Evaluation:

Methods of evaluation may include, but are not limited to: assignments, exams, and quizzes.

VI. Course Outline:

1. Units of Chemical Concentration
2. Thermodynamics and Equilibrium Processes
3. Oxidation/Reduction Processes
4. Mass and Energy Balances
5. Mass Transport Processes
6. Contaminant Transport
7. Ecosystem Structure
8. Population Dynamics and Energy Flow in Ecosystems
9. Biochemical, Theoretical, and Chemical Oxygen Demand
10. Dissolved Oxygen in Rivers
11. Nutrient Loading and Eutrophication in Lakes
12. Ecosystem Health and Public Welfare

VII. Instructional Goals and Student Outcomes:

A. Instructional Goals

The instructional goals of this course are to:

1. promote the ability to apply fundamental physical, chemical, and biological principals in the assessment of ecosystem dynamics;
2. enhance the ability to seek and evaluate information from printed and electronic resources regarding regulations, chemical properties, and environmental technologies;
3. promote the ability to evaluate individual ecosystem components with respect to site-specific contaminant characteristics; and
4. enhance the ability to organize and communicate environmental information through written and oral reports.

B. Student Outcomes

Upon successful completion of this course, students will be able to:

1. formulate strategies to characterize the environmental condition of ecosystem components;
2. evaluate the functional impacts of individual system components upon ecosystems as a whole; and
3. predict the impacts of individual physical, chemical, or biological changes upon the function of ecosystems as a whole.

VIII. Suggested Texts:

1. Environmental Engineering, Salvato, Nemerow, and Agardy, 5th ed., 2003. John Wiley & Sons, New York.
2. Fundamentals of Environmental Engineering, Mihelcic, 1st ed., 1999. John Wiley & Sons, New York.

IX. References/Bibliography:

1. Environmental Engineering Reference Manual for the PE Exam, Lindeburg, 2nd ed., 2003. Professional Publications, Belmont, CA.

2. Introduction to Environmental Engineering and Science, Masters, 2nd ed., 1997. Prentice-Hall, Upper Saddle River, NJ.

Curriculum Coordination Form

Notification Date: 10-10-2005

Initiating unit: School of Engineering

Affected unit(s): School of Engineering, Faculty List-serve

Course Prefix and Number: CE A600

Previous Prefix and Number: EQE A600

Complete Course/Program Title: Fundamentals of Environmental Science and Engineering

Previous Course/Program Title: Fundamentals of Environmental Science and Engineering

Description of Action: Change of course prefix and registration restrictions

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

Any questions concerning the proposed changes may be addressed to the appropriate department chair, or the chair of the appropriate curriculum committee. Written comments may also be sent to the UAB or GAB, in care of the Governance Office, at the following address:

University of Alaska Anchorage
Governance Office, ADM 213
3211 Providence Drive
Anchorage, AK 99508

If no written comments are received by the UAB or GAB within ten (10) days of notification date shown above, it is assumed that there are no objections to the proposal.

Note: Acknowledgement of coordination does not mean approval, it is only meant to verify that coordination has occurred.

Fee Request Form

1. School/College School of Engineering
2. Course Prefix and Number CE A600
3. Title Fundamentals of Environmental Science and Engineering
4. Lab Fee Account Number:
Org Obj Fund
5. Type of Action:
Add Deletion Change (Increase or Decrease)
6. Fee Amount: \$ 0.00 If a Change, please indicate the *current* approved lab fee \$
7. Anticipated Student enrollment per class section:
8. Projected costs of material per class section: \$
(Provide details under #10 Justification for lab fee)
9. Implementation Date
10. Justification for fee (include materials/supplies used and the cost per item).

Library Resource Form

Excerpts from the Northwest Association of Schools and Colleges Accreditation Handbook 1999 Edition

Standard Five - Library And Information Resources

Standard 5.A - Purpose and Scope

The primary purpose for library and information resources is to support teaching, learning, and, if applicable, research in ways consistent with, and supportive of, the institution's mission and goals. Adequate library and information resources and services, at the appropriate level for degrees offered, are available to support the intellectual, cultural, and technical development of students enrolled in courses and programs wherever located and however delivered.

Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: CE A605 / Chemical and Physical Water and Wastewater Treatment Processes

19. Please identify the library liaison consulted in preparation of this proposal.

Name: Kate Gordon, the SOE library liaison, has been consulted with regard to this proposal.

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liaison.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

20. Please list any new library and information recommended to support the proposal.

- 1.
- 2.
- 3.

Initiator signature

Curriculum Coordination Form

Notification Date: 10-10-2005

Initiating unit: School of Engineering

Affected unit(s): School of Engineering, Faculty List-serve

Course Prefix and Number: CE A605

Previous Prefix and Number: EQE A605

Complete Course/Program Title: Chemical and Physical Water and Wastewater Treatment Process

Previous Course/Program Title: Chemical and Physical Water and Wastewater Treatment Process

Description of Action: Change of course prefix and registration restrictions

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

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Fee Request Form

1. School/College SOE
2. Course Prefix and Number CE A605
3. Title Chemical and Physical and Wastewater Treatment Processes
4. Lab Fee Account Number:
Org Obj Fund
5. Type of Action:
Add Deletion Change (Increase or Decrease)
6. Fee Amount: \$ 0.00 If a Change, please indicate the *current* approved lab fee \$
7. Anticipated Student enrollment per class section:
8. Projected costs of material per class section: \$
(Provide details under #10 Justification for lab fee)
9. Implementation Date
10. Justification for fee (include materials/supplies used and the cost per item).

Library Resource Form

Excerpts from the Northwest Association of Schools and Colleges Accreditation Handbook 1999 Edition

Standard Five - Library And Information Resources

Standard 5.A - Purpose and Scope

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Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: CE A605 / Chemical and Physical Water and Wastewater Treatment Processes

21. Please identify the library liaison consulted in preparation of this proposal.

Name: Kate Gordon, the SOE library liaison, has been consulted with regard to this proposal.

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liaison.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

22. Please list any new library and information recommended to support the proposal.

- 1.
- 2.
- 3.

Initiator signature

Curriculum Coordination Form

Notification Date: 10-10-2005

Initiating unit: School of Engineering

Affected unit(s): School of Engineering, Faculty List-serve

Course Prefix and Number: CE A605

Previous Prefix and Number: EQE A605

Complete Course/Program Title: Chemical and Physical Water and Wastewater Treatment Process

Previous Course/Program Title: Chemical and Physical Water and Wastewater Treatment Process

Description of Action: Change of course prefix and registration restrictions

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

Any questions concerning the proposed changes may be addressed to the appropriate department chair, or the chair of the appropriate curriculum committee. Written comments may also be sent to the UAB or GAB, in care of the Governance Office, at the following address:

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Fee Request Form

1. School/College SOE
2. Course Prefix and Number CE A605
3. Title Chemical and Physical and Wastewater Treatment Processes
4. Lab Fee Account Number:
Org Obj Fund
5. Type of Action:
Add Deletion Change (Increase or Decrease)
6. Fee Amount: \$ 0.00 If a Change, please indicate the *current* approved lab fee \$
7. Anticipated Student enrollment per class section:
8. Projected costs of material per class section: \$
(Provide details under #10 Justification for lab fee)
9. Implementation Date
10. Justification for fee (include materials/supplies used and the cost per item).

Library Resource Form

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Standard 5.A - Purpose and Scope

The primary purpose for library and information resources is to support teaching, learning, and, if applicable, research in ways consistent with, and supportive of, the institution's mission and goals. Adequate library and information resources and services, at the appropriate level for degrees offered, are available to support the intellectual, cultural, and technical development of students enrolled in courses and programs wherever located and however delivered.

Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: CE A606 / Biological Treatment Processes

23. Please identify the library liaison consulted in preparation of this proposal.

Name: Kate Gordon, the SOE library liaison, has been consulted with regard to this proposal.

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liaison.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

24. Please list any new library and information recommended to support the proposal.

- 1.
- 2.
- 3.

Initiator signature



Curriculum Action Request

University of Alaska Anchorage

Proposal to Initiate, Add, Change, or Delete a Course or Program of Study

1a. School or College SOENGR		1b. Division		1c. Department Civil Engineering	
2. Course Prefix CE	3. Course Number A606	4. Previous Course Prefix & Number EQE A606		5a. Credits/CEU 3	5b. Contact Hours (Lecture + Lab) (3+0)
6. Complete Course/Program Title Biological Treatment Processes					
Abbreviated Title for Transcript (30 character)					
7. Type of Course <input checked="" type="checkbox"/> Academic <input type="checkbox"/> Non-credit <input type="checkbox"/> CEU <input type="checkbox"/> Professional Development					
8. Type of Action <input checked="" type="checkbox"/> Course <input type="checkbox"/> Program			9. Repeat Status No Limit Max Credits		
<input type="checkbox"/> Add <input checked="" type="checkbox"/> Prefix <input type="checkbox"/> Course Number <input checked="" type="checkbox"/> Change <input type="checkbox"/> Credits <input type="checkbox"/> Contact Hours <small>(mark appropriate boxes)</small> <input type="checkbox"/> Title <input type="checkbox"/> Repeat Status <input type="checkbox"/> Delete <input type="checkbox"/> Grading Basis <input type="checkbox"/> Cross-Listed/Stacked <input type="checkbox"/> Course Description <input type="checkbox"/> Course Prerequisites <input type="checkbox"/> Test Score Prerequisites <input type="checkbox"/> Corequisites <input type="checkbox"/> Other Restrictions <input checked="" type="checkbox"/> Registration Restrictions <input type="checkbox"/> Class <input type="checkbox"/> Level <input type="checkbox"/> College <input type="checkbox"/> Major <input type="checkbox"/> Other			10. Grading Basis <input checked="" type="checkbox"/> A-F <input type="checkbox"/> P/NP <input type="checkbox"/> NG		
			11. Implementation Date semester/year From: Fall/2006 To: 9999/		
			12. <input type="checkbox"/> Cross Listed with _____ <input type="checkbox"/> Stacked with _____ Cross-Listed Coordination Signature		
13. Coordinate with Affected Units: School of Engineering, Faculty List-serve Department, School, or College <div style="text-align: right;">_____ Initiator Signature Date</div>					
14. List any programs or college requirements that require this course					
15. <input type="checkbox"/> General Education Requirement <input type="checkbox"/> Oral Communication <input type="checkbox"/> Written Communication <input type="checkbox"/> Quantitative Skills <input type="checkbox"/> Humanities <input type="checkbox"/> Fine Arts <input type="checkbox"/> Social Sciences <input type="checkbox"/> Natural Sciences					
16. Course Description Study of the theoretical and biological processes including activated sludge, trickling filters, lagoons, sludge digestion and processing, septic tanks, analysis and design, nutrient removal processes, biology of polluted waters, economics, state and federal regulations.					
17a. Course Prerequisite(s) (list prefix and number)		17b. Test Score(s)		17c. Corequisite(s) (concurrent enrollment required)	
17d. Other Restriction(s) <input type="checkbox"/> College <input checked="" type="checkbox"/> Major <input type="checkbox"/> Class <input checked="" type="checkbox"/> Level			17e. Registration Restriction(s) (non-codable) Registrants must be enrolled in the AEST or CE graduate programs, or gain instructor approval.		
18. <input type="checkbox"/> Mark if course has fees					
19. Justification for Action The changes to this course are proposed in support of modifications to the CE graduate degree program.					

COURSE CONTENT GUIDE
University of Alaska Anchorage
School of Engineering

Date: July 12, 2005

Course Title: Biological Treatment Processes

Course Number: CE A606

Credits: 3.0

Contact Hours: 3 + 0

I. Course Description:

Study of the theoretical and biological processes including activated sludge, trickling filters, lagoons, sludge digestion and processing, septic tanks, analysis and design, nutrient removal processes, biology of polluted waters, economics, state and federal regulations.

II. Course Design:

A. Course Intent: Designed for graduate students majoring in engineering or environmental-related fields of study.

B. Course Credits: Three (3) credit course (3 lecture + 0 laboratory)

C. Total time of student participation:

1) Lecture: 45 hours/semester (3 hours/week)

2) Lab: 0

3) Outside: 90 hours/semester (6hours/week)

D. Degree Program Status: Elective course for graduate degrees in Civil Engineering or Applied Environmental Science & Technology.

E. Fees: None

F. Grading Basis: A - F

G. Time Frame: May be scheduled in any time frame but not less than 1 week per credit.

H. Previous Course: The original course number for this course was EQE A606.

I. Coordination with other schools or colleges: School of Engineering, Faculty List-serve

J. Course Level Justification: Course outcomes meet the criteria for a 600 level course.

III. Course Activities:

Class activities consist of lectures, assignments, and exams.

IVa. Course Prerequisites:

none

IVb. Registration Restrictions:

Registration is contingent upon enrollment in the CE or AEST graduate programs, or instructor approval.

V. Course Evaluation:

Methods of evaluation may include, but are not limited to: assignments, exams, and quizzes.

VI. Course Outline:

1. Constituents of Wastewater
2. Analysis and Selection of Flow Rates and Loading
3. Process Analysis and Selection
4. Suspended Growth Processes
5. Attached Growth and Combined Treatment Processes
6. Anaerobic Treatment Processes
7. Treatment, Reuse, and Disposal of Biosolids

VII. Instructional Goals and Student Outcomes:

A. Instructional Goals

The instructional goals of this course are to:

1. promote the ability to evaluate biological unit processes;
2. enhance the ability to perform technical calculations necessary for unit process design; and
3. engender an appreciation for the history of the topic and current state of the art.

B. Student Outcomes

Upon successful completion of this course, students will be able to:

1. evaluate the function of modern biological unit processes for wastewater treatment;
2. perform preliminary engineering design and analysis calculations for individual biological unit processes and entire wastewater treatment streams; and
3. effectively communicate technical information regarding unit processes with water/wastewater professionals..

VIII. Suggested Texts:

1. Wastewater Engineering: Treatment and Reuse, Metcalf and Eddy, 4th ed., 2002. McGraw-Hill, New York..

IX. References/Bibliography:

1. Small and Decentralized Wastewater Management Systems, Crites and Tchobanoglous, 1st ed., 1998. McGraw-Hill, New York.
2. Wastewater Engineering, Tchobanoglous, Burton, and Stensel, 4th ed., 2003. McGraw-Hill, New York.

Curriculum Coordination Form

Notification Date: 10-10-2005

Initiating unit: School of Engineering

Affected unit(s): School of Engineering, Faculty List-serve

Course Prefix and Number: EQE A606 Previous Prefix and Number: CE A606

Complete Course/Program Title: Biological Treatment Processes

Previous Course/Program Title: Biological Treatment Processes

Description of Action: Change of course prefix and registration restrictions

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

Any questions concerning the proposed changes may be addressed to the appropriate department chair, or the chair of the appropriate curriculum committee. Written comments may also be sent to the UAB or GAB, in care of the Governance Office, at the following address:

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Governance Office, ADM 213
3211 Providence Drive
Anchorage, AK 99508

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Note: Acknowledgement of coordination does not mean approval, it is only meant to verify that coordination has occurred.

Fee Request Form

1. School/College SOE
2. Course Prefix and Number CE A606
3. Title Biological Treatment Processes
4. Lab Fee Account Number:
Org Obj Fund
5. Type of Action:
Add Deletion Change (Increase or Decrease)
6. Fee Amount: \$ 0.00 If a Change, please indicate the *current* approved lab fee \$
7. Anticipated Student enrollment per class section:
8. Projected costs of material per class section: \$
(Provide details under #10 Justification for lab fee)
9. Implementation Date
10. Justification for fee (include materials/supplies used and the cost per item).

Library Resource Form

Excerpts from the Northwest Association of Schools and Colleges Accreditation Handbook 1999 Edition

Standard Five - Library And Information Resources

Standard 5.A - Purpose and Scope

The primary purpose for library and information resources is to support teaching, learning, and, if applicable, research in ways consistent with, and supportive of, the institution's mission and goals. Adequate library and information resources and services, at the appropriate level for degrees offered, are available to support the intellectual, cultural, and technical development of students enrolled in courses and programs wherever located and however delivered.

Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: CE A605 / Chemical and Physical Water and Wastewater Treatment Processes

25. Please identify the library liaison consulted in preparation of this proposal.

Name: Kate Gordon, the SOE library liaison, has been consulted with regard to this proposal.

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liaison.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

26. Please list any new library and information recommended to support the proposal.

- 1.
- 2.
- 3.

Initiator signature

Curriculum Coordination Form

Notification Date: 10-10-2005

Initiating unit: School of Engineering

Affected unit(s): School of Engineering, Faculty List-serve

Course Prefix and Number: CE A605

Previous Prefix and Number: EQE A605

Complete Course/Program Title: Chemical and Physical Water and Wastewater Treatment Process

Previous Course/Program Title: Chemical and Physical Water and Wastewater Treatment Process

Description of Action: Change of course prefix and registration restrictions

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

Any questions concerning the proposed changes may be addressed to the appropriate department chair, or the chair of the appropriate curriculum committee. Written comments may also be sent to the UAB or GAB, in care of the Governance Office, at the following address:

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Note: Acknowledgement of coordination does not mean approval, it is only meant to verify that coordination has occurred.

Fee Request Form

1. School/College SOE
2. Course Prefix and Number CE A605
3. Title Chemical and Physical and Wastewater Treatment Processes
4. Lab Fee Account Number:
Org Obj Fund
5. Type of Action:
Add Deletion Change (Increase or Decrease)
6. Fee Amount: \$ 0.00 If a Change, please indicate the *current* approved lab fee \$
7. Anticipated Student enrollment per class section:
8. Projected costs of material per class section: \$
(Provide details under #10 Justification for lab fee)
9. Implementation Date
10. Justification for fee (include materials/supplies used and the cost per item).



Curriculum Action Request

University of Alaska Anchorage

Proposal to Initiate, Add, Change, or Delete a Course or Program of Study

1a. School or College SOENGR		1b. Division		1c. Department N/A	
2. Course Prefix N/A	3. Course Number N/A	4. Previous Course Prefix & Number N/A		5a. Credits/CEU N/A	5b. Contact Hours (Lecture + Lab) (N/A+)
6. Complete Course/Program Title Applied Environmental Science and Technology <small>Abbreviated Title for Transcript (30 character)</small>					
7. Type of Course <input type="checkbox"/> Academic <input type="checkbox"/> Non-credit <input type="checkbox"/> CEU <input type="checkbox"/> Professional Development					
8. Type of Action <input type="checkbox"/> Course <input checked="" type="checkbox"/> Program			9. Repeat Status Limit Max Credits		
<input checked="" type="checkbox"/> Add <input type="checkbox"/> Prefix <input type="checkbox"/> Course Number <input type="checkbox"/> Change <input type="checkbox"/> Credits <input type="checkbox"/> Contact Hours <small>(mark appropriate boxes)</small> <input type="checkbox"/> Delete <input type="checkbox"/> Title <input type="checkbox"/> Repeat Status <input type="checkbox"/> Grading Basis <input type="checkbox"/> Cross-Listed/Stacked <input type="checkbox"/> Course Description <input type="checkbox"/> Course Prerequisites <input type="checkbox"/> Test Score Prerequisites <input type="checkbox"/> Corequisites <input type="checkbox"/> Other Restrictions <input type="checkbox"/> Registration Restrictions <input type="checkbox"/> Class <input type="checkbox"/> Level <input type="checkbox"/> College <input type="checkbox"/> Major <input type="checkbox"/> Other			10. Grading Basis <input type="checkbox"/> A-F <input type="checkbox"/> P/NP <input type="checkbox"/> NG		
			11. Implementation Date semester/year From: Fall/2006 To: /		
			12. <input type="checkbox"/> Cross Listed with _____ <input type="checkbox"/> Stacked with _____ Cross-Listed Coordination Signature		
13. Coordinate with Affected Units: School of Engineering; Department of Biological Sciences, Department of Chemistry, Department of Geology, Department of Mathematical Sciences, Faculty List-Serv Department, School, or College _____ Initiator Signature Date					
14. List any programs or college requirements that require this course N/A					
15. <input type="checkbox"/> General Education Requirement <input type="checkbox"/> Oral Communication <input type="checkbox"/> Written Communication <input type="checkbox"/> Quantitative Skills <input type="checkbox"/> Humanities <input type="checkbox"/> Fine Arts <input type="checkbox"/> Social Sciences <input type="checkbox"/> Natural Sciences					
16. Course Description See attached catalog copy					
17a. Course Prerequisite(s) (list prefix and number) N/A		17b. Test Score(s) N/A		17c. Corequisite(s) (concurrent enrollment required) N/A	
17d. Other Restriction(s) <input type="checkbox"/> College <input type="checkbox"/> Major <input type="checkbox"/> Class <input type="checkbox"/> Level			17e. Registration Restriction(s) (non-codable) N/A		
18. <input type="checkbox"/> Mark if course has fees					
19. Justification for Action This new program is intended to replace the existing Environmental Quality Engineering / Environmental Quality Science program with a more interdisciplinary approach that is reflective of current and projected trends in the field.					

Library Resource Form

Excerpts from the Northwest Association of Schools and Colleges Accreditation Handbook 1999 Edition

Standard Five - Library And Information Resources

Standard 5.A - Purpose and Scope

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Standard Two - Educational Program And Its Effectiveness

Standard 2.A. - General Requirements

2.A.8 Faculty, in partnership with library and information resources personnel, ensure that the use of library and information resources is integrated into the learning process.

Program/Course Title: CE A605 / Chemical and Physical Water and Wastewater Treatment Processes

27. Please identify the library liaison consulted in preparation of this proposal.

Name: Kate Gordon, the SOE library liaison, has been consulted with regard to this proposal.

To see who your library liaison is at:

UAA go to: <http://www.lib.uaa.alaska.edu/webgroup/liason.php3>

Kenai Peninsula College go to: <http://www.uaa.alaska.edu/kenai/KPC%20Library%20Webpage/frameset.html>

Kodiak College go to: <http://www.koc.alaska.edu/library/default.html>

Mat-Su College go to: http://www.matsu.alaska.edu/library/library_staff.htm

28. Please list any new library and information recommended to support the proposal.

- 1.
- 2.
- 3.

Initiator signature

Fee Request Form

1. School/College SOE
2. Course Prefix and Number CE A605
3. Title Chemical and Physical and Wastewater Treatment Processes
4. Lab Fee Account Number:
Org Obj Fund
5. Type of Action:
Add Deletion Change (Increase or Decrease)
6. Fee Amount: \$ 0.00 If a Change, please indicate the *current* approved lab fee \$
7. Anticipated Student enrollment per class section:
8. Projected costs of material per class section: \$
(Provide details under #10 Justification for lab fee)
9. Implementation Date
10. Justification for fee (include materials/supplies used and the cost per item).

Curriculum Coordination Form

Notification Date: 10-10-2005

Initiating unit: School of Engineering

Affected unit(s): School of Engineering, Faculty List-serve

Course Prefix and Number: CE A605

Previous Prefix and Number: EQE A605

Complete Course/Program Title: Chemical and Physical Water and Wastewater Treatment Process

Previous Course/Program Title: Chemical and Physical Water and Wastewater Treatment Process

Description of Action: Change of course prefix and registration restrictions

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

Any questions concerning the proposed changes may be addressed to the appropriate department chair, or the chair of the appropriate curriculum committee. Written comments may also be sent to the UAB or GAB, in care of the Governance Office, at the following address:

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Governance Office, ADM 213
3211 Providence Drive
Anchorage, AK 99508

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Note: Acknowledgement of coordination does not mean approval, it is only meant to verify that coordination has occurred.

COURSE CONTENT GUIDE
University of Alaska Anchorage
School of Engineering

Date: July 12, 2005

Course Title: Chemical and Physical Water and Wastewater Treatment Processes

Course Number: CE A605

Credits: 3.0

Contact Hours: 3 + 0

I. Course Description:

The theory and design of chemical and physical unit processes utilizing the treatment of water and wastewater. Sedimentation and flotation, ion exchange, adsorption, coagulation, precipitation, filtration, disinfection, reverse osmosis and aeration theories will be studied. Design problems for all unit processes.

II. Course Design:

A. Course Intent: Designed for graduate students majoring in engineering or environmental-related fields of study.

B. Course Credits: Three (3) credit course (3 lecture + 0 laboratory)

C. Total time of student participation:

1) Lecture: 45 hours/semester (3 hours/week)

2) Lab: 0

3) Outside: 90 hours/semester (6hours/week)

D. Degree Program Status: Elective course for graduate degrees in Civil Engineering or Applied Environmental Science & Technology.

E. Fees: None

F. Grading Basis: A - F

G. Time Frame: May be scheduled in any time frame but not less than 1 week per credit.

H. Previous Course: The original course number for this course was EQE A605.

I. Coordination with other schools or colleges: School of Engineering, Faculty List-serve

J. Course Level Justification: Course outcomes meet the criteria for a 600 level course.

III. Course Activities:

Class activities consist of lectures, assignments, and exams.

IVa. Course Prerequisites:

none

IVb. Registration Restrictions:

Registration is contingent upon enrollment in the CE or AEST graduate programs, or instructor approval.

V. **Course Evaluation:**

Methods of evaluation may include, but are not limited to: assignments, exams, and quizzes.

VI. **Course Outline:**

1. Fundamentals of Process Design
2. Coagulation
3. Flocculation
4. Filtration
5. Disinfection
6. Membrane Processes
7. Adsorption

VII. **Instructional Goals and Student Outcomes:**

A. Instructional Goals

The instructional goals of this course are to:

1. promote the ability to evaluate chemical and physical unit processes;
2. enhance the ability to perform technical calculations necessary for unit process design; and
3. engender an appreciation for the history of the topic and current state of the art.

B. Student Outcomes

Upon successful completion of this course, students will be able to:

1. evaluate the function of modern chemical and physical unit processes for water and wastewater treatment;
2. perform preliminary engineering design and analysis calculations for individual physical/chemical unit processes and entire water/wastewater treatment streams; and
3. effectively communicate technical information regarding unit processes with water/wastewater professionals.

VIII. **Suggested Texts:**

1. Unit Processes in Drinking Water Treatment, Masschelein, 1st ed., 1992. Marcel Dekker, New York.

IX. **References/Bibliography:**

1. Water Treatment: Principles and Design, Montgomery, 2nd ed., 2005. John Wiley and Sons, New York.
2. Wastewater Engineering, Tchobanoglous, Burton, and Stensel, 4th ed., 2003. McGraw-Hill, New York.
3. Wastewater Engineering: Treatment and Reuse, Metcalf and Eddy, 4th ed., 2002. McGraw-Hill, New York.

Appendix C:

Coordination

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UNIVERSITY of ALASKA ANCHORAGE

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December 10, 2004

To: Don Spallinger (Biology), John Kennish (Chemistry) and LeeAnn Munk (Geology), Jeff Welker (ENRI) - for distribution to all interested faculty.

From: Craig Woolard

Re: Applied Environmental Science Degree Proposal

CC: Rob Lang, Dean School of Engineering; Kerry Feldman, Interim Dean, CAS; Jim Liska, Interim Vice-Provost for Research and Graduate Studies.

As you're all aware, UAA's new administration is emphasizing (and presumably

rewarding) collaboration between colleges. Most of us are pleased to see an emphasis on interdisciplinary activities because we realize that our progress as an institution will depend in part upon how effectively we break through traditional academic barriers.

One approach for facilitating collaboration is to establish an interdisciplinary degree program. This memo outlines the basic content of a graduate degree in Applied Environmental Science (AES), an interdisciplinary degree program that will, by its very nature, stimulate collaboration between the sciences and engineering. Indeed, we believe that such a collaborative effort represents the most effective means for teaching environmental science, as the topics covered in environmental science originate from a broad array of traditional science and engineering disciplines. The long term vision for the AES program is to create a truly interdisciplinary degree that is managed by a team of faculty from biology, chemistry, engineering and geology. This management team would screen all applications, make admissions decisions and assign faculty advisors. Faculty from each discipline would participate in the delivery of courses and the advising/mentoring of graduate students. No one department or college would “own” the program.

The AES Master’s degree would be designed for students planning to seek employment as practicing environmental professionals in the academic, regulatory, industrial, military, or consulting sectors. Students in the program would develop an understanding of environmental principles through advanced studies in the life sciences, physical sciences, geosciences, environmental engineering, and project management. This degree program will offer a thesis option for students interested in pursuing original research during the course of their studies, and will also offer a non-thesis option for students desiring to focus their efforts upon non-research oriented professional development. Both options will promote meaningful collaboration between the students and an interdisciplinary faculty team, and both options will provide an excellent foundation for a career in the applied environmental sciences. The AES degree program is to supplement and enhance the current discipline specific graduate degrees offered at UAA.

This degree program has several advantages.

- The AES degree will provide a structure for interdisciplinary collaboration. By collectively evaluating and admitting students, the AES faculty can ensure that students are directed to the best courses and most qualified faculty to help them realize their educational objectives.
- The AES degree will provide access to a graduate program for faculty and students in departments without a graduate program.

- The AES degree will open many of our existing graduate courses to a new group of students which should increase enrolments.
- The AES degree requires utilizes existing courses and requires no new faculty resources to initiate the program.

Faculty from biology, chemistry, engineering and geology have met and discussed the concept of the AES master's program. While we have several details yet to discuss, there is a general consensus that the degree program has merit and will benefit the teaching and research missions of the university.

I have included a *draft* copy of the catalog description of the AES program. It describes a program that is flexible enough to be tailored to individual student needs but contains enough structure to ensure that graduates have been exposed to critical science, engineering and management concepts.

As per our discussion on December 3, a plan to implement the AES degree program could proceed as follows:

- Starting January 2005, faculty from biology, chemistry and geology will be involved in managing the existing Environmental Quality Science (EQS) program currently housed within the School of Engineering. This faculty team will make all admissions decisions and assign academic advisors. Members of the faculty team will be appointed by the Dean and/or Chairs in CAS and Engineering. (Note that the existing EQS degree is already interdisciplinary in nature with faculty from several disciplines routinely serving on graduate committees. The revisions to the EQS program will formalize and strengthen our current collaborative efforts).
- In the Spring 2005 semester, a package will be submitted to the Graduate Affairs Board (GAB) that revises the content of the existing EQS program to accurately reflect the formal interdisciplinary nature of the degree program. This package will update the admissions requirements, the courses required for graduation, and document the new management structure.
- In the Fall 2005, we will initiate the creation of a new graduate degree program in Applied Environmental Science (AES) to replace the EQS degree. The AES degree will institutionalize the interdisciplinary shared degree program. Since the AES will be a new degree program, this request must go through the Board of Regents. This process will require approximately 1 academic year and when it is complete, the AES will be a independent degree program that will set the standard for interdisciplinary collaboration at UAA.

Our next step is to solicit participation from the faculty in your departments and institutes. Please distribute this memorandum as you see fit to the faculty in your departments. While I don't believe we must have full participation from every faculty member in each department in for the AES program to be successful, the

more faculty that are involved will strengthen the program and our potential for long-term growth.

Early in January, I propose to convene a meeting of the interested faculty to revise and finalize the degree program requirements and submit the required documentation to GAB and the BOR. Please let me know the first week of the Spring semester who will be participating from your departments.

From: Bill Schnabel [afwes@uaa.alaska.edu]
Sent: Thursday, October 06, 2005 3:35 PM
To: anjmc2@uaa.alaska.edu
Subject: FW: Curriculum Coordination Announcement - 2nd email

From: uaa-faculty-admin@lists.uaa.alaska.edu [mailto:uaa-faculty-admin@lists.uaa.alaska.edu]
On Behalf Of Hillary Comeaux
Sent: Thursday, October 06, 2005 3:22 PM
To: uaa-faculty@uaa.alaska.edu
Subject: Curriculum Coordination Announcement - 2nd email

Curriculum Coordination Announcement

The UAA School of Engineering proposes the following changes to the graduate program in Environmental Quality Engineering / Environmental Quality Science (EQE/EQS):

The School of Engineering proposes to discontinue the current EQE/EQS graduate program and replace it with a new interdisciplinary program. Students seeking a graduate degree in Environmental Quality Engineering will be directed to the Civil Engineering graduate program, under which an Environmental Engineering tract is being planned. Proposed changes to the Civil Engineering program will be detailed in a subsequent proposal. Students seeking a graduate degree in Environmental Quality Science will be directed to a new interdisciplinary Applied Environmental Science & Technology (AEST) program. The purpose of this proposal is to detail the new AEST program.

The AEST program was developed through an interdisciplinary effort between faculty members in the SOE Department of Civil Engineering and the CAS Departments of Biological Sciences, Chemistry, and Geological Sciences. The purpose of the program is to allow students access to a wider variety of courses than was offered in the previous EQS program in order to better represent the diversity of specialties contained within the broad field of environmental science. An equally important function of the new program is to encourage interdisciplinary research collaborations between faculty and students from different departments.

In order to institute the curricular changes necessary, all graduate courses currently listed under the EQE/EQS prefix will either

be discontinued or reclassified under a CE or AEST prefix. Current EQE courses to be reclassified under a CE prefix include Fundamentals of Environmental Science and Engineering (EQE A600), Chemical and Physical Water and Wastewater Treatment Processes (EQE A605), and Biological Treatment Processes (EQE A606). Current EQE/EQS courses to be reclassified under an AEST prefix include Aquatic Process Chemistry (EQE A601), Water Quality Management (EQE A602), Solid Waste Management (EQE A603), Fundamentals of Air Pollution (EQE A608), Remediation (EQE A613), Individual Research (EQE A698), and EQE Thesis (EQE A699). Course names for these classes will change slightly to reflect the reclassification. The current course entitled EQE Project (EQE A684) will be discontinued.

In order to complete the degree, students will be required to select from lists of courses categorized as either Analysis, Environmental Engineering, Chemistry, Biology, or Geology. Students will be required to complete at least one course from each category. Most of the courses listed as Analysis courses will have Applied Statistics (AS) prefixes. Most the courses listed as Environmental Engineering courses will have CE or AEST prefixes. The courses categorized as Chemistry, Biology, and Geology are listed under those departmental prefixes (CHEM, BIOL, and GEOL).

Detailed descriptions of the curricular changes are available from the School of Engineering. Please contact Dr. Bill Schnabel for further information.

Regards,

Bill Schnabel

786-1912

schnabel@uaa.alaska.edu

5 August 2004

**Graduate Programming and Administration at the
University of Alaska Anchorage:
Evaluation and Recommendations**

Introduction

A two-person review team appointed by the [Council of Graduate Schools](#) visited the University of Alaska Anchorage (UAA) on May 24-25, 2004 to examine the university's graduate programming and its administration and to formulate recommendations for the promotion of the university's graduate-studies mission. The members of the team are listed at the end of this document.

In advance of, and during, the May 2004 visit the team was aided by these informative university documents:

- University of Alaska Anchorage *Catalog*. 2003-04.
- *A Profile of Graduate Studies at the University of Alaska Anchorage. Part 1: Program Types, Trends, Productivity and Costs*. James Liszka. May 6, 2004.
- *A Profile of Graduate Studies at the University of Alaska Anchorage. Part 2: Graduate Student Profile*. James Liszka. May 6, 2004.
- *A Profile of Graduate Studies at the University of Alaska Anchorage. Part 3: Graduate Program Standards at the University of Alaska Anchorage*. James Liszka. May 6, 2004.
- *Current Issues in Graduate Education at the University of Alaska Anchorage*. James Liszka. April 29, 2004.
- *Constitution of the Faculty Senate. University of Alaska Anchorage*. May 2002.
- *Bylaws of the Constitution of the Faculty Senate. University of Alaska Anchorage*. May 2002
- *Building UAA's Research Excellence Through Externally Funded Programs: A Universe of Horizons*. Office of Sponsored Programs.

- *The University of Alaska System Strategic Plan 2009—Building Higher Education for Alaska’s Golden Century*. Working draft of January 9, 2003. Mark R. Hamilton.

Additionally, the team had the benefit of a dozen meetings with a total of more than 25 representatives of the university’s administrators and faculty (including the Provost, the Vice Provost for Research and Graduate Studies, the Interim Director of Graduate Studies, several college deans, and faculty from a number of graduate programs) and seven graduate students.

It is relevant to note at the outset that offering graduate-level programming at the University of Alaska Anchorage is consonant with *The University of Alaska System Strategic Plan 2009—Building Higher Education for Alaska’s Golden Century*; for example:

- The institutions composing the University of Alaska System are to exhibit excellence in providing “the social, economic, scientific, civic, and cultural leadership of the state.” Preparation to contribute to social, economic, scientific, civic, and cultural advancement very often is enhanced by post-baccalaureate experiences.
- UAA is “the urban center of the University of Alaska System” and is “a comprehensive metropolitan University” that “provides opportunities to all who can benefit from education programs of high quality.” The academic needs of a diverse metropolitan region include post-baccalaureate education for a variety of alumni goals.
- UAA “inspires learning and enriches Alaska, the nation, and the world through UAA teaching, research, creativity, and service.” The achievements of this university’s faculty, students, and alumni are abetted by their involvement in graduate-level education.
- UAA focuses “on undergraduate and graduate education through the master’s degree, with particular emphasis on fields such as business, nursing, public administration, engineering, English and the liberal arts, biology, and teacher education.” A person’s employment opportunities and advancement, and his or her contributions to social and economic progress, often benefit from post-baccalaureate education in these and other academic areas.

Status of Graduate Programming at UAA

Current Graduate Administration

The University of Alaska Anchorage is classified by the [Carnegie Foundation for](#)

[the Advancement of Teaching](#) as a Master's College and University I (offering a wide range of baccalaureate programs, with a commitment to graduate education through the master's degree; awarding at least 40 master's degree per year across at least three disciplines). Unlike most Master's I universities, UAA has no central administration for its graduate programs (such as a "Graduate School" or "Graduate College"). Although the 2003-04 UAA *Catalog* lists typical graduate-study policies (pp. 256-261), there does not appear to be a centralized standard process for interpreting and enforcing these policies."

Proposed new graduate policies and programs are submitted by college curriculum committees to the Graduate Academic Board (GAB) for consideration. The GAB forwards recommended new programs to the Provost's Office which sends them sequentially to the Faculty Senate, the University of Alaska system office, and then the Board of Regents for final approval.

Graduate Degree Programs

The University of Alaska Anchorage awards the graduate degrees listed in the table below. Accreditation by national professional organizations is available for some of these programs, and if it has been attained by UAA it is noted in parentheses.

College of Arts and Sciences	Master of Arts in Anthropology
	Master of Arts in English
	Master of Fine Arts in Creative Writing and Literary Arts
	Master of Science in Biological Sciences
	Master of Science in Clinical Psychology
College of Business and Public Policy	Master of Business Administration (AACSB International)
	Master of Public Administration
	Master of Science in Global Supply Chain Management
College of Education	Master of Arts in Teaching
	Master of Education <ul style="list-style-type: none"> • Adult Education • Counseling and Guidance • Educational Leadership • Master Teacher • Special Education
College of Health and Social Welfare	Master of Science in Nursing Science (National League for Nursing)
	Master of Public Health
	Master of Social Work (Council of

	Social Work Education)
Community and Technical College	Master of Science in Vocational Education [admission currently suspended]
School of Engineering	Master of Civil Engineering
	Master of Science in Arctic Engineering
	Master of Science in Civil Engineering
	Master of Science in Engineering Management
	Master of Science in Environmental Quality Engineering
	Master of Science in Environmental Quality Science
	Master of Science in Science Management
	Master of Science in Project Management
Not Assigned to a College or School	Master of Arts in Interdisciplinary Studies
	Master of Science in Interdisciplinary Studies

Cooperative Graduate Degree Programs

The university also cooperates with the University of Alaska Fairbanks (UAF) to offer a program leading to the Master of Science degree in Computer Science (which is awarded by UAF). Although UAA does not offer autonomous doctoral degrees, it is engaged in a cooperative Ph.D. program with the University of Alaska Fairbanks (UAF) in the biological sciences. The university is also considering a similar UAA-UAF cooperative Ph.D. program in clinical psychology. In both cases, the Ph.D. degree is, or will be, awarded by UAF. The UAA School of Nursing facilitates the delivery of a Ph.D. program in nursing in the Anchorage area through the Oregon Health and Science University. Currently, UAA is in negotiation for cooperative graduate programs in education (Ed.D., with the University of Nevada Las Vegas) and speech pathology (Au.D., M.A., M.S., with East Carolina University and, additionally, with the University of Northern Colorado), and some others may be seriously considered.

Graduate Certificate Programs

According to the UAA Web site ([Academics: Graduate Certificates](#)), the university awards twelve graduate certificates in various specialties of counseling, education, and nursing. The 2003-04 UAA *Catalog* mentions

“graduate level certificates” and indicates that some are offered by the College of Education (see page 260) but no graduate certificates are listed in the master index of certificates and degrees (see page 6). A personal communication from James Liszka indicates that the Web site cited directly above is in error and that four graduate certificates are offered at UAA: Educational Leadership—Principal, Educational Leadership—Superintendent, Psychiatric and Mental Health Nurse Practitioner, and Family Nurse Practitioner. Steps are currently underway to correct the Web site. The 2004-05 UAA *Catalog* lists the two nursing certificates (see page 7 of the *Catalog*) and will be updated next year to include the two educational leadership certificates which were approved after the catalog deadline.

Graduate Enrollment Metrics

The number of graduate degrees awarded by UAA over the last five years for which data are available (1998-2003) is 1,006 or an average of about 200 degrees per year (all master’s degrees). Most of these degrees are earned in the College of Education and the College of Business and Public Policy. Consistent with the national growth in total master’s degrees awarded over the last 15 years, UAA annual graduate degree production has trended upward since the 1987-88 academic year although the data show considerable annual fluctuations and a marked downturn in the 1999-2002 interval. The graduate-student head count at UAA during 1998-2003 averages about 615 students (about 3-4% of the total UAA student body). The graduate student FTE (full-time equivalent) for the same interval averages about 470 per semester. These data are from a profile of graduate studies at UAA prepared by Dr. James Liszka (6 May 2004).

Graduate Programming in a Metropolitan University

The University of Alaska Anchorage is the urban heart of the University of Alaska system and offers credentials that range from vocational certificates through master’s degrees. Although UAA includes community and extended campuses throughout south-central Alaska, the main campus is located in Anchorage. This municipality is the largest metropolitan area in Alaska, with a July 2002 estimated population of 270,000, which is more than 40% of the state population ([Table SUB-EST2002-10-02-Alaska, U.S. Census Bureau](#)). Publications of UAA and the Anchorage Chamber of Commerce identify Anchorage as a center of communication, transportation (especially international air travel), health care, finance, tourism, and the trade industry. The location of Anchorage at high latitude in the northern Pacific region is vital to East-West trade routes between the United States, Japan, and Russia, and has led to a strong military presence. Anchorage is very much an “urban metropolis surrounded by wilderness,” which clearly dictates much of the character of UAA.

Consistent with its urban setting, UAA is a member of the Coalition of Urban and

Metropolitan Universities (CUMU). This organization has adopted the following guiding principles for leaders of its member institutions (see the [CUMU Declaration of Metropolitan Universities](#)):

- reaffirm that the creation, interpretation, dissemination, and application of knowledge are the fundamental functions of our institutions;
- accept a broad responsibility to bring these functions to bear on our metropolitan regions;
- commit our institutions to be responsive to the needs of our communities by seeking new ways of using resources to provide leadership in addressing metropolitan problems through teaching, research, and service.

Although the CUMU guiding principles embrace the traditional functions of the university, they also underscore the responsibility to focus those functions on the needs of the local community. As a result, metropolitan universities typically develop graduate programming that is dominated by a set of professional master's-degree programs, typically in education, business, public administration, engineering, social work, and health care, with emphases that reflect the characteristics of the specific urban setting. It is therefore logical and appropriate that professional master's programs play a central role in graduate education at UAA, and the university is encouraged to ensure their good quality.

The development of scholarly graduate programs at a metropolitan university is marked by interdisciplinarity and by research or creative activity that is local in inspiration but global in implication. Referring again to the [CUMU Declaration of Metropolitan Universities](#), research must “seek and exploit opportunities for linking basic investigations with practical application, and for creating interdisciplinary partnerships for attacking complex metropolitan problems, while meeting the highest standards of the academic community.” Of course, a faculty member submitting a grant application should not be burdened with worries over the fit of the proposed work to the CUMU research principle. Rather, it is the obligation of institutional leaders to understand faculty research strengths and to develop mechanisms (e.g., centers, institutes, partnerships, technology transfer) that promote interdisciplinarity and provide linkage to local organization and applications.

Since resources are always limited, especially at a maturing university like UAA, the development of scholarly programs at the master's and doctoral levels can easily be marked by poor quality if priorities are not established. It is clear that the university should maintain basic strengths in the arts, humanities, social sciences, mathematics, and natural sciences. The deans responsible for these areas can therefore be expected to hire competent faculties. Some faculty members will generate vigorous research programs and a concomitant desire for fast-track development of graduate programs. Although no academic unit sets out to create a poor graduate program, impatience coupled with limited resources will likely lead to this result. It is important that deans understand the status of their existing graduate programs, that they set clear priorities and funding metrics

for new programs, and that program planners be realistic about needs, especially the need for an adequate number of faculty to permit increased research activities, reduced teaching loads, and the addition of graduate courses. Once a weak, yet important, graduate program is in place, a strong dean should correct those weaknesses before other needs and desires are addressed within the college.

Development of Graduate-Studies Administration

A strong positive role of graduate programming is vital to the university's image, internally and externally, as an institution for advanced study and for scholarly and professional pursuits. Concomitantly, a strong positive role for the person responsible for graduate study university-wide is fundamental to the ability of that person to provide suitable oversight and leadership for the graduate-programming enterprise.

Universities in the U.S. exhibit some variety of administrative oversight of, and assistance to, graduate-level academic programming. The most common administrative structure in institutions with significant commitment to post-baccalaureate education incorporates the position of graduate "dean" (or, in smaller institutions, this is sometimes called a graduate "director") — and, in the presence of at least a moderately large number of graduate students or graduate programs — one or more associate and/or assistant deans. Universities very commonly refer to this administrative office, together with its staff and responsibilities, as the institution's Graduate School (or, less frequently, the Graduate College). In a small number of situations (such as where there are very few graduate programs), the office is not named but an officer is titled something like "Dean of Graduate Studies." It can be noted that the large, respected national organization of graduate-programming administrators is named the [Council of Graduate Schools](#), of which UAA is currently a member. During the team's visit with a variety of groups, a substantial amount of support was expressed for a central graduate-studies office (with the rationale commonly being the positive role of that office in academic quality control).

The university's graduate-studies officer (e.g., Dean of the Graduate School) should oversee graduate programming, advising and assisting college deans, program heads, and faculty regarding standards and procedures related to establishing and operating graduate-level education. This person should be part of meetings held by college deans and, where relevant, other university administrators and should represent the university's graduate-programming mission outside of the institution (for example, in discussions with her or his counterparts from other universities and at national conferences such as those held by the Council of Graduate Schools). The graduate dean (or that dean's staff) should also interact routinely with officers and offices dealing with institutional matters related to graduate study, such as research, international

students, and distance education.

As indicated in other sections of this report, the graduate dean should be involved in evaluating proposals for new graduate programs or deleting existing ones, and in the periodic review of each graduate program. At some universities, the Graduate School processes applications for graduate-level admission, graduate-student progress, and clearance for awarding graduate degrees. At others, these functions are executed in separate offices that serve both undergraduate and graduate students. If these responsibilities are not handled by the Graduate School, then the graduate dean should be instrumental in resolving questions concerning the interpretation and implementation of policies appropriately established (as by the GAB).

To the extent that a university is committed to the principle that the faculty has a paramount role in academic policy-making, an appropriate committee of faculty representatives should be designated to discharge that responsibility for graduate-level studies. In most universities this body is named something like “graduate council,” and its members are specified in a fashion to encourage knowledgeable discussion and insightful decision-making (with such decisions, of course being subject to established institutional and governing-board authority). At UAA this type of function appears to be assigned to the Graduate Academic Board (which has an undergraduate-studies counterpart in the Undergraduate Academic Board). This seems to provide a suitable basis for the formulation of graduate-level academic policy and for the deliberation of proposals for new degree and certificate programs, new and modified courses, and other matters dealing with standards, requirements, and procedures for graduate-level study.

A useful policy statement, *Organization and Administration of Graduate Education*, is published by the Council of Graduate Schools (CGS Task Force on Organization and Administration of Graduate Education, 1990). This policy statement is consistent with the discussion presented above and provides additional detail.

Graduate Program Considerations

Graduate-level studies can serve several purposes. Many graduate degrees (Ph.D. degrees and many master’s degrees) are research-oriented and thus prepare graduates for careers in industrial or governmental research or in academic institutions requiring research background for faculty or staff appointment or advancement. Many other graduate degrees (often at the master’s level) function to provide training for entrance into professions having national or state standards for certification or licensure. And many others (master’s or doctoral) prepare graduates for advanced positions in business or government or in academic positions, at all levels, that do not require research training and experience. In addition, engaging in graduate studies without pursuing an additional degree can assist many students in obtaining entry-level

or advanced professional positions and can benefit their employers accordingly. It is also recognized that the presence of a graduate-degree program in an academic department provides an environment likely to attract faculty who will provide up-to-date and challenging education to upper-level undergraduate students and introduce them to scholarly inquiry.

The university should maintain a formal process by which new graduate programs are identified and encouraged to develop, long before a formal proposal is in preparation. It is important to inform the university community of the criteria to be used to evaluate program proposals, including the requirement to have a strong needs assessment. It is also important to have a proposal-preparation format that encourages long-term budgetary planning. And, the university should develop a formal mission statement, enunciating the institution's higher-education niche, to which proposals for program additions, enhancements, and deletions would be compared.

One of the most important roles for the Graduate School is to assure quality of the graduate programs of the university. A regular cycle of program reviews is an essential tool to monitor the quality and effectiveness of its programs. It is also recommended that under the leadership of the Graduate Dean, the Graduate Council (or a committee thereof) take an active part in graduate-level program review as well as in the addition and deletion of graduate programs. It is also important that program reviews be done regularly and that during program reviews issues about the health and continuation of graduate programs be examined so that special studies are not needed except in emergency situations. Finally, the recommendations of the reviews must be taken seriously by the university and resolved in ways that are consistent with the mission of the university and the availability of resources. The program-review process is described more fully in the "Graduate-Program Development and Assessment" section later in this report.

Owing to its location and mission, UAA is well situated to develop international programming. Depending upon the academic areas and willing participants, this might include enhanced international-student recruitment, programming (degrees or certificates) specifically oriented toward international issues, collaborative programs with foreign universities, or faculty or student exchanges with foreign institutions.

Overall, the functions and responsibilities of the Faculty Senate and its committees appear to be appropriate. However, some clarification appears desirable in the governing documents of the Senate. The Faculty Senate *Constitution* (Article II, Section c(1)) states that the Senate functions "as the legislative body having primary authority to initiate, develop, review and recommend policy of the University of Alaska Anchorage, including" reference to an array of "academic matters." The *Constitution* also declares (Article V, Section 5.b) that the Graduate Academic Board is "empowered to act in the

name of the Faculty Senate.” But the Faculty Senate *Bylaws* (Article V, Section 3.d(4)) say that “Approved actions of the Board shall be submitted for review to the Faculty Senate.” In accordance with practice common elsewhere, the GAB, rather than the Faculty Senate, should serve as the body responsible for development and approval of graduate policies. This is what the *Constitution* says, and the team learned from Faculty Senate members that this is, indeed, the practice at UAA. But the *Bylaws* statement about Faculty Senate “review” could be read to imply that Senate approval is required after GAB approval. It is reasonable that GAB-approved policies be forwarded to the Senate for their information, but the *Constitution* and the *Bylaws* of the Senate should be made consistent in referring to the responsibilities of the GAB, which are declared to come from constitutional empowerment of the GAB by the Faculty Senate.

Graduate Faculty

Very often, especially at universities with little or no doctoral programming, only a subset of the faculty in a given department formally interacts with graduate students. It is also common, especially in professional programs, to engage experienced professionals from outside the university, as adjunct or other affiliated faculty. But, a university must be very careful of the extent to which non-regular faculty are employed, for quality control is more difficult with such personnel and their extensive utilization in a UAA graduate program would have the university act more like an educational broker than a provider and call into question why the endeavor should be called a UAA program.

Although it is not currently done at UAA, it is common at American universities (but by no means universal) to identify those on their faculties that are, or may be, involved in graduate programming. This can be informative in the preparation of publicity materials for graduate programs, can be useful in knowing which faculty members are available to be involved with graduate students (e.g., via teaching graduate courses, being members of graduate-student committees, or serving as supervisors for graduate-student theses or internships), and would be a ready way of determining which faculty members are eligible to serve on the Graduate Academic Board and to vote for the non-Senate faculty members on that board.

Some institutions attempt to stipulate a set of graduate-faculty membership criteria to apply to all disciplines, but this is difficult to do for persons in a diversity of disciplines. Others have found it more reasonable to establish criteria by discipline (e.g., by academic department, school, or college). At UAA, a procedure reflecting what is done at Northern Illinois University would have each academic department-level unit engaged in graduate programming state what the appropriate standards are for faculty to be involved in educating graduate students and in contributing to the development of graduate-level courses, programs, and policies. These would likely be specifications such as possession

of a relevant terminal degree (or, perhaps of some other degree plus significant professional accomplishment in the discipline) and recent and continuing professional activity in the field (e.g., via publications, presentations, or other relevant – and preferably peer-reviewed – pursuits). Each unit's set of criteria could then be reviewed by an appropriate university body (e.g., the Graduate Academic Board) for university-level imprimatur. Thereafter, each unit would be responsible for selecting those of its faculty meeting its criteria; those selected could readily have their vitae compared with the unit's criteria by an impartial person or small body (such as the Dean of the Graduate School or a committee of the GAB). There should also be a procedure for a faculty member or department to appeal (perhaps to the full GAB) a negative determination made during this comparison.

The opportunity for graduate-faculty membership need not be restricted to faculty in departments offering graduate programs. It could be extended to others who teach graduate-level courses or serve on graduate-student committees, and even to adjunct or other affiliated faculty who interact significantly with graduate students.

It is the practice of some universities to designate graduate-faculty membership for a finite period of years, after which that designation may be renewed. (At Northern Illinois University such a review is done at the time of the department's academic program review, which is performed every eight years, and the department's graduate-faculty membership criteria are also reviewed at that time.) Also, some universities have two or three categories of graduate-faculty membership; this may exist, for example at universities desiring to distinguish those faculty members who may serve as directors of doctoral dissertations. (The graduate-faculty provisions at Northern Illinois University are found at [Policies and Procedures for Graduate Faculty Membership](#) and [Procedure for Review of Graduate Faculty Membership](#).)

The possibility and desirability of a "graduate-faculty" designation at UAA was raised at each session with faculty or administrators during the team's visit. Most of the responses were favorable, a few were indifferent, and even fewer were negative. Sometimes faculty members are concerned about potentially establishing a segregation of faculty into castes with non-graduate faculty viewed as second-class citizens of the academy. This perception need not be realized, however, if the university makes clear that it values productive, effective faculty at *all* academic levels within the institution's purview, and that faculty will be recognized and rewarded on the basis of performance in those sectors of institutional activity to which they are assigned.

Interdisciplinary Programs

Some universities have developed successful graduate programs (degrees or certificates) that involve study in, and faculty expertise from more than one

academic unit. Such interdisciplinary programs can be attractive, as well as important, because advances in some fields take place at the overlap of academic fields and because some employment opportunities reflect the preference for people with training across traditional disciplines. Sometimes an interdisciplinary major will be composed of relevant existing courses, and sometimes one or more interdisciplinary courses will be created for this purpose. A specific academic unit (department, school, college), and a person within that unit, should be designated as the contact person/coordinator for each interdisciplinary program. To encourage faculty participation in interdisciplinary programs, care should be taken to credit them appropriately (e.g., with respect to teaching load and faculty advancement).

Program Accreditation

As an institution, the University of Alaska Anchorage attained accreditation by the [Northwest Commission on Colleges and Universities](#) (NWCCU) in 1974. Additionally, accreditation is available, through various recognized agencies, for some individual degree programs. Accreditation is prevalent in professional fields and uncommon in the liberal arts and sciences fields, and in some disciplines it is available only for undergraduate programs. UAA administrators are likely aware of which graduate degree programs have accreditation opportunities and should consider whether any of its programs not currently accredited ought to strive to attain that recognition. In many fields accredited programs are more likely to attract excellent faculty and students, and graduates from those programs may have an employment advantage upon graduation.

Doctoral-Degree Programs at UAA

Although it is common for Master's I universities to aspire to one of the two Doctoral/Research Universities categories of the Carnegie Foundation classification, the goal of what is sometimes perceived as "moving up" in the Carnegie system is without substance by itself. Rather, the advantages and disadvantages of doctoral programming at UAA should be evaluated and used as the basis for deciding (at UAA and at the UA system level) whether to add autonomous doctoral programs. Furthermore, UAA should recognize that if it does move toward doctorates, it should do so with the goal of establishing doctoral programs of excellent quality. This challenge can be appreciated by examining the characteristics of programs that rank in the upper half of research doctorates in the disciplines under consideration, as published by the National Research Council (NRC) in 1995 ([Research-Doctorate Programs in the United States](#)). A more elaborate analysis of research doctoral programs in the United States will be carried out by the NRC in 2005. Although most disciplines awarding Ph.D. degrees are part of the NRC study, the professional doctorates (e.g., Au.D., Ed.D., D.B.A.) found at some doctoral universities are not included. It is important to note that the Carnegie Foundation's current (2000) institutional

[classification criteria](#) are anticipated to change significantly in 2006. Thus, a goal to achieve a particular classification should be seen as a moving target.

Often the greatest source of internal pressure for doctoral programming at Master's I universities comes from the science and engineering faculty. Members of science and engineering departments have access to federal research grant programs that are slanted heavily toward the doctoral research model. And, especially in science and engineering, faculty typically cannot reach their potential professionally and financially if they are limited in their ability to generate grant funding, perform research, and publish results.

The argument for research doctoral programs that resonates most heavily with metropolitan universities and their local communities is the contribution of a first-rate research institution to the economy. The three "T"-words of Richard Florida (*The Rise of the Creative Class*, Basic Books, 2003) that influence the economic assets of a city, *technology*, *talent*, and *tolerance*, are fundamental assets of a university. However, academic excellence and top international scholars are heavily emphasized in studies that connect economic development with the academy. Thus, too much reliance on an economic development argument can lead to the perception that the university is out of context or unrealistic.

If UAA eventually obtains doctoral-degree authority and is willing to assign sufficient resources to ensure the development of a select few good doctoral programs, the overall impact on the university could be an enhanced academic reputation that will stimulate recruitment (both faculty and students) and lead to new opportunities for growth and funding. These benefits will strengthen the Anchorage community and its region, which will in turn support the university in a positive feedback loop. In developing doctoral programs, UAA should identify issues for study that have long-term intellectual prospects in which the university already enjoys natural advantages. By focusing on areas of inquiry rather than arbitrary academic disciplines, the university has the best chance of involving as many faculty members as possible in a limited number of programs and is most likely to develop degree programs distinctly different from those elsewhere in the UA system.

Joint and Cooperative Doctoral Programs

One way to satisfy the immediate need for faculty involvement with doctoral students is through joint or cooperative doctoral programs. The current cooperative Ph.D. program in biological sciences with UAF is beset by logistical difficulties including an ill-defined reciprocal tuition agreement, inequitable influence, and occasional lack of communication and mutual respect. It is clear that the UAA biology faculty need the support of their dean and provost, working with their UAF administrative counterparts, to solve these problems. It is also interesting and informative that negotiations between UAA and UAF faculties in clinical psychology for a joint Ph.D. program are progressing smoothly, and some

additional affiliations with other universities' doctoral programs have been considered. An overall set of policies and procedures for cooperative or joint Ph.D. programs between UAA and UAF is badly needed and cannot be generated by the faculty alone.

Graduate-Program Development and Assessment

The university should have a set of criteria for supporting a proposal for a new, or greatly changed, graduate program (degree program or certificate program). This should include a thorough description of the program's academic requirements (for admission and for completion), the perceived demand by students and desirability for society, the adequacy of resources, and the extent of duplication with programs elsewhere serving the same student and societal needs. A draft proposal supported by the academic department and college dean should be commented upon by the Dean of the Graduate School before proceeding to the Graduate Academic Board for its recommendation and to the further steps in the university's program-approval process.

Each program leading to a graduate degree or graduate certificate should be reviewed and assessed on a periodic basis. Relevant factors to consider in this process would likely include the goals and objectives of the program (including its target audience, intended learning outcomes and employer expectations, student demand, societal need, and conformity with institutional mission); a brief history of the program; student information (including demographic characteristics, enrollments, achievements, numbers of degrees/certificates awarded, and service to non-majors); characteristics and professional activities of the faculty; measures of program quality; alumni achievements and support; program costs and adequacy of resources (including library resources, space, equipment, faculty numbers, and student support); placement of graduates; record of external funding; accreditation status (if applicable); comparison of program to similar ones at peer universities or other appropriate institutions; program strengths and weaknesses; comparison of program assessment to the previous program review; and future plans (with respect to the preceding factors).

For well-established programs, program reviews need not be done very frequently (perhaps every five to eight years); but for less-established programs, those with identified weakness, or those proposing major changes, the assessments should occur with greater frequency. Program reviews should be handled as a collegial process, with the best interests of the university in mind. The academic department offering the program should prepare a draft self-study addressing factors such as those above, to be reviewed by the college dean's office (and, if the college wishes, a college-level committee). Then, the draft should be reviewed by the Dean of the Graduate School (perhaps with the Graduate Academic Board or a committee thereof, and with appropriate persons in the Provost's Office as the Provost desires), in order to conclude how well the program comports to the university's mission, to render conclusions regarding

the future of the program, and to make recommendations for future resource commitments to it. At the latter step, many universities also include a university-wide committee, predominantly of faculty. The Council of Graduate Schools has developed a useful policy statement, *Academic Review of Graduate Programs* (CGS Task Force on Academic Review of Graduate Programs, 1990), that provides comprehensive program review information. In addition, most graduate schools have adopted program-review guidelines that govern their internal process and are readily available (e.g., the [University of Utah Graduate Council Program Reviews](#)).

Graduate Education by Distance Methods

Graduate distance education serves an important function today at universities nationwide and it is particularly well suited to students working full-time and to older, returning students, who need advanced education but who cannot be physically present with the course instructor on a frequent basis. The need for distance education is amplified in Alaska because of the vast distances that separate remote towns and villages from the main University of Alaska campuses. It is recommended that UAA review its current distance offerings at the graduate level and consider expanding them in select areas of societal need and student demand. Indeed, it would be reasonable for UAA to strive to become a national leader and innovator among public universities in graduate distance education to remote locations, particularly in the delivery of professional master's-degree programs.

At UAA, the logistics of distance education are the responsibility of Distance Education Services which is a unit of Academic Technology Services (ATS). Additional assistance to faculty is available through ATS, including an instructional design team, a training center (New Media Center), and the Advanced Technology Group which provides expertise for computer media, streaming video, and the course management system (Blackboard, Inc.). An electronic gateway to distance education services and resources for faculty and students is provided by [UAAOnline](#). Course delivery includes both synchronous and asynchronous methods, with Web-based instruction, audio and video conferencing, instructional TV, video/audiotapes, and CD-ROM instruction specifically listed in the 2003-04 UAA *Catalog* (pages 58-59). Although evaluation of UAA distance-education services is not part of this consultation, all of the technological components for effective graduate distance education appear to be in place.

Professional master's programs and graduate certificates that do not involve access to specialized equipment or instrumentation are most suitable for delivery by distance methods. The emergence of distance education in higher education has prompted numerous studies of the elements necessary to ensure good quality. Of particular importance are the following documents which distill study results into policy statements:

- [Best Practices for Electronically Offered Degree and Certificate Programs](#), a policy statement adopted by the eight regional accrediting commissions.
- [Distance Graduate Education: Opportunities and Challenges for the 21st Century](#), a policy statement prepared by the Council of Graduate Schools.

All graduate elements (courses and programs) should be designed in a way that is consistent with these policy statements. Care must be exercised to ensure that the quality of distance-delivery courses is not inferior to that of courses offered on campus. This will include a determination of the extent of rapid interaction among students and between students and the instructor. (If there is no interaction, then the distance-education course is an electronic correspondence course, a category of instructional delivery that many institutions do not consider worthy of graduate credit.) Approval of online courses (including a rationale for the amount of graduate credit to be awarded), and the approval of degrees delivered online, should be subjected to the same processes as used for on-campus offerings. Because on-campus and online courses are to be equal in quality, most universities do not identify distance-education courses as such on student transcripts.

Graduate Policy

As a general rule, statements of university-wide graduate-studies policy should be as simple and concise as possible so that graduate students and faculty will understand, remember, and adhere to them. An academic unit that is responsible for a graduate program should be permitted to implement policy that is specific to that program but only to the extent that the unit's policy is consistent with university-wide policy and standards. Graduate policy should be up-to-date and well documented in the UAA *Catalog*, in student and faculty handbooks for individual graduate programs, and on university Web sites.

Since even simple and concise policy can occasionally give rise to some awkward circumstances, there must also be a well-defined procedure for interpreting and making exceptions to formal university-wide policy. These interpretations and exceptions should be assigned to the Dean of the Graduate School who should routinely seek input from appropriate programs and college deans.

This report does not comment upon every graduate-studies policy of importance to universities such as UAA, but the following topics are addressed because they were mentioned as concerns by the Interim Director of Graduate Studies and others at the university.

Admission to Graduate Study

The official policy statement by the Council of Graduate Schools (CGS) on graduate admissions is given in *An Essential Guide to Graduate Admissions* (CGS Task Force on Graduate Admissions, 1992). The current UAA graduate admission requirements are unusual and curious in that there is effectively no university-wide standard for the minimum undergraduate grade-point average:

“Applicants must have either a cumulative grade point average (GPA) of 3.00 (B average on a 4.00 scale), or alternatively meet the GPA admission requirements of the specific graduate program to which they are applying.” (See 2003-04 UAA *Catalog* p. 256.)

According to the official CGS policy statement on graduate admissions cited above, in the “decentralized (departmental admission) system, the establishment of necessary university-wide policies may be deferred or, indeed, may not be specified at all, with a resulting decline in the quality of the (admission) process.” It is therefore recommended that a university-wide policy be adopted for the minimum undergraduate grade point average. This action will eliminate the possibility of departments setting a lower minimum (although departments may set higher entry GPA standards). Most universities set the minimum at 3.0 on a 4-point scale, but there are variations in the exact definition of undergraduate GPA: some consider all undergraduate credits while others use the last half; and there might be a separate minimum GPA required in courses directly applicable to the intended academic major. Universities often allow promising students who do not meet the GPA minimum to be admitted with a special status (such as the conditional status at UAA) that requires a progress evaluation at an intermediate step (say after 12 credits of completed graduate work).

Application and admission procedures should be flexible enough to permit substitution of a different credential or alternate evidence for a specific application requirement. For example, if an applicant whose native language is not English is required to take the Test of English as a Foreign Language (TOEFL), the university can consider whether alternate evidence (e.g., course performance, work experience, personal interviews) can adequately demonstrate that he or she has acceptable English skills. When the university assists an applicant in securing a student visa, it is attesting to the Immigration and Naturalization Service (INS) that the applicant has adequate English-language ability to engage in graduate study in an English-speaking environment. Therefore, a minimum TOEFL score should be specified, and the university should accept alternate evidence very cautiously, because some (faculty, staff, employers, fellow students) who might vouch for an applicant’s language skills may themselves be deficient in the English language. (This potential problem can be overcome by employing an on-campus standardized or a test devised by the Department of English.)

It is critically important that faculty understand the difference between waiving an admission requirement (which should not be done) and substituting other credentials and evidence that meet the intent of the requirement. It is also

important to use the substitution process only where it does not circumvent another worthy goal. For example, substitution should not be approved for a certain standardized test that is being used to monitor applicant quality over time or that is part of a specialized accreditation requirement.

Confusion over application deadlines is common and can only be lessened by simplifying the deadline structure as much as possible, by consistency over time in the setting of deadlines, and by clear and consistent communications. Program faculty engaged in the admission process should, if they desire, receive application materials to examine even before they are complete; this may allow the program to encourage completion and to better compete for the admission of excellent students.

Questions regarding transcript interpretation in the graduate application and admission process should be referred to the admission professionals at UAA. It is best if the director or dean of enrollment services is a member of the [National Association of Graduate Admissions Professionals](http://www.nagap.org) (NAGAP, www.nagap.org). This organization is active in developing and promoting standards and best practices in graduate admissions, which generally should be followed by UAA. Questions of interpretation or application of UAA policies for graduate study should be referred to the graduate dean for resolution.

Stacked Courses

A *stacked course* is a course taught to a class including both undergraduate and graduate students and may be represented by both undergraduate and graduate course numbers. Among workable graduate policies for stacked courses, a simple approach is to require that a student enrolled in a stacked course for graduate credit do all of the work required of the undergraduate students plus substantial additional work appropriate to the graduate level. Note that the phrase, “plus substantial additional work at the graduate level,” is the necessary and sufficient condition for earning graduate credit. This requirement implies that graduate students in the stacked course will be graded on evidence that is substantially different from the evidence used to grade undergraduate students. Although stacked courses are more economical than the common practice of offering undergraduate and graduate courses on a given topic separately this advantage is offset by requiring additional effort from the instructor and by the possibility of a somewhat lower quality graduate-student experience.

Stacked courses are common in the United States but their applicability to graduate programs should be strictly limited. Since limits must also be set for other types of special courses (e.g., transfer courses), graduate policy on course restrictions can mushroom into a maze of confusing and contradictory detail. The recommended approach is to define a minimum proportion of the degree requirements that must be met with graduate courses that have desirable characteristics. Courses that require limitations are then lumped together in a way that restricts their applicability both individually and in aggregate. For

example, consider a thesis-based master's program requiring 24 course credits plus a 6-credit thesis. The university might mandate that at least two-thirds of the non-thesis credit requirement must be met by credit earned at UAA in non-stacked graduate courses taken since admission to the program. This single statement sets an individual maximum (8 credits each) on stacked courses, undergraduate courses, transfer courses, and courses taken in non-degree-seeking status, and also limits such courses by imposing an aggregate maximum (8 credits total). Individual programs should be allowed to establish stricter limitations on such courses, which once approved by the GAB should appear in the *Catalog*.

Orphaned Courses

A graduate course taught by a department that does not have a graduate program is called an *orphaned graduate course*. Currently, there are several courses delivered for graduate credit by over a dozen departments that do not have a master's program. Some of these courses are requirements or electives in other departments' graduate programs, or for credentialing, or for professional or personal development. Institutional policy should permit an orphaned graduate course if (a) it meets the requirements of the university for a graduate course, (b) it is taught at the graduate level by a qualified instructor, generally a faculty member with a terminal degree who is professionally active in the topic of the course, and (c) a suitable audience exists. Orphaned graduate courses can provide important contributions to the education of graduate students and often serve as the first step for academic units to grow in the direction of graduate programming.

Credit Requirements for Degrees

The limited application of undergraduate credit to graduate degree requirements is clearly allowed by UAA graduate policy (see items 2 and 5 under *Graduate General University Requirements* in the 2003-04 UAA *Catalog*, p. 259). This practice is questioned by some UAA faculty, but it can encourage students to take relevant rigorous undergraduate courses outside the discipline of the graduate program and in some fields it may be permissible to a limited extent. Review of section 4 of standard 2.F (Graduate Records and Academic Credit) of the Northwest Commission on Colleges and Universities indicates that a limited number of undergraduate credits can be applied toward a graduate degree (see [NWCCU Standard 2, Educational Program and Its Effectiveness](#)):

“At minimum, the policies governing these graduation requirements include:...the minimum number of graduate-level credits, normally at least 50% of those required for the degree;”

Thus, for example, both NWCCU and UAA graduate policy make it is possible for

a student working on a master's degree in biological sciences to apply upper-division mathematics courses in probability and statistics to meet degree requirements. As another example, the increasing emphasis on interdisciplinary research has led to the suggestion that graduate students be required to take a prescribed number of credits outside the discipline. Requirements of this type lead to prerequisite problems that can be ameliorated if undergraduate credit is applicable to graduate programs. However, most graduate schools would find it undesirable to accept up to 50% undergraduate credit applicable to a graduate degree, so it is strongly recommended that any use of undergraduate credit be much lower than the NWCCU limit. For example, as suggested in this report's discussion of stacked courses, it is desirable to specify a maximum proportion (e.g., one third or less) of credit for a master's degree that can be attained via the total of stacked courses, undergraduate courses, transfer courses, and courses taken in non-degree status.

Certificate Requirements

Graduate certificates (including some post-master's certificates) typically require a cohesive set of courses with less total academic credit than for a master's degree. Certificates are an important component of modern graduate-level offerings because they fill the need for specialized advanced instruction in high-demand topics and often serve as an intermediate step to a master's degree or as academic augmentation for persons who already possess a graduate degree. A graduate certificate is commonly 12-15 credits of related graduate courses and should be subject to standards so the earned certificate can be noted on the student transcript. Since many graduate certificates involve existing courses that are not fully enrolled, it is possible to increase graduate enrollment without a significant increase in faculty resources.

The University of Alaska Anchorage has recently adopted policies that govern graduate certificate programs (see pages 255-261 in the 2004-05 UAA *Catalog*). A quick review of these policies in this new publication indicates reasonable consistency with common practices identified in pertinent publications of the Council of Graduate Schools (see the [Council of Graduate Schools Publications, Policy Statements and Resolutions](#)):

- [Certificates: A Survey of our Status and Review of Successful Programs in the U.S. and Canada](#), 29 pages, 1998.
Description: Post-baccalaureate certificate programs have become a topic of intense interest in graduate education. Five papers, collected in one document, represent broad issues and specific institutional approaches.
- [Summarizing Data on Certificate Programs](#), 71 pages, 1999.
Description: This document contains the tabulated results of the graduate-certificate survey conducted initially through the Council of

Graduate Schools deans' discussion list in 1998. The data give an interesting picture of the policies and procedures being used in the administration of graduate certificate programs at many institutions. (Also, see the April 1999 issue of the *CGS Communicator*.)

- [*Analyzing Policies and Procedures for Graduate Certificate Programs*](#), 67 pages plus 6 pages of model guidelines, 1999.
Description: This is closely linked to the preceding document, *Summarizing Data on Certificate Programs*, but it has as its objective the discussion of many policy issues related to certificate programs and concludes with a set of model guidelines for the administration of certificate programs.

Also, back issues of an online certificate newsletter, *Certificate News*, edited by Dr. Wayne Patterson at Howard University (wpatterson@howard.edu), may be of interest.

Transfer Credits

The university-wide limit on transfer credits from other universities should be consistent with section 4 of standard 2.F (Graduate Records and Academic Credit) of the Northwest Commission on Colleges and Universities (NWCCU) mentioned earlier. In part, section 4 reads as follows:

“At minimum, the policies governing these graduation requirements include: ... the number of credit hours that must be completed at the degree-granting institution, normally at least two-thirds of those required for the degree;”

In view of section 4 of standard 2.F and the fact that the total number of credits required for master's degrees can vary by a factor of two, it is advisable to place a limit on transfer credits in terms of the proportion of total credits rather than in terms of an absolute number of credits. A good illustration is given above in the section entitled *Stacked Courses*. Other limitations on transfer credit not included in the UAA policy (see page 257 of the 2003-04 *UAA Catalog*) but worthy of consideration are minimum grade (B or better), type of course (exclude culminating activity courses, courses where the grade is based only on attendance, courses representing experiential learning), and credits from courses that are too old; see sections 5 and 6 of NWCCU standard 2.F. Accepting transfer credit from a course should be a decision made by the program, which should also be permitted to set a total transfer-credit limit that is lower than the university's maximum.

Graduate Studies Committee

Members of the graduate studies committee who are not UAA faculty (see page 257 of the 2003-04 *UAA Catalog*) should be limited so that the majority of the

committee membership always consists of faculty from the academic unit responsible for the graduate program. Also, the majority of the committee should be members of the graduate faculty (if that designation is established). The office of the Dean of the Graduate School, or offices of the college deans, should monitor this.

Thesis Proposal

Requiring a thesis is not an academic standard applicable to all master's-degree programs (especially in many professional programs), and other culminating or comprehensive experiences may be more appropriate (e.g., performance, portfolio, case study, project, supervised internship, or comprehensive examination). However, a student enrolled in a master's program with a thesis requirement should be required to develop a thesis proposal that must be reviewed and formally approved by the supervisory committee prior to commencement of work on the thesis. It is noted that UAA has such a requirement (p. 258 of the 2003-04 UAA *Catalog*), but it is important that a mechanism be in place to monitor adherence. The office of the Dean of the Graduate School commonly handles this at other universities; at UAA the college deans' offices might have this responsibility.

Candidacy and Degree Completion

The University of Alaska Anchorage requires master's students to file an "official graduate studies plan" and also to "advance to candidacy" (as described on page 258 of the 2003-04 UAA *Catalog*). It is recommended that UAA consider consolidating these steps for simplicity and efficiency.

Candidacy makes less sense at the master's level than at the doctoral level, for master's programs are relatively brief and most students will engage in culminating activities other than theses. Rather than formally admitting master's students to candidacy, it is more appropriate to focus on the detailed plan of study and adapt the associated procedures so that the plan of study stands as a comprehensive intermediate checkpoint for master's students. The plan should be submitted at or near the half-way point for review and approval by an appropriate authority within the university. Review of the plan of study ensures that the student and his or her advisor have correctly interpreted the degree requirements. If they have not, or if the review reveals some other impediment to degree completion, then there is time to correct the problem well in advance of the anticipated semester of graduation.

Admission to candidacy is traditional in research doctoral programs to mark completion of preliminary requirements that have prepared the candidate to begin original research. Candidacy is suitable for doctoral programs because the

preparation and research phases are easily defined and of long duration (perhaps 2-3 years each). Recommendations for candidacy procedures for doctoral programs are given in *The Doctor of Philosophy Degree* (CGS Task Force on the Doctor of Philosophy Degree, 1990), an official policy statement of the Council of Graduate Schools. To the extent possible, these recommendations should be followed for doctoral students working with UAA faculty through UAF programs.

Super-Tuition

The University of Alaska Anchorage charges tuition at both residential and non-residential per-credit rates. However, some graduate programs assess per-credit rates that exceed the standard tuition. This practice is termed “super-tuition” at UAA and is justified largely because it provides additional revenue needed for program support. Arguments for or against super-tuition should be based on program availability and quality and not on the future earning capacity of the graduates. A graduate program that is in demand, and is otherwise justified, but cannot be offered with acceptable quality without super-tuition, should be permitted to charge this higher tuition (with the understanding that these extra funds will directly support the program and with the consideration of whether that level of tuition would preclude significant numbers of potential students). However, as with all state-supported colleges and universities, UAA must be relentless in its pursuit of adequate state support to ensure access to all of its programs. Programs with super-tuition should structure the terms of their graduate assistantships so that tuition waivers include the additional cost.

General Terms of Graduate Assistantships

One of the most difficult steps for a young metropolitan university to achieve is the establishment of a graduate-studies culture in each of its graduate programs. In order to do this, each program should have a sufficient number of full-time graduate students (often defined as at least five), preferably with offices in the appropriate academic unit during the academic year. Furthermore, the presumption of full-time graduate study is often most realistic when these students are supported with 9-month assistantships that permit them to pursue graduate degrees without supplemental employment. It is therefore important that the university determine a minimum 9-month full-time graduate stipend that is based on local living expenses for a single adult and the assumption that each assistantship includes a full tuition waiver for the academic terms of the assistantship appointment, in addition to the stipend. All graduate assistantships (teaching and research) should meet a specified minimum stipend with full tuition waiver. Furthermore, students who accept an assistantship must do so with the understanding that they are obligated to work up to 20 hours per week for the university, must make satisfactory progress toward their degree, and should not

accept outside employment during the academic year. (However, the latter recommendation is not readily monitored by universities.) The minimum stipend should be examined and adjusted on a periodic basis to account for changes in the cost of living and in recognition of stipend levels at competing institutions. A fractional stipend (e.g., one half) might be allowed, in which case the number of hours of assistantship duties (but preferably not the tuition waiver) should be correspondingly reduced.

It is also important to adjust stipends upward from the minimum depending on the discipline (science, engineering, and so on) and level of the graduate student (master's or doctoral). The purpose of these adjustments is to make the assistantships competitive and thereby help ensure that the applicants are drawn from a large enough pool to permit a reasonable degree of selectivity. A [database of graduate-assistantships stipends](#) is maintained by the University of North Dakota (previously maintained by the University of Nebraska). Also of interest is the information provided at a workshop sponsored by the National Science Foundation, the National Institutes of Health, and the Council of Graduate Schools, held June 17-18, 2004 in Washington, D.C.; see [NSF/NIH/CGS Graduate Support Workshop](#) for further information. A somewhat dated but useful document published by the Council of Graduate Schools is *Graduate Student Financial Support* (CGS Task Force on Graduate Student Financial Support, 1990).

Some students expressed the desire that the university provide more aid in their seeking non-assistantship financial support

Compensation for Faculty Participation in Graduate Programs

Faculty members who supervise graduate students should be compensated for the extra effort involved. However, unlike many research institutions where directing graduate students is a standard faculty requirement, a small group of faculty members within each graduate program at Master's I and Master's II universities (such as UAA) typically take on the major share of graduate duties. At UAA and other young metropolitan universities, the dominant graduate degree is the master's degree, relatively heavy teaching loads are traditional, many faculty members have not been able to maintain a significant research profile, graduate programs tend to be added in response to public demand and without sufficient resources, and selectivity of the graduate population may not be as high as at Doctoral/Research institutions. Under these conditions, graduate supervision is seen by the faculty as an added and sometimes unwelcome load, especially if the department is entering the graduate arena from a tradition of undergraduate-only education. Thus, it is important to identify and compensate those faculty members who shoulder the bulk of the graduate-education effort.

The following variables affect the level of effort expended in the supervision of graduate students:

- role on supervisory committee (chair or member)
- source of student financial support (faculty-generated grant support or university-provided support)
- type of culminating activity (performance, portfolio, case study, project, supervised internship, thesis, dissertation)
- nature of discipline (experimental, theoretical, computational, musical, artistic, theatrical, creative)
- quality and level of student (more qualified students need less supervision)
- program expectations (local, regional, or national prominence)
- conditions within academic unit (overall faculty support for the graduate program, effectiveness of the graduate program coordinator, existence and acceptance of differential loads among faculty, adequate facilities and support staff)

These variables indicate that although a university may develop general policies and procedures for evaluating graduate-studies participation by faculty members, the details will likely vary among the academic units. However, regardless of the particulars, two major formula-driven mechanisms have emerged to recognize graduate-student supervision:

- credit toward standard faculty load
- compensation (stipend, bonus, honorarium, salary supplement)

The more common of these two mechanisms is to provide credit toward a standard faculty load. For example, at the University of Texas El Paso, a teaching-load credit system is used that weights various teaching activities according to a formula that translates into a faculty teaching load. This type of system includes teaching-load credit for supervising independent studies, theses, dissertations, and other culminating experiences. A university that has experimented with the less common compensation mechanism for work on supervisory committees is Montana State University.

Continuous Enrollment

A university-wide policy requiring continuous registration of graduate students (as described in the 2003-04 UAA *Catalog*, p. 258) is appropriate, but the tuition and fees should be reasonable. Many UAA graduate students are young working adults with families, and frequent interruptions are expected in their ability to make progress toward their degrees. Enrollment for a minimum amount of academic credit can be required to maintain mandated continuous registration, with tuition and fees commensurate with that level of enrollment, and there should be a mechanism for exceptions to the minimum (including granting leaves of absence) for extenuating circumstances.

Electronic Theses and Dissertations

Many universities have moved toward allowing, encouraging, or even requiring electronic theses and dissertations, some because electronic documents allow numerous enhancements (such as data animations or other graphics in full color) that are difficult or impossible to achieve with traditional print methods. UAA should seriously consider whether these kinds of electronic documents are appropriate as an option in its graduate programs.

Student and Faculty Handbooks

Handbooks for UAA graduate students should be available to graduate students and to faculty; there should be a university-wide handbook and a handbook for each program. Both paper and Web versions should be available. These documents should comprise useful information on procedures and requirements, and their rationales, in more detail than exists in the *Catalog*. Good examples are provided by Michigan State University:

- *Academics and Beyond: Graduate Student Resource Guide*, The Graduate School, Michigan State University, Third Edition, 191 pages, 2002.
- Klomparens, K., and B. Donohue, *Graduate Handbook Template*, The Graduate School, Michigan State University, 75 pages, 1997.
- [Graduate School \(Web site for the Graduate School at Michigan State University\)](#)

Another example of a comprehensive Web site is provided by the [Graduate School of the University of Washington](#).

The Council of Graduate Schools has made a recent contribution to the literature for prospective graduate students: *Graduate School and You* (2004). This publication is a revised guide for prospective graduate students that covers such topics as selecting and applying for graduate school, applying for and obtaining financial aid, and locating useful resources. The booklet contains many up-to-date Web sites for fellowship programs, references to other publications, and suggested readings.

Graduate Program Coordinators

Each graduate program should have a graduate program coordinator who is a tenured member of the faculty and is experienced and active in the graduate program (having graduate-faculty status if that is established). Graduate

program coordinators provide the critical liaison between the central governing authority for graduate programming (presently the college deans and the GAB at UAA) and the individual programs.

Summary of Recommendations

General Recommendations

1. *Metropolitan Character of the University.* Graduate programming at UAA should be consistent with its role as a metropolitan university and also with its geographic location at the boundary between the Pacific Ocean and the northern wilderness and at the crossroads of East-West trade routes. Professional master's-degree programs of good quality, especially in professional fields such as business, education, engineering, public administration, health care, and social work, will provide very direct connections between the university, the municipality of Anchorage, and the surrounding region. In addition, and very importantly, scholarly graduate programs with research and creative activities that are local in inspiration but global in implication will enhance the university's academic reputation and commitment to the public good. The university must resist the temptation to add graduate programs without adequate resources. It is the quality of graduate programs that is important and not the breadth of offerings.
2. *Creation of a School or College of Graduate Studies:* The University of Alaska Anchorage should create a central graduate office and graduate administrator to spearhead the administration of graduate studies. This action would align the university with most of the universities in UAA's category within the Carnegie Foundation classification which is based upon the extent of graduate-degree production. A central graduate administrator, named something like "Dean of the Graduate School," together with that person's staff, would compose an office named something like the "Graduate School." The university-wide responsibilities of such an office would include those listed below, in keeping with widespread and long-standing national practice. It should be noted that at many universities this administrator is responsible for both graduate studies and research (with a common title being something like "Associate [or Vice] Provost for Research and Dean of the Graduate School"). UAA should consider establishing that administrative model, in which case the following responsibilities would be expanded to include leadership in the promotion of research and overseeing offices and staff helping to advance that component of the university's mission. But the university may conclude that it would be better, at least at the outset, to have two separate administrators oversee these two functions, thus allowing a fledgling graduate-studies office to become established and the relatively new research office to develop.

- a) Interact with the Graduate Academic Board (GAB), for example by providing historical and other background material on graduate study at UAA and comparable universities and by assessing whether proposed policy changes would advance graduate study and comport with other policies. To the extent not done by other offices, the graduate office could provide record-keeping and staff support for the GAB.
- b) Work with other administrators and with academic units in conceiving, proposing, and implementing graduate degree programs and graduate certificate programs, as well as other academic initiatives at the graduate level, such as cooperative programs, interdisciplinary programs, and joint programs; be part of the formal approval process for those offerings.
- c) Help represent UAA graduate programs externally, to communities, agencies, to national organizations, and to comparable graduate-studies administrators and offices at other universities.
- d) Oversee the adherence to academic policies emplaced by the Graduate Academic Board. While the academic units housing graduate programs bear primary responsibility for following such policies, it is the widespread experience of universities that without some central oversight the declared regulations and procedures are, at best, followed inconsistently across the institution (which is unfair to students) and, at worst, are ignored (which renders moot the actions of bodies such the GAB in setting institutional standards.)
- e) Work with college and departmental offices to monitor composition of graduate-student committees with respect to university-wide policies, and to monitor appointments to the graduate faculty if UAA adopts such a designation.
- f) Work with other administrators and with academic units in the periodic review of graduate programs.
- g) At many universities, the graduate office processes the applications for admission to graduate study and the appointments to graduate assistantships. At others, these functions are handled by some other offices. Some reassignment or other acquisition of personnel would be needed for a UAA graduate office to assume these responsibilities. However, regardless of where they are executed, the graduate office should be consulted when an interpretation is needed of a GAB-approved policy or when an exception (including a substitution) is appropriately requested.
- h) Work with offices, such as those dealing with enrollment management and institutional research, regarding the interpretation and use of data related to graduate studies.

- i) Interact with officers and offices dealing with research administration and research promotion (such as the Vice Provost for Research and the Office of Sponsored Programs) in working with colleges, departments, and individual faculty members to enhance the interaction between graduate studies and research and thus assist in advancing both.
 - j) Interact routinely with the coordinators of graduate programs, in order to assist them in applying university policies, in providing useful data, in developing recruitment materials, and in identifying problematic issues with which the graduate office and/or the GAB should deal.
 - k) Oversee the development of a university-wide graduate-studies handbook, and assist programs in developing graduate-studies handbooks and other materials for student recruitment and for guidance of students and faculty. Provide input into the content of the *UAA Catalog* that is relevant to graduate studies.
3. *Graduate Faculty*: The university should institute the common practice of formally designating a “graduate faculty,” establishing membership criteria appropriate to each of the several academic disciplines.
4. *The Graduate Academic Board*: The current structure and function of the UAA Graduate Academic Board (a body very similar to what is called a “graduate council” elsewhere) provides an excellent foundation for graduate-level academic policy-making to be dominated by faculty involved in graduate programming, with participation of graduate students and administrators. To seek clarification and refinement, the following items in the description of the GAB in the *UAA Constitution of the Faculty Senate* (Article V, Sections 3.c and 3.d) should be considered by the Faculty Senate:
- a) The introduction to Section 3.c stipulates that “Representatives on the Graduate Academic Board is limited to faculty representing graduate programs.” However, later in Section 3.c there is provision for representation of students and administrators. Therefore, it seems that this statement be should be changed to “Faculty representatives on the ...”? Note, also that this “faculty representing graduate programs” could read “members of the graduate faculty” if such a category is established.
 - b) Also with regard to that paragraph, Section 3.c(2) says that there is to be a faculty representative from the Library. Does the Library possess any graduate programs? If not, then the statement about faculty representation being limited to those ‘representing graduate programs’ needs to be modified.

- c) Section 3.c(1) specifies four GAB members are selected by the Senate. If these are to be *faculty* members it should be so stated (as faculty members are specified in Section 3.c(2)), and if these are to be members of the Senate, it should be so stated (for example, as “The Senate shall choose four of its faculty members to serve on the Board”).
- d) Section 3.c(1) says that one of the four members is to come from the College of Arts and Sciences and three others are to be appointed “at large.” Specifying selection “at large” implies that these three may come from any faculties having graduate programs, *including* the College of Arts and Sciences. If what is meant is that three are selected at large from academic units *other than* the College of Arts and Sciences, then this should be stated.
- e) Section 3.c(2) indicates that the non-Senate faculty members are elected by faculty within their respective academic units. The introductory paragraph says that faculty representatives on the GAB are to be faculty representing graduate programs, so it may be logical that the constituency they represent be the faculty members to elect them. Also, these electors could be specified to be members of the graduate faculty, if such a faculty designation is established.
- f) Section 3.c(3) declares that faculty members serve two-year terms. There does not seem to be a provision for replacing a faculty member who resigns, retires, or becomes ineligible (e.g., because of acquiring a sabbatical leave). There could be a simple statement that a faculty member to fill an unexpired term will have the qualifications of, and be selected in the same fashion as, the person vacating the position.
- g) Section 3.c(4) allows that “The students of the University ...” may appoint a graduate student to the GAB. However, it is not specified what the term of appointment is (one year, perhaps?). Also, it would be logical that this graduate student be appointed by the UAA *graduate students*, so this representative is selected by those he or she is to represent,
- h) Section 3.c(5) says that the chair of the GAB is, *ex officio*, a voting member of the Board. But, it is not clear who else on the GAB are voting members. Section 3.c(6) says the three specified administrators are not voting members, but — if it is what is intended — it should be made clear that all others (i.e., all faculty and students) *are* voting members
- i) If the university establishes a position of Dean of the Graduate School (or a similar title), it would be reasonable and productive for that person to be, *ex officio*, a member of the GAB; perhaps this could be specified, in Section 3.c(6), in place, or in addition to, the

“representative from the Office of Academic Affairs.” At many universities the graduate dean is a voting member of such a board, and at many he or she chairs that body; but whether that person votes or is the chair is not as important as having that person sit with the GAB to contribute pertinent information and to enter into, and learn from, Board-members’ discussions.

- j) Section 3.d outlines a reasonable set of GAB functions and responsibilities and presents sensible provisions for GAB interaction with other UAA committees. However, Section 3.d(4) exhibits a dilemma also found at other universities. It is stated that actions approved by the GAB are to be submitted “for review” by the Faculty Senate. It does not say that the Senate must approve these actions for them to go into effect, although this may be implied by Article I, Section 2.c(1) indicating that the Senate has “primary authority” for academic matters at UAA. Under the principle that academic policy for graduate study should be developed and approved by faculty (and students) who are involved in graduate-level programming, final approval should be effected by the GAB. Using the *Constitution* language of the Faculty Senate’s “primary authority” regarding academic issues, it could logically be stated that the Senate delegates graduate-studies authority to the GAB (as it now declares) and that the Senate retains the right to review actions approved by the GAB and to inform the GAB if any such actions are counter to broader university policies or to administrative or Board of Regents mandates, and to ask the GAB to reconsider actions about which it has concerns. But, as the GAB seems to be the university body composed of faculty and students who operate at the graduate level, it is the GAB that should have principal authority over graduate-level academic matters.

5. *Directions for Master’s Programs:*

- a) Assessments of student demand and societal need should be routinely undertaken in order to determine the viability of existing and potential master’s programs. Periodic reviews of extant programs should be employed to identify their strengths, weaknesses, and prospects for further development. The Dean of the Graduate School should collaborate with other relevant administrators in these exercises at the graduate level.
- b) The university should carefully evaluate the desirability and capability of adding to its master’s-degree and graduate-certificate offerings. This should be done with consideration of student demand, societal need, resource availability, and faculty strength.

- c) Deletion of master's programs (degrees or certificates) only after thorough review of the same factors that are considered in proposing new programs.
 - d) The university should strive toward obtaining specialized national or regional accreditation for its master's programs where relevant professional accreditation is available, unless there is strong academic rationale for not doing so.
6. *Directions for Doctoral Programs:* The university should eventually seek authority within the University of Alaska system to offer a select number of autonomous doctoral programs. However, UAA should only proceed with the development of doctoral programs if it is certain that the programs will respond to significant student demand, address a need of potential employers, have sufficient resources, and withstand the rigors of national assessment such as by the National Research Council. In developing doctoral programs, UAA should identify academic areas with long-term intellectual prospects, including those involving multiple disciplines, and in which the university already enjoys natural advantages. The current strategy of building cooperative or joint Ph.D. programs with UAF must be buttressed by a set of overall policies and procedures. It is apparent that much of this groundwork is being left to faculty with only partial success; central administrators should become more active in this regard in order to help assure success.
7. *Graduate Education by Distance Methods:* The university should review its current distance-education offerings at the graduate level and consider expanding them, particularly the delivery of professional master's-degree programs. The design and delivery of graduate programming by distance methods should be consistent with policy statements adopted by the eight regional accrediting commissions and the Council of Graduate Schools, thereby ensuring quality and level of educational offerings commensurate with graduate study.

Policy Recommendations

1. *General:* Statements of university-wide graduate policy should be as simple and concise as possible with well-defined procedures for making occasional exceptions or substitutions in special circumstances. Policy developed by an academic unit must be consistent with university-wide policy. Adherence with appropriately established policy should be monitored by the graduate dean (in collaboration with college deans if the colleges desire).
2. *Admission to Graduate Study:* The university should adopt a university-wide minimum grade-point average for admission to any graduate programs; current policy allows individual programs to set or completely ignore such a

standard. Application and admission procedures may permit substitution of a different credential or alternate evidence for a specific application requirement but only if the substitution does not violate university-wide policy and does not circumvent another purpose. Faculty must respect the difference between waiving an admission requirement (which should not be done) and substituting other credentials and evidence that meet the spirit of the requirement. Confusion over application deadlines should be lessened by simplification of the deadline structure as much as possible, by consistency over time in the setting of deadlines, and by clear and consistent communications. Transcript requirements in the graduate application and admission process should generally be consistent with recommendations of the National Association of Graduate Admissions Professionals (NAGAP). Questions regarding interpretation of approved graduate-studies policies should be referred to the graduate dean. And program faculty involved in the admission process should, if they desire, receive application materials prior to their being complete.

3. *Stacked Courses:* A student enrolled in a stacked course for graduate credit must do all of the work required of the undergraduate students plus substantial additional work at the graduate level. University limitations on stacked courses should be inferred by defining a minimum proportion of the credits required for the degree to be acquired via regular graduate courses; and an individual program should be allowed to further limit the application of stacked courses toward its graduate degree.
4. *Orphaned Courses:* University policy should permit an orphaned graduate course if (a) it meets the requirements of the university for a graduate course, (b) it is taught at the graduate level by a qualified instructor (a faculty member with a terminal degree who is professionally active in the topic of the course) and (c) a suitable audience exists. An individual program should be allowed to limit the application of these courses toward its graduate degree.
5. *Credit Requirements for Degrees:* The limited application of undergraduate credit to graduate degree requirements is questioned by some UAA faculty but is acceptable to the regional accrediting commission (section 4 of standard 2.F of NWCCU). Individual programs desiring to encourage rigorous undergraduate courses outside the discipline of the program may wish to establish a policy allowing a small amount of such coursework to apply toward the degree, up to a university-wide limit that is a small proportion of the credit required for the degree.
6. *Certificate Requirements:* Graduate certificates, requiring a cohesive set of courses with less academic credit than for a master's degree, may satisfy the need for specialized advanced instruction in high-demand topics and often serve as an intermediate step to a master's degree or as academic augmentation for persons who already possess a graduate degree. Graduate certificates that use existing courses can potentially increase graduate enrollment without a significant increase in faculty resources. A graduate certificate program should be subject to quality controls so that the certificate

can be noted on the student transcript. If the university has no university-wide policies and procedures for graduate certificates, these should be developed for placement into the *Catalog* using publications of the Council of Graduate Schools as a guide.

7. *Transfer Credit*: The university-wide limit on transfer credits from other universities should, at minimum, follow section 4 of standard 2.F of NWCCU which states that the number of credits completed at the degree-granting institution is normally at least two-thirds of those required for the degree. Other limitations on transfer credit not included in the UAA policy but worthy of consideration are minimum grade (B or better), type of course (exclude culminating activity courses, courses where the graded is based only on attendance, courses representing experiential learning), and credits from courses that are old. Transfer of credit into a UAA graduate program should occur only with the approval of the program.
8. *Graduate-Studies Committee*: Members of a student's graduate studies committee who are not UAA faculty should be limited so that the majority of the committee membership always consists of faculty from the academic unit responsible for the graduate program.
9. *Thesis Proposal*: A mechanism should be in place to monitor adherence to the thesis-proposal requirement.
10. *Candidacy and Degree Completion*: Instead of master's-degree candidacy, the university should focus on the detailed plan of study and the associated procedures so that the plan of study stands as a comprehensive intermediate checkpoint for students. Recommendations for candidacy procedures for doctoral programs are given in an official policy statement of the Council of Graduate Schools. To the extent appropriate, these recommendations should be followed for doctoral students working with UAA faculty through UAF programs.
11. *Super-Tuition*: Arguments for or against super-tuition should be based on program availability and quality and not on the future earning capacity of the graduates. Programs with super-tuition should structure the terms of their graduate assistantships so that tuition waivers include the additional cost.
12. *General Terms of Assistantships*: Graduate assistantships should meet cost-of-living requirements. The university should determine a minimum 9-month full-time graduate stipend that is based on local living expenses for a single adult and the assumption that each assistantship includes a full tuition waiver for the terms of the assistantship appointment, in addition to the stipend. All graduate assistantships (teaching and research) should meet a specified minimum stipend with full tuition waiver. Stipends should be adjusted upward from the minimum depending on the discipline (science, engineering, and so on) and level of the graduate student (master's or doctoral). Students who accept an assistantship must do so with the understanding that they are obligated to work up to 20 hours per week for the university, must make satisfactory progress toward their degree, and should

not accept outside employment during the academic year. The minimum stipend should be examined and adjusted on a periodic basis to account for change in the cost of living and in recognition of stipend levels at competing institutions. A fractional stipend (e.g., one half) might be allowed, in which case the number of hours of assistantship duties should be correspondingly reduced. The university should examine the services it provides to assist graduate students in their seeking non-assistantship financial aid, in order to determine whether improvements are desirable.

13. *Compensation for Faculty Participation in Graduate Programs:* Faculty members who supervise graduate students should be rewarded for the extra effort. Since numerous variables in addition to delivering courses contribute to the level of effort, policies adopted by the university will need to be general to accommodate the characteristics of individual academic units.
14. *Continuous Enrollment:* It is reasonable to have university-wide policy requiring continuous registration of graduate students, but the enrollment tuition and fees should be appropriate to some minimum allowable academic activity and there should be a mechanism for exceptions for extenuating circumstances.
15. *Electronic Theses and Dissertations:* The university should seriously consider moving toward adoption of electronic theses and dissertations as an option (for example, to accommodate graphics and other enhancements).
16. *Student and Faculty Handbooks:* Handbooks for UAA graduate students and faculty should be developed and should include a university-wide handbook and a handbook for each program. Both paper and Web versions should be made available.
17. *Graduate Program Coordinators:* Each graduate program should have a graduate program coordinator who is a tenured member of the faculty and is experienced and active in the graduate program.

Concluding Remarks

Although the two-day visit could not result in a comprehensive evaluation of all aspects of graduate studies at the University of Alaska Anchorage and all graduate-studies material in the UAA *Catalog*, the preceding observations and recommendations are offered in the sincere hope that the university will find them to be useful. The authors would be happy to elaborate on any of them to the extent possible.

Acknowledgements

Our appreciation is extended for the cordial, professional reception we enjoyed

while visiting the university. We were especially pleased to observe the high regard with which students, the faculty, and administrators spoke of James Liszka, who is currently serving as Interim Director of Graduate Studies. We offer our sincere best wishes for further graduate academic achievement at the University of Alaska Anchorage.

Reviewers Appointed by the Council of Graduate Schools, Washington, D.C.:

John R. (Jack) Pelton, Dean of the Graduate College, Boise State University

Jerrold H. Zar, Retired Vice Provost for Graduate Studies and Research and Dean of the Graduate School, Northern Illinois University

Appendix: World Wide Web Addresses Cited

[Academics: Graduate Certificates](http://www.uaa.alaska.edu/academics/gradcerts.cfm) (University of Alaska Anchorage)
www.uaa.alaska.edu/academics/gradcerts.cfm

[Analyzing Policies and Procedures for Graduate Certificate Programs](http://www.cgsnet.org/pdf/analyzingpolicies.pdf) (Council of Graduate Schools):
www.cgsnet.org/pdf/analyzingpolicies.pdf

[Best Practices for Electronically Offered Degree and Certificate Programs](http://www.ncahigherlearningcommission.org/resources/electronic_degrees) (Higher Learning Commission):
www.ncahigherlearningcommission.org/resources/electronic_degrees

[Carnegie Foundation for the Advancement of Teaching:](http://www.carnegiefoundation.org/index.htm)
www.carnegiefoundation.org/index.htm

[Certificates: A Survey of our Status and Review of Successful Programs in the U.S. and Canada](http://www.cgsnet.org/pdf/certif.pdf) (Council of Graduate Schools):
<http://www.cgsnet.org/pdf/certif.pdf>

[Classification Criteria](http://www.carnegiefoundation.org/Classification/CIHE2000/defNotes/Definitions.htm) (of Carnegie Foundation):
www.carnegiefoundation.org/Classification/CIHE2000/defNotes/Definitions.htm

[Council of Graduate Schools:](http://www.cgsnet.org)
www.cgsnet.org

[Council of Graduate Schools Publications, Policy Statements and Resolutions:](http://www.cgsnet.org/PublicationsPolicyRes/index.htm)
www.cgsnet.org/PublicationsPolicyRes/index.htm

[CUMU Declaration of Metropolitan Universities](http://www.cumu.org) (Coalition of Urban and Metropolitan Universities):

cumu.uc.iupui.edu/declaration.asp

[Database of Graduate-Assistantships Stipends](#) (Compiled by University of North Dakota):

www.und.edu/dept/grad/GTASurvey03-04.htm

[Distance Graduate Education: Opportunities and Challenges for the 21st Century](#) (Council of Graduate Schools):

<http://www.cgsnet.org/pdf/DistanceGraduateEducation.pdf>

[Graduate School](#) (Web site for the Graduate School at Michigan State University):

www.msu.edu/user/gradschl

[Graduate School of the University of Washington:](#)

www.grad.washington.edu

[National Association of Graduate Admissions Professionals:](#)

www.nagap.org

[Northwest Commission on Colleges and Universities:](#)

www.nwccu.org

[NSF/NIH/CGS Graduate Support Workshop:](#)

www.parl.clemson.edu/~dstanzi/support_workshop/index.html

[NWCCU Standard 2, Educational Program and Its Effectiveness](#) (Northwest Commission on Colleges and Universities):

nwccu.org/Standards%20and%20Policies/Standard%202/Standard%202.htm

[Policies and Procedures for Graduate Faculty Membership:](#)

www3.niu.edu/provost2/facpers/appm/II1.htm

[Procedure for Review of Graduate Faculty Membership](#) (Northern Illinois University):

www3.niu.edu/provost2/facpers/appm/II2.htm

[Research-Doctorate Programs in the United States](#) (Northern Illinois University):

www.nap.edu/readingroom/books/researchdoc

[Summarizing Data on Certificate Programs](#) (Council of Graduate Schools):

www.cgsnet.org/pdf/summarizingdata.pdf

[Table SUB-EST2002-10-02-Alaska, U.S. Census Bureau:](#)

eire.census.gov/popest/data/cities/tables/SUB-EST2002-10-02.pdf

[UAAOnline](http://uaaonline.alaska.edu/About/mission.html) (University of Alaska Anchorage):
uaaonline.alaska.edu/About/mission.html

[University of Utah Graduate Council Program Reviews:](http://www.utah.edu/graduate_school/forms/UUGCPR.pdf)
www.utah.edu/graduate_school/forms/UUGCPR.pdf

DRAFT DRAFT DRAFT DRAFT

**Current Issues
in
Graduate Education
at the
University of Alaska Anchorage**

**Prepared by
James Liszka, Ph.D.
Interim Director, Graduate Studies
April 29, 2004**

Introduction

A profile of graduate programs at the University of Alaska Anchorage has been recently completed and widely distributed to Deans and program chairs and directors.¹ UAA will now be examining a number of issues pertaining to graduate education this summer. A team of graduate education experts from the Council of Graduate Schools will visit UAA at the end of May or early June to make recommendations for improvements in our graduate programs. Other expert Graduate Deans will also visit the campus. In conversation with the Graduate Chairs and Directors, Deans, GAB, and governance, these various recommendations and issues will be analyzed by the Provost, the Interim Director for Graduate Studies, and other administrators in Academic Affairs. We hope, at the end of this process, to come away with a number of well-formulated recommendations for dialogue and consideration by faculty and administration.

Reputation is a critical factor in the “flywheel” model articulated for UAA. Reputation contributes to funding support which, in turn, supports academic excellence which, again, builds reputation—and so forth. Graduate programs contribute both to reputation and to academic excellence. The right graduate programs done well can propel the university to new levels. This is the rationale behind a focused effort on graduate education at UAA.

The University of Alaska Anchorage is a **Master's I** University, under the revised Carnegie Classification:

These institutions typically offer a wide range of baccalaureate programs, and they are committed to graduate education through the master's degree. During the period studied, they awarded 40 or more master's degrees per year across three or more disciplines.

UAA currently supports the following 28 graduate programs at the Master’s levels:

[Adult Education](#), Master of Education
[Anthropology](#), Master of Arts
[Arctic Engineering](#), Master of Science
[Biological Sciences](#), Master of Science
[Business Administration](#), Master of Business Administration
[Civil Engineering](#), Master of Science
[Civil Engineering](#), Master of Civil Engineering
[Clinical Psychology](#), Master of Science
[Counseling and Guidance](#), Master of Education
[Creative Writing & Literary Arts](#), Master of Fine Arts
[Education](#), Master of Arts in Teaching
[Educational Leadership](#), Master of Education
[English](#), Master of Arts
[Engineering Management](#), Master of Science
[Environmental Quality Engineering](#), Master of Science
[Environmental Quality Science](#), Master of Science

¹ To receive an electronic copy send a request to James Liszka, Interim Director, Graduate Studies
JamesLiszka@uaa.alaska.edu

[Global Supply Chain Management](#), Master of Science
[Interdisciplinary Studies](#), Master of Science
[Interdisciplinary Studies](#), Master of Arts
[Master Teacher](#), Master of Education
[Public Administration](#), Master of Public Administration
[Public Health Practice](#), Master of Public Health
[Nursing Science](#), Master of Science
[Project Management](#), Master of Science
[Science Management](#), Master of Science
[Social Work](#), Master of Social Work
[Special Education](#), Master of Education
[Vocational Education](#), Master of Science

Nearly 90% of the graduate degrees offered at UAA are professional degrees.

UAA must look at two broad issues in regard to its graduate programs:

- **DIRECTION:** where should UAA go in regard to graduate programs?
- **IMPROVEMENT:** how can UAA best enhance existing programs?

Direction

- *Do we want to develop autonomous doctoral programs, and in what fields?*

The first, momentous question for UAA is whether it wants to move up in the Carnegie Classification, which is based on the numbers and kinds of graduate degrees, or to stay in its current classification for the foreseeable future. Currently we are at the same Carnegie classification as Alaska Pacific University and the University of Alaska Southeast (Masters I). the only way to move to the Research Intensive category is by developing autonomous doctoral programs.

- *Which directions should we go with our existing master's programs?*

90% of our existing graduate programs are in the professional field. Is this a direction we want to continue; if so in which areas (health, business, etc.)? Do we want to expand our academic degrees. If so, in what fields?

- To this end, we need to develop a graduate program plan, and criteria for development and viability of programs that will be consonant with the overall UAA academic plan and mission, and

form a line of best fit with program strengths, and interests, community needs, and student demand.

Under this category, the following are a partial list of relevant issues (the underscored are briefly outlined below):

- Graduate Studies Mission, Goals Statement, and Planning Strategy
- Policies concerning Graduate Program Development, Program Viability and Program Discontinuation
- [The viability of a Graduate Office and Dean for UAA.....5](#)
- [The Joint Ph.D. program in Clinical Psychology with UAF...7](#)
- [The Cooperative Ph.D. Program in Biology with UAF....6](#)
- [Developing Other cooperative doctoral programs.....7](#)

Improvement

Before we can move in new directions with graduate programs, we must attend to the quality and improvement of existing programs and the infrastructure that supports them. The issue of improvement falls into three broad categories:

- *Standards*

Which standards in the areas of admissions, candidacy, program requirements, and graduation requirements should be tightened? Are programs in compliance with existing standards?

- *Efficiency*

How can the cost and delivery of programs be made optimal?

- *Quality*

How can we achieve excellence in our graduate programs?

Under this category, the following are a partial list of relevant issues (the underscored are briefly outlined below):

- [The Issue of Establishing Graduate Faculty.....7](#)
- [Stacked Classes.....11](#)
- [Compliance with Admission, Candidacy, Program and Graduation.....16 Requirements](#)
- [Encouraging special accreditation of graduate programs where appropriate](#)
- [The Interdisciplinary Master's Degree.....21](#)
- [Orphaned Graduate Courses \(offered without a degree program\).....23](#)
- [Super-tuition.....22](#)

- [Reciprocal Tuition Agreement with Fairbanks](#).....25
- [Graduate Coordinators](#).....26
- [Costs of Graduate Assistantships](#).....23
- [Issues in Admissions --Logistics](#).....26
- [Master’s thesis Committee Chair Service](#).....24
- [Continuous Enrollment Policy](#).....24
- [Electronic Submission of Theses](#).....24
- [Transfer Credits](#).....24
- [Graduate Student Handbooks](#).....25

I. Issues in Direction

The Establishment of a Graduate Office, Dean or Director

Issue 1: Should there be an Office or School of Graduate Studies, and should that position be filled by a Graduate Dean or Director at UAA?

Pro: Reputation is a critical factor in the UAA “flywheel”. One place where UAA could grow its reputation quickly and efficiently is in the area of graduate programs. A move towards Ph.Ds and an enhancement of existing master’s programs could move UAA quickly up the status scale. Graduate programs generate more sponsored research, attract better faculty and graduate students which, in turn, enhances undergraduate education. A Graduate Dean or Director would be essential for providing an identity for graduate programs at UAA, and serve as a leader and facilitator for growth and development in this area. The more dedication an administrative position has to graduate studies, the more graduate studies is likely to grow and flourish. A

Con: Graduate programs have been adequately administered by existing staff in the Office of Academic Affairs. Since it is likely that graduate programs will remain under the control of the relevant Deans of the College anyways, and the Graduate Dean or Director will most likely play a coordinating role primarily, then this may not warrant the expense of a new position.

Relevant Data: Comparison of UAA Peer Institutions

Peer Institution	Graduate Office	Administered by Stand Alone or Dual Position	Title
Boise State University	yes	Stand alone	Dean
University of Arkansas Little Rock	yes	Stand alone	Dean
University of Texas at El Paso	yes	Stand alone	Dean
Northern Kentucky University	yes	Dual position	Dean/ Assoc Provost Outreach
Indiana Purdue	yes	Stand alone	Director

University Fort Wayne			
University of Southern Maine	yes	Dual position	Dean /Assoc Provost
Central Connecticut State University	yes	Dual position	Dean/ Assoc V Pres Academic Affairs
Southern Connecticut State University	yes	Stand alone	Dean
University of Texas at San Antonio	yes	Dual position	Dean / Vice Provost Research
University of Nebraska-Omaha	yes	Dual position	Dean / Assoc V Chanc for Research
University of Massachusetts Boston	yes	Stand alone	Dean

A visiting consultation team from the Council of Graduate Studies will visit campus in late May, early June, and make recommendations in terms of graduate program infrastructure; we will also have a visit from Betty Feetham, Acting Graduate Dean, University of Washington on May 18 to discuss this issue.

The Cooperative Ph.D. Program in Biology with UAF

The following are a list of problems associated with the cooperative PhD program in Biology between UAA and UAF. A solution to some of these problems have been addressed with the funding of a graduate coordinator by BRIN:

Problem 1: Doctoral students are dropped from the program without prior notice because of lack of communication between UAF and UAA concerning deadlines, fees, and other paperwork requirements.

Solution: Establishment of a part-time graduate coordinator to facilitate paperwork, monitor deadlines, and oversee program progress for UAA-based graduate students. [I'm presently meeting with doctoral students and relevant faculty to discuss details and function of such a position].

Solution: Develop a graduate student manual that clearly indicates requirements, deadlines, required paperwork and other matters pertaining to the degree process.

Problem 2: UAA-based biology doctoral students are required to take a comprehensive exam, if they enter the program without a Master's degree; this requirement may not be consistently applied to UAF-based biology doctoral students; the latter may also have access to preparatory materials for the exam not easily available to UAA-based students.

Solution: Establish an inter-campus policy, or graduate student manual, that ensures equity in the administration of such exams for all students.

Problem 3: Because of research interests and focus among graduate students, flexibility in degree requirements may be warranted--especially in regard to comprehensive exams; yet there is no mechanism in place to address questions of flexibility.

Solution: Cooperating faculties should work together to set up mechanisms for review or adjustment of degree requirements.

Problem 4: It is difficult to find appropriate UAF faculty to serve as co-chair on biology doctoral student committees, yet this is a requirement for the cooperative program.

Solution: Provide incentives for UAF faculty to serve as co-chairs, or, permit UAA faculty to chair such committees without the need of a UAF faculty co-chair.

Problem 5: Lack of formalized cooperative agreements between UAA Biology and UAF Biology and Wildlife departments create uncertainty and frustration in supervision of Ph.D. students.

Solution: Establishment of formalized agreement, facilitated by appropriate administrators from UAA and UAF. Establishment of "point persons" from each campus to mediate disputes or make clarifications on formal agreements.

Problem 6: Presently, UAA faculty receive no teaching credit for supervision of doctoral students; UAF faculty do.

Solution: A more equitable workload between the two campuses should be established. The suggestion for UAA faculty is 1/3 teaching credit for each doctoral student, with a 3-year cap on any one student.

Problem 7: UAA often waives tuition costs for UAF thesis courses, which UAA-based biology doctoral students are required to take. Thus UAA pays tuition costs to UAF on top of uncompensated supervisory, mentoring and teaching duties for doctoral students by UAA faculty.

Solution: Permit more use of UAF tuition waivers for UAA-based doctoral students, or, allow thesis credit courses to be offered at UAA.

The Joint Ph.D. in Clinical Psychology with UAF

The Joint Ph.D. program is presently being supported on both campuses and at statewide. Negotiations are positive and several agreements on various issues have been reached.

Other Cooperative Ph.D. Programs

The Nursing Program currently has a cooperative Ph.D. arrangement with the Oregon Health and Sciences University. The exploration of other cooperative doctoral programs is an important to pursue.

II. Improvement of Existing Programs

The Establishment of a Graduate Faculty

Pro: The establishment of a graduate faculty would improve the quality of graduate programs across the institution. Depending on criteria for graduate faculty, it would ensure that faculty supervising graduate students or serving on graduate committees are qualified and research active.

Con: The establishment of a graduate faculty would create a two-tiered class system among faculty and create an additional layer of faculty evaluation.

Comparison of Peer Institutions

Peer Institution	Graduate Faculty Designation	Procedures and Policies
Boise State University	yes	http://finad.boisestate.edu/images/nomfrm.pdf
University of Arkansas Little Rock	yes	http://www.ualr.edu/~graddept/facultynomination.doc
University of Texas at El Paso	yes	http://academics.utep.edu/DesktopDefault.aspx?tabid=686
Northern Kentucky University	yes	http://www.nku.edu/~education/evid-docs/PoliciesProcedures/PPHandbook-pg20-22.pdf
Indiana Purdue University Fort Wayne	no	
University of Southern Maine	yes	http://www.usm.maine.edu/grad/resources/structure.htm
Central Connecticut State University	no	
Southern Connecticut State University	yes	http://www.southernct.edu/departments/graduatestudies/fs/GradFacNom.doc
University of Texas at San Antonio	yes	http://www.utsa.edu/graduate/GCBylaws.htm

University of Nebraska-Omaha	yes	http://www.unomaha.edu/graduate/catalog/2002-2003/fac_admin/gradfac_resp.html
University of Massachusetts Boston	no	

A selection of universities which do not have graduate faculty designation:

The University of Utah :

It is assumed that all regular (tenured or tenure track) faculty should be able to teach at the graduate level and serve on supervisory committees. The responsibility to decide who teaches at all levels and who serves in various capacities on supervisory committees Rests with the departments. A regular program review is the ultimate check to see whether or not departments are succeeding with this responsibility.

Models among universities which have graduate faculty designation

Texas A&M--Commerce:

There are two types of graduate faculty status: Associate and Senior. Only Senior members may direct dissertations or theses, while Associates may serve on dissertation and thesis committees. Application to each of the two levels must be supported by the department and the college dean before they are reviewed and approved by the Graduate Council. Active scholarship as evidenced by substantial and current research and publications is required to qualify for Senior status. To assure that faculty remain active in research Senior members are reviewed by the Graduate Council every six years. The review process has, at times, caused some hard feelings, but generally not. Faculty can decline to be reviewed, in which case they are automatically demoted to Associate Status.

Rutgers—New Brunswick

Rutgers has gone from a graduate faculty designation process which, in their experience, proved to be contentious, to one in which there is a presumption that all new hires into tenure or tenure-tracked positions will be nominated for such status. So there is graduate faculty status, but the nomination process is presumptive.

Northern Illinois University

NIU rests on the presumption that its faculty are qualified for graduate teaching and supervision, but recognizes that a small percentage of the faculty should operate only at the undergraduate level.

NIU has two primary classifications of graduate faculty: "Senior members"

may be members of the Graduate Council, teach courses for graduate credit, direct thesis and dissertations, and sit on student committees. "Full members" may do all of these things except direct dissertations. (They also have a "provisional membership," for a three-year, non-renewable period, mainly for new young faculty, who can function as full members except they cannot be on the Graduate Council.)

All senior and full members are reviewed for renewal every eight years when their academic programs undergo formal program review. Within broad Graduate Council guidelines, each academic department has developed its own graduate-faculty membership criteria (so, e.g., the expectations for a chemistry are not the same as for a sculptor).

The NIU procedures and policies can be found at:

<http://www3.niu.edu/provost2/facpers/appm/section4#section4>

Univ of Texas El Paso

At The University of Texas at El Paso a tenured or tenure track faculty member who holds an appointment in a department or comparable unit conducting a doctoral or master's program becomes a member of the Graduate Faculty of this University upon certification by the appropriate Department or Program Graduate committee, and by their criteria. Faculty members holding positions within a department which does not have an active graduate program, but who are participants in joint graduate programs, are certified in the same manner. Non-tenure track faculty, adjunct faculty, part-time faculty, visiting scholars and UTEP professional staff members and post doctoral fellows are not eligible for regular Graduate Faculty membership, but may contribute to the graduate program under temporary appointment.

To view the regulations and policies, link to:

<http://academics.utep.edu/DesktopDefault.aspx?tabid=686>

University of Southern Maine

Graduate faculty consists of all faculty members so designated by the President upon recommendation of the Associate Provost and Provost. Each college has established criteria for membership in the Graduate faculty; the University-wide criteria are as follows:

- The candidate shall hold an appropriate terminal degree or its equivalent.
- The candidate shall teach regularly in or have programmatic responsibility with a graduate program.
- The candidate shall be a full time, faculty member.

Graduate faculty appointments are recommended by deans through the internal

process of their school or college, and are approved by the Associate Provost and Dean of Graduate Studies and Provost. Appointments are made by the president through the Provost's office. The normal term of membership is three years, and is renewable. Faculty members may be reappointed to the Graduate Faculty upon satisfactory review of their performance according to the graduate criteria of their institutional unit.

Within the context of each college or school, faculty members determine the graduate program goals, outcomes, requirements, and curriculum. As defined within each school or college, faculty members determine program-specific policies, as well as regulate the admission, instruction, advising, and evaluation of students, and conduct periodic evaluation of their programs.

Encouraging Special Accreditation for Graduate Programs

In addition to accreditation for UAA, some programs have special accreditation, for example,

Master of Business Administration, with the International Association for Management Education
 Master of Science, Nursing, with the National League for Nursing Accreditation Commission, and
 Social Work, accredited by the Council of Social Work Education.

Programs that have special accreditation bodies, but have not applied for such accreditation:

Psychology is presently considering undergoing accreditation by the Northwest American Association of Master's of Psychology, and is being supported in this by Academic Affairs and CAS.
 Public Administration, [National Assoc of Schools of Public Affairs and Administration](#),
 Commission on Peer Review and Accreditation (COPRA)
 Public Health Practice [Council on Education for Public Health \(CEPH\)](#),

Stacked Classes

Issue: Should Stacked classes be restricted at UAA?

Pro: Stacked classes are efficient ways to offer graduate programs, since they can increase enrollment for the 400/600 class by drawing on two student populations: advanced undergraduates and graduate students.

Con: It is thought, however, that stacking graduate classes diminishes the educational experience of graduate students since the mix of undergraduate students suggests that the instructor must teach to the lowest common denominator. Classes might be taught at a higher level if populated only by graduate students.

Distribution of STACKED CLASSES at University of Alaska Anchorage

PROGRAM	GRAD	TITLE	STACKED	
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	COURSE #		WITH	
ANTHROPOLOGY				
	ANTH 615	Advanced Applied Anthro	ANTH 415	
	ANTH 627	Ethnohistory of AK Native	ANTH 427	
	ANTH 630	Advanced Research method in Cult Anthro	ANTH 430	
	ANTH 631	Field Methods in Aracheology	ANTH 631	
	ANTH 645	Advanced Evolution of Humans and Disease	ANTH 445	
	ANTH 655	Medical Anthro	ANTH 455	
	ANTH 657	Nutritional Anthro	ANTH 457	
	ANTH 680	Advanced Analytical Techniques in Archaeology	ANTH 680	
	ANTH 681	Advanced Museum Studies in Anthro	ANTH 481	
	ANTH 685	Advanced Human Osteology	ANTH 485	
BIOLOGY				
	BIOL 615	Adv Comparative Animal Physiology	BIOL 415	
	BIOL 630	Adv Marine Mammal Bio	BIOL 430	
	BIOL 645	Adv Herbivore Ecology	BIOL 445	
	BIOL 650	Adv Microbial Eco	BIOL 450	
	BIOL 661	Adv Molecular Bio	BIOL 461	
	BIOL 662	Advanced Virology	BIOL 462	
	BIOL 668	Adv Biogeochemistry	BIOL468	
	BIOL 675	Adv Arctic Tundra Ecosystems	BIOL 475	
	BIOL 676	Adv Boreal Ecosystems	BIOL 476	
	BIOL 685	Adv Topics in Bio	BIOL 485	
CHEMISTRY				
	CHEM 634	Adv Instrumental methods	CHEM 434	
	CHEM 692	Graduate Seminar	CHEM 492	
ENGINEERING SCIENCE MGT				
	ESM 610	Cost Estimating	ESM 401	
HISTORY				
	HIST 641	Studies in Alaska History	HIST 341	
	HIST 653	The U.S., 1945 to	HIST 453	

		the Present		
INTERNATIONAL STUDIES				
	INTL 603	Canada: Selected Topics	INTL 303	
POLITICAL SCIENCE				
	PS 690	Studies in Politics	PS 490	
PSYCHOLOGY				
	PSY 627	Agency and Community Field Experience	PSY 427	
	PSY 635	Adv Psychodynamic Theory and Therapy	PSY 435	
	PSY 656	Adv Selected Topics on Disabilities	PSY 456	
	PSY 654	Cultural Issues in Psychotherapy	PSY 465	
	PSY 690	Selected Topics in Psychotherapy	PSY 490, 492	
VOCATIONAL EDUCATION				
	VE 601	Principles of Technology	VE 301	
	VE 611	Philosophical Foundations of Vocational Ed	VE 411	
	VE 643	Methods of Instruction in Vocational Education	VE 443	

**Stacked Classes Ratio
University of Alaska Anchorage**

PROGRAM	NUMBER OF GRADUATE COURSES OFFERED (excludes thesis/ project/ individual research/ practicum/ internship)	NUMBER OF STACKED COURSES	PERCENTAGE OF COURSES OFFERED AS STACED	NOTES
Anthropology	18	10	55%	
Biology	27	10	37%	
Chemistry	1	1	100%	Offers no grad program; All

				grad courses are seminar or individual research
Engineering Sci Mgt	15	1	6%	
History	2	2	100%	Offers no grad program
Int'l Studies	1	1	100%	Offers no grad program; special topics course
Political Science	1	1	100%	Offers no grad program; special topics course
Psychology	22	4	18%	
Vocational Ed	8	3	38%	

Some Comparative Practices:

Lamar University: the State of Texas requires that enrichment criteria must be on file for all graduate students enrolled in one of these "combined" or "stacked" classes delineating the extra (enriched) work required of graduate students.

Appalachian State: There are senior(4000-level)/graduate (5000-level) courses where seniors and graduate students are taught in the same section. The policy is that only 9 hours (or 3 courses) of such courses can count toward a degree.

University of Iowa: many courses allow registration by undergraduates (at the 400 level) or by graduate students (at the 500 level). Those registering for 500-level credit are required to do a paper, research project, or meet some other significant requirement that is not required of those registering for 400-level credit. Iowa also allows graduate students to register at the 400-level, which they view as a useful mechanism for allowing graduate students to take electives in a related discipline where they might not have the background to perform at the 500-level; in such cases the difference in expectations was clearly linked to the preparation IN THE FIELD for advanced work.

Eastern New Mexico University: there are stacked 400/500 level courses. As at other institutions they may meet at the same time, but there must be different syllabi, qualitatively and quantitatively different expectations for undergraduate and graduate students, different exams, different grading scales, etc. No graduate degree plan may include more than .33% of 400/500 course work and no "core classes" can be 400/500.

Towson University: The 500 grad courses give grad credit but are often paired with undergrad (300 or 400) courses, e.g., MATH 301/501. If a student registers for MATH 501 (this requires graduate tuition), he/she is expected to have extra assignments or extra requirements beyond the work of students registered in MATH 301, to justify the graduate credit. However, with that proviso, the 301 and 501 classes CAN be taught simultaneously. That seems to help with the staffing and scheduling problems, but maintains the undergrad/grad distinction.

We allow only three 500-level courses in a Master's program--the rest must be at the 600 level or above.

Radford University: They have some 400/500 level classes. The syllabus has to specify the additional work (readings, papers, expected performance level) that graduates taking the course at the 500-level are required to do. They allow up to 20 percent of a graduate student's program of study to be at the 500 level. All other credits must be at 600-level or above. Faculty teaching 400/500 level courses must have graduate faculty status.

Ohio University: They do have such courses. The understanding is that students taking those courses are doing additional work not required of students registering in the undergraduate number. However, this is not necessarily monitored

Rockhurst University: (Masters I) they allow up to 8 hours of courses that are cross listed as both undergraduate and graduate to be accepted towards a master's degree. Similar to University of Iowa, they "require that those students taking the course for graduate credit complete additional work at an accelerated level appropriate for graduate credit" per the catalog. Undergraduates pay the undergraduate tuition rate and graduate students pay the graduate tuition rate.

University of Colorado at Boulder: Many departments have 4000/5000 courses. In order to get graduate credit, the graduate students must meet additional requirements. This also allows students in a few departments which have concurrent BA/MA (or BS/MS) programs to fulfill electives for their undergraduate major while obtaining graduate credit (if they take the course at the 5000 level). Most institutions which have this policy require extra work for the graduate credit.

San Diego State: They allow 500 level courses to count as either a grad or undergrad course depending on the student status. However a grad student in a 500 level course must do an extra assignment --one appropriate for grad level work. A master's program may not have more than half of the courses at the 500 level. Grad only courses are numbered 600 -- 799 -- undergrad courses are 100 -499

Northern Illinois University: They do allow stacked courses. In some fields (e.g., studio art) they have these "clustered" course offerings that may involve course levels as disparate as 300-level (strictly undergraduate) and 600-level (strictly graduate).

Presently, GAB is proposing the following criteria for allowing stacked classes:

All graduate level courses must meet certain criteria established by the GAB. In addition, when 400 level courses are stacked with 600 level courses, the faculty initiator must consider the impact of stacking the course on the graduate student experience and how that affects the criteria for 600 level courses.

The following guidelines may assist in determining whether a course is suitable for stacking:

1. Do the prerequisites (not registration restrictions) differ for the 400 vs 600 level versions of the course?

It is difficult to justify stacked courses in which the graduates and undergraduates have a significantly different knowledge base relevant to the course material. If the knowledge is required for the course, the prerequisites must be comparable. If the knowledge is only required for extra coursework performed by the graduate students, this difference should be stated explicitly and addressed in the Instructional Goals, Student Outcomes and course Activities sections of the CCG.

2. Is the course format predominantly discussion or seminar based?

This type of course is not likely to be suitable for stacking, as the discussion level/ theoretical base can differ significantly between graduate and undergraduate students.

3. Is the course format predominantly lecture-based? (is the main intent of the course to provide a detailed knowledge set?)

a. Is the PRIMARY source of information/ reading the primary research literature of the field?

This course is not likely to be suitable for stacking, as undergraduate students generally lack the knowledge base and experience to derive all information from the primary literature.

b. is the PRIMARY source of information/reading material derived from textbooks or other less-specialized literature?

This course is likely to be suitable for stacking. However, the performance expectations for graduate students should be explicitly defined, with special emphasis on how these expectations differ from the 400 level students.

Some suggested outcomes/ assessments that may be appropriate for 600 level students in a stacked course:

1. extra reading assignments based in the primary research literature, evaluated via written critical reviews and or oral presentations
2. extra writing assignments that evince ability to synthesize research fields.
3. assignments to measure the ability of graduate students to integrate course material into experimental design, such as writing formal research grant proposals, or oral or written presentation of how the course material informs the student's own these research
4. separate exams for graduate students that measure not only comprehension of the lecture material but the ability to integrate and apply the material at more advanced levels, such as hypothesis formulation and experimental design, or the ability to interpret raw research data.

Admission, Candidacy, Program and Graduate Requirement Standards

One matter that will be looked at are the various university and program standards for admission, candidacy, program and graduate requirements, especially in terms of their compliance with university-wide minimum standards. Below is an example in regard to admission standards across programs:

UAA Graduate Programs have the following universal admission requirements:

1. Baccalaureate Degree from accredited institution (or foreign equivalent)
2. GPA of 3.0 in baccalaureate degree, unless otherwise specified by a graduate program. [does this mean that a program can specify LOWER requirements]

Admission Requirements

Program	Degree requirement for admission
Adult Education	Bachelor's degree, no major specified
Anthropology	Bachelor degree in Anthro preferred, but will accept if a min. of 18 crs in Anthro w/ GPA 3.0 or better
Arctic Engineering	Bachelor Degree in Engineering from ABET accredited engineering program or foreign equivalent
Biology	Bachelor degree in Bio or Chem required (will accept equiv degree in sci field as determined by BSGC)
Business Admin	Bachelor's degree, but no major specified
Civil Engineering M.S.	Bachelor degree in Engineering
Civil Engineering M.C.E.	Bachelor degree in Engineering
Clinical Psychology	Bachelor in Psych preferred (but must have courses in statistics, exper design, abnormal psych, tests and measurements for full admission)
Counselor Education	Bachelor's degree in related field such as psychology, social work, or education.
Creative Writing	Bachelor's degree, but no major specified
Educational Leadership	Bachelor's degree in elementary or secondary ed
Engineering Mgt	Bachelor degree in engineering
English	Bachelor's degree, no major specified
Environmental Quality Science	Bachelor's degree in engineering
Environmental Quality Engr	Bachelor's degree in engineering
Global Supply Chain Mgt	Bachelor's degree, no major specified (Degree in Logistics or equiv in lieu of 7 yrs exper in field)
Master Teacher/Curriculum	Bachelor's degree

Master Teacher/ Early Child	Bachelor's degree
Master Teacher/ Ed Tech	Bachelor's degree
Nursing	Bachelor degree in Nursing as accredited by Natl League for Nursing
Project Mgt	Bachelor's degree in engineering (or equivalent as determined by Chair)
Public Admin	Bachelor's degree, no major specified
Public Health Practice	Bachelor's degree, no major specified
Science Mgt	Bachelor degree in any science field
Social Work	Bachelor Degree in Liberal Arts
Special Education	Bachelor's degree, major not specified

Admission Requirements

Program	GPA Requirements for Admission
Adult Education	
Anthropology	2.5 overall in Bachelor's degree, but 3.0 avg for any anthro courses
Arctic Engineering	2.5 GPA overall
Biology	3.0 overall (unless at 75 th or above percentile in 2 out of 4 GRE scores) No grade lower than C in any science course
Business Admin	Undergrad GPA x 200 + GMAT= 1050 or better/ or upper division GPA x 200 + GMAT = 1100 or better
Civil Engineering M.S.	3.0
Civil Engineering M.C.E.	3.0
Clinical Psychology	3.0 overall
Counselor Education	3.0 in the last 30 credits accumulated
Creative Writing	3.0 overall
Educational Leadership	3.0 overall GPA
Engineering Mgt	3.0
English	Expectation of 3.5 or better in Engl courses
Environmental Quality Science	3.0
Environmental Quality Engr	3.0
Global Supply Chain Mgt	Undergrad GPA x 200 + GMAT= 1050 or better
Master Teacher/Curriculum	3.0
Master Teacher/ Early Child	3.0 in the last 30 credits
Master Teacher/ Ed Tech	3.0
Nursing	3.0
Project Mgt	3.0 in last 2 yrs of undergrad work
Public Admin	3.0 overall/ or the undergrad GPA and the GRE Analytic score should equal 7.0 or better
Public Health Practice	3.0 overall GPA
Science Mgt	3.0
Social Work	
Special Education	3.0

Admission Requirements

Program	Tests Required for Admission
Adult Education	None specified
Anthropology	GRE
Arctic Engineering	None specified

Biology	GRE
Business Admin	GMAT (undergrad GPA x 200 + GMAT = 1050 or better/ or upper div GPA x 200 + GMAT = 1100 or better)
Civil Engineering M.S.	None specified
Civil Engineering M.C.E.	None specified
Clinical Psychology	GRE (quant + verbal > 1000) Subject test in Psych (> 50 th percentile) (unless applicant has 3.0 or greater in Psych degree received in 7 yrs or less)
Counselor Education	GRE (combined verbal and quant of 800 or above; or MAT (40 th percentile or above); unless in possession of graduate degree.
Creative Writing	None specified
Educational Leadership	GRE (800 or greater) or MAT (40 percentile or greater)
Engineering Mgt	None specified
English	None specified
Environmental Quality Science	None specified
Environmental Quality Engr	None specified
Global Supply Chain Mgt	GMAT (undergrad GPA x 200 + GMAT = 1050 or better)
Master Teacher/Curriculum	GRE (combined verbal and quant of 800 or above; or MAT (40 th percentile or above)
Master Teacher/ Early Child	GRE (combined verbal and quant of 800 or above; or MAT (40 th percentile or above)
Master Teacher/ Ed Tech	GRE (combined verbal and quant of 800 or above; or MAT (40 th percentile or above)
Nursing	GRE or MAT
Project Mgt	None specified
Public Admin	GRE (taken within last 5 yrs)
Public Health Practice	None specified
Science Mgt	None specified
Social Work	None specified
Special Education	GRE only (combined verbal, quantitative, and analytical must be at least 1480).

Admission Requirements

Program	Special Undergrad Course Requirements for Admission
Adult Education	None
Anthropology	None
Arctic Engineering	None
Biology	None
Business Admin	None
Civil Engineering M.S.	None
Civil Engineering M.C.E.	None
Clinical Psychology	Statistics, experimental design, abnormal psych, tests and measurements (equiv to PSY 260, 252, 261, 345, 473)
Counselor Education	None
Creative Writing	None
Educational Leadership	None
Engineering Mgt	Proficiency with computers for word processing, spreadsheet analysis and scientific calculation
English	Supplemental course work may be required if applicant found weak in certain areas.

Environmental Quality Science	None
Environmental Quality Engr	None
Global Supply Chain Mgt	None
Master Teacher/Curriculum	None
Master Teacher/ Early Child	None
Master Teacher/ Ed Tech	None
Nursing	Research Methods, Statistics (with 2.0 or better)
Project Mgt	Statistics (3.0 or better) Proficiency with computers for word processing, spreadsheet analysis and scientific calculation
Public Admin	Intro to Amer Govt, Elem Statistics, Micro Econ, Macro Econ (all within last 5 yrs), unless exempted by permission of instructor
Public Health Practice	Statistics course with 2.0 or better
Science Mgt	Proficiency with computers for word processing, spreadsheet analysis and scientific calculation
Social Work	2 courses humanities, 2 courses soc scis, 1 fine arts, 1 oral comm., 1 written comm., 2 nat scis and/or math (with a total of 45 semester credits or 68 quarter credits in the above). 1 course human biology(2.0 or better) 1 course human development (2.0 or better) 1 statistics (2.0 or better)
Special Education	None

Admission Requirements

Program	Special Experience Requirement
Adult Education	None
Anthropology	None
Arctic Engineering	None
Biology	None
Business Admin	3 yrs work experience
Civil Engineering M.S.	None
Civil Engineering M.C.E.	None
Clinical Psychology	None
Counselor Education	None
Creative Writing	None
Educational Leadership	1 yr work experience as certified elementary or secondary teacher
Engineering Mgt	On the job experience in engineering or science
English	None
Environmental Quality Science	None
Environmental Quality Engr	None
Global Supply Chain Mgt	7 yrs work experience in logistics or supply chain mgt (unless degree in logistics or equiv field)
Master Teacher/Curriculum	None
Master Teacher/ Early Child	None
Master Teacher/ Ed Tech	None
Nursing	1 yr half-time clinical experience as a registered nurse
Project Mgt	2 yrs of appropriate project mgt in applicant's field
Public Admin	None
Public Health Practice	None

Science Mgt	On the job experience in engineering or science
Social Work	None
Special Education	2 yrs of appropriate professional experience

Admission Requirements

Program	Special Certificates or Licensure
Adult Education	None
Anthropology	None
Arctic Engineering	None
Biology	None
Business Admin	None
Civil Engineering M.S.	None
Civil Engineering M.C.E.	None
Clinical Psychology	None
Counselor Education	
Creative Writing	None
Educational Leadership	Certificate for elementary or secondary teacher Alaska Teaching Certificate
Engineering Mgt	None
English	None
Environmental Quality Science	None
Environmental Quality Engr	None
Global Supply Chain Mgt	None
Master Teacher/Curriculum	
Master Teacher/ Early Child	
Master Teacher/ Ed Tech	
Nursing	Licensure as a registered nurse in the state of Alaska
Project Mgt	None
Public Admin	None
Public Health Practice	
Science Mgt	None
Social Work	None
Special Education	

Admission Requirements

Program	Background Checks
Adult Education	
Anthropology	None
Arctic Engineering	None
Biology	None
Business Admin	None
Civil Engineering M.S.	None
Civil Engineering M.C.E.	None
Clinical Psychology	None
Counselor Education	
Creative Writing	None
Educational Leadership	
Engineering Mgt	None
English	None
Environmental Quality Science	None
Environmental Quality Engr	None

Global Supply Chain Mgt	None
Master Teacher/Curriculum	
Master Teacher/ Early Child	
Master Teacher/ Ed Tech	
Nursing	None
Project Mgt	None
Public Admin	None
Public Health Practice	None
Science Mgt	None
Social Work	No felony or misdemeanor convictions
Special Education	

Interdisciplinary Master's Degree

Issue: UAA presently offers an interdisciplinary MA and MS degree. Currently the policy requires that a minimum of 21 credits must be drawn from existing, approved 600-level courses, and no more than 9 credits of directed study, independent study or individual research can be included in the Interdisciplinary degree. Although certainly, these sorts of interdisciplinary programs are available at other institutions, the standard across better universities for true interdisciplinary degrees is that they be drawn from existing degree programs. Interdisciplinary degrees that are currently on the rise include: environmental sciences, public policy, bioinformatics, gerontology, bioengineering, biophysics, photonics, and cognitive sciences.

Should UAA retain the interdisciplinary degree?

Pro: (1) an interdisciplinary program allows flexibility in addressing students' educational interests, and to provide opportunities for place-bound students.

Con: (1) there are no designated faculty who run such programs; thus, supervision and establishment of such programs is happenstance. (2) As previously noted in the Jacobs's report ("A Survey of Graduate Programs, University of Alaska Anchorage," July 2003), there is a question of the soundness of such programs, especially if the degree draws on faculty who belong to departments that do not offer any graduate program. it is quite possible to have faculty on these interdisciplinary graduate committees that do not have graduate teaching experience

Super-Tuition

Super-tuition is defined as tuition that exceeds standard tuition rates. Currently tuition for graduate courses is \$222 for resident students, and \$453 for non-residents. There are presently 4 graduate programs that have super-tuition, with one additional proposal currently being considered. Some of these programs can only be offered if they are in large part self-support. The super-tuition generates

additional revenue sufficient for self-support.

Issue 1. Should super-tuition be dropped in favor of a higher, adequate tuition charge for graduate courses be?

Pro: (1) fairness—it seems more fair to charge all resident graduate students the same tuition for these courses; (2) consistency in tuition makes it easier to recruit and promote graduate programs.

Con: (1) most of the graduate programs that charge super-tuition are professional programs; some professions average larger salaries than others, thus it is more fair to charge what the market can bear; (2) some programs have only been approved on the basis of self-support. To charge a standard tuition to meet the costs of self-support for some programs would actually end up charging students more than they should be for other programs; (3) the super-tuition process gives more guarantees that the extra income will come directly back to the program, to support students and the program's infrastructure; other income may be disseminated or absorbed in the general budget.

Issue 2. There may be a problem for any programs that have super-tuition, which also offer Teaching or Research Assistantships.

Issue: Offering a teaching or research assistantship that does not also waive the super-tuition could be considered misleading for those applying for such assistantships. The expectation is that the full tuition would be waived.

Orphaned Graduate Courses

There are several departments which offer graduate courses yet have no graduate program, nor do the courses support an existing graduate program. These include:

Economics
History
Philosophy
Political Science

The issue is whether such orphaned graduate courses should be offered.

Assistantship Stipends

How does UAA Assistantships compare with national averages:

Type of assistantship

Degree program and type and field of study	All assistantships	Teaching assistantships	Research assistantships	
Total*	\$9,033	\$6,928	\$8,776	
Degree program and type				
Master's degree	7,288	6,022	6,938	
Business administration (MBA)	6,049	4,077	(#)	
Education (any master's)	4,548	3,636	(#)	
Other master of arts (MA)	7,676	7,157	5,712	
Other master of science (MS)	8,217	6,392	7,637	
Other master's degree	7,283	6,492	6,427	
Doctoral degree	11,711	8,543	10,736	
PhD except in education	12,375	9,067	11,422	
Education (any doctorate)	6,823	5,390	6,389	
Other doctoral degree	10,154	7,153	8,721	
Field of study				
MA, MS, except in education	8,036	6,704	7,248	
Humanities and social/behavioral sciences	7,261	6,535	(#)	
Life and physical sciences	8,177	6,408	7,386	
Engineering, computer science, mathematics	9,560	8,405	8,047	
Other	6,717	(#)	5,991	
PhD, except in education	12,375	9,067	11,422	
Humanities and social/behavioral sciences	10,441	8,736	8,561	
Life and physical sciences	14,835	10,322	13,199	
Engineering, computer science, mathematics	12,797	9,251	11,138	
Other	10,854	7,468	11,000	

#Too small to report.

*Includes graduate and first-professional students in degree programs and fields of study not shown here.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 National Postsecondary Student Aid Study (NPSAS: 2000).

Master's Thesis Committee Service Payment

Work as Chair on a thesis committee is especially burdensome work for graduate faculty. Should there be additional compensation, or should this be an assumed part of the workload. The Graduate Education Committee has made some proposals in this regard.

Continuous Enrollment Policy

Issue: Whether continuous registration should be continued?

Pro: (1) continuous enrollment allows programs to determine whether students are continuing in the program or have dropped the pursuit of the degree; (2) continuous enrollment encourages students to make good and timely progress to the completion of their degree; (3) continuous enrollment is fair since it pays for UAA services the graduate student may be using while completing the degree, but not taking courses.

Con: some graduate students are part-time and may work in a profession; thus the completion of their degree may require spurts of activity; it's unfair to charge them for tuition when they may not even be on campus that semester.

Electronic Submission of Thesis

Issue: Should UAA require electronic submission of theses?

Several universities are moving in this direction and claim good results. University of Georgia has a particularly good arrangement.

http://www.gradsch.uga.edu/For_Students/Enrolled_Students/etd.html

Transfer Credits

Issue: UAA presently accepts up to 9 semester credits not previously used to obtain any other degree or certificate for transfer to UAA from a regionally accredited institution, and accepted toward a graduate degree or certificate. Should this number be changed?

Across universities, the typical range is 6-12 (some allow only 3 if they are distance delivered).

Student Handbooks

Issue: Should all programs require student handbooks. Presently, the following programs have handbooks:

Anthropology
Arctic Engineering
Biology
Education (MAT)
Nursing
Public Administration
Social Work
Special Education

Reciprocal Tuition Agreement with UAF

UAF is proposing a reciprocal tuition agreement to solve some of the problems with the cooperative Ph.D. programs between UAA and UAF. A draft of the proposal with suggested changes follows:

DRAFT RECIPROCAL TUITION WAIVER AGREEMENT

UAF , UAA, and UAS agree to waive at least 3, and up to 9 credits of the tuition charged by their respective programs for any graduate students who is a ¾-time to full-time teaching assistant (15 to 20 hours per week) at any of the three MAUs. These waivers apply only to courses listed on an approved Graduate Study Plan (or equivalent), or courses approved by the major advisor or department chair.

UAF , UAA, and UAS agree to waive at least 3, and up to 9 credits of the tuition charged by their respective programs for any graduate student who is a ¾-time to full-time research assistant (15 to 20 hours per week) at any of the three MAUs, only under the following conditions: (a) The course is completed before August 15, 2006; and (b) The research assistant's supervisor submits a memorandum stating that the grant or contract supporting the student did not have tuition for the student budgeted, and that payment of tuition from this grant or contract would have a serious, negative impact on the research supported by the grant or contract. These waivers apply only to courses listed on an approved Graduate Study Plan (or equivalent) or, in the case of new students, courses approved by the major advisor or department chair.

This is a good solution to some of the problems associated with the Cooperative Ph.D. program in biology (above), but the wording must be carefully checked.

Graduate Coordinator

A Graduate Coordinator is being established for Biology Ph.D. candidates in the cooperative arrangement with UAF, whose primary residence is at UAA

Issues in Admissions/ Application—Logistics

1. Waiver problems. Many programs are requesting Enrollment services to waive their own program requirements in regard to graduate entrance exams (GRE, GMAT, MAT (Miller Analogy Test)).

Enrollment services feels obligated to consistently apply program requirements, worries about accreditation issues in waiving such requirements, and wonder if it has such authority.

For example: a student applies for admission to graduate program G by March 15 deadline, but hasn't taken the GRE test. Faculty review the application and think the student is a strong for admission and wants them to start in the Fall. The next GRE is June 12 and scores are not reported until July 24. Deadline for University Admission is July 1.

Related Issue: If programs provisionally admit student, and the student takes classes,

but does not pass the GRE, then it creates serious problems

Possible solution: Programs should make their own waivers.

.2. **Floating Deadlines.** General University Admission deadline is July 1; Graduate programs have different deadlines. Students get confused about deadlines; they believe that deadline for admission to the program is July 1; or apply to the program but not to the university. Better communication between programs and enrollment is needed. Catalog should also not be divided by college.

Possible solution: information provided by each program in the catalog or on their web site should clarify the 2 admission dates.

Possible solution: each program takes student through entire admission process.

3. **Certification issues.** Why do students have to be admitted for certification programs in the College of Education? This is an unnecessary process since all that is done is reporting to the state that the student has taken the courses necessary for certification. There's no degree awarded?

4. **Transcript requests.** If a student already has a Masters degree and is applying for another Masters degree, why does the program need their undergraduate transcripts?

5. **Transcript requirements.** Some programs require all transcripts for graduate students, even if they've taken one class from a college; this creates inefficiency in providing transcripts for students in time for admission.

Possible solution: have programs review their requirements for transcripts: transcripts only from institution in which they received bachelor's degrees, or institution from which they took relevant graduate courses, but not community college transcripts, or transcripts from institutions from which they received no degree.

6. Common coding on Banner for all 3 MAUs, UAA, UAS, UAF; lack of clarity in terms of what codes mean, and who's responsible for the coding.

A Survey of Graduate Programs

University of Alaska Anchorage

(based on Fall 2002 data)

Submitted to
Provost James P. Chapman

W. A. Jacobs

July 2003

DRAFT

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Summary of Key Points from the Data

1. The bulk of graduate sections are still delivered by traditional on-site methods. At the moment, according to the OPRA data, only the College of Education makes extensive use of distance education at the graduate level. This is consistent with its statewide mission. The OPRA data does not identify courses delivered in part with audio-conference as distance courses. (Table 1) This understates the total distance effort.

Courses identified as “lecture” still account for the vast bulk of graduate courses. Somewhat surprisingly, the number of seminars is small. (Table 5)

2. There has been an increased investment in graduate instruction in the last five years. The number of sections has increased by 25%. The increases in total enrollment (5%) and total SCH (7%) are much smaller. (Table 2)

3. Only 4 programs show any increase, even a minor one, in degree awards over the period 1997-2002. The peak year seems to have been 1998-99. (Table 3)

4. On the positive side, 8 programs show growth in enrolled graduate majors. The remainder have remained more or less stable or declined. (Table 4)

5. Only 3 graduate programs currently enjoy special accreditation. Where a potential special accreditation is available, failure to have it may be taken as a sign of program weakness.

6. Faculty paper qualifications are adequate with two exceptions. Social Work shows 8 Fall 2002 sections taught by term Masters degree faculty. College of Education offered no fewer than 25 600-level sections with term Masters degree faculty. (Table 6). Assignment of faculty by course type is described in Table 7.

7. If I understand things correctly, OPRA does not yet provide costing data by program. When the information mapping project is complete, they may be able to do so. Hence my amateur attempt in Table 8. See the notes for derivation of the numbers. Your comments are invited.

Recommendations

1. General university requirements for graduate programs are acceptable. Three areas, however, require special attention:
 - a. The rule limiting the number of credits that may be taken in the program prior to admission to 9 must be strictly enforced at the college/school level. Any slackness here creates pressures that lead to open-admissions graduate study (especially when it is remembered that students may transfer in up to 9 credits). I would also consider lowering this number to 3 or 6.
 - b. A modification of the candidacy rule appears to be in order. Currently, we only require that a student be advanced to candidacy in order to graduate. Based on catalog language, it appears there is a wide variation in the way individual programs administer the candidacy requirement. Some have explicit requirements for candidacy beyond the general university requirement; others have nothing. In the latter situation there may be a tendency to relegate this review to a mere technicality in the last term before graduation. I suggest that we require a student be reviewed for advancement to candidacy no later than the completion of 15 credits of graduate level work (including transfer credits). This would reduce such problems as:
 - i. failure to remove conditions of admission in a timely fashion (or at all);
 - ii. delay in forming a graduate studies committee
 - iii. delay in completing an approved graduate studies plan;
 - iv. delay in completing an approved thesis project (where required).
 - c. Under current policy, students must complete 24 credits in graduate courses other than thesis or research project. Lowering this requirement to 18 or 21 should be considered to give greater latitude for research-driven graduate programs.
2. The need for, and requirements of, the interdisciplinary graduate degrees should be revisited. These usually pair an existing graduate program with courses drawn from a program without a

graduate degree.

3. It is time to re-examine the policy which allows the offering of graduate courses by programs that do not offer graduate degrees.

4. The current curriculum handbook carries does not contain specific criteria for 600 level courses (it does for all others). This should be remedied to provide some standard for the guidance of faculty review committees. The catalog contains only the sentence: “600 level courses demand rigorous analysis, synthesis, and research skills.”

5. UAA needs a graduate studies handbook for the use of faculty and students alike. Absent a graduate school, a graduate dean, and a graduate faculty, this would provide some leverage for deans and associate deans to enforce rule-based quality.

UAA GRADUATE PROGRAMS²

COLLEGE OF ARTS AND SCIENCES

Master of Arts

Anthropology
English
Interdisciplinary Studies

Master of Fine Arts

Creative Writing and Literary Arts

Master of Science

Biological Sciences
Clinical Psychology
Interdisciplinary Studies

COLLEGE OF BUSINESS AND PUBLIC POLICY

Master of Business Administration

Business Administration

Master of Public Administration

Public Administration

Master of Science

Global Supply Chain Management

² Source: UAA 2002-03 Catalog.

COLLEGE OF EDUCATION

Master of Arts in Teaching

Education

Master of Education

Adult Education
Counseling and Guidance
Educational Leadership
Master Teacher
Special Education

SCHOOL OF ENGINEERING

Master of Civil Engineering

Civil Engineering

Science Management

Master of Science

Arctic Engineering
Civil Engineering
Engineering Management
Environmental Quality Engineering
Environmental Quality Science

COLLEGE OF HEALTH AND SOCIAL WELFARE

Master of Public Health

Public Health

Master of Science

Nursing Science

Master of Social Work

Social Work

COMMUNITY AND TECHNICAL COLLEGE

Master of Science

Vocational Education

SPECIAL ACCREDITATION

BUSINESS

Master of Business Administration

*Accredited by the International Association for Management Education
(AACSB)*

NURSING

Master of Science

*Accredited by the National League for Nursing Accreditation Commission
Approved by Alaska Board of Nursing*

SOCIAL WORK

Master of Social Work

Accredited by the Council on Social Work Education (CSWE)

UNIVERSITY REQUIREMENTS³

ADMISSIONS

1. Baccalaureate degree (nearly completed, or a foreign equivalent).
2. Cumulative GPA of 3.00 or alternatively meet the GPA admission of the specific program.

No more than nine credits may be completed in a student's program before application for admission.

CANDIDACY

After demonstrating an ability to succeed in graduate study as defined by the relevant graduate program, the student may apply for advancement to candidacy. Advancement to candidacy status is a prerequisite to graduation. To be approved a student must:

1. Be in good standing as defined in the Good Standing Policy (any grad student who maintains a 3.0 GPA in all course work that meets their graduate program requirements and who is not on probation).
2. Demonstrate competence in the methods and techniques of the discipline.
3. Receive approval of the thesis or major study research project proposal from the student's Graduate Studies Committee.
4. Satisfy all prerequisites and remove all academic deficiencies.
5. Satisfy all terms of a conditional admission.
6. Submit an approved Official Graduate Studies Plan.

OTHER

1. GPA of at least 3.0 must be earned in courses identified in the Official Graduate Studies Plan.
2. Only 400- and 600- level courses approved by the graduate advisor, dean, and committee may be counted toward graduate program requirements. Graduate students enrolled in 400-level course which they intend to apply to their graduate program will be expected to complete additional course work requirements.
3. In 400-level courses, a minimum grade of "B" is required for the courses to count toward the program requirements.
4. Courses at the 500-level are not applicable toward any degree.
5. In 600-level courses, a grade of "C" is minimally acceptable, provided the student maintains a cumulative GPA of 3.00 in all courses applicable to the program. At least 21 credits must be taken at the graduate level for any master's degree, including thesis and research credits.
6. Up to 9 semester credits not used toward any other degree or certificate may be transferred to UAA from an accredited institution. Acceptance of transfer credit toward program requirements is at the discretion of the individual program.
7. Individual program Deans may allow credit earned at other universities in the Statewide system, excluding thesis credit and credit used toward another degree/cert, to be transferred to UAA, as long as at least 9 credits applicable to the student's program are earned at UAA after acceptance into the program.
8. Courses taken by correspondence, credit by exam, or graded CR/NC do not count toward graduate program requirements. They may be used to satisfy prerequisites or to

³ Source: UAA Catalog, 2002-03.

establish competency in a subject (thereby allowing the advisor/committee to waive certain courses in a program, as long as the total credits in the program remain the same).

9. If the requirements as specified in the entry-level catalog are not met w/in 7 yrs of formal acceptance into the program, that program will expire and the student must reapply for admission and meet the requirements in effect at the time of formal acceptance.

10. All credits counted toward the degree/certificate, including transfer credits, must be earned w/in the consecutive 7yr period prior to graduation.

11. Students are expected to be continuously registered throughout their graduate program.

ADDITIONAL

In addition to the Graduate General University Requirements, all graduate students must meet the following requirements:

1. Students must complete at least 30 approved semester credits beyond the baccalaureate degree. At least 24 credits in every graduate degree must consist of courses other than thesis and/or research project.
2. The student must complete all requirements established by the program and must pass a written or oral comprehensive exam, or thesis/project defense.
3. When an oral comprehensive exam and/or thesis defense is required, the student may select an outside reviewer approved by the Dean or designee. The outside reviewer is a faculty member from another department in the university or other qualified individual in the area in which the student is seeking their degree.
4. All theses must meet general UAA requirements for format as determined by the UAA Consortium Library.

ADDITIONAL PROGRAM REQUIREMENTS

COLLEGE OF ARTS AND SCIENCES

M.A. Anthropology

Admissions and Candidacy

1. March 15th fall admission deadline and Nov 15th spring admission deadline.
2. Awarded a baccalaureate degree.
3. Recommend completion of minimum 18 credits of ANTH undergraduate with GPA 3.00 (ANTH undergrad degree preferred).
4. 2.5 overall undergrad GPA.
5. UAA graduate application.
6. Official transcripts for each institution attended.
7. GRE results (General Test Scores).
8. 3 letters of recommendation qualified to attest to applicant's qualifications.
9. Letter of intent, including research and career goals and reason for applying.
10. Examples of papers or research proposals.
11. Personal interview may be requested.

Acceptance based on:

12. Overall credentials.
13. Availability of appropriate faculty for student research.

* conditional admission may be conferred if important deficiencies are identified in their undergrad training

Candidacy and Other

1. "University Master's Level Candidacy Requirements."
2. Submit Official Graduate Studies Plan, as described in UAA catalog.
3. Select a Graduate Studies Committee by the end of the first semester of study.
4. Complete at least 24 semester credits of non-thesis course work applicable to MA program.
5. Take at least 1 course in statistics and 1 in computer-based analytical methods. Student may be required to demonstrate mastery of a foreign language, if deemed necessary by the committee.
6. Pass a written comprehensive exam in anthropology, taken before the end of the second year of study, but must be taken by the completion of 36 semester credits. May be taken twice, but failure to pass the exam a second time will result in removal from program.

7. Prepare a thesis prospectus for approval by the graduate committee.

M.S. Biological Sciences

Admissions

1. Awarded a baccalaureate degree.
2. Courses in physics, organic chemistry and biochemistry in undergrad education to be considered for admission.
3. 2.5 overall undergrad GPA, w/no grade below C in college level science course.
4. UAA graduate application.
5. Official transcripts of all college-level work.
6. GRE results (General GRE and Biology, Biochem, or Chem advance GRE scores).
7. 3 letters of recommendation.
8. Brief statement of research and career goals.

Acceptance based on:

9. Overall credentials.
10. Availability of appropriate faculty for student research.

Candidacy

None additional

Other

None additional

M.S., Clinical Psychology

Admission

1. March 1st admission date.
2. Compliance with General University Requirements and admission to grad study. Major in PSY is preferred.
3. Undergrad training in statistics, experimental design, abnormal psy, and tests and measurements. Students may be admitted w/o courses, but will need to complete them prior to starting practicum.
4. GRE scores (general and PSY subject test). Applicants w/o tests are generally not considered. Successful applicants typically have quantitative and verbal subtest that sum to 1000 or more and scores on the PSY subject test exceed the 50th percentile. PSY subject test is waived for students who have PSY baccalaureate degree w/in past 7yrs with PSY GPA of 3.00 or above.
5. Letter of intent describing interest and purpose in studying PSY and reasons why MS in Clinical PSY at UAA is sought at this particular time.
6. Minimum of 2 professional references.
7. Documentation of academic, research, and practical experiences other than course work, voc and professional experiences, special projects and activities, and recognitions or honors must be provided. Format is flexible, but vita is preferred.
8. Demonstration of professionalism, understanding of APA ethical guidelines, and appropriate professional ethical behavior. Evidence of professional goals and aspirations that reflect understanding of the profession of PSY as it relates to the UAA program. Applicants may be requested to complete an interview with faculty to provide additional evidence of skills and features.

Candidacy

1. Fully admitted status is prerequisite for:
 - A. Registering for PSY A665
 - B. Registering for PSY A670
 - C. Preferences in T.A. or R.A. appointments
 - D. Preference in registration for PSY classes
 - D. Preference in registration for PSY classes
2. Students are eligible to apply for advancement to candidacy when they have completed the following courses: PSY A611, A623, A633 and one course from the Specialty Track requirements list.
3. Candidacy status is a prerequisite to the following experiences: PSY A670, participation in Comprehensive Exams, Receipt of academic credit for thesis (PSY A699 A, B, or C).

Other

1. A minimum grade of "B" or better is required of all course work applied to the degree.
2. Strict compliance w/ APA Ethical Guidelines is required throughout participation in the degree program. Violations can result in immediate

dismissal from the program.

3. To ensure students have the statistical skills to complete an empirical research project for their thesis or to do well on the national licensing exam, students must demonstrate minimal statistical proficiency prior to graduating w/ a M.S. degree. Proficiency can be demonstrated in one of three ways: a) obtain a score of 500 or better on the Quantitative portion of the GRE; b) pass a proficiency exam given by the PSY department the week before classes start in the fall; c) successfully complete PSY A685. Students who take the proficiency exam but do not pass will be required to take PSY A685.

M.F.A., Creative Writing and Literary Arts

Admissions

1. University admission requirements, and in addition at the time of application students must submit:
2. Manuscript sample (approx 20 pages of fiction or creative nonfiction or 10 poems).
3. 2 letters of recommendation that address academic preparation and creative writing ability.
4. Letter of application which addresses the student's range of writing experience and reasons for applying to the MFA.

Candidacy

None additional

Other

None additional

M. A., English

Admissions

Materials must be received by March 1st to be considered for assistantships and by April 1st for general admission into the program. Fall admission only. Admission will depend upon the evaluation of the entire packet, w/ emphasis placed on the manuscript sample.

1. 3 page application essay which addresses the student's background in English, reasons for applying, and learning goals.
2. A recent sample (w/in past 5yrs) of academic or professional writing ~ if no samples are available, should be addressed in application essay.
3. Documented GPA in all undergrad English courses. Successful applicants ordinarily have a GPA of 3.5 or better in undergrad ENGL courses. An applicant who is weak in one area may be required to take additional course work at the undergrad level.

Candidacy

1. "See the beginning of this chapter for master's level candidacy requirements."
No more than 2/3 of the credits applied to the degree may have been completed prior to the submission of a candidacy application. In addition, the student must complete 2 departmental requirements before advancing to candidacy.
2. Submit a satisfactory official score for the verbal section of the General GRE. MA students ordinarily have a score of 500 or better.
3. Pass the department's Graduate Qualifying Exam. (Taken when the student has completed no fewer than 15 and no more than 24 credits towards the degree, demonstrates the student's disciplinary writing skill and preparation to write a successful thesis.)

Other

None additional

COLLEGE OF BUSINESS AND PUBLIC POLICY

M. B. A. General Management

Admissions

1. Applicants must meet both the graduate admission requirements and deadlines and the following:
2. Admission is restricted to students holding a baccalaureate degree or foreign equivalent.
3. Highly desirable for incoming MBAs to have 3yrs of full-time work experience.

The majority of students meeting these conditions will be admitted. In general, two formulas using undergrad performance as measured by the GPA and the score on the Graduate Management Admission Test will be used to assess an applicant's potential for success in the MBA program. Applicants whose native language is not English are required to score at least 550 on the TOEFL exam or otherwise demonstrate competency in English.

Students in conditional admission status are restricted in the number of courses that they can take before being fully admitted.

Candidacy

None additional

Other

None additional

M.S., Global Supply Management

Admissions

1. Applicants must meet both the graduate admission requirements and deadlines and the following:
2. Admission is restricted to students holding a baccalaureate degree or foreign equivalent.
3. Highly desirable for incoming MBAs to have 3yrs of full-time work experience.

The majority of students meeting these conditions will be admitted. In general, two formulas using undergrad performance as measured by the GPA and the score on the Graduate Management Admission Test will be used to assess an applicant's potential for success in the MBA program. Applicants whose native language is not English are required to score at least 550 on the TOEFL exam or otherwise demonstrate competency in English.

Students in conditional admission status are restricted in the number of courses that they can take before being fully admitted.

Candidacy

None additional

Other

None additional

Master of Public Administration

Admissions

1. University admission requirements
2. Must take the GRE.
3. Must submit with the UAA application for Admission a 300-500 word statement on their career goals and how the MPA degree relates to them.
4. Students are expected to have introductory level knowledge of American government, statistics, and micro and macroeconomics. Students deficient in these areas must complete equivalent undergrad courses.

Qualified students may take graduate courses w/o being admitted to the program, but students seeking a degree should apply for admission before accumulating more than 9cr in the program. Students normally will not be allowed to enroll for additional credits w/o admission to the program.

Candidacy

Academic Progress

To maintain satisfactory progress toward the degree, a student in the MPA program is expected to complete a minimum of 6cr each calendar year, commencing w/the first term of enrollment.

The 6cr may consist of either undergrad prerequisite courses or graduate program courses. Failure to comply w/the 6cr minimum each calendar year may result in the student being dropped from the program.

Other

None additional

COLLEGE OF EDUCATION

M. A. Teaching⁴

Admissions

The application deadline for the MAT is September 15 for applicants seeking spring admission and March 1 for applicants seeking summer admission. Students are admitted and proceed through the program as a cohort. An application packet is available from the College of Education.

Applicants for the MAT degree must also meet subject area requirements for a teaching endorsement. Approved teaching endorsement areas for the MAT are:

- English as a Second Language
- English/Language Arts
- General Science
- Mathematics
- Music
- Social Studies
- Vocational Education
- World Languages (this endorsement is for a specific language)

Note: Teaching endorsements must be completed in accordance with the approved Initial Endorsement Content Preparation Review on file in the College of Education.

Undergraduates interested in applying to the MAT should see a College of Education advisor during the freshman year to ensure that subject matter courses taken to fulfill undergraduate degree requirements meet the content preparation standards required by the College's accrediting association. Because additional subject matter course work may be required before an applicant can be accepted to the MAT, individuals with baccalaureate degrees who are considering a career change to become a teacher should see a College of Education advisor at least one year before applying to the program.

Applicants must also provide documentation to the College of Education of qualifications in the following three areas:

1. Academic preparation and demonstrated content knowledge competency in the endorsement area sought.
2. Successful experience with adolescents.
3. Dispositions for teaching, including collaborative skills and the ability to work with children and families from diverse backgrounds.

Admission to the program is competitive and based on a two-part review of the applicant's credentials. The first committee review is preliminary and based on the documentation submitted by the applicant. If the applicant is recommended as a strong potential candidate for admission, then an admissions interview is scheduled. Applicants' knowledge, skills and dispositions as documented in the MAT application packet and demonstrated in the admissions interview will be holistically evaluated.

⁴ Effective Fall Semester 2003.

If the candidate is recommended for admission based on the preliminary review and admissions interview, the candidate must demonstrate good health and pass a background check prior to admission to the internships.

Stage I: Preliminary Review

Candidates must complete the MAT application packet available from the College of Education. It must include the following.

1. Verification of a baccalaureate degree by the start date of the graduate-level course work with an expected minimum of a 3.0 G.P.A. in the last 30 credits of the baccalaureate degree or subsequent graduate-level coursework.
2. Verifiable documentation of the ability to do graduate-level work, for example, scores on the Graduate Record Exam (GRE) general subtests (verbal reasoning, quantitative reasoning, analytical writing), scores on the Miller Analogies Test, successful completion of a graduate degree, or successful completion of a senior thesis in the baccalaureate degree major.
3. Passing scores on the Praxis I, a test of basic skills in reading, writing, and mathematics. This test is also required by the State of Alaska; the Alaska State Board of Education and Early Development determines passing scores. Contact the College of Education for the passing scores.
4. Scores from the relevant content knowledge Praxis II test. Competitive scores will be at the national median or higher.
5. Demonstrated evidence of content area preparation in the teaching area for which the applicant is seeking endorsement, including the "Initial Endorsement Content Preparation Review" that has been signed by an appropriate CE faculty advisor.
6. A brief narrative that provides documentation of technology skills.
7. An essay addressing questions based on the MAT program purpose and outcomes, as described in the application packet.
8. Documentation of experience with school-aged children and adolescents.
9. A current resume.
10. Three letters of recommendation that speak directly to the applicant's qualifications to be admitted to the MAT degree and her/his choice of teaching as a career. At least one of the letters should address the academic expertise in the endorsement area.

Stage II: Admissions Interview

11. After the preliminary review of the required application materials is completed, all applicants who are recommended as strong potential candidates will be interviewed by an Admissions Committee. Admission to the MAT degree program is competitive, and final decisions will be based upon consideration of all data.

ADDITIONAL REQUIREMENTS

Applicants accepted for admission must provide the following documents.

1. A completed State of Alaska Student Teacher Certification Authorization application form. The State of Alaska requires

fingerprinting and a background check prior to internships in the public schools. Failure to pass the background check will result in removal from the program.

2. Documentation of a current physical exam and negative TB skin test.

Candidacy

None additional

Other

Students enrolled in the MAT must maintain a minimum GPA of 3.00, with no individual course grade lower than a "C," or "B" where specified. ED A624 Capstone Seminar: Inquiry in Teaching and Learning, CTE A624 Capstone Seminar: Inquiry in Teaching and Learning, ED A478 Issues in Alaska Native Education, K-12, and ED A424 Foundations of Modern Educational Practice require a minimum grade of "B." Courses with grades less than a "C," including those used to demonstrate content knowledge on the "Initial Endorsement Content Preparation Review," may not be applied to meet certification or endorsement requirements. Satisfactory progress on all standards must be demonstrated in the internship courses to remain in the program.

M. Ed. Master Teacher

Admissions

1. Baccalaureate degree.
2. Type A teaching certificate.
3. GRE w/combined verbal and quantitative score of 800 or the MAT w/ scores at or above the 40th percentile.
4. 3 letters of recommendation of field experience rating forms.
5. 3.0 GPA in the last 30 credits accumulated.
6. Goal statement; list of experiences teaching children or adolescents, or in school administration; description of experience.

Candidacy

3.0 G.P.A.

Other

1. "See the beginning of this chapter for general university requirements for graduate degrees and master's level graduation requirements."
2. One year successful contract teaching.
3. An official program must be approved before completion of 9 credits of course work.
4. Completion of a minimum of 36 credits of approved course work.
5. At least 18 credits must be completed after the semester in which the student was admitted and approved by the graduate committee.
6. Pass a comprehensive written examination on the education "core" studies and the area of specialization. An oral examination may also be required by the student's committee.

A portfolio is required in lieu of the comprehensive exam for the Educational Technology option.

Master of Education, Adult Education

Admissions

1. Baccalaureate degree.
2. Demonstration of interest in adult education.
3. 3 letters of recommendation of field experience rating forms.
4. Complete on-site writing sample.
5. Interview.
6. 3.0 GPA in the last 30 credits accumulated.
7. List and description of experiences related to adult education and working w/ adults.

The writing sample, references and interview will be evaluated in lieu of the GRE. Admission is based on results of above criteria. Students may complete nine credits prior to acceptance.

Candidacy

1. 3.0 GPA.

Other

1. An official program must be approved before completion of 9 credits of course work.
2. Completion of a minimum of 36 credits of approved course work.
3. At least 18 credits must be completed after the semester in which the student was admitted and approved by the graduate committee.
4. Pass a comprehensive written examination on the education "core" studies and the area of specialization. An oral examination may also be required by the student's committee.

Master of Education, Counseling and Guidance

Admissions

1. Bachelor's Degree in related field, e.g., Psychology, Social Work or Education.
2. Evidence of potential success as a counseling professional as evidenced by academic preparation, work experiences, and recommendations.
3. 3.0 GPA in the last 30 credits accumulated.
4. GRE with a combined verbal and quantitative score of 800 or MAT with scores at or above the 40th percentile.
5. A minimum of three Counseling & Guidance Recommendation Forms or letters of recommendation (one must be from a supervisor).
6. Transcripts.
7. Goal statement; description of experience; transcripts; list of certifications and endorsements; resume; professional philosophy.

Candidacy

1. 3.0 GPA.
2. Evidence of acceptable performance in written expression.

Other

1. An official program must be approved before completion of 9 credits of course work.
2. Completion of a minimum of 36 credits of approved course work.
3. At least 18 credits must be completed after the semester in which the student was admitted and approved by the graduate committee.
4. Pass a comprehensive written examination on the education "core" studies and the area of specialization. An oral examination may also be required by the student's committee.

Master of Education, Special Education, Early Childhood

Admissions

1. Baccalaureate degree.
2. GPA of 3.0 in the last 30 credits accumulated.
3. GRE with a combined verbal and quantitative score of 800 or MAT with scores at or above the 40th percentile.
4. Transcripts.
5. 2 letters of recommendation or field experience rating forms (must be written by a work supervisor or an academic advisor).
6. Record of experiences for the past 5 yrs; description of experiences w/ individuals who have disabilities; goal statement.

Candidacy

1. B or better in program course work.
2. Praxis II: Preschool Special Education.
3. Exit portfolio.
4. Comprehensive Exam.

Other

1. "See the beginning of this chapter for general university requirements for graduate degrees and master's level graduation requirements."
2. One year successful contract teaching.
3. An official program must be approved before completion of 9 credits of course work.
4. Completion of a minimum of 36 credits of approved course work.
5. At least 18 credits must be completed after the semester in which the student was admitted and approved by the graduate committee.
6. Pass a comprehensive written examination on the education "core" studies and the area of specialization. An oral examination may also be required by the student's committee.

Master of Education, Special Education

Admissions

1. "See the beginning of this chapter for general university requirements for graduate degrees and master's level graduation requirements."
2. One year successful contract teaching.
3. An official program must be approved before completion of 9 credits of course work.
4. Completion of a minimum of 36 credits of approved course work.
5. At least 18 credits must be completed after the semester in which the student was admitted and approved by the graduate committee.
6. Pass a comprehensive written examination on the education "core" studies and the area of specialization. An oral examination may also be required by the student's committee.

Candidacy

1. 3.0 GPA.
2. B or better in program course work.

Other

1. One year successful contract teaching.
2. An official program must be approved before completion of 9 credits of course work.
3. Completion of a minimum of 36 credits of approved course work.
4. At least 18 credits must be completed after the semester in which the student was admitted and approved by the graduate committee.
5. Pass a comprehensive written examination on the education "core" studies and the area of specialization. An oral examination may also be required by the student's committee.
8. Thesis or research project.
9. Program portfolio.

Master of Education, Education Leadership

Admissions

1. Baccalaureate degree.
2. At least 1yr experience as certified elementary or secondary teacher.
3. Eligible for Alaska Teaching Certificate.
4. GRE w/ combined verbal and quantitative score of 800 or MAT w/ score at or above the 40th percentile.
5. 3 letters of recommendation of field experience rating forms
6. 3.0 GPA in the last 30 credits accumulated.
7. Goal statement; description of experience; transcripts; list of certifications and endorsements; resume; professional philosophy

Candidacy

1. 3.0 GPA

Other

2. One year successful contract teaching.
3. An official program must be approved before completion of 9 credits of course work.
4. Completion of a minimum of 36 credits of approved course work.
5. At least 18 credits must be completed after the semester in which the student was admitted and approved by the graduate committee.
6. Pass a comprehensive written examination on the education "core" studies and the area of specialization. An oral examination may also be required by the student's committee.

College of Health and Social Welfare

Master of Science, Nursing Science

Admissions

1. University admission requirements (application submission deadlines ~ Dec 15th for March 1st applicants and Aug 15th for Nov applicants).
2. Baccalaureate degree in nursing from a program accredited by the National League for Nursing.
3. Undergrad (grad, if applicable) GPA of 3.0 on a 4.0 scale.
4. Scores from the GRE or MAT.
5. Grade of 2.0 in a research methods course and a statistics course that covers descriptive and inferential statistics.
6. Licensure as a registered professional nurse in the State of AK concurrent w/ enrollment in first clinical course.
7. School of Nursing graduate admission application.
8. 3 letters of reference ~ references maybe contacted by a member of the Admissions Committee.
9. Essay relative to career goals, career development plans and personal/professional philosophy submitted.
10. Minimum of 1yr of half-time clinical experience as a Registered Nurse.

Special consideration may be given to candidates w/ clinical expertise and a proven record of professional contributions. Candidates must submit documentation of their expertise and contributions along w/ their request. Preferences may be given to residents of Alaska as defined by the University's policy on residency for tuition purposes.

Candidacy

The student is eligible for advancement to candidacy after demonstration of ability to succeed in graduate study through approval of the thesis proposal by the student's thesis committee and the UAA IRB.

Academic Progress

Students must maintain a 3.0 GPA in all required course work and must earn a "B" or higher in all clinical courses. Students who earn less than a "B" must, on space available basis, retake the course (and may be retaken only once). A student's Graduate Nursing Program may include a maximum of two "C" grades, no grades below "C" will be applied to degree requirements. Noncompliance w/ the policy will result in academic probation and possible dismissal from the program.

Other

None additional

Master of Social Work

Admissions

1. Application deadline January 15th.
2. University admission requirements.
3. Submit complete undergraduate transcripts.
4. MSW admission packet, including 3 letters of reference from employers, supervisors, or academic faculty and a sample of academic or professional writing in addition to other materials.

Liberal Arts requirements for admissions:

MSW program requires that all incoming students have successfully completed a baccalaureate degree in the liberal arts from an accredited institution. The liberal arts baccalaureate should include successful coursework in the following areas:

1. 2 university courses in the humanities (history, philosophy, languages, literature, or similar disciplines).
 2. 2 university courses in the social sciences (political sciences, sociology, anthropology, psychology, or similar disciplines).
 3. 1 university course in the fine arts (music, theatre, art appreciation, or similar disciplines).
 4. 1 university course in oral communications.
 5. 1 university course in written communications.
 6. 2 university courses in the natural sciences and/or mathematical (biology, chem, physics, geology, astronomy or from similar disciplines; algebra, calculus, trig, statistics, or similar disciplines).
 7. Minimum of 45 semester credits or 68 quarter credits which in total reflect the courses identified in the above list. The remaining credits earned can be distributed in any combination.
- As part of the liberal arts preparation, the MSW program has established the following 3 specific prerequisites to admission: prior course work in human biology (1 course), human development over the entire life span (1 course), and applied statistics (1 course). A minimum grade of C is required for each of the courses.

Candidacy

1. "University Master's Level Candidacy Requirements"
2. Submit application for advancement to candidacy packet available through the School of Social Work.
3. Successfully complete MSW comprehensive examination, given in the Integrative Seminar during the spring semester of the concentration year of the program.

Academic Progress

To maintain satisfactory progress toward the degree, a student in the program is expected to achieve a GPA of 3.0 or better, w/ no individual course grade lower than a "C", and to adhere to the Code of Ethics of the National Association of Social Workers. Students must earn a grade of "B" or better in all field practicum courses.

The MSW Field Coordinator will make reasonable efforts to place students into field placement. Placement is dependent upon resources

in the community and in the department. Acceptance into the program does not guarantee acceptance by cooperating practicum settings. Placements outside of Anchorage/Mat-Su carry additional fees in order to help support field coordinator expenses.

Other

1. "See the beginning of this chapter for Master's level degree requirements."
2. Successful completion of individual research project.
3. Successful completion of all required academic course work specified on the Official Graduate Studies Plan, w/ a GPA of 3.0 or better and no course grade of lower than a "C", and no practicum course grade lower than a "B."

COMMUNITY AND TECHNICAL COLLEGE

Master of Science, Vocational Education

Admissions

None additional

Candidacy

None additional

Other

1. Official program development jointly between the student and faculty advisor must be approved before completion of 12 credits of course work.
2. Only 9 credits may be at the 400-level.
3. Completion of a minimum of 36 credits of approved course work in the program.
4. Successfully complete VE A698 (project or thesis) w/committee approval.
5. Once the final project or thesis is approved, students must enroll in at least 3cr of VE A698, and maintain continuous enrollment every semester (except summer) until project/thesis is completed.
6. Pass a comprehensive written examination based on the student's program of study.

**Table 1: Mode of Delivery
Graduate (600-699) Sections Fall 2002⁵**

School	Prefix	Distance Ed	Regular
CAS	ANTH		12
CAS	BIOL		20
CAS	BIOM		7
CAS	CWLA		17
CAS	ENGL		10
CAS	EXTC		1
CAS	HIST	1	1
CAS	LANG		1
CAS	MUS		1
CAS	PSY		15
CBPP	ACCT		1
CBPP	BA		9
CBPP	ECON		10
CBPP	EXTB		1
CBPP	LOG		4
CBPP	PADM	2	7
CHSW	EXTN		1
CHSW	JUST		1
CHSW	NS		10
CHSW	SWK		17
COED	COUN		8
COED	ED		18
COED	EDAE		8
COED	EDEE		1
COED	EDET	1	1
COED	EDFD		3
COED	EDL	14	12
COED	EDRE		1
COED	EDSE	11	2
COED	EXTE		1
CTC	VE		5
SOEN	CE	3	2
SOEN	EQE		3
SOEN	ESM		9
SOEN	ME	1	2

**Table 2: Key Operational Data
Graduate Courses**

⁵ Source: OPRA, Fall 2002 Closing. Distance includes telecourses, web, and satellite courses. This understates the total number of distance delivered courses because it omits the older audio-conference technology.

SCH, FTES, Enrollment, Sections
600-699 Courses Fall 1997-Fall 2002⁶
University of Alaska Anchorage

	SCH	FTES	Tot Enroll	Sections
97	6321	526.8	2219	208
98	6568	547.3	2225	231
99	5739	478.3	2043	245
00	5743	478.6	1989	240
01	5916	493	2047	244
02	6818	568.2	2321	259

⁶ Source: OPRA Trend Book

Table 3: UAA Graduate Degrees Awarded 1997-2002⁷

Degree	97-98	98-99	99-00	00-01	01-02
M. Ed., Adult Education	9	6	3	8	12
M. A. Anthropology	0	0	0	0	0
M. S. Arctic Engineering	2	4	1	0	0
M. S. Biological Sciences	1	1	2	9	2
M. S. Civil Engineering	3	1	2	0	3
M. S. Clinical Psych	14	11	4	11	3
M.S. Counseling and Guidance	11	23	16	9	17
M. S. Counseling Psych	0	0	0	0	0
M. F. A. Creative Writing and Literary Arts	11	10	4	6	9
M. Ed. Early Childhood	0	0	0	0	0
M. A. T.	0	1	36	9	2
M. A. T. ⁸ (2)	30	48	0	0	1
M. Ed. Educational Leadership	2	13	17	29	28
M. Ed. Elementary Ed	0	0	0	0	0
M. S. Engineering Management	9	9	10	9	4
M. A. English	7	6	5	5	3
M.S. Environmental Quality Eng	6	4	2	4	2
M. S. Environmental Quality Science	7	4	8	6	3
M. A. Interdisciplinary Studies	3	1	2	1	0
M. S.	2	3	1	1	3

⁷ OPRA, *Trend Book*.

⁸ The OPRA data contain two trend series for the M.A.T.

Degree	97-98	98-99	99-00	00-01	01-02
Interdisciplinary Studies					
M. B. A.	16	29	18	11	16
Master of Civil Engineering	0	0	2	0	0
Master of Public Administration	4	8	8	12	6
Master of Social Work	31	28	18	16	15
M. Ed.	2	2	8	2	4
Master Teacher					
M. S.	9	15	14	11	13
Nursing Science					
M. S.	0	0	0	0	0
Planning					
M. Ed.	15	4	0	0	0
Public School Administrator					
M. Ed.	1	0	0	0	0
Reading					
M. S.	2	7	2	0	3
Science					
Management					
M. Ed.	0	0	0	0	0
Secondary Ed					
M. Ed.	18	20	15	13	10
Special Ed					
M. S.	3	3	4	5	2
Vocational Education					

Table 4: Enrolled Graduate Majors, 1998-2002⁹

College	Discipline	1998	1999	2000	2001	2002
CAS	Anthropology	0	13	17	21	28
CAS	Biological Sciences	26	21	21	22	25
CAS	Clinical Psychology	27	27	19	20	23
CAS	Counseling Psychology	1	0	0	0	0
CAS	Creative Writing	27	26	32	41	50
CAS	English	26	20	22	33	33
CAS	Interdisciplinary Studies	7	3	3	3	25
CBPP	Business Administration	86	80	76	78	75
CBPP	Global Supply Chain Mgmt	0	0	0	26	14
CBPP	Public Administration	23	25	26	29	21
CTC	Vocational Education	16	16	20	19	19
CE	Adult Education	34	25	37	32	33
CE	Counselling and Guidance	37	27	29	28	44
CE	Early Childhood Education	0	1	1	0	0
CE	Education	5	12	2	2	0
CE	Ed Leadership	13	38	36	47	59
CE	Master Teacher	18	20	33	36	78
CE	Public School Admin	15	4	2	0	0
CE	Special Education	38	36	28	21	32
CE	Teaching	63	28	9	4	4
SOEN	Arctic Engineering	3	2	2	6	5
SOEN	Civil Engineering	18	17	13	15	9
SOEN	Engr Management	9	12	15	13	22
SOEN	Envr Quality Engineering	11	8	4	6	5
SOEN	Envr Quality Science	22	18	16	8	9
SOEN	Science Management	3	5	6	8	11
CHSW	Nursing Science	53	52	47	44	48
CHSW	Social Work	49	35	46	39	41

⁹ Source: OPRA Trend Book

**Table 5: Graduate Course Types
No. of Sections (600-699), Fall 2002¹⁰**

	CAS	CBPP	CHSW	COED	CTC	SOEN
Field Exp	1					
Ind Study	18	1	5	1		1
Internship	1			21		
Lab	2		1			
Lec-Lab	5		4	1		1
Lecture	38	31	11	48	2	16
Open Entry					3	
Practicum	3		4	3		
Research	10	1	1	2		2
Seminar	2		1	3		
Thesis	6	1	2	2		

¹⁰ Source: Calculated from OPRA Semester Report, Fall 2002 Closing

Table 6: Faculty Qualifications

MT=Terminal Masters Degree

N=Not known (adjunct faculty not in Faculty Services DB)

School	Course Prefix	Appt	Doctorate	Masters	Masters Terminal	Not in Fac Serv DB	Total
CAS	ANTH	Adjunct				2	2
CAS	ANTH	Ten Track	10				10
CAS	BIOL	Adjunct				1	1
CAS	BIOL	Ten Track	19				19
CAS	BIOM	Adjunct				5	5
CAS	BIOM	Ten Track	2				2
CAS	CWLA	Adjunct				1	1
CAS	CWLA	Term			4		4
CAS	CWLA	Ten Track			12		12
CAS	ENGL	Adjunct				2	2
CAS	ENGL	Ten Track	8				8
CAS	EXTC	Adjunct				1	1
CAS	HIST	Adjunct				1	1
CAS	HIST	Ten Track	1				1
CAS	LANG	Term	1				1
CAS	MUS	Adjunct				1	1
CAS	PSY	Adjunct				2	2
CAS	PSY	Term	2				2
CAS	PSY	Ten Track	11				11
CBPP	ACCT	Term	1				1
CBPP	BA	Adjunct				1	1
CBPP	BA	Ten Track	8				8
CBPP	ECON	Adjunct				1	1
CBPP	ECON	Ten Track	8	1			9
CBPP	EXTB	Adjunct				1	1
CBPP	LOG	Ten Track	4				4
CBPP	PADM	Adjunct				1	1
CBPP	PADM	Ten Track	8				8
CHSW	EXTN	Adjunct				1	1
CHSW	JUST	Ten Track	1				1
CHSW	NS	Adjunct				1	1
CHSW	NS	Term	1				1
CHSW	NS	Ten Track	7	1			8
CHSW	SWK	Adjunct				2	2
CHSW	SWK	Term		8			8
CHSW	SWK	Ten Track	7				7
COED	COUN	Adjunct		2		2	4
COED	COUN	Term	1	3			4
COED	ED	Adjunct				3	3
COED	ED	Term	3	4			7

School	Course Prefix	Appt	Doctorate	Masters	Masters Terminal	Not in Fac Serv DB	Total
COED	ED	Ten Track	8				8
COED	EDAE	Adjunct				5	5
COED	EDAE	Term		2			2
COED	EDAE	Ten Track	1				1
COED	EDEE	Term		1			1
COED	EDET	Term		2			2
COED	EDFD	Adjunct				1	1
COED	EDFD	Ten Track	2				2
COED	EDL	Adjunct				3	3
COED	EDL	Term	4	13			17
COED	EDL	Ten Track	6				6
COED	EDRE	Adjunct				1	1
COED	EDSE	Term	1	2			3
COED	EDSE	Ten Track	10				10
COED	EXTE	Adjunct				1	1
CTC	VE	Ten Track	5				5
SOEN	CE	Adjunct				2	2
SOEN	CE	Ten Track	3				3
SOEN	EQE	Ten Track	3				3
SOEN	ESM	Adjunct				4	4
SOEN	ESM	Ten Track	5				5
SOEN	ME	Ten Track	3				3
			154	39	16	46	255

MT=Terminal Masters Degree
N=Not known (adjunct faculty not in Faculty Services DB)

Faculty Qualifications by Course Type Graduate Sections (600-699) Fall 2002¹¹

College	Appointment	Highest Degree	Field	Ind Study	Internship	Lab	Lec-Lab	Lecture	Open Entry	
CAS	Adjunct	N					2	7		
	Term	D						3		
		M			2				2	
	Ten Track	D		1	7	1	2	3	23	
		MT			9				3	
CBPP	Adjunct	N						3		
	Term	D						1		
	Ten Track	D			1				26	
		M							1	
CHSW	Adjunct	N						3		
	Term	D					1			

¹¹ Source: Calculated from OPRA Semester Report, Fall 2002 Closing and Faculty Services Main Database, Fall 2002.

		M						3	
	Ten Track	D		4		1	3	5	
		M		1					
COED	Adjunct	M						2	
		N						14	
	Term	D			4			5	
		M			7		1	16	
Ten Track	D		1	10	11	1	3	1	
CTC	Ten Track	D						2	3
SOEN	Adjunct	N						6	
	Ten Track	D		1			1	10	2
Totals			1	26	22	14	12	138	6

**Table 8: Estimated Costs of Graduate Instruction
Fall 2002**

College or School	Method	No. of Sections	Tot Enr	Avg Tot Enr	Tot SCH	Avg SCH	Total Cost	Cost per
	Internship	1	3	3.00	9.00	9.00	\$6,758.17	\$75
	Lecture	38	292	7.68	895.00	23.55	\$253,973.40	\$28
	Seminar	2	12	6.00	26.00	13.00	\$9,883.30	\$38
P	Lecture	31	491	15.84	1377.00	44.42	\$268,168.32	\$19
W	Lecture	11	163	14.82	489.00	44.45	\$67,953.58	\$13
W	Seminar	1	2	2.00	6.00	6.00	\$7,173.40	\$1,19
D	Internship	21	147	7.00	444.00	21.14	\$141,848.57	\$31
D	Lecture	48	631	13.15	1938.00	40.38	\$282,773.49	\$14
D	Seminar	3	13	4.33	39.00	13.00	\$22,292.96	\$57
	Lecture	2	12	6.00	36.00	18.00	\$12,855.81	\$35
N	Lecture	16	183	11.44	549.00	34.31	\$111,723.81	\$20

1. This table excludes Independent Studies, Research, Thesis, and Practicum because of the serious problems involved in estimating their costs using the methods described in note 4.

2. The CHSW Seminar entry may be an artifact of an error in data entry or definition.

3. For purposes of this exercise, costs were limited to salaries and benefits. All overheads were excluded.

4. Costs were calculated as follows:

a. The base salary for each tenure track or term faculty member who taught a course in Fall 2002 was extracted from the Faculty Services database for that semester. This was multiplied by 1.349 to yield the number for salary plus benefits. Adjunct salaries were calculated at \$3,000 per 3-credit course. This method understates the total adjunct costs because it does not account for the

small number of adjuncts who were teaching at .49 percent of full-time appointment. Sections for which no faculty person is identified were treated as if they were delivered by \$3000 adjunct instructors.

b. The salary plus benefits figure for each individual tenure track and term faculty member was divided by 30 (the standard annual total of workload units) to yield a standardized estimate of cost per workload unit (the nominal equivalent of 1 Course Credit Hour). All adjuncts are divided by 3 to obtain a similar result. The figure for each instructor was merged with OPRA Fall 2002 closing data by course section.

c. To obtain the cost per section, the cost per workload unit (CCH) was multiplied by the number of CCH. Where sections were offered for variable credit, the total SCH was divided by the total number of students enrolled for credit.

d. To obtain the estimated cost per credit hour, the total section cost was divided by the total SCH.