

# Applied Environmental Science & Technology (M- & MS-AEST)



## CAREERS WITH OPPORTUNITIES

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

## Educational Pathway Options

### Bachelor of Science (BS)

**4-5 Years**

In most instances, baccalaureate degrees in the physical sciences, life sciences, or engineering will provide a sufficient background to meet course prerequisites.

### Graduate Certificate

**1-2 Years**

Port & Coastal Engineering

### Master's Degrees

**1-3 Years**

#### Applied Environmental Science & Technology

- **Master (M-AEST)**
  - Non-Thesis Option
- **Master of Science (MS-AEST)**
  - Thesis Option

#### CAREER CONNECTIONS

- Science, Mathematics, Engineering, & Research
- Natural Resources & Environmental Sciences
  - Architecture & Construction
- Transportation, Distribution, & Logistics

## APPLICATION PROCESS

### ENROLLMENT SERVICES

- 1 Apply for admission at [www.uaa.alaska.edu/admissions](http://www.uaa.alaska.edu/admissions).
- 2 Submit official transcripts reflecting:
  - Completion of a bachelor of science degree from a regionally accredited institution
  - Successful completion of at least one year of calculus and two consecutive semesters in two of the following: chemistry, physics, biology, or geology
  - Minimum 3.0 GPA in natural/physical sciences or engineering
- 3 Take the GRE and submit official test scores. Waiver available to applicants with significant professional experience.
- 4 TOEFL scores if applicable.
- 5 Contact 907.786.1900 for more information.

### PROGRAM SPECIFIC

Submit to the School of Engineering:

- Three letters of recommendation from people familiar with the applicant's technical aptitude
- One-page statement of career goals

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## APPLIED ENVIRONMENTAL SCIENCE & TECHNOLOGY (M-AEST, MS-AEST)

Students are strongly recommended to contact a faculty advisor in the School of Engineering at 907.786.1900 prior to course selection.

### ▶ BEGINNING THE PROGRAM

Upon admission to the AEST program, students will complete the following actions:

- Meet with an academic advisor prior to the start of classes to plan coursework for the first semester of study. The admissions committee will assign academic advisors, who will be identified in the acceptance letter received by successful applicants.
- Select a Graduate Studies Committee (GSC) consisting of three UAA faculty members – the chair of which is the assigned advisor. The GSC must be selected during the first semester of study.
- Prepare a Graduate Study Plan for approval by the GSC by the end of the first semester.

### ▶ COMPLETE PROGRAM REQUIREMENTS (24-30 credits)

At least one course, with a grade of 'B' or better, in each of the core competency areas: analysis, biology, chemistry, environmental engineering, and geology. Remaining credits can be selected from the approved course list below. A minimum of 21 credits must be drawn from approved 600-level 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)
- STAT A620 Statistics for ESM (3)

#### • Biology

- BIOL A478 Biological Oceanography (4)
- BIOL A650 Advanced Microbial Ecology (3)
- BIOL A661 Advanced Molecular Biology (3)
- BIOL A675 Advanced Arctic Tundra Ecosystems (3)
- BIOL A685 Advanced Topics in Biology (1-5)

#### • Chemistry

- AEST A601 Aquatic Process Chemistry (3)
- CHEM A450 Environmental Chemistry (3)
- CHEM A634 Advanced Instrumental Methods (4)
- CHEM A641 Advanced Biochemistry I (3)
- CHEM A642 Advanced Biochemistry II (3)
- CHEM A698 Individual Research (1-9)

#### • 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 A411 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 A674 Waves, Tides and Ocean Processes for Engineers (3)
- CE A677 Coastal Measurements and Analysis (3)
- CE A683 Arctic Hydrology and Hydraulic Engineering (3)
- ENVE F651\* Risk Assessment (3)
- ENVE F652\* Introduction to Toxicology (3)
- ESM A450 Economic Analysis and Operations (3)
- ESM A601 Engineers and Organizations (3)
- ESM A605 Engineering Economy (3)
- PM A601 Project Management (3)

#### • Geology

- GEOL A455 Permafrost (3)
- GEOL A457 Soil Genesis and Classification (4)
- GEOL A460 Environmental Geochemistry (3)
- GEOL A475 Environmental Geophysics (3)
- GEOL A690 Graduate Topics in Geology (1-4)

\*UAF online courses. It is the student's responsibility to check the UAF catalog for current course content and availability.

### ▶ COMPLETE THESIS

For MS-AEST degree only.

- AEST A699 Thesis (1-6)

### ▶ SUCCESSFULLY COMPLETE THE COMPREHENSIVE EXAM

MS-AEST is an oral comprehensive examination; M-AEST is a written comprehensive exam.

**A total of 30 credits is required. The MS-AEST requires 24 course credits and 6 thesis credits; the M-AEST requires 30 course credits.**

Note: 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 degree).

AEST: 907.786.1951

ACADEMIC ADVISOR: 907.786.1951

WEBSITE: [enr.uaa.alaska.edu/programs/environmental/](http://enr.uaa.alaska.edu/programs/environmental/)

EMAIL: [ayced@uaa.alaska.edu](mailto:ayced@uaa.alaska.edu)

UAA ENROLLMENT SERVICES: 907.786.1480

ADDRESS: P.O. Box 141629, Anchorage, AK 99514-1629



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