



Sergei Baranov, earned his M.S Arctic Engineering from UAA. A Senior Engineer, he took his courses from the Sakhalin Island and Moscow in Russia and from London, UK .
 “UAA’s Arctic Engineering courses helped me to develop my expertise week by week, allowing me to find better technical solutions and cut the costs of projects that I was coordinating.”
 (Photo courtesy of Sergei Baranov)



Rosa Affleck, M.S Arctic Engineering, Research civil, engineer at the U.S. Army Engineer Research and Development Center (ERDC), Cold Regions Research and Engineering Laboratory

(CRREL):
 “The Arctic Engineering program has helped me to expand my knowledge in frozen soil, ice engineering and infrastructure in cold regions. The in-depth information I gained enables me to analyze and model ground conditions for civil and military applications in cold regions. The online courses were well suited with my work schedule, and yet rigorous. Interaction with the instructors was excellent. I highly recommend this program to all my colleagues.”
 (Photo courtesy of Rosa Affleck)

Faculty

The program’s faculty are internationally regarded as specialists and leaders in Arctic and cold regions engineering education and research.

UAA Faculty

Hannele Zubeck, PE, Ph.D.

- Professor, Civil Engineering
 - Frozen Ground and Cold Regions Transportation Engineering
- Arctic Engineering Program Chair

Orson Smith, PE, Ph.D.

- Professor, Civil Engineering
 - Cold Regions Port and Coastal Engineering

Bart Quimby, PE, Ph.D.

- Professor, Civil Engineering
 - Cold Regions Building Design

CRREL Affiliate Faculty

Steven Daly, PE, Ph.D.

- Cold Regions Hydraulics and Ice Engineering

Jon Zufelt, PE, Ph.D.

- Cold Regions Hydraulics and Ice Engineering

Other Affiliate Faculty

Dan Schubert, PE

- Arctic Utilities

Apply for the program at
www.uaa.alaska.edu.

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Arctic Engineering

Climate models show that the world's arctic regions are most sensitive to global warming, and as a result, arctic research has growing national and global importance. As the world turns to the North for mineral resources and global logistics, a demand exists for engineers trained in cold regions problem solving.

The University of Alaska Anchorage provides a specialized, practice-oriented education via e-learning for engineers who are faced with the unique challenges of design, construction and operations in cold regions of the world. The UAA Arctic Engineering program is administered via Blackboard Learning System that can be accessed anytime from anywhere. Learning modules are provided as narrated slide presentations and printed materials accompanied with on-line discussions and assignments. The program provides a specialized curriculum to prepare professionals for:

- Development of cold regions natural resources
- Multi-modal transportation improvements in cold regions
- Design and operation of constructed works in rural communities and winter cities where snow, ice and frozen ground constrain effectiveness of conventional methods, and evaluation of climate change impacts northern infrastructure

Students have access to resources provided by the Consortium Library and Alaska Resources Library and Information Services (ARLIS). The UAA Arctic Engineering online graduate program is accredited by the Northwest Commission on Colleges and Universities.

Program Courses

The Arctic Engineering program requires completion of a set of core courses designed to prepare engineers to understand and adapt prior engineering knowledge and skills to problems of cold regions. The program also allows students to study advanced elective courses in a particular area of specialized interest. Research by UAA School of Engineering faculty provides opportunities for project reports dealing with current Arctic knowledge.

CORE COURSES

CE A603 Arctic Engineering
CE A681 Frozen Ground Engineering
CE A682 Ice and Snow Engineering
CE A683 Arctic Hydrology and Hydraulic Engineering
CE A684 Arctic Utility Distribution
ME A685 Arctic Heat and Mass Transfer
CE A686 Arctic Engineering Project

Admission Requirements

Students must hold a Baccalaureate Degree in an engineering discipline from an accredited U.S. institution or an international equivalent. An applicant's academic credentials must reflect an ability to successfully pursue graduate engineering education. In addition to 27 credit hours of education beyond the Baccalaureate Degree, candidates must maintain a 3.00 (B) grade point average and complete a technical research project for at least three additional credits. The project topic requires approval in advance by the faculty advisory committee.

Other requirements are specified in the UAA catalog at www.uaa.alaska.edu.

CRREL Partnership

UAA enjoys a close association with the U.S. Army Cold Regions Research and Engineering Laboratory (CRREL) whose headquarters are in Hanover, New Hampshire, with offices in Anchorage and Fairbanks. The University and CRREL began an educational partnership in June 2000 that allows CRREL research scientists and engineers to participate in UAA educational programs. CRREL Affiliate faculty members have developed several of the specialized graduate engineering courses of the UAA Arctic Engineering program. Students enrolled in the Arctic Engineering program at UAA benefit from the depth of knowledge that comes from CRREL and UAA research, whether they reside in Anchorage or use online learning resources from afar.

Research Opportunities

The UAA School of Engineering has implemented a series of new research initiatives aimed at evaluation of and response to climate change impacts on infrastructure in cold regions. UAA Arctic Engineering faculty members are leaders of national and international efforts to prepare civilization in the North for the changes of this millennium. Students are provided with research opportunities dealing with current Arctic issues, guided by faculty members associated with the program.

