Northern Design

Time: Wed. 7:00 – 9:45 PM
Room: Engineering and Industry Building ECB 211 (ES A411 601) or Blackboard (ES A411 801)

Course Description: Introduction to design and maintenance of facilities in northern climates to construct sustainable, energy-efficient, and durable buildings and infrastructure suitable for the unique needs of northern inhabitants.

Registration Restrictions: Senior or graduate standing in, or graduate of, an accredited program in architecture, landscape architecture, or engineering, or instructor permission.

Lead instructor: Elise Huggins, PLA, FASLA, is the lead instructor and will be coordinating the other professionals presenting for the course. Communication with the lead instructor occurs mainly through "Announcements," "Discussion Board," and e-mails.

Textbook: *Northern Building Design*, 2023, AIA Alaska 2004 Committee on Higher Education, provided to students digitally via Blackboard.

Weekly tasks: 1) Access the course site in Blackboard and download and study *beforehand* the provided weekly reading chapters and additional materials. 2) Attend lectures in the classroom (Section ES A411 601) or via Blackboard (Section ES A411 801). 3) Submit weekly quizzes as instructed by the presenters (hand in or via Blackboard).

Attendance: Since the class is a "lessons learned" format, attendance is essential. Courses include weekly quizzes that will cover that day's lecture. The quiz may be administered at the beginning, middle, or end of the class or can be accessed afterward with a password (depending on the presenter). Quiz scores account for the Grade for the course (see Grading policy). Note that those taking the class remotely are recorded via Blackboard Collaborate, including when they enter and exit the site.

Exams and Survey: Take the open notes midterm exam, final exam, and outcome survey via Blackboard.

Grading policy: The course grade will be based on the following formula: weekly quizzes 20%, mid-term exam 40%, and final exam 40%. Target letter grades will follow the scale A: 100-90, B: 89-80, C: 79-70, D: 69-60, and F: below 60. Students can monitor their scores in the "My Grades" area of the web page.

Based on one point for each correct quiz question (assuming that each instructor gives a quiz) and two points for each correct midterm and final exam question, the points required for each grade are:

Grade	Min. Points
A	293 points
B	260 points

C 228 points
D 195 points
F <195 points

If any instructors decide to not give a quiz, the points required will be adjusted downward.

Code of conduct: Review in the "Course Information" area.

Outcomes: Students who successfully complete this course will be able to:

- Quantitatively appraise natural conditions and design challenges that are unique to cold regions and to Alaska
- Interpret associated specialized language and units of measure
- Locate, interpret, and synthesize pertinent public information
- Prescribe and perform technical analyses and procedures that lead to design of sustainable, energy-efficient and durable buildings and infrastructure suitable for the needs of northern inhabitants
- Assess need for more complex solutions

Bibliography:

- Cool Architecture: Designing for Cold Climates, by the Images Publishing Group, 2003.
- Builder's Guide to Cold Climates: Details for Design & Construction, by Joseph Lstiburek, 2000.
- The Power of Color: Creating Healthy Interior Spaces, by Sara O. Marberry & Laurie Zagon, 1995.
- Bare Poles Building Design for High Latitudes, by Harold Strub, 1996.
- Northern Comfort: Advanced Cold Climate Home Building Techniques, by Alaska Craftsman Home Program, 1995.

Professional Registration

The Alaska regulation governing registration and licensing by the State Board of Registration for Architects, Engineers, and Land Surveyors (12 AAC 36.110) read, "...An applicant for registration as an architect, engineer, or landscape architect must have successfully completed a board-approved university level course in arctic engineering or its equivalent...." ES A411 Northern Design is approved by the Board for this purpose. The Board's Licensing Examiner is notified by the UAA Community and Technical College after final grades are recorded of students who passed the course with a grade of C or better. Grades are not reported to the Board. ***If you don't want us to notify you that you passed the course, let the Instructor know before the end of the semester.***

Tentative Course Calendar:

Week Week Start	**Reading Assignment**	**Topic**	**Presenter(s)**
1 Aug. 30	Textbook Chapters 1 & 2	**Climate and Geographic Design Factors of the North**	Dena Strait, AIA, Principal, DD Strait Consulting
2 Sept. 6	Textbook Chapter 3	**Planning for Northern Communities**	Van Le, AICP, Planning Manager, R&M Consultants
3 Sept. 13	Textbook Chapter 4	**Site Development and Planning; Landscape Architecture in the North**	M. Elise Huggins, PLA, FASLA, Landscape Architect, Earthscape
4 Sept. 20	Textbook Chapter 5	**Arctic Utilities**	Don Porter, PE, Utility Group Manager, R&M Consultants
5 Sept. 27	Textbook Chapter 6	**Architecture in the North**	Eric Spangler, AIA, Architect. Bezek-Durst-Seiser
6 Oct. 4	Textbook Chapter 7	**Architectural Design – Interior Architecture in the North**	Roy Rountree, AIA, Principal, Bettisworth North
MIDTERM EXAM: October 11, due 11:59 PM; *(Covers material for the first 6 weeks)*			
7 Oct. 18	Textbook Chapter 8	**Bldg. Technology "A": Geotechnical, Foundations, Seismic, Superstructure**	John Thornley, PE, Geothechnical Engineering Manager, WSP Colin Maynard, P.E., S.E., F.NSPE, Structural Engineer, Retired
8 Oct.25	Textbook Chapter 9	**Bldg. Technology "B": The Exterior Enclosure - Envelope and Openings**	Paul Baril, Nvision Architecture
9 Nov 1	Textbook Chapter 10	**Bldg. Technology "C": Roofing**	Scott Bohne, AIA, Architect, RIM Architects
10 Nov. 8	Textbook Chapter 11	**Bldg. Technology "D": Mechanical Issues**	Mark Frischkorn, P.E., Engineer, RSA Engineering
11 Nov. 15	Textbook Chapter 12	**Bldg. Technology "E": Electrical Issues**	Ed Kamienski, P.E., Engineer, Consultant
12 Nov. 29	Textbook Chapter 13	**Bldg. Technology "F": Building Codes**	Colin Maynard, P.E., S.E., F. NSPE, Structural Engineer, Retired Mark Panilo, Fire Inspector, Anchorage Fire Department
13 Dec. 6	Textbook Chapter 14	**Bldg. Technology "G": Constructability**	Robert W. Capps, Principal, R&W Construction Co. Inc.
FINAL EXAM: Dec. 11, due 11:59 PM; *(Covers material for the weeks 7 to 13)*			

Changes may be made to this syllabus and to the class schedule at any time. Each class is unique with its own dynamic and trajectory; this can create unanticipated situations that require adjustment to the class structure. Any changes are intended to optimize the learning process and enhance the educational experience.