

Course Review

To: Anna Bryant, Project Manager, Beyond Anchorage
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Subject: AET A181 – Intermediate CADD for Building Construction
Instructor: Professor Brian Bennett

This course review is of the Spring 2014 offering of AET A181, Intermediate CADD for Building Construction class taught by Professor Brian Bennett. This class was presented concurrently to both web based distance education students via Blackboard and face to face students, which was delivered from and taught in the Architecture Engineering Technology (AET) classroom at the University of Alaska Anchorage (UAA) University Center in Anchorage, Alaska. Blackboard is the web-based learning management software used by UAA for distance delivery of classes.

The UAA course catalog describes this class as follows: “Develops intermediate level CADD (computer-aided design and drafting) skills for architectural, civil, structural, mechanical and electrical drawings used in building construction. Includes 3-D space coordinate systems, surface modeling, and solid modeling.” The prerequisites for this course are undergraduate - UAA level AET or CM A101 minimum grade of C and undergraduate - UAA level AET or CM A102 minimum grade of C.

The AET A181 class is a required class for each of four AET certificates in the specialized fields of architectural drafting, civil drafting, mechanical and electrical drafting, and structural drafting. It is also a required class for the Associate of Applied Science (AAS) degree in Architectural and Engineering Technology which includes all four fields of study. This class is a prerequisite class for the subsequent drafting classes in the AET program. This class is an instructor paced, four credit class consisting of two lecture hours and four lab hours. According to the UAA course content guide it requires total student involvement time of 180 hours, including 30 lecture hours, 60 lab hours, and 90 outside hours.

This class was designed for class sessions meeting Monday through Thursday for five weeks. Class sessions are delivered online via Blackboard's integral web conferencing “Collaborate” module. Face-to-face students are present in the classroom for the instructors lectures while online students are viewing the class session on their computers and interact with their classmates and the instructor with microphone equipped headsets. Distance students who are unable to join the “Collaborate” sessions in real-time have access to the recorded sessions via Blackboard.

For the purposes of this review I used a rubric developed by the University of Alaska Southeast, Sitka Campus dated May 2012 for the design, review and evaluation of online classes and teaching. It is similar to rubrics used at other universities. A copy of the original rubric is provided for reference. This rubric includes the following five standards and subsections:

Standard 1 – Design of the Course

- 1.1 Course Navigation and Overview
- 1.2 Course Design and Physical Layout
- 1.3 Clearly Defined Expectations

Standard 2 – Course Outcomes/Goals

- 2.1 Course Prioritizes or Over-arching Goals Statement
- 2.2 Learning Objectives

Standard 3 – Assessment and Measurement

- 3.1 Types of Assessments
- 3.2 Specific and Descriptive Criteria are Provided
- 3.3 Sequenced and Varied Assessments

Standard 4 – Instruction Materials and Strategies

- 4.1 Instruction Materials
- 4.2 Instructional Strategies
- 4.3 Student Interactions

Standard 5 – Communication Enriched Environment

- 5.1 Designed Discourse
- 5.2 Learning Communities Established

I began my review of this course by entering the Blackboard class interface with the new online student in mind. I followed the directions on where and how to proceed through all of the class areas, materials, and assignments. I then met with the instructor to further understand his teaching approach to the class, how he handled communications with students, assessments, feedback, etc. Professor Bennett provided samples of completed student assignments for my review as well as final grades for the entire class to compare results of the online students in comparison to the face-to-face students. My review of this class is organized according to the above five standards.

Standard 1 – Design of the Course

On entering the course the Announcements page welcomes the student and directs students on how to proceed. The buttons on the left side of the screen are grouped in a logical order for the different areas of the class. The Announcements page is updated by the instructor with additional information for students as the course progresses. There are buttons linking to the syllabus and class schedule, email, course equipment and software requirements, and installation and configuration of the web conferencing “Collaborate” module.

On the course navigation pane there is a group of buttons linking to the “Collaborate” module, “Course Documents” “Revit Videos”, and other course materials.

There are several links and contacts provided for access to help for Blackboard and Collaborate as well as any special needs accommodations required by the student.

Standard 2 – Course Outcomes/Goals

Course outcomes and goals are explained in the course syllabus and cover all areas defined in the UAA course content guide. The syllabus clearly defines the instructor's expectations, grading policy, and other requirements for successful completion of the course.

The syllabus emphasizes the fast-paced nature of the five-week course. The class schedule lists all assignments, topics, tests, and due dates and is a good roadmap for the student to follow in order to keep on track.

Standard 3 – Assessment and Measurement

This course focuses on 3D modeling using computer aided drafting and design (CADD). Students are also introduced to the Revit building information modeling software which is used in the AET A121 Architectural Drafting class. Assignments follow a progression from learning AutoCAD 3D commands and building simple models to mastery of advanced modeling AutoCAD commands. The students then complete a comprehensive tutorial for a 2-story building using the Revit software.

Students learn the 3D modeling commands by working with the text book and then apply the commands to the 6 comprehensive modeling assignments.

There are three tests which include multiple choice questions, short essay questions, as well as practical drawing tests, which provide a thorough evaluation of students' comprehension of the material.

Drawing assignments and tests are submitted to the instructor primarily via email. The instructor provides feedback to the student with an annotated drawing that explains the instructor's critique of the student work. Drafting requires accuracy as well as attention to aesthetic components of a drawing and adherence to the National CADD Standard for symbology, line styles, line weights, etc. This feedback is crucial to student success.

The overall course evaluation is available for students to complete at the end of the semester. The evaluation is encouraged by the instructor and a link is provided on the navigation pane. However, it is a voluntary evaluation and rates of completion of the survey vary substantially. Results of the evaluations were not available at the time of this review.

Standard 4 – Instruction Materials and Strategies

The major component of the success of students in the course are the "Collaborate" web conferencing sessions in which the instructor demonstrates the use of the AutoCAD software, explains the process of creating a drawing, adherence to drafting standards, and provides the opportunity for questions and answers between the students and instructor. The "Collaborate" sessions bring the classroom experience to the online student which enhances the static documents, videos, and PowerPoint's that are provided to the student in the course materials section of Blackboard. For students who cannot participate in the live "Collaborate" sessions, recordings are provided via Blackboard, and while they cannot actively participate, they can glean much from the recorded sessions which remain available throughout the course and can be replayed.

Standard 5 – Communication Enriched Environment

Professor Bennett encourages questions and participation from the students during the "Collaborate" sessions and also via email or phone calls. If a student resides within driving distance to the campus they are also encouraged to meet with the instructor in person during office hours or by appointment. They are also able to use the AET CADD lab.

Class Composition and Final Grade Comparison

The following information was provided by Professor Bennett regarding the class composition and final grades.

19 students were present at the beginning of the class and 1 student withdrew.

6 students were online and 12 students were face-to-face.

Grade breakdown for the online students:

B - 3

C - 2

F- 1

Grade breakdown for the face-to-face students:

A - 4

B - 2

C - 4

D - 2

Given that the face-to-face group was twice the number of the online students, the grade distribution between the two groups the results are very similar, which indicates that the online class succeeded in providing quality instruction to the distance education student.

Summary

It was my pleasure to meet with Professor Bennett and discuss the development of the AET A181 class from a face-to-face to online class. Professor Bennett has been teaching drafting and engineering graphics for many years and has been responsible for development of several of the AET classes for online delivery at UAA. He presents students with diverse and challenging assignments to help them master not only the strong computer skills needed but also develop problem solving skills as well.

Recommendations

I am very impressed with the AET faculty's accomplishments in developing and delivering instruction in computer-aided drafting in an online environment. Drafting by its very nature is a challenging and complex topic to teach in a classroom where students must learn drafting standards and conventions, math calculations, and very complicated software. The use of the "Collaborate" software is a major factor in the success of the classes because demonstration of how to create the drawings and models is crucial.

Since these classes are offered in 5-week sessions it would be very helpful for the faculty to have teaching assistants to help provide quick turnaround on drawing critiques to students. Reviewing and annotating many drawings is very time intensive.

I would also recommend that all files posted in Blackboard be ones that can open within Blackboard rather requiring downloading of the file such as PDF's rather than Word documents, Excel spreadsheets, etc.

Finally, I would recommend that the Blackboard interface for this class include a "Start Here" button and section similar to that used in the AET A101, A131, and A231 classes for optimum aid in navigation for the student.