

EE486 Syllabus

Capstone Design - Project Management

General Information

- *Course title:* Project Design Procedures
- *Semester/Section:* Spring 2019 - January 14 - May 11
- *Credit hours:* 3
- *Meeting time and location:* Lecture is on Tuesday from 2:20 to 4:50pm in Biology 256
- *Class Fees:* \$45.16
- *Instructor:* Dr. Kyle N. Winfree
- *Instructor email:* kyle.winfree@nau.edu
- *Instructor phone:* 928.523.7165
- *Office location:* SICCS 216
- *Office hours:* Tuesdays 9am-12pm, and subject to FUSD snow delays (fusd1.org status).
- *Course URL:* www.cefns.nau.edu/~knw5/capstone/

Course Pre- or Corequisites

EE476, EE325, EGR386W/EE386W, EE364/EE380, and EE310/EE348 with grades of C or better

Academic Catalog Description

Team implementation of a sponsor-accepted proposal culminating in an oral presentation, demonstration, final product, and formal report. Topics include teaming, project control and management, simulation, budget control, negotiations, and implementation. Letter grade only. Course fee required.

Course Description

The EE Capstone Design Experience is a one-year capstone learning experience that must be taken over two contiguous semesters. In EE 476C, student teams complete two major client reports, begin building a website, give two graded presentations along with other smaller assignments as detailed in the grading section of this syllabus. EE 486C is the spring semester section where teams execute the proposal that was approved by their client by doing the detailed design, build, integration, testing and delivery of their project. EE 486C culminates in the Undergraduate Research and Design Symposium (UGRADS) in late April.

Learning Objectives

Following completion of this course, will have gained experience in project and time management methods, team building, and team management. Students will also develop oral and written communication skills. This will be done in the context of a significant and realistic development project for an industry sponsor.

Required Textbook

None.

Optional Textbook

Design for Electrical and Computer Engineers – Theory, Concepts and Practice, by Ralph M. Ford and Chris S. Coulson

The 7 Habits of Highly Effective People, by Stephen R. Covey

Managing Cultural Differences, Eighth Edition: Global Leadership Strategies for Cross-Cultural Business Success, by Moran Ph.D., Robert T., Harris, Philip R., Moran MA, Sarah V

Grading System

The final grade for each individual will be influenced by both individual and team-assigned work and reports. It will also be influenced by sponsor evaluations, faculty evaluations, and individual team member peer evaluations. Peer evaluations can have a significant impact on an individual's final grade, and though generally directly averaged into your grade, they may be considered as recommendation from your peers in some cases. All such evaluations are considered confidential.

Your grade will be based upon a point scoring system outlined below. Grade cutoffs will be no higher than 90% for an A, 80% for a B, 70% for a C and 60% for a D.

$$\begin{aligned} \text{grade} = \text{attendance} \cdot & \left[((\text{Sch} . \text{pres} . \text{grp} \cdot 5\%) + (\text{Sch} . \text{doc} . \text{grp} \cdot 5\%) + \dots \right. \\ & (\text{DR3} \text{ pres} . \text{grp} \cdot 5\%) + (\text{DR3} \text{ doc} . \text{grp} \cdot 5\%) + \dots \\ & (\text{DR4} \text{ pres} . \text{grp} \cdot 5\%) + (\text{DR4} \text{ doc} . \text{grp} \cdot 5\%) + \dots \\ & (\text{UGrads} \text{ pres} . \text{grp} \cdot 5\%) + (\text{Design Report} . \text{grp} \cdot 5\%)) \cdot (\text{eval} . \text{spn}) + \dots \\ & ((\text{Sch} . \text{pres} . \text{idv} \cdot 5\%) + (\text{Sch} . \text{doc} . \text{idv} \cdot 5\%) + \dots \\ & (\text{DR3} \text{ pres} . \text{idv} \cdot 5\%) + (\text{DR3} \text{ doc} . \text{idv} \cdot 5\%) + \dots \\ & (\text{DR4} \text{ pres} . \text{idv} \cdot 5\%) + (\text{DR4} \text{ doc} . \text{idv} \cdot 5\%) + \dots \\ & (\text{UGrads} \text{ pres} . \text{idv} \cdot 5\%) + (\text{Design Report} . \text{idv} \cdot 5\%)) \cdot (\text{eval} . \text{peer}) + \dots \\ & \text{web} \cdot 5\% + \dots \\ & \text{ugrads} \cdot 5\% + \dots \\ & \text{minutes} \cdot 5\% + \dots \\ & \left. \text{quizzes} \cdot 5\% \right] \end{aligned}$$

where:

attendance will be assessed through a combination of quizzes, surveys, and presentations;

Assignment_{grp} and *Assignment_{idv}* are group and individual aspects of the following:

Sch . pres . grp and *Sch . pres . idv* is the Semester Plan Presentation;

Sch . doc . grp and *Sch . doc . idv* is the Semester Schedule / Client Contract documentation;

DR3 pres . grp and *DR3 pres . idv* is the Design Review 3 presentation;

DR3 doc . grp and *DR3 doc . idv* is the Design Review 3 documentation;

DR4 pres . grp and *DR4 pres . idv* is the Design Review 4 presentation;

DR4 doc . grp and *DR4 doc . idv* is the Design Review 4 documentation;

UGrads pres . grp and *UGrads pres . idv* is the Practice UGrads Presentation;

Design Report_{grp} is the final Design Report - which must be approved by and signed by the client;

web_n are the 4 website updates;

ugrads is the UGrads registration;

minutes is an individually evaluated meeting minutes;

quizzes will be at the start of some, but not all classes;

eval_{spn} is your sponsor evaluation, *eval_{peer}* are your peer evaluations.

If you feel a mistake has been made in grading your assignment, please address your concerns during office hours or via email.

Submission of Assignments

Homework assignments should be submitted via Blackboard (email as backup in case of emergencies). You will need to submit a pdf (not a Word, Pages, ODF, or plain text document).

Late Submission of Homework or Projects

Simply put, you should avoid submitting your assignments late. All dates posted reflect a midnight deadline (11:59 pm, AZ time). Late submissions will not be accepted, with very rare exceptions. This includes both group and individual aspects.

Attendance

Attendance will be taken at random. I understand that you may not be able to attend all classes, but please make every effort to. If you miss class, you *must* let me know before hand. You will be responsible for all missed content. Attendance track record will be considered in all grade appeals. If you have demonstrated unexcused poor attendance, any request for an incomplete grade will be denied.

Expected Schedule (subject to change, dependent on Dr. Winfree’s travel)

Week of	Activity
01/15	First day, syllabus and schedule, meet in groups for quiz.
01/22	Gantt chart, dependencies, critical path, float, contingencies, and Kanban.
01/29	All groups present Schedule of Semester Plan.
02/05	Schedule Documentation / Client Contract due to BBLearn and to client. Start Project Website. No class - Dr. Winfree will be traveling.
02/12	WBS. Groups meet with GTAs and Dr. Winfree in class (<u>minutes due</u>). Website outline due (1). Signed Schedule / Contract due.
02/19	All groups present Design Review 3 - individual WBS plan.
02/26	Groups meet with GTAs and Dr. Winfree in class (<u>minutes due</u>). Update to website due (2). Design Review 3 due to BBLearn and to client.
03/05	Groups meet with GTAs and Dr. Winfree in class (<u>minutes due</u>). UGrads registration due!
03/12	Groups meet with GTAs and Dr. Winfree in class (<u>minutes due</u>). Sponsor Eval will be sent out.
03/19	<i>Spring Break (no class or labs) - Enjoy!</i>
03/26	Groups meet with GTAs and Dr. Winfree in class (<u>minutes due</u>).
04/02	All groups present Design Review 4 - individual WBS status.

Week of	Activity
04/09	Groups meet with GTAs and Dr. Winfree in class (<u>minutes due</u>). Update to website due (3). Design Review 4 due to BBLearn and to client.
04/16	UGrads practice presentation.
04/23	Check in for UGrads. UGrads on Friday the 26th. Sponsor Eval will be sent out.
04/30	Last day quiz. Friday May 3rd last day of instruction.
05/10	Last day of class (all assignments must be submitted by 11:59pm). Final update to website due (4). Design Report due to BBLearn and to client.

**** This syllabus is subject to change at the professor's discretion. Changes will be announced in class, and an updated version will be shared via the class website.**

University Policy Statements

- **Safe Environment Policy**

NAU's Safe Working and Learning Environment Policy prohibits sexual harassment and assault, and discrimination and harassment on the basis of sex, race, color, age, national origin, religion, sexual orientation, gender identity, disability, or veteran status by anyone at this university. Retaliation of any kind as a result of making a complaint under the policy or participating in an investigation is also prohibited. The Director of the Office of Affirmative Action & Equal Opportunity (AA/EO) serves as the university's compliance officer for affirmative action, civil rights, and Title IX, and is the ADA/504 Coordinator. AA/EO also assists with religious accommodations. You may obtain a copy of this policy from the college dean's office or from the NAU's Affirmative Action website nau.edu/diversity/. If you have questions or concerns about this policy, it is important that you contact the departmental chair, dean's office, the Office of Student Life (928-523-5181), or NAU's Office of Affirmative Action (928) 523-3312 (voice), (928) 523-9977 (fax), (928) 523-1006 (TTD) or aaeo@nau.edu.

- **Students With Disabilities**

If you have a documented disability, you can arrange for accommodations by contacting Disability Resources (DR) at 523-8773 (voice) or 523-6906 (TTY), dr@nau.edu (e-mail) or 928-523-8747 (fax). Students needing academic accommodations are required to register with DR and provide required disability related documentation. Although you may request an accommodation at any time, in order for DR to best meet your individual needs, you are urged to register and submit necessary documentation (<http://www.nau.edu/dr>) 8 weeks prior to the time you wish to receive accommodations. DR is strongly committed to the needs of student with disabilities and the promotion of Universal Design. Concerns or questions related to the accessibility of programs and facilities at NAU may be brought to the attention of DR or the Office of Affirmative Action and Equal Opportunity (523-3312).

- **Academic Contact Hour Policy**

Based on the Arizona Board of Regents Academic Contact Hour Policy (ABOR Handbook, 2-224), for every unit of credit, a student should expect, on average, to do a minimum of three hours of work per week, including but not limited to class time, preparation, homework, studying.

- **Academic Integrity**

Integrity is expected of every member of the NAU community in all academic undertakings. Integrity entails a firm adherence to a set of values, and the values most essential to an academic community are grounded in honesty with respect to all intellectual efforts of oneself and others. Academic integrity is expected not only in formal coursework situations, but in all University relationships and interactions connected to the educational process, including the use of University resources. An NAU student's submission of work is an implicit declaration that the work is the student's own. All outside assistance should be acknowledged, and the student's academic contribution truthfully reported at all times. In addition, NAU students have a right to expect academic integrity from each of their peers. Individual students and faculty members are responsible for identifying potential violations of the university's academic integrity policy.

Instances of potential violations are adjudicated using the process found in the university Academic Integrity Policy.

- **Research Integrity**

The Responsible Conduct of Research policy is intended to ensure that NAU personnel including NAU students engaged in research are adequately trained in the basic principles of ethics in research. Additionally, this policy assists NAU in meeting the RCR training and compliance requirements of the National Science Foundation (NSF)-The America COMPETES Act (Creating Opportunities to Meaningfully Promote Excellence in Technology, Education and Science); 42 U.S.C 18620-1, Section 7009, and the National Institutes of Health (NIH) policy on the instruction of the RCR (NOT-OD-10-019; “Update on the Requirement for Instruction in the Responsible Conduct of Research”). For more information on the policy and the training activities required for personnel and students conducting research, at NAU, visit: <http://nau.edu/Research/Compliance/Research-Integrity/>

- **Sensitive Course Materials**

University education aims to expand student understanding and awareness. Thus, it necessarily involves engagement with a wide range of information, ideas, and creative representations. In the course of college studies, students can expect to encounter—and critically appraise—materials that may differ from and perhaps challenge familiar understandings, ideas, and beliefs. Students are encouraged to discuss these matters with faculty.

- **Classroom Disruption Policy**

Membership in the academic community places a special obligation on all participants to preserve an atmosphere conducive to a safe and positive learning environment. Part of that obligation implies the responsibility of each member of the NAU community to maintain an environment in which the behavior of any individual is not disruptive. Instructors have the authority and the responsibility to manage their classes in accordance with University regulations. Instructors have the right and obligation to confront disruptive behavior thereby promoting and enforcing standards of behavior necessary for maintaining an atmosphere conducive to teaching and learning. Instructors are responsible for establishing, communicating, and enforcing reasonable expectations and rules of classroom behavior. These expectations are to be communicated to students in the syllabus and in class discussions and activities at the outset of the course. Each student is responsible for behaving in a manner that supports a positive learning environment and that does not interrupt nor disrupt the delivery of education by instructors or receipt of education by students, within or outside a class. The complete classroom disruption policy is in Appendices of NAU’s Student Handbook.