

Syllabus
Advanced Engineering Leadership Development
EGS 4680

Section (Class No.): CAMP (13491)
Class Periods: Wednesdays, Periods 3-4 (9:35 – 11:30 a.m.)

Location: WERT 370

Academic Term: Spring 2022

1. **Instructor:** Bill McElroy, P.E., Associate Director and Instructional Professor, Gene Fraser Teaching Professorship recipient, Engineering Leadership Institute, University of Florida Herbert Wertheim College of Engineering
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 - b. Office Telephone: 352-294-7383
 - c. Office location: Room 474, Herbert Wertheim Laboratory for Engineering Excellence, Building 779
 - d. Office hours: Zoom personal meeting room
<https://ufl.zoom.us/j/6112768635> 10:00 to 11:00 a.m. Tuesday and Thursday mornings. Other one-on-one virtual office hours are available by appointment. The instructor is open to email discussions and phone conversations arranged upon request (email to set up).
 - e. Web site: UF course Canvas web site
 - f. No teaching assistant

Co-Instructor: Claudio Spiguel, Ph.D., Professor of Practice, Gene Fraser Teaching Professorship recipient, Engineering Leadership Institute, University of Florida Herbert Wertheim College of Engineering

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 - c. Office location: Room 476, Herbert Wertheim Laboratory for Engineering Excellence, Building 779
 - d. Office hours: Zoom appointments only, arranged upon request.
2. **Course Description:** This course is designed to further develop the leadership framework and capabilities of engineering students. It involves a case study-based instructional approach that reviews and applies strategic leadership concepts and knowledge critical to the success of engineering-based companies that now operate in a highly-uncertain and volatile business environment. 3 credit hours.
 3. **Credit Hours:** 3
 4. **Course Pre-Requisites/Co-Requisites:** EGS 4038, or instructor approval.
 5. **Course Objectives:** Like most modern-day businesses, engineering or technology-based companies must also survive and grow in an uncertain and rapidly-changing business environment. Engineering leaders must help their organizations become “learning machines”, integrating strategic intent in the way they think, behave and influence their organization and the staff. Engineering leaders who learn, practice and effectively apply

strategic leadership skills can catalyze the organization's learning process and help create and sustain competitive advantage.

Advanced Engineering Leadership Development (AELD) extends the comprehensive leadership learning and development process for engineering students into the subject of strategic leadership and topics relevant to **leader-engineer** roles that students may hold in engineering or technology-based companies. The course content and structure are intended to provide students with a real-world, hands-on, learning experience to help prepare and/or develop Gator Engineers to accept roles, and/or advance, as a leader-engineer in the work force.

The main goals for the course are summarized below. Students completing the course will be able to:

- identify and evaluate actions comprising the learning process of strategic leadership that organizations apply to build high-performance systems and maintain long-term viability
- apply concepts, knowledge and approaches relevant to many strategic leadership roles and responsibilities in organizations
- create more effective written documents and presentations

Course completion is one of the prerequisites for obtaining the Engineering Leadership Certificate (undergraduate and graduate versions available), offered through the Herbert Wertheim College of Engineering and issued by the University of Florida.

6. **Material and Supply Fees:** none
7. **Professional Component (ABET):** Not applicable as the course is not specific to a major under ABET purview.
8. **Relation to Program Outcomes (ABET):** Not applicable as the course is not specific to a major under ABET purview.
9. **Required Textbooks and Software:** The required course text for all students is:
 - a. Title: Everyone a Leader: A Guide to Leading High-Performance Organizations for Engineers and Scientists (all Sections)
 - b. Author: Colcleugh, David
 - c. Publication date and edition: 2013
 - d. ISBN number: 978-1-487-521-837

All students will be required to purchase a course packet of pre-selected case studies (which may vary each semester) from a publisher such as Harvard Business Publishers. (Example: "Tesla Motors", Eric Van Den Steen, HBR 9-714-413, Rev. Dec. 17, 2015.) The instructor will provide more information about obtaining the required course packets during the first class session.

Students will have additional assigned weekly readings and materials that are outlined in the weekly instructions on the Canvas course site. Reading materials will either be articles

that are available electronically for free to UF students through the University e-library system, or through postings provided on the Canvas course website.

- 10. Recommended Materials:** Students will also have recommended additional weekly readings and materials that will support class discussions. These are also outlined by weekly content on the Canvas course site. Reading materials will either be articles that are available electronically for free to UF students through the University e-library system, or through postings provided on the Canvas course website. Students are encouraged to review and take advantage of the recommended materials. Note that these are recommended, not assigned, materials provided as a value-added resource to students.
- 11. Course Schedule:** The 3 credit-hour course will be delivered in a hybrid format with synchronous 2-hour periods held each week on Wednesday mornings. Class sessions will involve student-led discussions about the assigned case studies related to the weekly topics. Class sessions will be facilitated by the instructor and include weekly course content discussions, supported by guest presenters (if possible), videos, student presentations (at designated times), and other class activities (at designated times). Class sessions will be recorded so that distance-learning students can view them after-the-fact. Students will also work asynchronously to complete specific weekly actions to meet course content requirements through instructions provided the Canvas course management system.

Per UF guidelines, the course equates to 2.5 hours of equivalent weekly “contact periods” (50 minutes per period). The UF definition assumes that students may spend a minimum of 6 additional hours (2 hours per credit hour) outside of the weekly equivalent contact time in completing the course requirements.

The outline of main topics expected to be covered in each module, student learning objectives for each module, and key activities corresponding to each module are summarized below. The actual availability and due dates for assignments, activities, and quizzes are set in the Canvas course management system (see Syllabus page of Canvas course site). The weekly instructions in the Canvas course website track the summary table and provide additional details.

Students will complete a weekly “readiness assurance quiz” (RAQ) about the assigned reading material content (text and other assigned readings) they are responsible for during that week. The RAQs will consist of up to 15 questions (multiple-choice, matching and/or fill-in-the blank formats) completed electronically through the Canvas course system. Up to 13 RAQs may be given throughout the semester.

The main case studies for the course have been selected to enhance student understanding of topics relevant to the general framework of the AELD course. Each week, students will work in assigned teams reviewing the case studies and submitting Canvas assignments to answer some specific questions related to understanding and applying course concepts relevant to the case. To the extent possible, the selected cases involve engineering or technology-based organizations and correspond to the target discussion topics for the week the case is assigned.

Teams will also work to complete targeted activities and assignments related to a hypothetical case study that evolves as the course progresses throughout the semester. The intent of the on-going case activities and assignments is more application of the concepts,

knowledge and approaches covered in class sessions and activities that are relevant to the leader-engineer in strategic leadership aspects of engineering and technical organizations.

The expected weekly topics and activities are outlined in the Canvas weekly instructions and are briefly summarized below. The actual availability and due dates for assignments, activities, and quizzes are provided in the weekly instructions on the Canvas course management system. In the event of an unexpected conflict, the Canvas course schedules apply:

Weeks (Monday-Sunday Schedule)	Expected Discussion Topics	Text ¹ Chapters	Key Activities and Submittals ²
1 (Jan 3-9) Classes begin Jan 5th which is first class session	course overview and explanation of course requirements; leadership and engineering leadership in context; leader-engineer roles; the concept and learning process of strategic leadership	none	team formation acquire course materials weekly readings weekly class session ³
2 (Jan 10-16)	the concept of strategy; review of key business concepts and terms; use of financial statements and calculating key metrics	1	RAQ2 ⁴ weekly readings weekly class session ³ Assignment 1
3 (Jan 17-23)	the concept of competitive advantage and industry analyses; pricing approaches; price-cost-demand relationships; overview of Monte Carlo analyses; vision, mission, and values statements;	2	RAQ3 weekly readings weekly class session ³ Assignment 2
4 (Jan 24-30)	business models, plans, and cases; the concept of design thinking and the design thinking process; the process of creating uncontested new market space; the concept of value curves; the concept of Blue Ocean Strategy	3	RAQ4 weekly readings weekly class session ³ Assignments 1A ,3, 4
5 (Jan 31-Feb 6)	leadership and creativity; innovation as a strategy; the concept of value propositions; demand-pull vs. supply-push approaches in marketing technology advances	4	RAQ5 weekly readings weekly class session ³ Assignment 5
6 (Feb 7-13)	structuring and building organizations; organizing around value-added processes	5	RAQ6 weekly readings

			weekly class session ³ Assignment 1B, 6
7 (Feb 14-20)	team value proposition presentations; the concept of balanced scorecards (BSC); performance metrics and monitoring	6	RAQ7 weekly readings weekly class session (1 st team presentation – value propositions) Assignments 1C, 7
8 (Feb 21-27)	strategic leadership and decision- making (including overview of Analytical Hierarchy Process)	7	RAQ8 weekly readings weekly class session ³
9 (Feb 28-Mar 4)	strategic leadership and decision- making (including overview of decision tree analysis)	8	RAQ9 weekly readings weekly class session ³ Assignments 1D, 8 ,9
10 (Mar 5-13)	Spring Break		
11 (Mar 14-20)	strategic leadership and the concepts of uncertainty, risks and risk management	9	RAQ10 weekly readings weekly class session ³ Assignment 10
12 (Mar 21-27)	strategic leadership and change; strategic leadership and information technology	10	RAQ11 weekly readings weekly class session ³ Assignment 1E, 11
13 (Mar 28-Apr 3)	the concept of globally-responsible leadership; strategic leadership in a global business world	11	RAQ12 weekly readings weekly class session ³ Assignments 1F, 12
14 (Apr 4-10)	crisis management and crisis leadership	12	RAQ13 weekly readings

			weekly class session ³
15 (Apr 11-17)	final team business case presentations	13	RAQ14 weekly readings weekly class session (final team business case presentations) Assignments 1G complete course evaluations
16 (Apr 18-20) Last class session is Wed., 4.20	course close-out	none	weekly class session ³ complete course evaluations
Notes: ¹ Refers to course text “Everyone a Leader”. See syllabus for more details. ² See weekly instructions for details about weekly activities, readings, availability of assignments, and assignment submittals. ³ Attendance of all weekly session expected for students registered in on-campus sections of course. ⁴ Readiness Assurance Quiz. See syllabus for more details.			

12. Policies and Class Expectations:

In-Class Recordings

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the

publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

General

The learning environment for the AELD course is intended to be professional, courteous and respectful.

The instructor is fully invested in this course instructional effort. Students taking the AELD course are expected to provide a commensurate level of investment and commitment to its completion.

The instructor is more than willing to provide students with the corresponding subject matter expertise, professional experience, judgment and insight to accomplish course objectives and maximize student learning outcomes. The instructor is also open to suggestions and constructive criticisms to continually improve the course.

Unless stated otherwise, assignments are to be submitted via Canvas as a pdf file by the stated deadline. No late submittals will be accepted subject to [UF Attendance Policies](#).

Students registering for the on-campus sections of the course are expected to attend the weekly synchronous class sessions, and to come to class prepared and to actively participate in the discussions and activities. Excused absences must be consistent with university policies in the [undergraduate catalog](#) and require appropriate documentation. Unexcused absences will result in a score of 0 for that week's RAQ.

Other Specific Policies and Expectations:

Teams: Virtually all of the assignments and presentations will be team-based. Students will be allowed to self-assign to a team formed in Canvas by the instructor (normally consisting of 2-4 students per team depending on class enrollment), within the prescribed period (to be announced). At that time, the instructor will randomly assign the other students (who did not self-assign) into teams.

Note that Canvas recognizes only the teams created by the instructor for grading purposes, so students must be assigned to one of the designated teams. Students may also form a student or project group in Canvas if they choose; however, this is incidental to and not a substitute for being assigned to one of the designated teams.

Team members are expected to actively and fully participate in the development of each assignment. There is 1 submittal per team, which is graded, and the grade applies to all team members. Teams are expected to be self-regulating with respect to managing team member contributions and participation issues.

It would be unfair to other team members, and unacceptable to the instructor, for an individual to not meet their team obligations and yet receive the same grade as the other teammates on an assignment. If an individual has valid extenuating circumstances impacting their participation, they have the obligation to communicate this to their team members in a timely manner. Note that communicating issues of this nature at the "last minute" is unacceptable except in specific and documentable instances. Such documentation will be required, in case the instructor needs to get involved.

Assignments:

- Canvas assignments will be issued related to both the main case studies and the on-going case study. The assignments will provide instructions for their preparation, including the release and due dates. Microsoft Word (MS) templates will be available through the Canvas course site for student reuse in completing all assignments. Rubrics will be available that the instructor will use to evaluate the submittals.

Students should expect a minimum 10% grade penalty for failure to follow all instructions on the templates and the specific assignments. Refer to the [Expectations for Quality of Work](#) section below for more information.

Students listed as participating members on the team assignments will receive the same assignment grade. The instructor will assume that unlisted students were not a participating team member and they will receive a grade of 0 for that assignment.

No late assignments will be accepted, subject to UF attendance policies. Excused absences must be consistent with university policies in the [Undergraduate Catalog](#) and require appropriate documentation.

- [Expectations for Quality of Work](#): Effective written communications are an important part of being an engineer, an engineering leader and a professional. While students are not expected to be able to write like English majors or accomplished authors, all students are expected to take sufficient care to produce assignment submittals that reflect a collegiate or working professional level of effort in terms of compositional structure and correct grammar usage. To this end, the instructor's expectations for all assignment submittals are outlined below:
 - ✓ Students will take ownership of producing high-quality assignment "deliverables" that they would submit to their employer.
 - ✓ Submittals will reflect good, common practice in developing paragraphs and sentences (such as one topic per paragraph, use of complete sentences and not fragments, one thought per sentence that supports the paragraph topic, consistent fonts and structure, etc.). Good, common practice for this course does **not** include responses that involve long blocks of text containing multiple topics.
 - ✓ Students will use standard resources available through MS Word (or other acceptable sources) to search for and correct grammatical issues prior to assignment submittal. Submittals that contain noticeable misspelled words, incomplete sentences and similar careless issues will be considered a non-professional submittal and subject to a minimum 10% grade penalty. (This may be in addition to the grade penalty assigned for not following assignment instructions.) The quality of team-based submittals is a shared responsibility among the team members.
 - ✓ Team-based submittals mean that the document reflects a team compilation of contributions, endorsed by all participating team members. In finalizing the submittal, remember that there is no "I in team" and submittals should reflect this concept by removing words (such as "I" or "me") that reflect only individual perspectives, unless they question asks for individual team member responses.

- ✓ Source and reference listings may be required for some assignment submittals (as specified in the Canvas assignment). Assignments that fail to include references, as may be requested, will be considered incomplete and subject to a minimum 10% grade penalty. (This may be in addition to grade penalties assigned instructional or quality-based reasons.)

Presentations: Two of the on-going assignments will involve formal team presentations. The assignments will specify the objectives, format and instructions for the presentations. In-class students will make the presentations during designated class sessions (that will be clarified by the instructor). The presentations are expected to integrate the guidelines and approaches for effective persuasive presentations covered in EGS 4038 Engineering Leadership.

Teams should expect to make summary presentations on selected cases at times defined in advance by the instructor. Those teams that are not prepared to make their case summary presentation(s) or do a minimal or poor job in complying with the instructions for their presentation(s) should expect to receive a minimum 10% up to a 20% penalty on the corresponding team case assignment submittal(s).

13. Evaluation of Grades: Final grades will be determined based on the course component weighting factors indicated below:

AELD Course Components	Grade Weighting Percentages
RAQs (up to 13):	15
On-going Case Study Assignments (up to 10)	35
Main Case Study Assignments (up to 15, some of which may involve team case summary presentations)	25
Formal Presentations (up to 2)	10 (first) 15 (last)
Totals:	100

14. Grading Policy:

Final course grades will be determined by summing the weighted points associated with each of the grade components. Weighted points for each component will be calculated as the ratio of the points earned to the maximum points possible, multiplied by the grade weighting percentage for the component (rounded to the nearest hundredths decimal point). The cumulative weighted percentage points will be summed, multiplied by 100, rounded to the nearest tenths of a digit, and compared against the following grade scale:

A = 90.0 or above	C = 72.0 – 74.9
A- = 87.0 – 89.9	C- = 69.0 – 71.9
B+ = 84.0 – 86.9	D+ = 66.0 – 68.9
B = 81.0 – 83.9	D = 63.0 – 65.9
B- = 78.0 – 80.9	D- = 60.0 – 62.9
C+ = 75.0 – 77.9	E = 59.9 or below

NOTE: Given the variability in the grading weighting criteria between undergraduate and graduate students, course grades indicated by the Canvas class website are unweighted and **do not** reflect the actual course grade. Students are encouraged to keep up with their class grade individually based on the class grading approach previously outlined.

More information on UF grading policy may be found at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

15. Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

16. Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.afl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.afl.edu/public-results/>.

17. University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate

personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

18. Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Jennifer Nappo, Director of Human Resources, 352-392-0904, jpennacc@ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

19. Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

Campus Resources:

Health and Wellness

You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated. Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.

If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the [UF Health Screen, Test & Protect website](#) for more information.

U Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the [Office of Title IX Compliance](#), located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>; <https://care.dso.ufl.edu>.