

Syllabus
Advanced Engineering Leadership Development
EGS 4680

Section (Class No.): CAMP (12715)

Section (Class No.): OVER (22768)

Class Periods: Wednesdays, Periods 3-4 (9:35 – 11:30 a.m.)

Location: WERT 370

Academic Term: Spring 2024

1. **Instructor:** Bill McElroy, P.E., Associate Director and Instructional Professor, Gene Fraser Teaching Professor, Engineering Leadership Institute, University of Florida Herbert Wertheim College of Engineering
 - a. E-mail address: mcelrowj@eng.ufl.edu
 - b. Office Telephone: 352-294-7383
 - c. Office location: Room 385, Herbert Wertheim Laboratory for Engineering Excellence, Building 779
 - d. Office hours: Office or Zoom personal meeting room
<https://ufl.zoom.us/j/6112768635> 10:00 to 11:00 a.m. Tuesdays and Thursdays.
Other one-on-one office or Zoom/phone sessions are available by appointment (use email to set up).
 - e. Web site: UF course Canvas web site
 - f. No teaching assistant

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: no required textbook.

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 two class sessions.

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 access to 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 (as applicable), 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 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.

On-campus students should expect to acquire class point activities in each weekly class session. These may involve use of iClicker or other technology asking questions about pre-assigned course content and discussions. Class session points will accumulate during the semester and count towards a percentage of the course grade (see Section 13 below). No make-ups of missed class points will be allowed without an excused absence as defined by UF.

The outline of main topics expected to be covered in each weekly 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.

Weeks (Monday-Sunday Schedule)	Expected Discussion Topics	Key Activities and Submittals ¹
1	course overview and explanation of course requirements; leadership and engineering leadership in context; leader-engineer roles	team formation acquire course materials weekly readings weekly class session ²
2	the concept of strategic leadership; key business fundamentals, concepts, and terms (including common financial analyses and indices)	team formation acquire course materials weekly readings weekly class session Assignment 1
3	the concept of strategy; key business fundamentals, concepts, and terms – continued (pricing approaches; price-cost-demand relationships; overview of Monte Carlo analyses)	weekly readings weekly class session
4	the concept of competitive advantage and industry analyses; design thinking; vision, mission, values and purpose statements;	weekly readings weekly class session Assignments 1A, 2
5	the concept of Blue Ocean strategy; the process of creating uncontested new market space; the concept of value curves	weekly readings weekly class session Assignment 3
6	leadership and creativity; innovation as a strategy; the concept of value propositions	weekly readings weekly class session Assignments 1B, 4

7	structuring and building organizations; organizing around value-added processes	weekly readings weekly class session (1 st team presentations) Assignments 1C, 5
8	the concept of balanced scorecards (BSC); performance metrics and monitoring	weekly readings weekly class session Assignment 6
9	Spring Break	
10	decision-making processes and tools	weekly readings weekly class session Assignments 1D, 7
11	uncertainty, risks and risk management	weekly readings weekly class session Assignment 8
12	strategic leadership and change; strategic leadership and information technology	weekly readings weekly class session Assignments 1E, 9
13	crisis management and crisis leadership	weekly readings weekly class session Assignments 1F, 10
14	globally responsible leadership; strategic leadership in a global business world	weekly readings

		weekly class session Assignment 11
15	final team presentations	Assignment 1G weekly readings weekly class session (final team presentations) complete course evaluations
16	course close-out	weekly class session complete course evaluations
<p>NOTES:</p> <p>¹ Refer to class schedule for dates of availability and submittal. In the event of unintended conflict, Canvas schedules apply.</p> <p>² Attendance of all weekly sessions expected for students registered in on-campus sections of course. EDGE students are expected to view videos of the weekly class sessions as part of the course requirements.</p>		

12. Policies and Class Expectations:

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 in the specified format 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 full weekly synchronous class sessions, come to the sessions prepared, actively participate in the class discussions and activities, and not spend their class time working on other courses or on the internet or phone. 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 class points.

Other Specific Policies and Expectations:

Use of A.I.: If you choose to use A.I. (e.g., ChatGPT or BingAI) in completing any of your work in this class, please note the following guidelines must be followed:

- Be aware of the limits of the A.I. tools. The results you get are very dependent on the prompts you use and how well you define those prompts. The numbers and facts you may get could be completely wrong so unless you can independently confirm the results through another source, do not trust that they are correct. You will be responsible for any incorrect numbers or facts you get from using the tool.
- A.I. is a tool and, as such, you must acknowledge that you used it in completing any work for the class. You must include a paragraph at the end of any assignment in which you used AI explaining how you used it and what prompts you used to get the results. Failure to do so may be considered a violation of academic honesty policy.

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 case 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
Weekly class session points	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 who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

16. Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.ua.ufl.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.ua.ufl.edu/public-results/>.

17. In-Class Recording

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.

18. 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://sccr.dso.ufl.edu/process/student-conduct-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.

19. Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values, including the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information, and veteran status.

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
- HWCHE Human Resources, 352-392-0904, student-support-hr@eng.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

20. 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.

21. 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>

22. Campus Resources:

Health and Wellness

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: <https://counseling.ufl.edu>, 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 Connections Center, Reitz Union, 392-1601. Career assistance and counseling; <https://career.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>.

On-Line Students Complaints: <https://distance.ufl.edu/getting-help/>; <https://distance.ufl.edu/state-authorization-status/#student-complaint>.