

Engineering Innovation

EGN 4643 All Sections

Class Sections: Monday 11:45 AM-1:40 PM; Tuesday 11:45 AM-1:40 PM; Thursday 9:35 AM- 11:30 AM;
Thursday 1:55 PM- 3:50 PM

Location: Wertheim Building 360

Academic Term: Spring 2023



Instructor:

Melissa White, Ph.D.

Instructional Assistant Professor, UF Engineering Innovation Institute

E-mail address: mm.white@ufl.edu

Office hours: Monday 9:30 AM to 11:30 AM in Wertheim 387; Zoom hours by appointment; additional hours to be scheduled and will vary week to week depending on assignments

Course Website: <http://elearning.ufl.edu/>

Teaching Assistants: *Emmalee Brown, Megan Stowers, Summer Torok, Grace Winkler*

Course Communication

This semester there will be four main modes of communication with the professor and your peers:

1. Canvas- Students with questions can also contact the professor through Canvas inbox. The instructor will regularly update the Canvas page and make announcements for students. Please ensure your time zone and push notifications are set to receive alerts regarding announcements.
2. GroupMe- A class GroupMe has been created for this course. Every student is expected to check GroupMe as the professor/TAs will post most announcements or answer questions through this platform. All sections of the course are included in this chat. If you believe a question could benefit every student, then the student should post it into GroupMe.
3. Flipgrid- Flipgrid is a video sharing platform that links to Canvas for students to submit individual video assignments. There will also be a professor updates tab, that the professor will use to record short video updates regarding course content. The professor will share the link for update videos via Canvas announcements.
4. Zoom/Hangouts/Microsoft Teams- The professor will often utilize zoom to record class lectures, for office hours, or to meet with students. Students are also able to request a video meeting with the professor at any time. While class time will be devoted to group work, there may be times where your group needs to meet outside of the classroom and should use a video platform for doing so, but it is the choice of the group as to which platform is used.

Note: All messages should be sent through Canvas inbox or GroupMe. You are welcome to set up an appointment to talk with the instructor at any time. If you have an issue or need help, don't wait to ask about it. Problems are generally easier to solve sooner rather than later.

Course Description

Engineering Innovation introduces students to developing an innovative mindset and innovation practices. Using lectures, case studies, team exercises and guest speakers, the course teaches life skills in innovative thought and action that students can use in careers ranging from starting companies to executing research and development projects in large companies.

Credit Hours: 3

Course Objectives

Students examine the innovator's mindset and explore the culture of innovation. In a real-work, hands-on way, students learn how to be innovative and understand why innovation is integral in today's society. Innovation strategies and tactics are evaluated from the perspective of ideation; that is, transforming innovative problem-solving ideas into viable solutions that are produced, sold, consumed, and/or implemented in society.

Students develop an understanding of the importance of innovation – and an innovative mindset. A best practices approach is used to demonstrate how innovators conceive and implement impactful solutions for a variety of problems. Students learn how technology can serve as both a pathway and a roadblock in organizations committed to operating with an innovator’s mandate. Students are taught practical and applicable skills that can be applied in various organizations from start-ups through large companies.

Materials and Supply Fees: N/A

Professional Component (ABET): N/A

Relation to Program Outcomes (ABET): N/A

Required Textbooks and Software: GroupMe

Course Schedule

This course will be delivered in a “Flipped Classroom” modality. Each week students will have prerecorded lectures, TED talks, podcasts, and/or readings to discuss the weekly topics that should be viewed prior to the scheduled class periods. There will be a weekly content quiz to ensure students have learned the material. In addition, each week will include a creative activity to be completed at home that will allow the students to explore different tools to enhance their creative thinking. Scheduled class periods will be utilized for activities, student teamwork, and team presentations. Sessions may also include guest speakers that exemplify innovation. Students should be prepared to bring their laptops to the class for participation in class activities.

Engineering Innovation is firmly presented in an experiential learning “real-world” format. Students pursue problem solving ideas and develop an innovation process book (“Innovation Playbook”) that advances a proposed problem-solving solution with innovation concepts learned during the course. As such, students will be placed on multi-disciplinary teams that match their weekly availability. Each student will be expected to engage in a weekly team meeting to discuss course topics and work towards the completion of the playbook. Upon completion of Engineering Innovation, students will have acquired the hands-on, multi-faceted “tools” and marketable skills they can use to pursue engineering careers ranging from entrepreneur in a startup venture, to intrapreneurs working in a corporate enterprise, to senior executive leading a multinational organization. Engineering Innovation is delivered along the following outline:

- I. Introduction to Innovation – What is innovation; Why is innovation important; Innovation Types; Innovation Methods & Methodologies; Design Thinking
- II. Inspiration– Problem Identification and Discovery; Needs Statement Development; Ethnographic/Market Research; Social Innovation; Biomimicry’ Internet of Things
- III. Ideation– Ideation & Creativity; Idea vs. Opportunity; Pattern Recognition; Creativity Tools; Overcoming Mental Blocks; Developing an Innovator’s Mindset; Brainstorming
- IV. Innovation Strategies and Tactics - Ideas + Execution = Innovation; Innovation outcomes; How to get from the big idea to a prototype with target specifications; Intellectual Property’s Role in Innovation; Commercialization and commercialization strategies; Competitors vs Strategic Partners; Feasibility
- V. Conceive and Create an Innovation Playbook – Developing an execution strategy; Turning innovations into economic and societal impact

Attendance Policy, Class Expectations, and Make-Up Policy

The class will be offered and delivered as scheduled with asynchronous lectures, and in-person working sessions for those enrolled in on-campus sections. The instructor will be in the classroom leading course related activities at the allotted time to assure that the student learning outcomes for this course are achieved.

The in-class sessions are for content discussions and for group work. Attendance at working sessions is mandatory. You are required to show up to your weekly class meeting time to work with your team. Each person is permitted one absence from the weekly working session over the course of the semester. For each unexcused absence beyond one, your grade will be reduced by one full letter grade. For known excused absences, such as interviews, special curricular activities, and religious holidays, etc., work out with your team in advance how you will make up your share of the group work in your absence.

If a student misses a session, it is the student's responsibility to find out from their team, the class website, or the instructor what material was covered, and to determine how to contribute to the group project during the week of the absence.

Except in rare circumstances at the sole discretion of the instructor subject to the policies of the undergraduate catalog (<https://catalog.ufl.edu/ugrad/current>) 1) assignments must be submitted via Canvas by the stated deadline, 2) late submissions may be accepted but with a points penalty 3) no credit will be given for partial assignment submissions, and 4) no-make-up assignments will be accepted.

Evaluation of Grades

The course will be organized around lectures, readings, class discussion, activities, and a team project. All students will be organized into teams to develop an innovation playbook and present their innovation to the class. All students are responsible for submitting team member evaluations throughout the semester. Failing to submit team member evaluations will result in the appropriate deduction on the assignment noted. If, in the sole discretion of the instructor, a student is not contributing acceptably to his/her team, the instructor reserves the right to lower an individual student's grade for any and all team assignments to a degree that the instructor in her sole discretion feels appropriate to reflect the lack of contribution of the student to team assignment(s).

Throughout the semester, you will be asked to evaluate your own participation and that of your teammates. This data will be used by the instructor to determine if any student is not contributing adequately to their team assignments. We will be using a system called Feedback Fruits for Group Member Evaluations that you will use to evaluate yourself, evaluate teammates, receive your feedback for review, and reflect on your team as a whole. No grades at the end of the semester are considered final until the team member evaluation grade is entered.

Please note that this class is out of 1020 points; however, you are only graded out of 1000 points. There is a built in extra credit of 20 points.

Assignment	Assignment Type	Total Points
<i>Playbook</i>		
Need Statements	Individual	10
Kill or Pursue	Playbook team	25
Current Landscape	Playbook team	100
Get Out and Discover	Individual	50
Get Out and Discover Survey	Individual	50
Brainstorming Workshop	Playbook team	25
Inside the Box Workshop	Playbook team	20
Feedback Workshop Pitch	Playbook team	10
Feedback Workshop Evaluations	Individual	20
Feedback Workshop Response Table	Playbook team	20
Prototype Workshop	Playbook team	40
Innovation Playbook	Playbook team	200
Final Presentation	Playbook team	50
Peer Evaluations (2x15)	Individual	30
<i>Experiential Assignments</i>		
Personal Biography	Individual	10
Experiential Activity Learn (x3)	Individual	45
<i>Weekly Activities</i>		
Reflections (13 at 5 pts)	Individual	65
Creative Activities (13*10pts)	Individual	130
Content Quiz (13*10 pts)	Individual	130
Total Points Possible		1020

Grading Policy

For all students, final course grades will be determined by dividing the number of points that the student has earned by the Total Points Possible for all assignments as given above (student total weighted class score) and applying the following Grading Scale:

Student's Total Score	Percent	Grade	Grade Points
930 – 1,000	93 - 100	A	4.00
900 – 929	90 - 92.9	A-	3.67
870 – 899	87 - 89.9	B+	3.33
830 – 869	83 - 86.9	B	3.00
800 – 829	80 - 82.9	B-	2.67
770 – 799	77 - 79.9	C+	2.33
730 – 769	73 - 76.9	C	2.00
700 – 729	70 - 72.9	C-	1.67
670 – 699	67 - 69.9	D+	1.33
630 – 669	63 - 66.9	D	1.00
600 – 629	60 - 62.9	D-	0.67
0 – 599	0 - 59.9	E	0.00

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

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.

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.aa.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.aa.ufl.edu/public-results/>.

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/policies/student-honor-code-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.

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.

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
- Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@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

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

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://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.