

**Engineering Entrepreneurship**  
**EGN4641 and EGN6640 - Innovating for Defense Section**

**Instructor:**

Erik Sander, Director, UF Engineering Innovation Institute ([www.eng.ufl.edu/innovation](http://www.eng.ufl.edu/innovation))

Contact Information: 352-392-7047; [esander@ufl.edu](mailto:esander@ufl.edu); WERT 380

Office hours: By appointment to Lori DeLuco ([ldeluco@ufl.edu](mailto:ldeluco@ufl.edu))

**Teaching Assistant:**

To be Announced

**Course Description:**

Innovating for Defense (I4D) is a credit-bearing university class that uses the proven, successful Lean Launchpad methodologies. I4D student teams utilize these methodologies to address critical Department of Defense (DoD) and Intelligence Community (IC) problems that have been submitted by various sponsoring organizations.

**Learning Objectives:**

Through active engagement with and successful completion of this course, students will be able to:

- Demonstrate an understanding of and the ability to apply the I4D method, rooted in Lean LaunchPad principles.
- Develop a strong understanding of the national security and defense domain.
- Develop and apply the following future workforce skills: Complex problem-solving, Critical thinking, Persuasive communications and presentations, Creativity, Collaboration and teamwork, Judgment and decision-making, Cognitive flexibility, Building professional networks.
- Develop and apply the following research skills: Prototyping, Market research, Qualitative interviews, Qualitative data analysis, White Paper drafting, Implementing a research plan.

**Course Pre-Requisites/Co-Requisites:**

None

**Course Objectives:**

- Create a generation of empowered and skilled university students eager to solve national security and defense problems.
- Build ecosystems around generating real solutions to national security and defense problems.
- Increase student awareness and familiarity with the work of the United States Defense and Intelligence Communities.
- Provide hands-on entrepreneurial thinking and action training using Lean LaunchPad methodologies to solve real-world problems.

**Material and Supply Fees:**

Not applicable

**Required Texts:**

- Osterwalder, A., & Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers (The Strategyzer series)*. John Wiley and Sons.
- Osterwalder, A., Pigneur, Y., Bernarda, G., Smith, A., & Papadacos, T. (2014). *Value Proposition Design: How to Create Products and Services Customers Want (The Strategyzer Series)* (1st ed.). Wiley.

**Optional Text (Discuss with the instructor before purchasing):**

- Blank, S., & Dorf, B. (2020). *The Startup Owner's Manual: The Step-By-Step Guide for Building a Great Company* (1st ed.). Wiley.

**Supplementary Readings:**

- Mansoor, P. R., & Murray, W. (2019). *The Culture of Military Organizations*. Cambridge University Press.
- Maue, Brian. (2021). *The Experiment That Succeeded: How a Government Startup Beat Amazon, Leveraged Innovation History and Changed Air Force Culture*. Launch Pad Publishing.
- Weiss, M. (2021). *We the Possibility: Harnessing Public Entrepreneurship to Solve Our Most Urgent Problems* (1st ed.). Harvard Business Review Press.

**Course Electronic Materials:**

- Many electronic materials and tools are made available to the student on the course Canvas site under Resources. Students should review and make use of these.
- One person from each team should register for Canvanizer (<https://canvanizer.com>) which will be used to create and update your Mission Model Canvas during the semester. While a free demo version is available, the instructor strongly suggests each team register for one Canvanizer 2.0 account per team (\$25 one-time payment per team) as this will save many hours of Canvas preparation time. One team account can be used by all members collaboratively so each member will not need their own account to work together on your Canvases during the semester

**Course Schedule and Structure:**

Monday, Periods 3 & 4, Wednesday Period 4

Location: WERT 360

Students are expected to hit the ground running and to adjust schedules to avoid conflicts with the class. Students should begin the course having read background material on all problem statements. Students should come to the course prepared, having reviewed the entire syllabus, and should read or view the material and lectures as assigned.

The course schedule will be updated in Canvas and is subject to change and students should regularly check the course Canvas page for updates to the schedule.

The course material has been divided into 10 Concepts rather than into 10 set class sessions. The intention is that instructors may spend more or less time on a given concept as appropriate for a specific class while following a standard chronology and progression.

The key Concepts and chronology of the Innovating for Defense course are detailed in the course Canvas site and are:

1. I4D and Lean Startup Introduction
2. Mission Model Canvas
3. Beneficiaries and Beneficiary Discovery
4. Value Proposition, Product Mission Fit, Minimum Viable Product
5. Mission Achievement
6. Buy-In and Support
7. Solution Deployment
8. Activities, Resources, and Key Partners
9. Mission/Budget Cost Reflections
10. Final Lessons Learned Presentation

Most class sessions follow the same format. The first portion of the class session is devoted to student presentations and discussion that reflect the information presented in the previous week/class lecture and updates on the progress the teams are making in their projects to reflect the previous weeks learnings. During the second portion of each class, students will be introduced to a new topic from the Innovating for Defense curriculum.

The Course uses the “flipped classroom model” utilizing the Engineering Innovation Institute state-of-the-art Innovation Studio (WERT360). The Innovation Studio is a Flipped Classroom enabling an education model to introduce students to course content lecture material between scheduled class meeting times. Classroom time is used to deepen the students’ understanding of the student teams’ problem through problem-solving activities and discussions facilitated by the instructor. The student team’s “problem” is a scoped national security and/or defense problem statement written by the government problem sponsor and validated before being presented to the student. The problems are real DoD / IC challenges – not theoretical exercises.

I4D students primarily learn by doing. The course teaches students to apply skills while working on a real-world problem. The program does this by:

- Teaching the Lean LaunchPad entrepreneurship methodology outside of the classroom in the form of online lectures, podcasts, articles, blogs, and videos.
- Applying the model to the team’s government problem by each team engaging in 50-100 interviews with myriad stakeholders outside of the classroom.
- Using class time for teams to present and/or discuss the results of applying concepts to their defense problem. Instruction is in the form of feedback from the instructor and peers to provide course corrections, either in their understanding of the model Concept or to their problem specifically.

By using the flipped classroom model, student presentations are focused on feedback and discussion. This in-class discussion draws generalizable learning points from the specifics of each live case. These learning points are summarized and tied together to form the backbone of the pedagogical framework. Meaning, the Lean LaunchPad method draws its general framework from the specific experiences of the students. Discovery (the student team's weekly stakeholder/beneficiary interviews) becomes the core learning process in this approach. I4D emphasizes experiential learning as the paradigm to engage the students in testing the hypotheses of their models.

I4D enables a continuous feedback loop between the instructor and students as a way to simulate the intensity of a start-up and encourage and challenge students to test their own hypotheses verbally. It is a crucial part of the course. The continuous feedback loop is an open, direct conversation between the instructor and student teams in front of the class. The instructor initiates feedback by asking student teams to elaborate on their methods. The instructor then follows up with questions that will contribute to the development of their solution. The discussion is not a one-sided weekly verbal assessment. Instead, the feedback is an interactive discovery of the student team's thinking and a way to guide without being prescriptive or directive.

### **Assignments**

Four types of Assignments will determine the students' course grade:

1. Team Beneficiary Interviews – Each Student Team must arrange and conduct 50-100 Beneficiary (typically DoD personnel, Government Contractor, etc.) Interviews over the course of the semester (typically 5-10 interviews on defined weeks in the semester) to test Hypotheses (e.g., Value Proposition, Beneficiary Need) to support student learnings in the Concepts. Student Teams must document these Interviews via a blog or similar writeup to capture the Name, Organization, Title, and email address of the person(s) being interviewed, the interview date, the means of the interview (e.g., Zoom, Face to Face - Email discussion strings are acceptable as 10% or less of all interviews), the specific Hypothesis(es) being tested, the major questions or lines of inquiry to confirm, deny, or modify the Hypothesis(es), the primary findings and how those might impact the Team's future action, and other potential Beneficiaries to whom the Team was referred for Interviews. The Beneficiary Interviews will be graded by the number and quality of all interviews.
2. Team Weekly Lessons Learned Presentations given in class. The Team Weekly Lessons Learned Presentation will be graded by completeness while following the given format in the Concept and the quality of information, presentation, and responsiveness to questions/suggestions from the instructor and other students.
3. Team Final Presentation to the class and external stakeholders (e.g., DoD Project Sponsors) of the Student Journey, Project Progression, and Lessons Learned.
4. Team Final Written Portfolio of Activities including:
  - *All Mission Model Canvas versions* the team presented during the semester given as a multi-page PDF document highlighting how the MMCs changed each week and what caused the changes.

- *Influence Map* - a one-page graphic charting the decision-makers, gatekeepers, supporters, and saboteurs around a problem drawing from the student teams' beneficiary discovery and the understanding they gain about the degree and location of influence surrounding the problem (often, this insight is new and valuable to the government problem sponsor)
- *Minimum Viable Product (MVP)* - Developed by students as a result of applying Lean LaunchPad principles over the semester. For some teams, it is an actual prototype, of which past students formed a company to bring their product to market. For other teams, it's a solution that needs further work by the problem sponsor or a service or process that addresses/solves the problem; The MVP should accompany a 1-2 page write-up of the product, process, or prototype (if applicable).
- *Research Paper* – A 10-15 page written document combining all work students did during the semester, including the problem statement, team's methodology (beneficiary discovery), obstacles faced and how they were overcome, technical aspects of the problem and potential solution, and path forward if applicable.
- *Record of Interviews* - Students are required to keep records of everyone interviewed along with their Blog showing what was learned and how that affected their hypotheses and go-forward actions. Student teams must submit a Record of Interviews in an Excel table format (one interviewee per row) to include in the columns the name, organization, title, date interviewed, email address, and major learning for each interview.

**Grading Policy:**

This course is team-based and 100% of individual student grades is derived from team progress, the final presentation, and the Final Written Portfolio.

If in the sole discretion of the instructor, a student is not contributing equitably to his/her team, the instructor reserves the right to raise or lower an individual student's grade for any and all team assignments or the final course grade to a degree that the instructor in his sole discretion feels appropriate to reflect contribution, or lack thereof, of the individual student to team assignment(s).

Grading criteria are broken down as follows:

<b>Assignment</b>	<b>Percent Grade</b>
Beneficiary Interviews	40%
Team Weekly Lessons Learned Presentations	40%
Team Final Presentation	10%
Team Written Portfolio of Activities	10%
<b>Total</b>	<b>100%</b>

Note: Per UF policy for mixed undergrad/grad courses, Graduate Students taking EGN6640 will have one additional non-graded assignment to be announced.

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 and applying the following Grading Scale:

Percent	Grade		Percent	Grade
93.4 - 100	A		73.4 - 76.6	C
90.0 - 93.3	A-		70.0 - 73.3	C-
86.7 - 89.9	B+		66.7 - 69.9	D+
83.4 - 86.6	B		63.4 - 66.6	D
80.0 - 83.3	B-		60.0 - 63.3	D-
76.7 - 79.9	C+		0 - 59.9	E

**Attendance Policy, Class Expectations, and Make-Up Policy:**

Attendance at all class sessions is mandatory as this class is highly interactive.

Students are expected to arrive to class on time and to participate in class through completion. Students are expected to come to class prepared, including completion of all assigned readings and/or viewings, to actively participate in class discussions and activities.

Excused absences are consistent with university policies in the undergraduate catalogue (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>) and require appropriate documentation.

Excessive student use of electronic devices during class sessions for non-class purposes, at the instructor’s discretion, is prohibited and can result in loss of assignment points.

Except in rare circumstances at the discretion of the instructor and subject to the policies of the undergraduate catalogue, 1) assignments are to be submitted via Canvas by the stated deadline, 2) late submissions will not be accepted, 3) no credit will be given for late assignments and, 4) no-make-up assignments will be accepted.

**Students Requiring Accommodations:**

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://disability.ufl.edu/>) 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 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/>.

## 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, if any, in this class.

## 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:

<http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

## Campus Resources:

- U Matter, We Care: If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) or 352 392-1575 so a team member can reach out to the student.
- 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 Assault Recovery Services: Student Health Care Center, 392-1161.
- University Police Department: 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.
- E-learning technical support, 352-392-4357 (select option 2) or e-mail to [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu). <https://lss.at.ufl.edu/help.shtml>.
- Career Connections Center, Reitz Union, 392-1601. Career assistance and counseling. [www.career.ufl.edu](http://www.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/>.