IDS 1940
Creativity & Design Thinking for Innovation

Spring 2025 ● 2 Credits ● Sections

COURSE MEETING DAY & TIME:
3D24/17848 Mondays 9:35-11:30am CSE #312
3D47/17849 Mondays 3:00-4:55pm CSE #312
2D12/20727 Wednesdays 9:35-11:30am Hume Hall Classroom #119
E-LEARNING/ CANVAS WEBSITE: http://elearning.ufl.edu/
INSTRUCTOR: Charlie Cummings, MFA
OFFICE: CSE 0360
E-MAIL: charlie@ufl.edu
OFFICE HOURS: Refer to Canvas & By Appointment

Course Description

IDS 1940 focuses on building creative confidence through the design thinking process. Students explore and develop their own creative processes, experience collaborative creative problem solving in multidisciplinary teams, and practice prototyping innovative solutions to problems through sustainable prototyping, laser cutting, 3-D modeling/printing, and Arduino. Experiential learning activities in the course offer the necessary background for *IDS 1359 Innovation in Action*, the next course in the Innovation Academy (IA) minor.

The course balances instructor-led presentations, active dialogue, small group work, and hands-on activities. Common core content will be taught across all course sections; individual instructors will provide their own unique class experiences and offer a variety of experiential learning exercises. Learning in this course will occur in many ways: presentations; discussions; exercises; as well as project-based learning that involves observing, diagramming, sketching, and building.

Course Goals & Objectives

DISCOVER PROBLEMS AND CREATIVE SOLUTIONS	PERCEIVE CRITICAL & CREATIVE THINKING SKILLS	IDEATE NEW IDEAS THROUGH THE DESIGN THINKING	MAKE/CONNECT PITCH INNOVATIVE IDEAS & PROTOTYPES
● Define creativity ● Demonstrate problem-finding skills ● Effectively utilize research skills ● Recognize mindsets & barriers to creativity in individuals and teams	● Examine perceptions of personal creative ability ● Demonstrate use of 21st century skillset ● Demonstrate empathy in the design thinking process	● Define the design thinking process ● Apply creative thinking tools to design thinking ● Develop novel & valuable innovations individually and with interdisciplinary teams	● Develop basic skills using 3D printing, laser cutting, and Arduino software and hardware ● Experience the iteration process ● Create prototypes ● Pitch ideas

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Course Policies

Required Course Materials

Textbook:

Kelley, D., & Kelley, T. (2013). *Creative confidence: Unleashing the creative potential within us all*. NY: Crown Publishing Group. ISBN: 978-0-385-34936-9.

The following is required, but DO NOT order prior to class; more information will be provided.

- ELEGOO Upgraded UNO R3 Project Most Complete Starter Kit w/Tutorial Compatible with Arduino IDE (63 Items) V2.0 - https://www.amazon.com/EL-KIT-001-Project-Complete-Starter-Tutorial/dp/B01CZTLHGE/ref=sr_1_3?keywords=most+complete+arduino+r3+elegoo&qid=1637122039&sr=8-3
- *You MUST ensure you have the correct Arduino kit with a TA prior to use. This can be ordered via Amazon. Refer to Arduino TA Check-in assignment in Canvas.*

You will also need:

- Idea Book for brainstorming, diagramming, & idea generation
- One 3"x 3" post-it notepad
- At least one dry-erase marker
- Access to Adobe Illustrator (see notes in Canvas assignment)
- Autodesk Student/Education account for Fusion 360 (student account is free)
- Access to Arduino tutorials via CD or web (see notes in Canvas assignment)
- Access to Microsoft Whiteboard, PowerPoint, and Word
- Tablet, laptop, or desktop computer with camera, microphone, and internet access for on-line coursework (i.e., Canvas, Zoom, Fusion 360, PowerPoint, Microsoft Word/Whiteboard, PDF, etc.) – See UF IA Computer Requirements for more information: https://innovationacademy.ufl.edu/resources/ia-computer-requirements/
- Computer mouse with 3 buttons (or 2 buttons and wheel)
- Camera and video recording device (i.e., smartphone)
- Budget $25 for prototyping/3D printing

NOTE: Students may be using small power hand tools, exacto knives, hot glue guns, etc. Students are required to participate in in-class demonstrations and/or video tutorials to learn appropriate use of tools. Tools should be handled with respect and care and utilized for intended purposes only.

Attendance/Participation/Engagement

Attendance is part of the participation grade and is required for this course. Being absent or tardy will be reflected in the participation grade. Requirements for class attendance, make-up work, assignments, and other work in this course are consistent with university policies that can be found at https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/. Missed work for any absence must be made up within a timely manner. If a student misses class, they should email their instructor as soon as possible, consult the Canvas page for class material, and obtain any necessary information regarding class or assignments from another class member in their section or a member of their team.

Participation & engagement in & outside of class helps students make the most of their IA experience. This class will meet in person during the scheduled class time. Students are expected to log on to the Canvas course page weekly and review the week's course material. Participation is defined as coming to class having completed all module work; being prepared to discuss required readings/videos; initiating meaningful contributions to class discussions and feedback sessions; fully completing all individual and group class activities; actively engaging in group work; and demonstrating the ability to apply class learning to assigned projects. This course is highly experiential and requires active dialogue, small group work, and hands-on-exercises to facilitate the learning process and to get the most out of the IA design thinking experience. Texting, web surfing, or using electronics for non-course activities are not acceptable during class. Students are expected to complete all class assignments, readings, and participate in small group meetings as determined by the team. Consequently, a significant percentage of the final grade will result from participation.

Students who receive full credit for participation: 1) Consistently come to class well-prepared; 2) Initiate discussion relevant to class topics; 3) Actively and regularly contribute to class discussions and feedback sessions; 4) Take initiative to investigate and share relevant material not explicitly assigned; 5) Model good classroom citizenship including listening without interrupting and responding to others respectfully and appropriately.

Innovation Academy Speaker Series

To further enrich course learning, students will have the opportunity to learn from industry experts who will be invited to share their stories and experiences relevant to the course material. There are **two required events** in the spring semester. Specific information regarding date/time will be shared in class.

Course Video Recording

If there is ever a need, virtual class meetings, lectures, class discussions/presentations, and/or other portions of the course may be video recorded and shared on the course Canvas platform. The video recordings are intended for exclusive use by students, faculty, and staff associated with this course. Other individuals who wish to view the recordings must receive permission from the responsible faculty member. Team presentations submitted via video recordings in Canvas may be shared with students, faculty, and staff associated with this course.

E-mail and Course Announcements

E-mail & Announcements contain crucial course information. As stated by UF & the IA Handbook, students are responsible for checking email and e-Learning for course communications *at least once every 24 hours*. Instructors will not be held accountable for students who are unresponsive to electronic communications about coursework that could impact students' grades. If students are not receiving regular emails from e-Learning or faculty, they should check their "clutter" inbox in the UF email system to make sure course emails are not being incorrectly marked. The notification settings in Canvas should be set up for students to be notified of due dates, announcements, submission comments, conversations, and membership updates.

Assignments & Grading Scale

READ THE DIRECTIONS for all assignments, including method of submission (i.e., Canvas, in class, individual, team), date and time due, format/file extension (i.e., pdf, docx, jpg/jpeg, mp4, stl, ppt). Only formats compatible with Canvas will be accepted in Canvas (i.e., **no HEIC, Keynote, Pages files**). Files that are submitted incorrectly will not be graded.

COMPLETE/INCOMPLETE GRADES: If an assignment is graded based on a Complete/Incomplete grading scheme, then submissions that fulfill all tutorial skills development exercises, documentation and submission guidelines will receive a Complete and full credit for the assignment. Submissions that do not successfully fulfill all tutorial skills development exercises, documentation and submission guidelines will receive an Incomplete and no points. Incomplete assignments may be resubmitted for regrading until the assignment closes.

*Canvas does not support Apple's HEIC photo format. **If using an iPhone to document your work, you must convert the images to jpeg format before uploading**.

*Fusion 360 Exporting to .stl - Information on exporting models from Fusion 360 to .stl format: https://knowledge.autodesk.com/support/fusion-360/troubleshooting/caas/sfdcarticles/sfdcarticles/How-to-export-an-STL-file-from-Fusion-360.html

*MAC OSX and Arduino
The latest version of the Arduino program may crash when opened on Macs with newer operating systems. If you experience this problem, installing an earlier version of the Arduino IDE will solve the issue. You can find earlier versions here: https://www.arduino.cc/en/Main/OldSoftwareReleases#previous

ASSIGNMENT CATEGORY WEIGHTS & GRADING SCALE:

Course Engagement   20%
    Attendance/Participation (100 pts)
    Technical Assistant Check-ins (2 @ 50 pts each)
    Speaker Series (2 @ 100 pts each)
    Team Project Peer/Self Evaluations (3@100 pts each)

Individual Innovative Technology Literacy and Skills Development Assignment Series (20%)
see note above for complete/incomplete grades
    The goal of this series of assignments is to empower students to independently learn new technologies, understand their potential, apply them to specific problems, and accomplish goals in creative and innovative ways. Building the flexibility to adapt to change, openness to learning, and the ability to quickly master unfamiliar technologies is a crucial skillset for success in college, future careers, and all innovative and entrepreneurial ventures.
    In today's technology-driven world, adaptability and self-teaching are foundational skills. Although the relevance of a specific technology used in these assignments may not always be immediately clear for certain majors, the underlying process of self-directed learning, overcoming

challenges, solving problems, and creating effective solutions is universally valuable across all academic disciplines and career paths.

Adobe Illustrator (100 pts)
Fusion 360 tutorials (4 sets ranging from 120 to 180 pts each)
Arduino Tutorials (4 sets ranging from 200 to 260 pts each)

Challenge 1	**20%**
Challenge 2	**20%**
Challenge 3	**20%**

Each challenge above includes:
Research Assignments (100 pts)
Ask the Experts Assignment (100 pts)
Individual Project: Prototype & Pitch (300 pts)
Read & Watch (100 pts)
Team Project: Prototype & Pitch (500 pts)

A	94-100%	**C+**	77-79%	**D-**	60-62%
A-	90-93%	**C**	73-76%	**E**	Below 60%
B+	87-89%	**C-**	70-72%		
B	83-86%	**D+**	67-69%		
B-	80-82%	**D**	63-66%		

*Note that a C- is not an acceptable grade for any course in which a 2.0 GPA is required. In IA, all courses must be completed with an overall 2.0 GPA in the minor and a cumulative 2.0 UF GPA. For additional information on UF grade policies see:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Intellectual Property

All material prepared and/or assigned by IA faculty for this course are for the students' educational benefit. For student projects, UF does not assert any ownership interest in undergraduate intellectual property. If you are interested in pursuing an idea, and to further understand University of Florida intellectual property policies, visit the Technology Licensing Office https://innovate.research.ufl.edu/tech-licensing/. TLO is available to assist students with copywriting and licensing of an original idea, and in releasing those rights to the owner if and when it is applicable.

Accommodations for Disabilities

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. See the "Get Started With

the DRC" webpage on the Disability Resource Center site. 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.

Technology Support

If you have any technical issues, including issues with Canvas in e-learning please immediately contact the UF Help Desk at helpdesk@ufl.edu; 352-392-HELP (4357) and select option 2; or the UF Help Desk website at: http://helpdesk.ufl.edu/

Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. **You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up**.

UF Academic Honor Code

Every University Student is subject to the following Honor Pledge: *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://policy.ufl.edu/regulation/4-040/) specifies several behaviors that are in violation of this code and the possible sanctions. Review the most up-to-date version of the Orange Book for more information on violations of the Student Honor Code. If you have any questions or concerns, please consult with the course instructor.

You are expected to do your own work. Cheating and plagiarism are not tolerated in this course. Instances of unacceptable academic behavior will be referred to the Office of Student Conduct & Conflict Resolution.

The use of generative AI tools (e.g., ChatGPT, UF NaviGator, Dall-e, etc.) is permitted for: brainstorming and refining your ideas; fine tuning your research questions; finding information on your topic; drafting an outline to organize your thoughts; or checking grammar and style. The use of AI is *not* permitted for: impersonating you on discussion boards; writing sentences, paragraphs, papers, or presentations to complete assignments. If you have questions as to whether AI is permitted for other reasons, please consult with your course instructor.

Faculty Evaluations

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/.

UF Health & Wellness Resources

U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information t help you find the care you need or visit the Student Health Care Center website.

University Police Department: Visit UF Police Department website of call 352-392-1111 (or 9-1-1 for emergencies.

UF Health Shands Emergency Room/Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608. Visit the UF Health Emergency Room and Trauma Center website.

GatorWell Health Promotion Services: For prevention service focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the GatorWell website or call 352-273-4450.

UF Academic Resources

e-Learning Tech Support		*e-Learning/Canvas technical support,* 352-392-4357 (select option 2) or e-mail to Learningsupport@ufl.edu http://helpdesk.ufl.edu/
Career Connections		*Career Connections Center*, Reitz Union, 392-1601. Career assistance and counseling. https://career.ufl.edu/
Library Support		*Library Support*, http://cms.uflib.ufl.edu/ask Various ways to receive assistance with respect to using the libraries or finding resources.
Teaching Center		*Teaching Center*, 1317 Turlington Hall, 392-2010 or 392-6420. General study skills and tutoring. http://teachingcenter.ufl.edu/
Writing Studio		*Writing Studio*, Day (9:30am-3:30pm) 2215 Turlington Hall, 352-846-1138; Evening (5-7pm) 1545 W. University Avenue (Library West #339). Help brainstorming, formatting, and writing papers. http://writing.ufl.edu/writing-studio/

IDS 1940 Course Schedule**

IMPORTANT NOTE: Refer to Canvas for due dates/times for assignments and any updates.

WK	DATE	TOPICS	DUE FOR THIS CLASS
1	1/13-1/17	*IA Way Design Thinking Phase: DISCOVER* • Course Introduction • Get-to-know-you activities • Syllabus Overview • Intro to 21st Century Skillset • Define innovation • Overview of Design thinking • **Focus: Discovery/Research** • Intro to Laser Cutting/ Sustainable Prototyping • Intro to Topic: Emerging Technologies – Initial Research	• **ASAP** - Purchase the textbook, Arduino kit*, post-its, dry erase marker • Team Skills Survey • Canvas Profile & Notifications *with TA consult
2	1/20*-1/24	• *IA Way Design Thinking Phase: PERCEIVE* • Design nametag/stand • Hands-on Prototyping • Good Prototyping Practices •Human-centered research - Emerging Technologies • Assign Teams	• Reading & Multimedia in Canvas – Have all tutorials up to this point completed •Fusion 360 TA check-in • Nametag/stand file due to TAs by 11:59pm • Kelley Chapters 1-4 • Discover: Emerging Technologies *1/20 is a holiday; students still responsible for work due in Canvas*
3	1/27-1/31	• *IA Way Design Thinking Phase: IDEATE* • **INDIVIDUAL PRESENTATIONS** •Ideate concepts for Emerging Technologies • Design thinking with team •Intro to Fusion 360/3-D Modeling	• Reading & Multimedia in Canvas/Fusion 360 tutorials • **Individual Innovative Sustainable Prototype and Pitch** • Kelley Chapters 5-6 • Perceive: Emerging Technologies
4	2/3-2/7	• *IA Way Design Thinking Phase: MAKE* • Making/Prototype • Teamwork	• 11:59pm deadline to submit Laser cut file to TA for final team project (optional) • Reading & Multimedia in Canvas/Fusion 360 tutorials • Kelley Chapters 7-8

5	2/10-2/14	• *IA Way Design Thinking Phase:* **CONNECT/PITCH** • **TEAM PITCH – Sustainable Prototype/Emerging Technologies** • Prep for next week *Speaker Series #1: Wednesday, February 12, 6-7pm, Thomas HΦrdman www.welovementors.com; Researching a New Idea*	• Reading & Multimedia in Canvas/Fusion 360 tutorials • **Final Team Pitch and Presentation**
6	2/17-2/21	• *IA Way Design Thinking Phase:* **DISCOVER** • **Focus: Interviews** • Overview Fusion 360/3-D Modeling • Intro to topic: Industry Problem • Initial Research for Industry Problem	• Reading & Multimedia in Canvas/Fusion 360 tutorials • Bug List • TA check-in for Arduino kit deadline (check Canvas)
7	2/24-2/28	• *IA Way Design Thinking Phase:* **PERCEIVE** • Human-centered research for topic: Industry Problem	• Reading & Multimedia in Canvas/Fusion 360 tutorials • Discover: Industry Problem
8	3/3-3/7	• *IA Way Design Thinking Phase:* **IDEATE** • **INDIVIDUAL PRESENTATIONS** • Introduce Arduino Tutorials	• Reading & Multimedia in Canvas • **Individual Innovative 3-D Prototype and Pitch** • Ask the Experts: Industry Problem • Complete all Arduino Lessons listed in Canvas
9	3/10 - 3/14	• *IA Way Design Thinking Phase:* **MAKE** • Making/Prototype	• Reading & Multimedia in Canvas
	3/17-21	*SPRING BREAK*	*THIS WEEK IS NOT COUNTED IN THE WEEK NUMBERING SYSTEM*
10	3/24-3/28	• *IA Way Design Thinking Phase:* **CONNECT/PITCH** • **TEAM PITCH - 3D Model/Industry Problem**	• Reading & Multimedia in Canvas • **Final Team Pitch and Presentation** • Complete all Arduino Lessons listed in Canvas

11	3/31-4/4	• *IA Way Design Thinking Phase: DISCOVER* • **Focus: Ideation** • Intro to Internet of Things/Arduino • Intro to topic: By Team • Initial Research for topic: Internet of Things	• Reading & Multimedia in Canvas • Complete all Arduino Lessons listed in Canvas • Discover: Internet of Things **REMINDER: Speaker Series 2 (Pitch Competition) – next week (TBA)**
12	4/7-4/11	• *IA Way Design Thinking Phase: PERCEIVE* • Prototyping with Arduino - Build and modify •Human-centered research for topic: IoT	• Reading & Multimedia in Canvas • **Speaker Series 2 (Pitch Competition) – This week (TBA)** • Perceive: IoT
13	4/14-4/18	• *IA Way Design Thinking Phase: IDEATE/MAKE* • **INDIVIDUAL PRESENTATIONS** • Ideate concepts for topic: IoT • Design thinking with group • Making/Prototype • Teamwork	• **Individual Innovative Arduino Prototype and Pitch** • Reading & Multimedia in Canvas • 11:59pm deadline to submit Laser cut file to TA for final team project (optional)
14	4/21-4/25*	• *IA Way Design Thinking Phase:* **CONNECT/PITCH** • **TEAM PITCH – Arduino/IoT** • Course evaluations and wrap-up	• **Final Team Pitch and Presentation** • Reading & Multimedia in Canvas *4/23 is last day of UF classes

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