# Cover Sheet: Request 14795

**IDS 1940 Creativity in Context**

**Info**

| | |
|---|---|
| Process | Course\|Modify\|Ugrad/Pro |
| Status | Pending at PV - University Curriculum Committee (UCC) |
| Submitter | Julia Porter-Roberts dianep@ufl.edu |
| Created | 3/5/2020 1:31:04 PM |
| Updated | 5/8/2020 2:24:43 AM |
| Description of request | Change course title to Creativity and Design Thinking for Innovation; change transcript title to Creativity Design Thnkg Innov; update course description to reflect current course content |

**Actions**

| Step | Status | Group | User | Comment | Updated |
|---|---|---|---|---|---|
| Department | Approved | CLAS - Innovation Academy 011601005 | Jeffrey Citty | | 3/5/2020 |
| IDS 1940 Creativity and Design Thinking for Innovation.pdf | | | | | 3/5/2020 |
| College | Approved | CLAS - College of Liberal Arts and Sciences | Joseph Spillane | The College Curriculum Committee approves this request, but asks that the reference to the course number are updated and corrected throughout the submission. | 4/17/2020 |
| No document changes | | | | | |
| University Curriculum Committee | Pending | PV - University Curriculum Committee (UCC) | | | 4/17/2020 |
| No document changes | | | | | |
| Statewide Course Numbering System | | | | | |
| No document changes | | | | | |
| Office of the Registrar | | | | | |
| No document changes | | | | | |
| Student Academic Support System | | | | | |
| No document changes | | | | | |
| Catalog | | | | | |
| No document changes | | | | | |
| College Notified | | | | | |
| No document changes | | | | | |

# Course|Modify for request 14795

## Info

**Request:** IDS 1940 Creativity in Context
**Description of request:** Change course title to Creativity and Design Thinking for Innovation; change transcript title to Creativity Design Thnkg Innov; update course description to reflect current course content
**Submitter:** Julia Porter-Roberts dianep@ufl.edu
**Created:** 3/5/2020 1:01:11 PM
**Form version:** 1

## Responses

**Current Prefix** IDS
**Course Level** 1
**Number** 940
**Lab Code** L
**Course Title** Creativity in Context
**Effective Term** Earliest Available
**Effective Year** 2021
**Requested Action** Other (selecting this option opens additional form fields below)
**Change Course Prefix?** No

**Change Course Level?** No

**Change Course Number?** No

**Change Lab Code?** No

**Change Course Title?** Yes
**Current Course Title** Creativity in Context
**Proposed Course Title** Creativity & Design Thinking for Innovation
**Change Transcript Title?** Yes
**Current Transcript Title** Creativity in Context
**Proposed Transcript Title (30 char. max)** Creativity Design Thnkg Innov
**Change Credit Hours?** No

**Change Variable Credit?** No

**Change S/U Only?** No

**Change Contact Type?** No

**Change Rotating Topic Designation?** No

**Change Repeatable Credit?** No

**Change Course Description?** Yes
**Current Course Description** Creativity in Context: IDS 1353 Creativity in Context highlights a set of creative thinking tools and provides an introductory overview of the theoretical models of creativity. The creative thinking tools and theoretical foundations frame experiential learning activities in the

course and offer the necessary background for IDS 1359 Creativity in Action, the next course in the Innovation Academy (IA) minor.

**Proposed Course Description (50 words max)** 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.

**Change Prerequisites?** No

**Change Co-requisites?** No

**Rationale** The new title and course description are a more accurate and updated reflection of what students experience in this course based on the 21st century skill set for which we prepare students.

# IDS 1940
# Creativity and Design Thinking for Innovation

Spring 2021 ● 2 Credits ● SECTIONS 2D49, 2D42

SECTION **#2D49 - Beaty 112 - Wed 8:30-10:25am**
SECTION **#2D42 - Infirmary 302 - Thur 9:35-11:30am**
E-LEARNING/CANVAS WEBSITE:
 http://elearning.ufl.edu

*Use email in e-Learning for all course communication with your instructor*

**INSTRUCTOR:** Dr. Diane "DP" Porter-Roberts
**OFFICE LOCATION: Infirmary 309**
**OFFICE HRS: Wed./Beaty, 10:30am-1:30pm**
E-MAIL: dianep@ufl.edu
PHONE: 352-317-4750 (cell)

## 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 SUSTAINABLE, LASER- CUT, 3D, & ARDUINO PROTOTYPES |
|---|---|---|---|
| ● Define creativity<br>● Demonstrate problem-finding skills<br>● Effectively utilize research skills<br>● Recognize mindsets & barriers to creativity in individuals and teams | ● Examine perceptions of personal creative ability<br>● Demonstrate use of 21$^{st}$ century skillset<br>● Demonstrate empathy in the design thinking process | ● Define the design thinking process<br>● Apply creative thinking tools to design thinking<br>● Develop novel & valuable innovations individually and with interdisciplinary teams | ● Become oriented to the 3D printing, laser cutting, and Arduino software and hardware<br>● Practice the iteration process<br>● Create prototypes<br>● Pitch ideas |

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# Course Policies

## Required Textbook & Arduino Kit

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

ELEGOO UNO R3 Project Most Complete Starter Kit w/Tutorial Compatible with Arduino IDE (63 Items) by ELEGOO; Direct
Link: https://www.amazon.com/dp/B01CZTLHGE/ref=cm_sw_em_r_mt_dp_U_cX57DbQNVQB8B
 *You MUST ensure you have the correct Arduino kit with a TA prior to use. This can be ordered via Amazon; there may be some available in the UF Bookstore as well.*

## Required Supplies

- An Idea Book for brainstorming, diagramming, & ideas (no smaller than 5"x 8" & unlined)
- One 3"X 3" post-it notepad
- At least one dry-erase marker
- Students must have Autodesk account for Fusion 360 (student account is free) and access to Arduino tutorials via CD or web.
- 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

**Attendance** is part of the participation grade and is expected for this course.  Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx . Missed work for approved absences must be made up  within a timely fashion. If students miss class for an unexcused reason, they should obtain course  material & assignments from another class member.  Students should also notify the instructor via email.

## Participation

**Participation** in & outside of class helps students make the most of their IA experience. Participation is defined as coming to class well-prepared, having fully completed the assigned modules including readings, tutorials, videos, etc.; initiating and contributing to relevant discussions; providing and receiving constructive feedback; synthesizing and applying course material; consulting with Technical Assistants and engaging with peers in self-directed learning; participating in the speaker series; and modeling good classroom citizenship. This experiential class requires active dialogue, small group work, and hands-on-exercises to facilitate the learning process. Texting, web surfing, or using electronics for non-course related activities are not acceptable during class. 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.

## 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. Check the "clutter" inbox in the UF email system to make sure course emails are not being incorrectly marked. Please utilize Canvas e-mail to communicate with instructors and read Canvas Announcements when they are posted.

## 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 or 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 (See rubrics attached):**

**Active Class Participation          20%**
    Attendance (200 pts)
    Technical Assistant Check-ins (100 pts)
    Speaker Series (100 pts)
    Peer Evaluations (3@100 pts each)
    Discussion Forum (100 pts)
**Technical Skills Development\***          **20%** *see note for complete/incomplete grades above
    Adobe Illustrator (100 pts)
    Fusion 360 tutorials (4 sets @ 100 pts each)
    Arduino Tutorials (4 sets @ 100 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 Prototype & Pitch (300 pts)
    Content Accountability (100 pts)
    Final team pitch and prototype (500 pts)

| A | 100% | to | 94% |
|----|------|----|-----|
| A- | < 94% | to | 90% |
| B+ | < 90% | to | 87% |
| B | < 87% | to | 84% |
| B- | < 84% | to | 80% |
| C+ | < 80% | to | 77% |
| C | < 77% | to | 74% |
| C- | < 74% | to | 70% |
| D+ | < 70% | to | 67% |
| D | < 67% | to | 64% |
| D- | < 64% | to | 61% |
| E | < 61% | to | 0% |

*Note: the IA minor courses must be completed with a minimum grade of C and no S-U. For additional information on UF grade policies see: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

## Intellectual Property

The Office of Technology Licensing http://www.research.ufl.edu/otl/ is available to assist students for copywriting and licensing of an original idea. They can also assist in releasing those rights to the owner if and when it is applicable. To further understand University of Florida intellectual property policies you may access it here: http://www.research.ufl.edu/otl/pdf/ipp.pdf

## Accommodations for Disabilities

Students with disabilities who experience learning barriers and would like to request accommodations should connect with the Disability Resource Center in Reid Hall by visiting (https://disability.ufl.edu/students/get-started/).  The DRC will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or

taking the quizzes or exams. Accommodations are not retroactive; therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

## Technology Support

If you have any technical issues, including issues with Canvas in e-learning, 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 UFIT** 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

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 several 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 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 WELLNESS RESOURCES

| U Matter, We Care | Counseling & Wellness | SARS Sexual Assault Recovery Services | UF Police Department |
|---|---|---|---|
| If you or a friend is in distress, contact umatter@ufl.edu or 352 392- 1575 | www.counseling.ufl.edu, 392-1575 Student Health Care Center: 352-1161 | Student Health Care Center: 392-1161 | Call: 392-1111 or 9-1-1 for emergencies http://www.police.ufl.edu/ |

Your well-being is important to UF. 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 emergency call 9-1-1.

# 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, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. http://teachingcenter.ufl.edu/ |
| Writing Studio | | Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. http://writing.ufl.edu/writing-studio/ |

Original file: IDS 1940 Creativity and Design Thinking for Innovation Spring 2021 rev.pdf

## IDS 1940 Course Schedule**

*Refer to Canvas for due dates/times for assignments and any updates.*

| WK | DATE | TOPICS | DUE FOR THIS CLASS |
|---|---|---|---|
| 1 | 1/4 1/8 | ***IA Way Design Thinking Phase: DISCOVER***<br>• Course Introduction<br>• Get-to-know-you activities<br>• Syllabus Overview<br>• Intro to 21st Century Skillset<br>• Define innovation<br>• Overview of Design thinking<br>• **Focus: Research**<br>• Intro to Laser/Hand tools/ Sustainable Prototyping<br>• Intro to Topic: The Brain (Gator Good) – Initial Research | • Purchase the textbook, Arduino kit*, sketchbook, post-its, & dry erase marker<br><br><br><br><br><br>*with TA consult |
| 2 | 1/11-1/15 | • ***IA Way Design Thinking Phase: PERCEIVE***<br>• Design nametag/stand<br>• Hands-on Prototyping<br>• Good Prototyping Practices<br>•Human-centered research for topic: The Brain<br>• Assign Teams | • Reading & Multimedia in Canvas – Have all tutorials up to this point completed<br>• Nametag/stand file due to TAs by 11:59pm<br>• Kelley Chapters 1-4<br>• Research: The Brain |
| 3 | 1/18-1/22 | • ***IA Way Design Thinking Phase: IDEATE***<br>• **INDIVIDUAL PRESENTATIONS**<br>•Ideate concepts for topic: The Brain<br>• Design thinking with team<br>•Intro to Fusion 360/3-D Modeling | • *Remember to pick up your nametag/stand from the TAs 2 days prior to this class*<br>• Fusion 360 TA check-in<br>• Reading & Multimedia in Canvas<br>• **Individual Innovative Sustainable Prototype and Pitch (with nametag)**<br>• Kelley Chapters 5-6<br>• Ask the Experts: The Brain |
| 4 | 1/25-1/29 | • ***IA Way Design Thinking Phase: MAKE***<br>• Making/Prototype<br>• Teamwork | • 11:59pm deadline to submit Laser cut file to TA for final team project (optional)<br>• Reading & Multimedia in Canvas/Fusion 360 tutorials<br>• Kelley Chapters 7-8 |

| | | | |
|---|---|---|---|
| 5 | 2/1-2/5 | • *IA Way Design Thinking Phase:* CONNECT/PITCH<br>• **TEAM PITCH – Sustainable Prototype/The Brain**<br>• Prep for next week | • Reading & Multimedia in Canvas/Fusion 360 tutorials<br>• **Final Team Pitch and Presentation**<br>•**Speaker Series 1 – TBA** |
| 6 | 2/8-2/12 | • *IA Way Design Thinking Phase:* **DISCOVER**<br>• **Focus: Interviews**<br>• Overview Fusion 360/3-D Modeling<br>• Intro to topic: Industry Problem<br>• Initial Research for Industry Problem | • Reading & Multimedia in Canvas/Fusion 360 tutorials<br>• TA check-in for Arduino kit deadline (check Canvas) |
| 7 | 2/15-2/19 | • *IA Way Design Thinking Phase:* **PERCEIVE**<br>• Human-centered research for topic: Industry Problem | • Reading & Multimedia in Canvas/Fusion 360 tutorials<br>• Research: Industry Problem |
| 8 | 2/22-2/26 | • *IA Way Design Thinking Phase:* **IDEATE**<br>• **INDIVIDUAL PRESENTATIONS**<br>• Introduce Arduino Tutorials | • Reading & Multimedia in Canvas<br>• **Individual Innovative 3-D Prototype and Pitch**<br>• Ask the Experts: Industry Problem |
| 9 | 3/1-3/5 | • *IA Way Design Thinking Phase:* **MAKE**<br>• Making/Prototype | • Reading & Multimedia in Canvas<br>• Deadline to submit file to Marston 3-D lab<br>• Complete Arduino Lessons listed in Canvas |
| 10 | 3/8-3/12 | *SPRING BREAK* | |
| 11 | 3/15-3/19 | • *IA Way Design Thinking Phase:* **CONNECT/PITCH**<br>• **TEAM PITCH - 3D Model/Industry Problem** | • Reading & Multimedia in Canvas<br>• **Final Team Pitch and Presentation**<br>• Complete Arduino Lessons listed in Canvas |

| 12 | 3/22-3/26 | • *IA Way Design Thinking Phase: DISCOVER*<br>• **Focus: Ideation**<br>• Intro to Internet of Things/Arduino<br>• Intro to topic: By Major Team<br>• Initial Research for Major-related problem | • Reading & Multimedia in Canvas<br>• **REMINDER: Speaker Series 2 (Pitch Competition) – next week (TBA)**<br>• Complete Arduino Lessons listed in Canvas<br>• Research: Major-related Problem |
|---|---|---|---|
| 13 | 3/29-4/2 | • *IA Way Design Thinking Phase: PERCEIVE*<br>• Prototyping with Arduino<br> - Build and modify<br>•Human-centered research for topic: Major-related problem | • Bring Arduino kit and laptop to class<br>• Reading & Multimedia in Canvas<br>• **Speaker Series 2 (Pitch Competition) – This week (TBA)**<br>• Ask the Experts: Major-related Problem |
| 14 | 4/5-4/9 | • *IA Way Design Thinking Phase: IDEATE/MAKE*<br>• **INDIVIDUAL PRESENTATIONS**<br>• Ideate concepts for topic: Major-related problem<br>• Design thinking with group<br>• Making/Prototype<br>• Teamwork | • **Individual Innovative Arduino Prototype and Pitch**<br>• Bring Arduino kit and laptop to class<br>• Reading & Multimedia in Canvas |
| 15 | 4/12-4/16 | • *IA Way Design Thinking Phase: CONNECT/PITCH*<br>• **TEAM PITCH – Arduino/Major-related problem**<br>• Course evaluations and wrap-up | • **Final Team Pitch and Presentation**<br>• Reading & Multimedia in Canvas<br>• Bring laptop to class |

| **Participation grade based on the following:** |
| :--- |

Attendance

Active Participation in class (initiating discussions; providing feedback on pitches, presentations, and prototypes to individuals and teams; being engaged in class)

Technical Skill check-ins with Technical Assistants

Peer Evaluations for each team challenge – sample:

# Team Peer Evaluation for Arduino Project - Spring 2020

Q1 Add all of your team members' names in the column, including yourself.  Rate the overall LEVEL OF CONTRIBUTION to your Arduino Team Project for each team member (again, including yourself).

|  | None (1) | A Little (2) | Some (3) | A Lot (4) | Significant Contribution (5) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| **YOUR NAME** (1) | ○ | ○ | ○ | ○ | ○ |
| Team Member 2 (2) | ○ | ○ | ○ | ○ | ○ |
| Team Member 3 (3) | ○ | ○ | ○ | ○ | ○ |
| Team Member 4 (4) | ○ | ○ | ○ | ○ | ○ |
| Team Member 5 (if applicable) (7) | ○ | ○ | ○ | ○ | ○ |

Q2 What is one significant success that your team had?

_____

Q3 What is one significant challenge your team had?

_____

Q4 List at least 3 specific deliverables that YOU personally feel you contributed to this project and your team.

_____

Q5 If you had the opportunity to do this project over, what might you do differently next time?

_____

Q6 Is there anything else you'd like your professor to know about the project process, the project outcome, or your experience of working with your team?

_____

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**Technical Skills Development Rubric**

**ADOBE ILLUSTRATOR/LASER CUTTING**: See Laser Cut Name Tag and Stand directions in Canvas assignment.

**Name tag stand:**
- Must be free-standing
- Must consist of at least two attached pieces. Name tag does not count.
- Must share a cohesive aesthetic with the name tag.

**FUSION 360**: When you have competed the hands-on portion in Fusion 360, do a full-screen screen capture. <u>Save each screen capture with your last name and the lesson number.</u> *(Use Google to find instructions making screen captures on your device. Photographs of your screen will not be accepted.)* These screenshots are the evidence you will upload in Canvas after completing each tutorial.

**ARDUINO:** For each lesson in the Arduino Tutorials PDF, you must read all content, complete all instructions, build the circuit in the tutorial and troubleshoot the circuit until it works correctly.

**ADOBE ILLUSTRATOR/LASER CUTTING, ARDUINO, FUSION 360:**

*Note: All submissions must be named with student last name and the lesson number. Submissions that do not meet this requirement will be marked Incomplete without comment.*

**Grading note:** This assignment is graded based on a **Complete/Incomplete grading scheme**. 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.

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**Challenge Rubric**

Each Challenge is comprised of 5 components:

Research Assignment (100 pts)

Ask the Experts Assignment (100 pts)

Individual Prototype and Pitch (300 pts)

**Individual Sustainable Prototype Pitch/Presentation Sp. 2020**
You've already rated students with this rubric. Any major changes could affect their assessment results.

| Criteria | Ratings | | Pts |
|---|---|---|---|
| Photograph of prototype in proper file format | 50.0 pts Full Marks | 0.0 pts No Marks | 50.0 pts |
| Slide with all elements and in proper format | 100.0 pts Full Marks | 0.0 pts No Marks | 100.0 pts |
| Assignment submitted on time | 20.0 pts Full Marks | 0.0 pts No Marks | 20.0 pts |
| FFB Pitch | 100.0 pts Full Marks | 0.0 pts No Marks | 100.0 pts |
| Prototype addressed current problem with a novel solution | 30.0 pts Full Marks | 0.0 pts No Marks | 30.0 pts |
| | | | Total Points: 300.0 |

Content Accountability (100 pts)

Final Team Pitch and Presentation (500 pts)

**Final Team Prototype Challenge #1 - Spring 2020**
You've already rated students with this rubric. Any major changes could affect their assessment results.

| Criteria | Ratings | | Pts |
|---|---|---|---|
| Final Refined Prototype | 200.0 pts Full Marks | 0.0 pts No Marks | 200.0 pts |
| Team presentation and pitch of prototype | 100.0 pts Full Marks | 0.0 pts No Marks | 100.0 pts |
| Design Thinking Scroll - DT Documentation | 150.0 pts Full Marks | 0.0 pts No Marks | 150.0 pts |
| Final Power Point Brief - 1 slide | 50.0 pts Full Marks | 0.0 pts No Marks | 50.0 pts |
| | | | Total Points: 500.0 |

# IDS 1940
# Creativity and Design Thinking for Innovation

## 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 SUSTAINABLE, LASER- CUT, 3D, & ARDUINO PROTOTYPES |
|---|---|---|---|
| ● Define creativity<br>● Demonstrate problem-finding skills<br>● Effectively utilize research skills<br>● Recognize mindsets & barriers to creativity in individuals and teams | ● Examine perceptions of personal creative ability<br>● Demonstrate use of 21st century skillset<br>● Demonstrate empathy in the design thinking process | ● Define the design thinking process<br>● Apply creative thinking tools to design thinking<br>● Develop novel & valuable innovations individually and with interdisciplinary teams | ● Become oriented to the 3D printing, laser cutting, and Arduino software and hardware<br>● Practice the iteration process<br>● Create prototypes<br>● Pitch ideas |

# Course Policies

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

ELEGOO UNO R3 Project Most Complete Starter Kit w/Tutorial Compatible with Arduino IDE (63 Items) by ELEGOO; Direct
Link: https://www.amazon.com/dp/B01CZTLHGE/ref=cm_sw_em_r_mt_dp_U_cX57DbQNVQB8B
*You MUST ensure you have the correct Arduino kit with a TA prior to use. This can be ordered via Amazon; there may be some available in the UF Bookstore as well.*

**Required Supplies**

- An Idea Book for brainstorming, diagramming, & ideas (no smaller than 5"x 8" & unlined)
- One 3"X 3" post-it notepad
- At least one dry-erase marker
- Students must have Autodesk account for Fusion 360 (student account is free) and access to Arduino tutorials via CD or web.
- 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**

**Attendance** is part of the participation grade and is expected for this course. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx . Missed work for approved absences must be made up within a timely fashion. If students miss class for an unexcused reason, they should obtain course material & assignments from another class member. Students should also notify the instructor via email.

**Participation**

**Participation** in & outside of class helps students make the most of their IA experience. Participation is defined as coming to class well-prepared, having fully completed the assigned modules including readings, tutorials, videos, etc.; initiating and contributing to relevant discussions; providing and receiving constructive feedback; synthesizing and applying course material; consulting with Technical Assistants and engaging with peers in self-directed learning; participating in the speaker series; and modeling good classroom citizenship. This experiential class requires active dialogue, small group work, and hands-on-exercises to facilitate the learning process. Texting, web surfing, or using electronics for non-course related activities are not acceptable during class. 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.

**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. Check the "clutter" inbox in the UF email system to make sure course emails are not being incorrectly marked. Please utilize Canvas e-mail to communicate with instructors and read Canvas Announcements when they are posted.

## 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 or 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:**

| | |
|---|---|
| Active Class Participation | 20% |
| Technical Skills Development | 20% |
| Challenge 1 | 20% |
| Challenge 2 | 20% |
| Challenge 3 | 20% |

| 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: the IA minor courses must be completed with a minimum grade of C and no S-U. For additional information on UF grade policies see:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

## Intellectual Property

The Office of Technology Licensing http://www.research.ufl.edu/otl/ is available to assist students for copywriting and licensing of an original idea. They can also assist in releasing those rights to the owner if and when it is applicable. To further understand University of Florida intellectual property policies you may access it here:
http://www.research.ufl.edu/otl/pdf/ipp.pdf

## Accommodations for Disabilities

Students with disabilities who experience learning barriers and would like to request accommodations should connect with the Disability Resource Center in Reid Hall by visiting (https://disability.ufl.edu/students/get-started/).  The DRC will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive; therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

## Technology Support

If you have any technical issues, including issues with Canvas in e-learning, 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 UFIT** 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

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 several

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 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 WELLNESS RESOURCES

| U Matter, We Care | Counseling & Wellness | SARS Sexual Assault Recovery Services | UF Police Department |
|---|---|---|---|
| If you or a friend is in distress, contact umatter@ufl.edu or 352 392- 1575 | www.counseling.ufl.edu, 392-1575 Student Health Care Center: 352-1161 | Student Health Care Center: 392-1161 | Call: 392-1111 or 9-1-1 for emergencies http://www.police.ufl.edu/ |

Your well-being is important to UF. 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 emergency call 9-1-1.

# 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, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. http://teachingcenter.ufl.edu/ |
| Writing Studio | | Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. http://writing.ufl.edu/writing-studio/ |

# IDS 1940 Course Schedule**

*Refer to Canvas for due dates/times for assignments and any updates.*

| WK | DATE | TOPICS | DUE FOR THIS CLASS |
|---|---|---|---|
| 1 | 1/4 1/8 | ***IA Way Design Thinking Phase: DISCOVER***<br>• Course Introduction<br>• Get-to-know-you activities<br>• Syllabus Overview<br>• Intro to 21st Century Skillset<br>• Define innovation<br>• Overview of Design thinking<br>• **Focus: Research**<br>• Intro to Laser/Hand tools/ Sustainable Prototyping<br>• Intro to Topic: The Brain (Gator Good) – Initial Research | • Purchase the textbook, Arduino kit*, sketchbook, post-its, & dry erase marker<br><br><br><br><br><br><br>*with TA consult |
| 2 | 1/11-1/15 | • ***IA Way Design Thinking Phase: PERCEIVE***<br>• Design nametag/stand<br>• Hands-on Prototyping<br>• Good Prototyping Practices<br>•Human-centered research for topic: The Brain<br>• Assign Teams | • Reading & Multimedia in Canvas – Have all tutorials up to this point completed<br>• Nametag/stand file due to TAs by 11:59pm<br>• Kelley Chapters 1-4<br>• Research: The Brain |
| 3 | 1/18-1/22 | • ***IA Way Design Thinking Phase: IDEATE***<br>• **INDIVIDUAL PRESENTATIONS**<br>•Ideate concepts for topic: The Brain<br>• Design thinking with team<br>•Intro to Fusion 360/3-D Modeling | • *Remember to pick up your nametag/stand from the TAs 2 days prior to this class*<br>• Fusion 360 TA check-in<br>• Reading & Multimedia in Canvas<br>• **Individual Innovative Sustainable Prototype and Pitch (with nametag)**<br>• Kelley Chapters 5-6<br>• Ask the Experts: The Brain |
| 4 | 1/25-1/29 | • ***IA Way Design Thinking Phase: MAKE***<br>• Making/Prototype<br>• Teamwork | • 11:59pm deadline to submit Laser cut file to TA for final team project (optional)<br>• Reading & Multimedia in Canvas/Fusion 360 tutorials<br>• Kelley Chapters 7-8 |

| 5 | 2/1-2/5 | • *IA Way Design Thinking Phase:* CONNECT/PITCH<br>• **TEAM PITCH – Sustainable Prototype/The Brain**<br>• Prep for next week | • Reading & Multimedia in Canvas/Fusion 360 tutorials<br>• **Final Team Pitch and Presentation**<br>•**Speaker Series 1 – TBA** |
|---|---|---|---|
| 6 | 2/8-2/12 | • *IA Way Design Thinking Phase: DISCOVER*<br>• **Focus: Interviews**<br>• Overview Fusion 360/3-D Modeling<br>• Intro to topic: Industry Problem<br>• Initial Research for Industry Problem | • Reading & Multimedia in Canvas/Fusion 360 tutorials<br>• TA check-in for Arduino kit deadline (check Canvas) |
| 7 | 2/15-2/19 | • *IA Way Design Thinking Phase: PERCEIVE*<br>• Human-centered research for topic: Industry Problem | • Reading & Multimedia in Canvas/Fusion 360 tutorials<br>• Research: Industry Problem |
| 8 | 2/22-2/26 | • *IA Way Design Thinking Phase: IDEATE*<br>• **INDIVIDUAL PRESENTATIONS**<br>• Introduce Arduino Tutorials | • Reading & Multimedia in Canvas<br>• **Individual Innovative 3-D Prototype and Pitch**<br>• Ask the Experts: Industry Problem |
| 9 | 3/1-3/5 | • *IA Way Design Thinking Phase: MAKE*<br>• Making/Prototype | • Reading & Multimedia in Canvas<br>• Deadline to submit file to Marston 3-D lab<br>• Complete Arduino Lessons listed in Canvas |
| 10 | 3/8-3/12 | *SPRING BREAK* | |
| 11 | 3/15-3/19 | • *IA Way Design Thinking Phase: CONNECT/PITCH*<br>• **TEAM PITCH - 3D Model/Industry Problem** | • Reading & Multimedia in Canvas<br>• **Final Team Pitch and Presentation**<br>• Complete Arduino Lessons listed in Canvas |

| 12 | 3/22-3/26 | • *IA Way Design Thinking Phase: DISCOVER* <br> • **Focus: Ideation** <br> • Intro to Internet of Things/Arduino <br> • Intro to topic: By Major Team <br> • Initial Research for Major-related problem | • Reading & Multimedia in Canvas <br> • **REMINDER: Speaker Series 2 (Pitch Competition) – next week (TBA)** <br> • Complete Arduino Lessons listed in Canvas <br> • Research: Major-related Problem |
|---|---|---|---|
| 13 | 3/29-4/2 | • *IA Way Design Thinking Phase: PERCEIVE* <br> • Prototyping with Arduino <br>  - Build and modify <br> •Human-centered research for topic: Major-related problem | • Bring Arduino kit and laptop to class <br> • Reading & Multimedia in Canvas <br> • **Speaker Series 2 (Pitch Competition) – This week (TBA)** <br> • Ask the Experts: Major-related Problem |
| 14 | 4/5-4/9 | • *IA Way Design Thinking Phase: IDEATE/MAKE* <br> • **INDIVIDUAL PRESENTATIONS** <br> • Ideate concepts for topic: Major-related problem <br> • Design thinking with group <br> • Making/Prototype <br> • Teamwork | • **Individual Innovative Arduino Prototype and Pitch** <br> • Bring Arduino kit and laptop to class <br> • Reading & Multimedia in Canvas |
| 15 | 4/12-4/16 | • *IA Way Design Thinking Phase: CONNECT/PITCH* <br> • **TEAM PITCH – Arduino/Major-related problem** <br> • Course evaluations and wrap-up | • **Final Team Pitch and Presentation** <br> • Reading & Multimedia in Canvas <br> • Bring laptop to class |