A-I 285 Syllabus

August 25, 2025

A-I 285 Experiential Learning Skills

Questions?

If you have any questions or concerns about this course and how it will work , you can meet with me -- please email me at djf3@psu.edu to set up a time to meet on Zoom.

Description

This course offers students an immersive environment where they can hone their technical abilities, develop soft skills, and prepare for the multifaceted challenges they will face when they engage in experiential learning through internships, co-ops, research projects, challenges, and capstone projects. Students may collaborate in multidisciplinary teams to research, propose and implement solutions for problems in diverse fields such as healthcare, business, agriculture, media, and defense, using artificial intelligence and machine learning technologies. To enhance the learning experience, this course will incorporate interactions with AI professionals and alumni working in the field furthering professional communication skills. Students will be encouraged to submit their ideas and solutions developed in this course to a wider array of experiential learning initiatives and outreach programs within the artificial intelligence domain. Students will also receive guidance on securing internships, including participating in mock interviews, learning workplace etiquette, and setting learning goals for their internship experience.

Prerequisites

- None

Objectives

- Discover opportunities for applying AI to solve practical problems with social impact
- Develop literacy in AI concepts, tools, and applications relevant to students' degree interests
- Apply customer discovery techniques to define user needs and validate ideas
- Generate innovative AI solution concepts
- Design and develop functional AI prototypes through rapid prototyping methodologies
- Evaluate the technical feasibility, economic viability, and social impact of AI solutions
- Analyze ethical implications including bias, fairness, and privacy considerations
- Effectively communicate AI concepts and demonstrate prototype functionality
- Develop professional skills including working with others as resources, project management, and interview preparation

Instructor

Dr. David J. Fusco
Associate Teaching Professor
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Office Hours: BY APPT

https://psu.zoom.us/my/davefusco

Materials

https://nittanyai.psu.edu/alliance-programs/nittany-ai-challenge/

https://ist.psu.edu/current-students/current-undergraduate-students/academic-advising/special-courses/a-i-285-experiential-learning-skills-lab

Assignments & Grading

Course Grading Scale

The following are minimum cutoffs for each grade:

- 93% = A
- 90% = A-
- 87% = B+
- 83% = B
- 80% = B-
- 77% = C+
- 70% = C
- 60% = D
- less than 60% = F

Course Policies and Expectations

Attendance
Attendance is expected.

Use of AI

It is permissible to use whatever form of AI, GenAI, or tools in this course with the exception of written reflection submissions. You may use a GenAI tool to help you write a reflection, but it is not permissible to just copy/paste responses from a given tool.

Ethical Use of Course Content

The content provided in this course can be used for educational purposes to understand AI concepts and techniques. It can also be used for nefarious purposes. Students are expected to use the course content for their own edification only and shall not apply this knowledge except in the classroom, on specific systems (such as the virtual lab) and only for the purposes defined by the instructor.

Any use of the course's content that is performed without expressed, written permission of the system's owner may be in violation of Penn State University policies as well as local, state and federal laws. The instructor will cooperate fully with all university investigations and the requests of all law enforcement agencies in investigations against students in the course.

Late Work

Late work is unacceptable in the "real world". A due date is a due date. However, I will accept work late, but I will assess a penalty of 10% for each day the work is turned in late, to a maximum of 7 days. After 7 days, the "key" or right answers will be posted, and no late work will be accepted after that point. Submit the late work to the correct submission location on Canvas and email in the instructor/TA so that we know it's there.

Use of Canvas

Students are expected to login regularly to check for course updates, announcements, emails, discussions, etc. Students are expected to use Canvas for all course email communication. Students are instructed to NOT email the instructor or teaching assistant(s) directly.

Technical Requirements

You will be required to utilize a number of technical systems to accomplish your goals in this course. All required hardware and software will be made available to you on the computers in the classrooms in the on campus and through our virtual systems. It may be possible for you to also accomplish some of these tasks remotely and **from your own computer**. However, it is not the responsibility of the instructor or TA to troubleshoot your computer, your home network or your software problems. If you have difficulty that you are not able to resolve, please use the systems provided for you in the classroom.

Course and University Policies

Academic Integrity

Penn State and the College of Information Sciences and Technology are committed to maintaining Penn State's policy on Academic Integrity. in this and all other courses. We take academic integrity matters seriously and expect you to become a partner to the University/College standards of academic excellence.

For more information, please review these policies and procedures:

- College of IST Academic Integrity Resources.

WARNING: In addition to other policies, using any material in any media format - from "answer sites" (such Course Hero, Chegg, and all others) and/or other type of sources - is considered CHEATING and will not be tolerated. Sanctions range from failure of the assignment or course to dismissal from the University. Contact your instructor with questions related to this topic.

Copyright Statement

All course materials students receive or to which students have access are protected by copyright laws. FOR COURSES IN WHICH THEY HAVE PREVIOUSLY BEEN OR ARE CURRENTLY ENROLLED, students may use course materials and make copies for their own use as needed, but unauthorized distribution and/or uploading of materials without the instructor's express permission is strictly prohibited. Policy AD 40. (Recording of Classroom Activities and Note Taking Services) addresses this issue. Students who engage in the unauthorized distribution of copyrighted materials may be held in violation of the University's Code of Conduct, and/or liable under Federal and State laws.

Policy on Students with Disabilities

Penn State welcomes students with disabilities into the University's educational programs. Every Penn State campus has an office for students with disabilities. The Student Disability Resources (SDR) website provides contact information for every Penn State campus: http://equity.psu.edu/sdr/campus-contacts. For further information, please visit Student Disability Resources: http://equity.psu.edu/sdr.

In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: http://equity.psu.edu/sdr/guidelines. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with an accommodation letter. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. You must follow this process for every semester that you request accommodations.

COUNSELING AND PSYCHOLOGICAL SERVICES

Many students at Penn State face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

Counseling and Psychological Services at University Park (CAPS).
(http://studentaffairs.psu.edu/counseling/): 814-863-0395

Counseling and Psychological Services at Commonwealth Campuses. Penn State Crisis Line (24 hours/7 days/week): 877-229-6400
Crisis Text Line (24 hours/7 days/week): Text LIONS to 741741

Educational Equity and Reporting Bias

Penn State University has adopted a "Protocol for Responding to Bias Motivated Incidents." that is grounded in the policy that the "University is committed to creating an educational environment which is free from intolerance directed toward individuals or groups and strives to create and maintain an environment that fosters respect for others." That policy is embedded within an institution traditionally committed to
academic freedom. Bias motivated incidents include conduct that is defined in University Policy AD 91: Discrimination and Harassment, and Related Inappropriate Conduct. Students, faculty, or staff who experience or witness a possible bias motivated incident are urged to report the incident immediately by doing one of the following:

* Submit a report via the Report Bias webpage.
* Contact one of the following offices:

University Police Services, University Park: 814-863-1111
Multicultural Resource Center, Diversity Advocate for Students: 814-865-1773
Office of the Vice Provost for Educational Equity: 814-865-5906
Office of the Vice President for Student Affairs: 814-865-0909
Affirmative Action Office: 814-863-0471

* Dialing 911 in cases where physical injury has occurred or is imminent

Emergency Notifications

PSUAlert is available at https://psualert.psu.edu/. PSUAlert is Penn State's emergency notification system for students, faculty and staff. The system will be used to alert members of Penn State's campus communities of emergencies, campus closings and other urgent information. Using this portal, students, faculty and staff can choose to receive PSUAlert messages by text message, voice message and e-mail.

Right to Make Modifications and Changes

This syllabus is subject to change. Please check this page periodically for updates. Major changes will be announced in class as well.

Class Overview

Weeks 1–5 – Phase 1: Preparation & Customer Discovery

Week 1

- **Tue:** *Course Introduction & AI for Good Overview*
  - Lecture: Nittany AI Challenge structure, examples of past winners, AI for Good pillars.
  - Activity: Students pick a pillar area in a shared Google Sheet and brainstorm 3 problem ideas in breakout rooms.
- **Thu:** *Understanding Social Impact Problems*
  - Lecture: Characteristics of impactful problems, criteria for selection.
  - Activity: Small-group Miro board session to refine one problem idea and share back to class.

Week 2

- **Tue:** *Customer Discovery Foundations*
  - Lecture: Personas, empathy maps, jobs-to-be-done framework.
  - Activity: Students draft a persona for their idea using a template in Google Docs.
- **Thu:** *Empathy Mapping Deep Dive*
  - Lecture: How to capture user emotions, thoughts, actions.
  - Activity: Students create a full empathy map and present in breakout pairs for peer feedback.

Week 3

- **Tue:** *Problem Framing & "How Might We" Statements*
  - Lecture: Reframing problems to open up solutions.

    - Activity: Students write 3 "How Might We" statements in Padlet and vote on the most compelling.
- **Thu:** *Value Proposition Design*
    - Lecture: Lean Canvas basics, value proposition statements.
    - Activity: Students fill out the Value Proposition Canvas for their problem in breakout groups.

Week 4

- **Tue:** *Intro to AI Tools & Platforms*
    - Lecture: AWS, GCP, Azure, Watson, OpenAI — capabilities and limitations.
    - Activity: Students explore a free AI tool (e.g., ChatGPT, Hugging Face Spaces) live and share possible uses.
- **Thu:** *Hands-On AI Tool Play*
    - Lecture: Case studies of challenge projects' tool use.
    - Activity: Students create a quick proof-of-concept using their chosen tool and demo in 2-minute screen shares.

Week 5

- **Tue:** *Customer Validation Planning*
    - Lecture: Designing interviews, surveys, and usability studies.
    - Activity: Students draft 5–10 validation questions in Google Docs, share, and refine via peer feedback.
- **Thu:** *Conducting Mock Customer Interviews*
    - Lecture: Active listening, note-taking, and probing questions.
    - Activity: Breakout room mock interviews (students interview each other as target users) and summarize findings.

Weeks 6–9 – Phase 2: Prototype Design & Presentation

Week 6

- **Tue:** *Low-Fidelity Prototyping*
    - Lecture: Sketches, wireframes, storyboards.
    - Activity: Students sketch their idea on paper or Figma Jamboard and share via webcam or screenshot.
- **Thu:** *Storyboarding User Journeys*
    - Lecture: Mapping steps from user entry to goal completion.
    - Activity: Students create a 6-frame storyboard for their solution.

Week 7

- **Tue:** *Feedback Loops & Iteration*
  - Lecture: Why iteration matters, rapid feedback cycles.
  - Activity: Peer review session — students swap wireframes and leave comments.
- **Thu:** *Refining Wireframes into Clickable Prototypes*
  - Lecture: Tools like Figma, Balsamiq, Marvel.
  - Activity: Students build a clickable flow for at least one feature.

Week 8

- **Tue:** *Prototype Technical Foundations*
  - Lecture: Connecting front-end to AI back-end (at a high level).
  - Activity: Walkthrough of a simple API integration; students adapt to their concept.
- **Thu:** *Prototype Showcase Practice*
  - Lecture: Elements of a compelling demo.
  - Activity: Students record a 2-minute Zoom screen-share prototype walkthrough.

Week 9

- **Tue:** *Pitch Structure & Storytelling*
  - Lecture: Problem → Solution → Impact → Ask.
  - Activity: Students draft a pitch outline and get peer feedback in breakout rooms.
- **Thu:** *Prototype Pitch Dry Run*
  - Lecture: Tips for remote presentations.
  - Activity: Students deliver 3-minute prototype pitches to breakout groups.

Weeks 10–14 – Phase 3: MVP Development

Week 10

- **Tue:** *Defining MVP Scope*
  - Lecture: MoSCoW prioritization (Must/Should/Could/Won't).
  - Activity: Students prioritize their features and submit a roadmap.
- **Thu:** *Technical Build Planning*
  - Lecture: Task breakdown, timelines, risk planning.
  - Activity: Students create a Trello board or Notion plan for MVP build.

Week 11

- **Tue:** *Core Feature Development*
  - Lecture: Minimal data pipelines, working prototypes with limited scope.
  - Activity: Students implement one functional feature and screen share progress.
- **Thu:** *Integrating AI Functionality*
  - Lecture: Using prebuilt AI models and APIs.
  - Activity: Students integrate one AI feature into their MVP.

Week 12

- **Tue:** *User Testing for MVP*
  - Lecture: Remote testing tools, test scripts.
  - Activity: Students run a short usability test with a peer and report results.
- **Thu:** *Analyzing Test Feedback*
  - Lecture: How to synthesize and prioritize fixes.
  - Activity: Students list 3 improvements to implement before final demo.

Week 13

- **Tue:** *Refining UX & Polishing*
  - Lecture: Accessibility, performance, and UI refinements.
  - Activity: Students audit their MVP with a quick heuristic checklist.
- **Thu:** *Final MVP Prep*
  - Lecture: Finalizing presentation assets.
  - Activity: Students rehearse their MVP demo in breakout rooms.

Week 14

- **Tue:** *Final MVP Demos – Part 1*
  - Activity: Half the class presents final 5-minute demos, peer + instructor feedback.
- **Thu:** *Final MVP Demos – Part 2*
  - Activity: Remaining students present; peer + instructor feedback.

Week 15 – Wrap-Up & Future Steps

- **Tue:** *Reflecting on the Journey*
    - Lecture: Lessons learned from idea to MVP.
    - Activity: Students write a short reflection and share in breakout rooms.
- **Thu:** *From MVP to Phase 4*
    - Lecture: How to prepare for Pitch Contest & next opportunities.
    - Activity: Students create a 90-second “elevator pitch” video for their MVP.