

San José State University
Computer Science Department
Computer Science 185C: Technical Entrepreneurship Bootcamp - Fall 2023

Course and Contact Information

Instructor:	Ray Combs (CS)
Office Location:	TBD
Email:	ray.combs@SJSU.edu
Office Hours:	Mr. Combs: TBD – contact info presented in class
Class Days/Time:	Tue & Thur 3:00-4:15 pm
Classroom:	McQuarry Hall, Rm 422
Prerequisites:	CS 46B (with a grade of "C-" or better) or instructor consent.

Course Description (40 word count)

An introductory course and teams-based approach to technical entrepreneurship with a focus on learning-by-doing, that is, students will be analyzing market needs, writing plans, pitching their ideas to others and programming rudimentary mockups throughout the course.

Course Description (100 word count)

An introductory course and teams-based approach to technical entrepreneurship with a focus on learning-by-doing, that is, students will be analyzing market needs, writing plans, pitching their ideas to others and programming rudimentary mockups throughout the course. This class will take students of various levels (undergrads and grads) and guides cross-functional teams to work together to come up with a new product or service that solves a real-world problem. After doing market research and technical research using interviews and mockups on their potential solutions, teams then pitch their business idea to seasoned entrepreneurs.

Course Notes

This course introduces the various facets of technical entrepreneurship, including developing your own entrepreneurial mindset, how to be a successful contributor in a cross-functional team environment, how to capture and communicate your ideas within a larger organization, how to discover your own passion for a solution to a problem. It also discusses the beginning tools in establishing your own startup one day.

Student Expectations

In order to build self-confidence, industry-desired professional skills, critical thinking skills and decision-making skills, students should expect to be put in situations out of their comfort zone. Students should expect to

work in close-knit teams, potentially from other technical or non-technical disciplines. In order to best mimic industry practices, cross-functional teams are highly encouraged.

Student Preparation Time and Study Time

Students can expect to spend 2-6 hours per week participating in extra-curricular discussions and working in “lab” sessions, i.e. researching their market, evaluating the technology for developing their project and writing high quality documentation and proposals. Each team will be expected to practice their pitching skills inside and outside of class in order to deliver persuasive and compelling proposals. Students will be expected to “get out of the building” for Customer Discovery assignments by performing interviews and research into potential customers and their needs. Also, Internet or library research in specific topics of discussion will be expected. For research on advanced topics, books or articles may be assigned for future group discussions. If time allows, guest speakers from industry will be invited to chat with the class via Zoom. Students will also be expected to research the occasional speaker and their background and be prepared to ask pertinent questions.

Course Format

Sessions will be a combination of lecture format and hands-on exercises throughout the semester.

Faculty Web Page and MYSJSU Messaging

Course materials, including the syllabus and assignments, can be found by logging onto the **Canvas webpage**. There, you should see the course listing with the link. You are responsible for regularly checking the messaging system through Canvas, as we will periodically post updates there. Please make sure that your email in the MySJSU system is the one you regularly check. This is the only email list we will use for correspondence. Instructors typically do not read or respond to Canvas mail. Please use our SJSU email addresses to get in touch with instructor directly.

Writing assignments must be uploaded to the Canvas course website where they will be analyzed for plagiarism by Turnitin.com. Submissions **MUST** be in Word .docx format.

Applicable Program Learning Objectives (Department of Computer Science)

- PLO 1:** Apply computing and math knowledge - An ability to apply knowledge of computing and mathematics to solve problems.
- PLO 3:** Design, implement, evaluate system, process, component, or program – An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
- PLO 6:** Communicate effectively – An ability to communicate effectively with a range of audiences.
- PLO 9:** Current techniques, skills, tools for computing – An ability to use current techniques, skills, and tools necessary for computing practice.
- PLO 10:** Tradeoffs in design choices – An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.

Course Learning Outcomes

Upon successful completion of this course, students will be able to:

CLO1: Students will demonstrate the ability to formulate hypotheses, use critical thinking skills and design prototypes to investigate a market need.

CLO2: Students will demonstrate professional, technical, business, and social competencies needed to deliver proposals and technical solutions within a variety of constraints.

CLO3: Students will demonstrate their ability to perform effective customer discovery and determine market viability of their proposed solution.

CLO4: Students will demonstrate their ability to create business plans and other documentation to communicate their proposed solution.

CLO5: Students will show an increase in their self-confidence and expand their understanding towards being a team leader while learning to be a significant adder to any team or situation they may be involved with in their career.

Required Texts/Readings

Textbook

None currently.

Other reading: Additional reading will be available on Canvas in the corresponding module.

Other technology requirements / equipment / material

Students must bring a charged wifi-enabled laptop computer to all in-person sessions.

Course Requirements and Assignments

Homework Assignments: Homework assignments will be posted with their due dates on Canvas and announced in class and on Canvas. All assignments must be uploaded to Canvas by the due date/time.

Late Assignments: No late homework will be accepted except by prior arrangement with the instructor or in cases of documented emergency.

Midterm Exam: There will be 1 midterm exam. The Midterm will include a presentation to the class of their proposed solution and will include slides on the team's proposed solution and their findings so far.

Term Project: Students will do a term project for their Final grade. Students in CS 185C must do a project that includes programming or development software / app programming tools. The Term Project includes a written report and an in-class presentation, as well as a reflection paper.

Final Exam: There will be no formal final exam. Instead, we will be meeting as a class to review the final set of project presentations. All students are expected to attend and provide real-time feedback of presentations. These classroom activities will be considered as part of the student's final grade.

Grading Information

Point allocation to assignments will be specific to the task. Point totals will vary. Generally, grades will be grouped as follows:

grouped as follows:

- Written plans, documents, slides and analysis papers, videos, homework. – 40%

- Creation of prototypes & mock-ups. – 10%
- Midterm: Explanation of your proposed solution. – 10%
- Team activities and team lab work, external research, and individual classroom activities (asking questions, providing feedback, etc.) – 15%
- Final presentation and communication of your solution – 20%
- Reflection paper. 5%

Total: 100%

Note – up to 5% extra credit may be issued for a submitted paper describing your claim for extra credit based on

- sweat equity (i.e. enlightenments through extra time spent on research or on lab work, or extra thorough research),
- resiliency or grit (i.e. continuing through adverse conditions or overcoming spectacular failure).

Grading Information

Course grades are awarded based on your individual performances and those of your team. Grades are based on your achievements in teamwork, your professional development and on your team’s written plans and formal presentations. For most assignments, a significant portion of your score is based on the quality of your communication (written & verbal) and on your analytical thinking. Points are assigned per assignment.

Rounding Rule: percentages of 0.5 and above will be rounded UP to the next whole number. Ex: 89.5 = 90%, therefore 89.4 = 89%.

Grading Information

At least	Letter Grade
93%	A
90%	A minus
87%	B plus
83%	B
80%	B minus
77%	C plus
72%	C
70%	C minus
67%	D plus
62%	D
60%	D minus
<60%	F

Writing Skills Test: Passage of the Writing Skills Test (WST) or ENGL/LLD 100A with a C or better (C- not accepted), and completion of Core General Education are prerequisites to all SJSU Studies courses. Completion of, or co-registration in, 100W is strongly recommended. A minimum aggregate GPA of 2.0 in GE Areas R, S, & V shall be required of all students.

Classroom Protocol

Participation and attendance: You are expected to attend and participate in every lecture. Missing class will make it more difficult for you to succeed in the course. If you have to miss a class for unforeseen circumstances or prior critical commitments, you must inform me before class, if possible, via email, and you must provide university approved documentation for your absence (i.e. doctor's note, graduation workshop attendance confirmation, etc.).

Cell phone and laptop use: The lectures are here for you to gain the foundational information you will need for this course. It is highly recommend putting down your cell phone and laptop and focusing on the lecture. You may choose to use your laptop for note taking, however, handwritten notes have proven to be most valuable for student success.

Academic Integrity: Students are expected to be familiar with the University's Student Conduct Code (<https://www.sjsu.edu/studentconduct/docs/SJSU-Student-Conduct-Code-2016.pdf>). Cheating, plagiarism, and other forms of misconduct will not be tolerated and will have severe consequences. All prose submitted must be in the student's own words. Text not composed by the student will not be accepted.

The penalty for the first incident of cheating or plagiarizing is zero points on the assignment or exam, and a reduction of a full grade point from the final letter grade (e.g. B minus becomes C minus). The penalty for the second incident is an F in the course.

University Policies

Per University Policy S16-9 (<http://www.sjsu.edu/senate/docs/S16-9.pdf>), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on Syllabus Information web page (<http://www.sjsu.edu/gup/syllabusinfo>), which is hosted by the Office of Undergraduate Education. Make sure to visit this page to review and be aware of these university policies and resources.

Themes of Instruction:

The major themes / phases for this course of study include:

1. Hypothesis Generation
2. Team Formation
3. Customer Discovery
4. Market Validation / Business Model
5. Technology Development
6. Customer Feedback
7. Solution Refinement
8. Presentations and Pitching

Computer Science 185C Fall 2023 Course Schedule

Note: Except for holidays and the final exam, dates/topics are approximate and are subject to change. Midterm exam changes will be announced in class and on Canvas at least 2 weeks in advance.

- **Assignments and Assessments, Sample Weekly Schedule:**
 - Week 1: Personal introductions, class overview, presentation skills.
 - **Assessment:** Give impromptu in-class verbal presentation introducing your neighbor.
 - Week 2: Team forming. Discussion on desirable Team Overlap. Discussions on entrepreneurship and the entrepreneurial mindset. Finding your passion and problem you want to solve.
 - **Assessment:** written paragraph on your team, your idea and problem you are solving.
 - Weeks 3-4: Customer discovery, customer empathy. Class discussions on techniques for Customer Discovery. Review “Start with Why” presentation. Engineering vs. non-Engineering efforts to create and launch a successful product solution. Discussions on Opportunities vs. Solutions.
 - **Assessment:** written hypothesis on target customer and their needs.
 - **Assessment:** written analysis on Simon Sinek’s presentation “Start with Why”
 - Weeks 5-6: Market research, customer interviews. Review of Adobe video.
 - **Assessment:** written page on newly discovered target customer and their needs.
 - **Assessment:** written analysis on Adobe, and how it got started.
 - **Assessment:** filled out Business Model Canvas for your business idea.
 - Week 7: Initial attempt at a solution and prototyping, gathering market feedback. Discussions on Interviewing Techniques. Discussions on Product / Market Fit and Founder / Market Fit. Discussions on “pivoting”.
 - **Assessment:** Present a mockup or prototype that conveys the idea of a solution to a principle need.
 - Week 8: Gathering market feedback. The Curiosity Zone (I. Leslie). Discussions on team discoveries so far. Finance and Financing basics. Discussions on Competition and Differentiation. Functionality and Minimum Viable Product (MVP). Discussions on Feature Satisfaction Curve. Discussions on the Law of Diffusion of Innovation (E. Rogers)
 - **Assessment:** written 1-page executive summary with descriptions of your solution.
 - **Assessment:** Initial slides of your proposed solution.
 - Week 9: Business models and rough financial analysis. Types of Intellectual Property (IP). Tangible vs. Intangible Value. Legal and ethical considerations. Three major risks of any project.
 - **Assessment:** Written documentation on financial analysis and proposed business model and financial plan.
 - **Assessment:** SWOT analysis comparing your solution to competition.
 - Week 10: Updated presentation of your business or product idea. Discussions on elevator pitching, evangelizing your idea. Discussions partnerships and platforms. Discussions on Phases of Adoption.
 - **Assessment:** presentation slides and verbal communication skills on how well you present your idea for a product or service.
 - Weeks 11-12: Refinement of your solution, based on market feedback, resource requirements, technical viability, etc. Discussions on techniques for project planning, resource scheduling, etc. Discussions on the Trough of Sorrow. Case study of Sony Google TV vs. Apple TV. Discussions on Market Potential.
 - **Assessment:** updated documentation on your business or product idea, including written business plan, technology / development plan, rough schedule, rough finances, etc. Includes slides to communicate your idea. Includes demonstrable presentation skills while presenting to potential partners or investors.

- **Assessment:** TAM / SAM / SOM chart, based on market research
- Weeks 13-14: preparation and practicing for final pitch / presentation. Continued Prototyping.
 - **Assessment:** Slides (homework) and in-class presentations.
- Week 15: Final pitch / presentation.
 - **Assessment:** Final Business plan document and slides, including the assimilation of collected data, along with in-class presentations.