San José State University
Computer Science Department
CS 185C Sec. 2: Technical Entrepreneurship Bootcamp - Fall 2024

Course and Contact Information

Instructor:	Ray Combs (CS)
Office Location:	TBD
Email:	Ray.Combs@SJSU.edu
Office Hours:	TBD – contact info presented in class
Class Days/Time:	TBD
Classroom:	TBD
Prerequisites:	CS 46B (with a grade of "C-" or better) or instructor consent.

Course Description

An introductory course and teams-based approach to technical entrepreneurship with a focus on learning-by-doing. Students will develop prototype mobile apps and platforms based on market needs they have discovered and researched.

The instructor will take students of various technical backgrounds and guide the cross-functional teams to work together effectively to research, design, prototype, develop and test a new software-based product or service that solves a real-world problem the students have identified. After doing technical research and market research by way of customer interviews using rough mockups of their potential solutions, teams will create a working prototype to solve the problem they have identified. The students ultimately present their technical solution to seasoned entrepreneurs and executives for real world feedback on the viability of their solution.

Student Preparation Time and Study Time

Students can expect to spend 2-6 hours per week participating in extra-curricular discussions and working in team sessions, i.e. researching their market, evaluating the technology for developing and testing their technical solution while writing high quality documentation and proposals. Each team will be expected to practice their communication skills inside and outside of class in order to deliver persuasive and compelling proposals. For research on advanced topics, books or articles may be assigned for future group discussions.

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. Students are responsible for regularly checking the messaging system through Canvas and email, 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. Please use your SJSU email addresses to get in touch with instructor directly.

Written assignments must be uploaded to the course section within Canvas. Submissions are typically in PDF format.

Applicable Program Learning Objectives (Department of Computer Science)

As documented at: https://www.sjsu.edu/cs/about-us/assessment/assessment-rubrics.php

PLO 1: An ability to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

PLO 2: An ability to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

PLO 3: Graduates of the program will have an ability to communicate effectively in a variety of professional contexts.

PLO 4: An ability to recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

PLO 5: An ability to function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

PLO 6: An ability to apply computer science theory and software development fundamentals to produce computing-based solutions.

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 technical 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 technical plans and other documentation to communicate their proposed solution.

CLO5: Students will demonstrate an increase in their self-confidence and expand their understanding towards being a team leader while also 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. Instructor will be providing content on a weekly basis.

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

Other technology requirements / equipment / material

Students are expected to bring a charged wifi-enabled laptop computer to all in-person sessions. Many classrooms have very few power outlets, so please be prepared.

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. Assignments are typically due weekly.

Late Assignments: Late homework will not be accepted. However, late submissions may be accepted with a reduced score for tardiness if students make prior arrangement with the instructor, or in cases of documented emergency.

Midterm Exam: There will be a midterm exam. The Midterm typically includes a team presentation of their proposed solution and their findings so far.

Term Project and Final Exam: Students will do a term project for their Final grade. For this course, students must complete a project that utilizes programming or development software, app programming or prototyping tools. The Term Project includes a written report and an in-class presentation, as well as a reflection paper.

There will be no written final exam. Instead, teams will present their proposal of the Team Project to a small set of seasoned entrepreneurs or executives, who will provide real time feedback on each team's "pitch". The presentations will be scored as part of the student's final grade.

Grading Information

Below are the approximate point allocations toward the final grade for the course. Point totals will vary. Generally, grades will be 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 – 15%
- Final presentation and communication of your solution – 20%

- Reflection paper - 5%

Total: 100%

Extra Credit – up to 5% extra credit may be issued as a "practicum", i.e. for participating in local competitions (SpartUp, SVIC, CSU Demo Day, etc.).

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%.

At least	Letter Grade
94%	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 must miss a class for unforeseen circumstances or prior critical commitments, you are asked to inform the instructor before class, if possible.

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

Technical Entrepreneurship Bootcamp – 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:**
  - <u>Week 1:</u> Personal introductions, class overview, presentation skills.
    - **Assessment:** Give impromptu in-class verbal presentation introducing your neighbor.
  - <u>Week 2:</u> 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.
  - <u>Weeks 3-4:</u> Customer discovery, customer empathy. Class discussions on techniques for Customer Discovery. Review "Start with Why" presentation. CS vs. non-CS 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"
  - <u>Weeks 5-6:</u> 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.
  - <u>Week 7:</u> 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 that conveys the idea of a solution to a principle need.
  - <u>Week 8:</u> 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.
  - <u>Week 9:</u> 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.
  - <u>Week 10:</u> Updated presentation of your product or service 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.
  - <u>Weeks 11-12:</u> 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 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

- <u>Weeks 13-14:</u> preparation and practicing for final pitch / presentation. Continued Prototyping.
    - **Assessment:** Slides and in-class presentations.
- <u>Week 15:</u> Final pitch / presentation.
    - **Assessment:** Final Proposal document and slides, including the assimilation of collected data, along with in-class presentations.