

# CSE 193: Introduction to CS Research

## Fall 2021

### About the Course

#### Course Description

This course will introduce you to the basics of research in computer science. You will learn what a research problem in CS looks like, how to read and find research papers, how to articulate a problem and how to propose a research project to solve that problem. It is group-based, so the majority of the work you will do in this course will be collaborative. This course will prepare you for independent research projects in computing and beyond.

#### Prerequisites

There are no course prerequisites, but to take this course you must be accepted into the CSE [Early Research Scholars Program](#).

#### Learning Outcomes

In this course (and over the next three quarters in ERSP) you will develop:

- Practical Research Skills:
  - Read a research paper
  - Perform a literature search
  - Keep detailed research records
  - Design and propose a research project
  - Collect and analyze data
- Research Comprehension and Communication Skills:
  - Explain the research process
  - Ask questions to clarify understanding
  - Critically analyze data
  - Practice regular and open communication with your advisor(s)
  - Practice effective teamwork skills; resolve team conflicts
  - Communicate your research, both in writing and orally
- Understanding of Research Ethics:
  - Identify forms of unethical practice or research misconduct
  - Take action to address unethical practices or research misconduct
- A Researcher Identity:
  - Think of yourself as a computer scientist and researcher

- Feel like you belong in research
- Feel comfortable in the research culture
- Confidence and Independence as a Researcher:
  - Determine next steps in the research project
  - Independently learn needed disciplinary knowledge and skills
  - Maintain confidence when coping with research challenges
  - Stay motivated to complete your project
- Equity and Inclusion Awareness Skills:
  - Identify the biases present in computing
  - Understand how others might experience research differently based on their identity
  - Advocate for others who may be marginalized or excluded from the research environment
- Professional and Career Development Skills:
  - Explore research career pathways
  - Determine next steps toward a research career

## Course Logistics

### Instructor and Course Staff

**Co-Instructor:** Christine Alvarado, [cjalvarado@eng.ucsd.edu](mailto:cjalvarado@eng.ucsd.edu)

**Office:** CSE 2110

**Office hours:** See my calendar: <https://sites.google.com/a/eng.ucsd.edu/alvarado/calendar>.

Office hours appear as a public event. I have both in-person and virtual office hours. The calendar event will specify the modality of each and provide a Zoom registration link when applicable.

**Co-Instructor:** Mai ElSherief, [melsherief@ucsd.edu](mailto:melsherief@ucsd.edu)

**Office:** CSE 4134

**Office hours:** Tues/Wed 4-5.30pm

**TA:** Vaidehi Gupta, [v2gupta@ucsd.edu](mailto:v2gupta@ucsd.edu)

Vaidehi will be assisting us with running CSE 193 and ERSP. This is her first year in this role, and she is eager to meet you all. She will attend class and you will eventually meet regularly with Vaidehi.

## Course Resources

**Course Websites:** This course uses Canvas and Gradescope. All information and resources can be found on our Canvas site. We will sometimes use Gradescope to collect assignments, but all assignments will also be posted on Canvas.

**Masks: Masks are required** in class. All students who attend class must also be fully vaccinated against COVID-19 unless they have gotten a university approved exemption.

**Laptop or Tablet:** You will need to bring your laptop or other device to class every CSE 193 class period.

## Time and Location

There will (eventually) be four separate meetings that you will attend for this course. Attendance at all of these meetings is required.

1. **CSE 193 Class** (Starts Week 0)

This is the class meeting for CSE 193. In-person attendance is required.

- **Day and Time:** Tuesdays and Thursdays, 9.30-10.50am, Pacific Time
- **Location:** CSE 1202

2. **Weekly group meetings/research seminars** (Start attending week 1)

Day, Time and Location specific to each group.

You will attend a group meeting with your faculty advisor and research team weekly. These are larger group meetings or in some cases these will be research seminars. You will primarily observe these meetings in Fall quarter, but may occasionally be asked to participate.

3. **Weekly meetings with Vaidehi** (Starting week 4)

Day, Time and Location to be scheduled during the first 3 weeks of the quarter.

Starting in Week 4 your group will meet weekly with Vaidehi for 30 minutes each week. In these meetings she will help you set goals, give you feedback on your work and progress and answer any questions you may have.

4. **Weekly meetings with your technical advisor** (Start attending no later than week 4)

Day, Time and Location to be scheduled during the first few weeks of the quarter.

Finally, by week 4 you will have a separate 30-60 minute meeting each week with your technical advisor. This might be your faculty mentor, or it could be a graduate student or postdoc. The purpose of this meeting is for you to receive technical guidance on your project.

# Coursework and Grades

## Expectations

This is a 4-unit course in which you will learn the basics of research in the context of an actual research project. We expect you to spend about 12 hours/week on this course, including time spent doing research on your project and time in class. With this course even more than others, what you get out of it will be a function of what you put into it. As a participant in ERSP and a student in this course, you must commit to the following:

1. To participate in the ERSP program actively and fully for the full 3-quarter duration of the program. Each quarter you are expected to register for the course associated with the ERSP program as instructed and to complete all work associated with that course.
2. To attend all classes and group meetings regularly and punctually.
3. To behave professionally toward your group members and the faculty and students who comprise the research group you are placed with.
4. To complete the assigned work for this course in a timely fashion, and to "pull your weight" with all assigned group projects.
5. To keep an open line of communication between yourself, the members of your group, and Prof. Alvarado/Prof. ElSherief. In particular, you must let us (Prof. Alvarado and Prof. ElSherief) know if any issues arise, as soon as they arise.
6. To balance your time so as to maintain success in your other courses, as well as in your research.

## Assignments/Coursework

### Class participation and punctuality

You must attend each class on time, and participate actively in the class activities. For each class period, you will receive a grade of Participating if you arrive on time and actively participate in class activities, or Absent/Not Participating if you are either not present, very late, or not participating. Please be on time. Students who are chronically late will not receive full participation credit.

Illness or other unavoidable absences: If you are sick, you should not attend class. Please let Prof. Alvarado, Prof. ElSherief and/or Vaidehi know in advance if possible. You will be given makeup work and you will receive participation credit for the missed class(es) upon completion of the work. We understand that other emergencies or circumstances may arise where you need to miss class. If you need to miss class for any other reason, please clear it with the

instructors in advance (unless it's a last-minute emergency and you cannot). If the reason for missing class is reasonable (e.g. serious illness, emergency/unavoidable circumstance), you will be able to complete makeup work to receive participation credit. Note that **interviews scheduled during class time are not considered reasonable absences.**

## Additional meeting attendance

Each week (starting in week 1 or weeks 3/4, depending on the meeting) you will be expected to attend a group meeting with your research group, a meeting with Vaidehi and a meeting with your technical advisor. One person in each group will be designated as the attendance taker. You will receive credit for attendance if you are on time and stay the full time. You must keep the attendance sheet up to date.

## Research Logs

Throughout the program you will be expected to keep a regular log of your research activities. You must keep this log updated. We will check your log once per week (usually on Fridays), and you will receive a score of Complete, Lacking/Late, or Not Done for the week.

## Homework Assignments

There will be a homework assignment that must be completed before class for most class periods. This homework will be graded on a three-point scale: Complete, Lacking/Late, Not Done.

## Content Creation/Tweets

Each week, you will create a tweet (280 characters of text or a combination of text/image/video) explaining a CS research concept you learned about and share it. The goal is to practice efficient and clear communication of what you've learned in class to a non-expert audience. Each tweet will be judged based on the degree of informativeness and engagement. Everyone will submit the tweet using a Google form; posting the Tweet to Twitter is optional if you have a Twitter account or would like to sign up for one (but encouraged). Tweets will be graded on a three-point scale: Informative and Engaging, Lacking/Late, Not Done.

## Contribution to your research group

At the end of the quarter, we will ask each person to judge the contribution of each of the other members of their group. From this information and our own observations over the quarter, the course staff will make a determination about each person's individual contribution to the team. In a healthy team, everyone will get full marks here.

## Project proposal

The project proposal is one of the major deliverables for the quarter. The final submission will be graded at the end of the quarter.

## Final presentation

The final presentation is the other major deliverable. It will be given during the final exam period.

## Exams

There are no exams in this course. The final exam period--Thursday, December 9, 8-11am Pacific time--will be used for your final presentations. Everyone is expected to attend the whole three hours.

## Grading

Instead of a percentage-based grading scheme, this class will use an accomplishment-based grading scheme. Students will earn grades by completing enough of the work listed above at a high enough quality as described below. Please note that **a significant portion of this work (and thus your grade) is based on group work where everyone on the team will receive the same grade.** This reflects what life is like in research, where not everything is under your personal control.

Grades are based on the quality of completion of each of the aspects of this course:

- **Class participation and Punctuality** (20 total) (Possible Grades: Participating, Absent/Not Participating)
- **Research group meeting attendance** (varies by group) (Possible Grades: Participating, Absent/Not Participating)
- **Logs** (10 total) (Possible Grades: Complete, Lacking/Late, Not Done)
- **Content Creation/Tweets** (10 total) (Possible Grades: Informative and Engaging, Lacking/Late, Not Done)
- **HW Assignments** (16 total) (Possible Grades: Complete, Lacking/Late, Not Done)
- **Research Group Contribution** (1) (Possible Grades: Healthy, Could Be Better, Not Healthy)
- **Final Project Proposal** (1) (Possible Grades: High Pass, Pass, Not Pass)
- **Final Presentation** (1) (Possible Grades: High Pass, Pass, Not Pass)

The following guide provides information about the *minimum* standards for receiving each letter grade. Students who do not meet the minimum standards in one or more categories for a given

grade will be awarded the next grade down. Plusses and minuses will be considered for students who are close to the floor of the next highest grade, at the judgment of the instructors.

To get an A:

- **Class participation and Punctuality:** No more than 1 Absent/Not Participating grades
- **Research group meeting attendance:** No more than 1 Absent/Not Participating grades
- **Logs:** At least 9 Complete logs and no logs Not Done
- **Content Creation/Tweets:** At least 8 Engaging tweets and none Not Done
- **HW Assignments:** At least 13 Complete and no Not Done HW assignments
- **Research Group Contribution:** Healthy research group contribution
- **Final Project Proposal** and **Final Presentation:** High Pass on Final Project Proposal and Final Presentation

To get a B:

- **Class participation and Punctuality:** No more than 3 Absent/Not Participating grades
- **Research group meeting attendance:** No more than 3 Absent/Not Participating grades
- **Logs:** At least 8 Complete logs and no logs Not Done
- **Content Creation/Tweets:** At least 6 Engaging tweets and at most 1 Not Done
- **HW Assignments:** At least 12 Complete and no more than 1 not done HW assignments
- **Research Group Contribution:** Healthy or Could be Better research group contribution
- **Final Project Proposal** and **Final Presentation:** High Pass *either* Final Project Proposal or Final Presentation and Pass or High Pass on the other.

To get a C:

- **Class participation and Punctuality:** No more than 5 Absent/Not Participating grades
- **Research group meeting attendance:** No more than 6 Absent/Not Participating grades
- **Logs:** At least 6 Complete logs and no more than 1 Not Done
- **Content Creation/Tweets:** No more than 2 tweets Not Done
- **HW Assignments:** No more than 3 not done HW assignments
- **Research Group Contribution:** Healthy or Could be Better research group contribution
- **Final Project Proposal** and **Final Presentation:** At least Pass on both the Final Project Proposal and the Final Presentation.

We will not assign grades of D in this course. Work that does not meet (or almost meet) the minimum standards for a grade of a C(-) will be graded as an F.

# Course Policies

## Principles for Group Interaction

Be respectful. Be sensitive. Be aware. Promote Others.

ERSP is about building a community where everyone feels supported, included, empowered and safe. To promote this environment, it is imperative that everyone adhere to the communication guidelines below:

- Treat your classmates with respect.
- Be thoughtful and open in discussion.
- Be aware and sensitive to different perspectives.
- Build one another up and encourage one another to succeed.
- Actively ensure that everyone is contributing to the discussion.

The following behavior is promoted:

- Recognizing that not everyone's experience is equal: racism, sexism, ableism, homophobia or any combination systemically disadvantage some more than others.
- Acknowledging the bias in your own perspective.
- Amplifying the voices of classmates, particularly those who are from groups that are often overlooked.
- Really listening with an intent to understand (instead of thinking about your own next statement).
- Phrasing discussion around ideas, not people.

The following behavior should be avoided:

- Using insulting, condescending, or abusive words.
- Offensive jokes of any kind, even if you don't think it's offensive to anyone present.
- Hitting on/flirting with groupmates or other classmates in the context of work for this course.
- Using all capital letters in written communication, which comes across as SHOUTING.
- Contacting learners or posting advertisements and solicitations.
- Posting copyrighted material.

Our classroom abides by these principles:

[UCSD Student Conduct Code](#)

[Principles of Community](#)



## Academic Integrity

In this course we expect students to adhere to the [UC San Diego Integrity of Scholarship Policy](#). This means that you will complete your work honestly, with integrity, and support and environment of integrity within the class for which you are tutoring. You will get out of the CSE ERSP what you put into it. For that reason, it does not make any sense to cheat.

All work in this class must be your own or the work of your group, where appropriate. ALL writing must be your own original work, of the joint work of your group where appropriate, and may not be copied from any source without proper attribution. If you have any questions or concerns about what constitutes cheating in this class, please ask the instructors as soon as the question arises.

## Collaboration Policy

All work in this course will be clearly labeled as “individual” or “group” work. When the work is individual, I expect that you will complete the work thoughtfully on your own. You may work alongside others and discuss the work, but all writing should be yours and yours only. When the work is group-based, you will submit a single submission for your entire group, and you will all receive the same grade.

## Regrade Policy

Regrades will not be considered because in most cases you have the opportunity to improve your grade through additional work and iteration.

## Late or Missed Assignments/Missed Exam Policy

Life happens. If you need to submit an assignment late for any reason, please contact the instructors as soon as possible. We will be reasonable and work with you. If it is an excused reason (e.g. illness, emergency), it will be graded as Complete.

## Technology Policy

We expect students to use technology during class only to complete activities directly related to what the class is currently working on. Please do not use technology for any other reason, including chatting, social media, working on work for other classes, playing games, watching videos, etc.

## Outside Tutoring

Individuals are not permitted to approach students to offer services of any kind in exchange for pay, including tutoring services. This is considered solicitation for business and is strictly prohibited by University policy.

## Resources for Students

### Getting Help with this Course

If you need help at any time this quarter, please contact one of the instructors or the TA. We are happy to work with you. You may also post general questions on the Canvas Q&A discussion board.

The IDEA Engineering Student Center, located just off the lobby of Jacobs Hall, is a hub for student engagement, academic enrichment, personal/professional development, leadership, community involvement, and a respectful learning environment for all. The Center offers a variety of programs, listed in the IDEA Center Facebook page at <http://www.facebook.com/ucsdidea/> (you are welcome to Like this page!) and the Center web site at <http://idea.ucsd.edu/>. The IDEA Center programs support both undergraduate students and graduate students.

### Diversity and Inclusion

We are committed to fostering a learning environment for this course that supports a diversity of thoughts, perspectives and experiences, and respects your identities (including race, ethnicity, heritage, gender, sex, class, sexuality, religion, ability, age, educational background, etc.). Our goal is to create a diverse and inclusive learning environment where all students feel comfortable and can thrive.

Our instructional staff will make a concerted effort to be welcoming and inclusive to the wide diversity of students in this course. If there is a way we can make you feel more included please let one of the course staff know, either in person, via email/discussion board, or even in a note under the door. Our learning about diverse perspectives and identities is an ongoing process, and we welcome your perspectives and input.

We also expect that you, as a student in this course, will honor and respect your classmates, abiding by the UCSD Principles of Community (<https://ucsd.edu/about/principles.html>). Please understand that others' backgrounds, perspectives and experiences may be different than your own, and help us to build an environment where everyone is respected and feels comfortable.

If you experience any sort of harassment or discrimination, please contact the instructor as soon as possible. If you prefer to speak with someone outside of the course, please contact the Office of Prevention of Harassment and Discrimination: <https://ophd.ucsd.edu/>.

## Students with Disabilities

We aim to create an environment in which all students can succeed in this course. If you have a disability, please contact the Office for Students with Disability (OSD), which is located in University Center 202 behind Center Hall, to discuss appropriate accommodations right away. We will work to provide you with the accommodations you need, but you must first provide a current Authorization for Accommodation (AFA) letter issued by the OSD. You are required to present their AFA letters to Faculty (please make arrangements to contact me privately) and to the OSD Liaison in the department in advance so that accommodations may be arranged.

## Basic Needs/Food Insecurities

If you are experiencing any basic needs insecurities (food, housing, financial resources), there are resources available on campus to help, including The Hub and the Triton Food Pantry. Please visit <http://thehub.ucsd.edu/> for more information.