
CS189A Capstone Fall 2023

Lecture 1: Introduction & Industry Mixer

CMPSC 189A

- **Lectures:** Mondays 2:00-4:50PM, ILP 2209
 - **Discussions:** Tuesdays 5:00-6:50, PHELP 2524

 - **Instructor:**
Tevfik Bultan <bultan@ucsb.edu>
Office: HFH 2159

 - **Teaching Assistants:**
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189 Website

- Class website: <http://capstone.cs.ucsb.edu/>

We will update it soon!

- Slack channel: ucsb-cs189-capstone
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Capstone Project Class

- Two quarter project class in which students put their education into practice by building a significant system as a team
 - Learn by doing
 - Chance to explore the latest technologies
 - Provide practical experience as a form of career building
 - Different flavors of Capstone are available at College of Engineering
 - CS Capstone: CS 189 A/B
 - Software systems engineering oriented
 - Runs Fall/Winter to allow continuity
 - **Must take both courses**
 - Year-long College of Engineering Capstone
 - ECE, ME versions focusing on hardware, device development
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CS 189 A/B

- Learn by putting education into practice
 - Explore cutting-edge software technologies and architectures for the next breakthrough in computing
 - Work as teams
 - Build something significant
 - Work on exciting projects
 - Using cutting edge technology
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How Does It Work?

- Industry Driven
 - Top companies “donate” challenge problems that they wish to explore as R & D.
 - Student teams develop prototypes in conjunction with industrial mentors
 - Goal: develop and understand the next industry-leading technology, drive an idea from design to working prototype
 - Culminates: March 15th (@the CS Summit!)
 - Present it to the College, community, your peers, ... the world
 - Awards given for best projects!
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Capstone Award Judging Criteria

- **5pt Science:** Has the project demonstrated application of important, interesting, or new aspects of Computer Science? (e.g. Use of machine learning, non-trivial algorithms, solid distributed system design techniques)

 - 5pt Practice:** Did the project adhere to techniques that represent the state of best practice in industry throughout the development of the system (e.g. specification, design, development iterations, repo workflows, test-driven development, issue tracking, or use of static or dynamic analysis tools)

 - 5pt Scope:** Has the team attacked a problem of significant (but appropriate) scale and complexity. Does the problem require the development of significant new code and/or the integration of complex exciting parts that are not normally made to interface to on another? Did the project complete the goals that it set for itself?

 - 5pt Teamwork and Presentation:** Do all the members of the team contribute significantly (in their own ways)? Does the team take the process seriously and communicate effectively with one another and the mentors? Is the project presented both in written and spoken form in a way that is compelling and impressive? Has the team developed an impressive demo?
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What Happens in 189A?

- 189A first week (Jan. 4-8)
 - Company representatives present the challenge problems
 - Students form teams (~5 members each) and pick projects
 - 189A goals
 - Specify what the product will do
 - Design the product
 - Build a prototype
 - Typically teams iterate on these three activities until they converge to a working prototype!
 - 189A ends with
 - Initial prototype demonstration
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What Happens in 189B?

- 189B
 - Prototype demonstration to 189B instructor to get feedback
 - 189B goals
 - Build a full product
 - Implement all the parts that were omitted in the prototype for 189A
 - Test the product
 - Prepare a presentation!
 - 189B
 - Project presentation day at the March 15th (@the CS Summit!)
 - This is a big event where the teams present their projects to a lot of people!
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Student Feedback

- “I enjoyed the structure of this class & I think applying our efforts to “real world” problems given by companies is extremely effective.”
 - “The pairing with industry is great.”
 - “I found this course to be very interesting and helpful to my pursuit of a Computer Science degree and Software Engineering job.”
 - “Working with companies was motivational and fun.”
 - “It is very helpful that this year we actually do some real industry project instead of something we created.”
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Student Feedback

“CS189 not only helped me during job interviews but also the project I am working on with PowerPoint is very similar to the project that my group worked on (the online slide sharing app)”

Melissa Hunter, Software Design Engineer, Microsoft

“As far as getting a job goes, CMPSC 189 is probably one of the most useful things you can do as an undergrad.”

Brendan Blackwood, iContact.

“Many projects I am working on now I find myself going through the same steps I did in CMPSC 189 class. From gathering requirements, producing design specs, and ultimately presenting my work.”

Chris Fattarsi, Web Developer, NASA Ames Research Center

This Year's Industry Partners

- **NavSea 3**
 - Sara Centeno
 - William (Hunter) Spence
 - **Forta 2**
 - Christian Seifert
 - **Artera 2**
 - Anav Sanghvi
 - **Appfolio 2-3**
 - Justin Pearson, Wade Varesio, Jacqui Mai, Bryan Terce, Alex Oaten, Kobe Shavolian, Laith Abdel-Rahman, Brandon Nadell
 - **Aziksa 1**
 - Santosh Jha
 - **Terawe 1**
 - Steven Duggan, Bradley Tipp
 - **Veridise 2**
 - Yu Feng
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