



# The Capstone Experience

*From Students...to Professionals*

CSE498, Collaborative Design, Fall 2020  
Computer Science and Engineering  
Michigan State University

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## Syllabus

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### 0. Professor

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### 1. Teaching Assistants

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### 2. Meeting Times

Lecture: Monday, Wednesday, 10:20 a.m. – 11:40 a.m. ET, [Microsoft Teams General Channel](#)

Lab: TBA, [3322 Engineering Building](#), [3340 Engineering Building](#), [3352 Engineering Building](#) and [3358 Engineering Building](#)

### 3. Web Site

[www.capstone.cse.msu.edu](http://www.capstone.cse.msu.edu)

### 4. Catalog Description

Credits: 4 (2 – 4), Lecture/Recitation/Discussion Hours: 2, Lab Hours: 4.

Prerequisite: (CSE 402 or CSE 415 or CSE 422 or CSE 431 or CSE 440 or CSE 450 or CSE 471 or CSE 476 or CSE 477 or CSE 482) and (CSE 402 or CSE 420 or CSE 425 or CSE 435 or CSE 440 or CSE 460 or CSE 472 or CSE 477 or CSE 480 or CSE 482) and (CSE 335 and completion of Tier I writing requirement) and (CSE 325 or CSE 410).

Restrictions: Open only to majors in the Department of Computer Science and Engineering.

Description: Development of a comprehensive software and/or hardware solution to a problem in a team setting with emphasis on working with a client. Participation in a design cycle including specification, design, implementation, testing, maintenance and documentation. Issues of professionalism, ethics and communication.

### 5. Prerequisites

In order to be enrolled in CSE498, you must have successfully completed the prerequisites list above in the section titled Catalog Description. These requirements are prerequisites, which means that they must be completed successfully in advance of the semester in which you are enrolled in CSE498.

If you have not met these prerequisites, you will be disenrolled from CSE498 unless you have specific permission to enroll from the instructor.

### 6. Course Objectives

The course objectives for CSE498 include (but are not limited to) the following:

- design, develop, debug, document and deliver a complete software system to a client,
- work effectively in a team environment,
- develop written and oral communication skills,
- become proficient with software development tools and environments,
- learn about system building and system administration,
- consider issues of professionalism and ethics, and
- integrate knowledge and skills from other computer science courses.

### 7. Team Projects

Each team will design, develop, debug, document and deliver a complete software system for a client. The client organizations range in type from industry to non-profits to academic and in size from small to large.

Client contacts are busy professionals. With respect to CSE498, they are volunteers who are doing you and your team a favor. You must work with them in a respectful manner. If you have problems getting responses from your client contacts, let us know and we will handle it.

Each team will select a particular team member who will be the main contact to the client organization. The computing experiences of your client organizations and client contacts will vary widely from software users to experienced software developers.

For most of your academic experiences, you have been handed a complete system architecture with detailed specifications and asked to develop it. For this course, architecting the system and designing the specifications may be your most difficult challenge, particularly when talking with users who are not sure about what they need to solve their problem.

Each project must be of the right level of difficulty. On the one hand, it must be difficult enough to warrant four credits in a computer science major from one of the top programs in the country, MSU. On the other, it must be simple enough to be doable in one semester. What constitutes the right level of difficulty will be something that each team will work out with the client and with us. As you design your projects, consider doing so with levels of deliverables where the first level is clearly doable, the second is likely doable and the third is possibly doable.

You must deliver a completed project to your client. Period. There will be no exceptions. No excuses will be considered or accepted. Thus, it is in your team's best interest to propose something that is workable in conjunction with your client.

Each project will be submitted to the client after completion.

#### 8. Course Materials

There are no required or recommended textbooks, software or course packets to be purchased for this course. You will be provided with any and all software, hardware and documentation required to complete your team project.

#### 9. Course Environment

One goal of this course is to give you a non-academic experience. Hence, we will run this course as business-like as possible. We will view each team as a small company attempting to deliver a product to a client. We will assign students to teams so as to best distribute the variety of skills and experiences.

#### 10. Team Dynamics

One goal of this course is to give you a significant experience working on a team. You may be working with people whom you did not know and whose experiences and abilities may be very different from yours. The challenge is to take your disparate group of individuals and form a real team. Each team may organize itself as it sees fit; we will offer advice and counsel.

#### 11. Project Management, Major Milestones and Deliverables

Each team will be expected to manage its own project. Each project will be divided up into milestones with specific deliverables due on specific dates as determined by the team. While the completed project at the end of the semester is one very important milestone, all of the milestones will be considered important. Meeting the deliverable deadlines will factor significantly into your grade.

For a description of major milestones with due dates see [Major Milestones](#).

Project deliverables include the following:

- [Project Plan Presentation](#) & Document,
- [Alpha Presentation](#),
- [Beta Presentation](#),
- [Project Video](#),
- Project Software, and
- [Design Day](#).

#### 12. Use of Eastern Time (ET)

Unless indicated otherwise, all times specified will be Eastern Time (ET), either Eastern Standard Time (EST) or Eastern Daylight Time (EDT), depending on the time of year.

These times include but are not limited to meeting times and submission deadline times.

#### 13. All-Hands Meeting Attendance

Our all-hands meetings are held online using our [Microsoft Teams General Channel](#).

The format of all-hands meetings includes lectures, team status reports, team formal presentations, project videos and possible guest speakers.

In order to maintain a business-like environment, the wearing of hats, hoods and coats during our all-hands meetings is prohibited.

Attendance is a significant factor in your grade comprising at least 5% of your final grade. (See [Grading](#) below.)

On-time attendance is required. "On-time" means joined to the Microsoft Teams meeting by 10:20 a.m. If you join the meeting after 10:20 a.m. but before 10:25 a.m., you will be marked late. If you join the meeting after 10:25 a.m., you will be marked absent.

Almost no excuses for absences or lateness are accepted.

Attendance will be taken using a variety of mechanisms. At 10:25 a.m. we will download the list of meeting attendees, which includes a list of who is in the meeting and when they joined. At random times during a meeting, you will be given one minute to complete a Google form to indicate your attendance and alertness. At the end of the meeting, you will be given one minute to complete a second Google form to indicate your attendance to the end of the meeting.

If you arrange to have someone sign in for you or if you sign in for someone else, you may lose up to five attendance points and you may receive a zero in the course for academic dishonesty.

One attendance point will be deducted for each time you are absent without excuse and for each two times you are late without excuse. If you fail to complete the Google forms, we will assume that you have left the meeting, in which case you may lose up to five attendance points.

You begin the semester with five attendance points. Attendance points are deducted from your initial five points as described above. It is very important to note that attendance points continue to be deducted after your attendance points reach zero so that **your final attendance points may be negative**, which will effectively deduct points from other grade categories. (See [Grading](#) below.)

If your attendance points are low or negative, your Team Contribution grade may be affected as well, which may have a significant effect on your final grade.

One or two all-hands meetings may be missed in the case of job interviews. In order to be excused, you must supply the instructor and your teaching assistant in advance with the meeting date to be missed, the name of the company, the name and contact information (email and phone number) of your recruiter.

Attendance at meetings during which your team makes a presentation is absolutely required. No excuses for absence will be accepted, including job interviews. In general, there will be multiple meetings for each type of team presentation. If necessary, we will work with you to attempt to coordinate as much as possible team presentations and job interviews. If you are absent for any of your team presentation all-hands meetings, you may lose all of your Attendance points and you may also lose Team Contribution points.

We will be viewing the final project videos together during the regularly scheduled meeting times on December 7 and December 9 and during the scheduled final exam time, which is Friday, December 18, 7:45 a.m. – 9:45 a.m. ET. Attendance by everyone for viewing all project videos is required. Do not schedule any trips during these times. Interviews will not be accepted as an excuse for missing any of the final project video viewings. If you are absent for any of these final all-hands meetings, you may lose up to 5 Attendance points and you may lose Team Contribution points, which may have a significant effect on your final grade.

On meeting days when teams give team presentations ([Project Plan Presentations](#), [Alpha Presentations](#) and [Beta Presentations](#)) and on meeting days when we watch [Project Videos](#), we will split into two groups based on teaching assistants and teams. We will meet in two separate Microsoft Teams channels initiated by your team's teaching assistant.

#### 14. Microsoft Teams Meetings Computing Requirements

All of our capstone meetings will be held online using Microsoft Teams. This includes all-hands meetings when we all meet, team triage meetings when you meet with your TAs, team meetings when you meet as a team, and project sponsor (client) meetings when you meet with your project sponsor.

For all online meetings, you are required to use either a desktop or laptop computer equipped with a camera, microphone and speakers. The device and internet connection that you use must be fast enough to handle receiving and sending clear audio and clear video, which includes screen sharing by you.

When you meet with your TA during triage meetings, you will be asked to demonstrate software that you were to have completed. You must be able to demonstrate your software online when asked to do so, normally by sharing your screen in Microsoft Teams.

In particular, you cannot use as an excuse that you are not able to demonstrate your software because it does not run on the device with which you are connected to a meeting. As an example, it will not be acceptable to say that you are not able to demonstrate your software because it only works on your laptop but you are connected to the meeting using a mobile phone or tablet.

If you are not able to demonstrate your software, we will assume that you have not completed your assigned task and grade you accordingly. To this end, it will be important to practice demonstrating your software online with your teammates in advance of all-hands or triage meetings.

#### 15. All-Hands Meetings (Microsoft Teams Meetings) Dress Code

In general, the dress code for our all-hands meetings is casual; that is, you may dress the way that you normally dress. However, on the days when teams are making formal presentations, the dress code for the presenting teams is business casual.

As with most business meetings, hats, hoods (of coats or sweatshirts or hoodies) and coats may not be worn during our meetings.

#### 16. All-Hands Meetings (Microsoft Teams Meetings) Eating

As with most business meetings, eating during our all-hands meetings is prohibited.

#### 17. Team Meetings

Team meetings include a weekly triage meeting with your teaching assistant, a weekly meeting with your clients, and one or more weekly meetings with your team. Meetings will be held remotely either by phone or Zoom or Microsoft Teams.

Attendance by every team member in person at every team meeting is required.

Almost no excuses for absences or lateness are accepted.

Attendance is a significant factor in your grade comprising at least 5% of your final grade. (See [Grading](#) below.) Up to one full percentage point may be deducted for each unexcused absence.

If you have more than five unexcused absences, your attendance grade may be negative, which will effectively deduct points from other grade categories. Moreover, if you have more than five unexcused absences, your Team Contribution grade may be affected, which may have a significant effect on your final grade. (See [Grading](#) below.)

One or two team meetings may be missed in the case of job interviews. In order to be excused, you must supply the instructor and your teaching assistant in advance with the meeting date to be missed, the name of the company, the name and contact information (email and phone number) of your recruiter.

#### 18. The Capstone Experience Labs Sponsored By Urban Science

The labs include rooms [3322 Engineering Building](#), [3340 Engineering Building](#), [3352 Engineering Building](#) and [3358 Engineering Building](#).

The Capstone Experience Labs have a key code, which we will give to you.

Each team will be assigned two iMacs and a rack-mounted server if required. Each team will be completely responsible for its machines, including building them, maintaining them, securing them (both internally and externally), and backing them up.

Although not required, team members will be allowed to work in the labs provided that they adhere strictly to MSU's policy on social distancing, which includes the correct wearing of face masks at all times.

Due to the current circumstances, keyboards and mice for the lab iMacs will not be provided. Each team member must provide their own personal wired keyboard and mouse, which is not to be shared with other team members. If you elect to use a wireless keyboard or mouse, you will need to provide your own wired keyboard and mouse to pair your wireless keyboard or mouse to your iMac. We will not be providing them.

Team members will be able to access the iMacs in the labs remotely. Instructions will be provided by your teaching assistant.

The labs include dispensers of sanitizing wipes. Team members are required to use them to sanitize all of the spaces that they use when they enter a lab and before they leave a lab.

The labs include dispensers of hand sanitizer. Team members are encouraged to use it often.

#### 19. Scheduled Lab Times

There will be no formal lab sessions. However, teams are expected to meet at least twice weekly, once for triage meetings with the instructor and/or teaching assistant and once for team meetings.

#### 20. Expectations and Workload

We have high workload expectations for this course. It is one of your most important courses for your resume and your portfolio of experiences. It will be the capstone of your computer science career at MSU. This course will provide each of you the opportunity to showcase your abilities on a significant non-academic software project. Your capstone experience can provide you with some significant talking points for future job interviews.

#### 21. Submission of Deliverables

Project videos are due on the Monday of the last week of classes. All deliverables are due on the Wednesday of the last week of classes. All deliverables include all source code (checked out of any repository), the project plan document, all-hands meeting PowerPoint presentations, and the final project video, organized appropriately in folders.

Instructions for submission of the project videos and all deliverables will be given at the appropriate time.

#### 22. Grading

Your final grade will be based both on your team performance and your individual performance. What follows is a list of grading categories along with the point distribution.

Team Grade (70%)	
<a href="#">Project Plan Presentation</a> & Document	10
<a href="#">Alpha Presentation</a>	10
<a href="#">Beta Presentation</a>	10
<a href="#">Project Video</a>	10
Project Software & Documentation	25
<a href="#">Design Day</a>	<u>5</u>
Team Total	70
Individual Grade (30%)	
Technical Contribution	10
Team Contribution	10
Team Evaluation Form	5
All-Hands and Triage Meeting Attendance	<u>5</u>
Individual Total	30

For a final grade, each individual will earn the sum of their individual grade plus a prorated percentage of the team grade based on the corresponding percentage of their "Team Contribution" grade as follows:

Prorated Team Total = (Team Total) \* (Team Contribution) / 10.0,

Grand Total = (Individual Total) + (Prorated Team Total).

Note that your Team Contribution grade has a very significant effect on your final grade.

For example, if an individual's Team Contribution grade is 10, then they will earn 100% of the team grade. If the Team Contribution is 9, then they will earn 90% of the team grade, and so on.

So, if you are not a contributing team member, you run the risk of not passing CSE498, which is required for graduation.

In other courses, you may have experienced team projects in which one person or a few persons did all of the work, while everyone on the team received the same credit and the same grade for the entire team. This is not the case in CSE498. You will be evaluated on your individual technical contribution and your team contribution. If you do not contribute significantly, you may not pass.

No special consideration will be given for final grades including but not limited to status as a CSE major, status in any academic program, financial aid, rank in the armed forces, job while a student at MSU, job after anticipated graduation from MSU, commute to MSU, graduation, mortgage, upcoming weddings, ability to enroll in CSE498 next semester, or visa status.

We reserve the right to make reasonable changes during the semester with sufficient notice.

#### 23. VISA (Verified Individualized Services and Accommodations) Forms

Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at (517) 884-RCPD or on the web at [rcpd.msu.edu](http://rcpd.msu.edu). Once your eligibility for an accommodation has been determined, you will be issued a Verified Individual Services Accommodation ("VISA") form. Please present this form to the instructor at the start of the semester.

#### 24. Integrity of Scholarship

The Department of Computer Science and Engineering expects all students to adhere to MSU's policy on Integrity of Scholarship and Grades, which includes the statement, "...all academic work will be done by the student to whom it is assigned, without unauthorized aid of any kind" (Academic Programs, General Procedures and Regulations). General Student Regulation 1.00 in the student handbook (Spartan Life) also addresses this issue.

Among other things, providing false information to the professor, teaching assistants or fellow team members about matters related to the course will be considered academic dishonesty.

Any evidence of academic dishonesty will be grounds for receiving a final grade of 0.0 for the course.

#### 25. *Nota Bene*

In the case of discrepancies between the version of the syllabus posted on the course web site [Syllabus](#) page and the [downloadable PDF version](#), the web site version takes precedence.

We reserve the right to make reasonable changes to this syllabus during the semester with reasonable notice.

