

Syllabus

Course Information (CSCE 331 Spring 2025)

Course Number: CSCE-331

Course Title: Foundations of Software Engineering

Section: 908,909,910,911

Time:

Lecture: MWF 9:10am-10:00am;

Lab:

[908] MW 12:40pm-1:30pm

[909] MW 1:50pm-2:40pm

[910] MW 3:00pm-3:50pm

[911] MW 4:10pm-5:00pm

Location:

Lecture: EABB 106

Lab: ZACH 598 (all sections)

Credit Hours: 4 credits; 3 lecture hours, 2 lab hours.

Instructor Details

Instructor: Yoonsuck Choe

Office: PETR 327

Phone: 979-845-5466 (rarely answered - email is preferred)

E-Mail: choe@tamu.edu

Office Hours: TBD

TA 1: TBD, sections 908 & 090

Office:

Phone:

Email:

Office hours:

TA 2: TBD, sections 910 & 911

Office:

Phone:

Email:

Office hours:

Course Description

Intensive programming experience and provision of the fundamentals needed for larger-scale software development; integration of concepts in computer science and familiarization with a variety of programming and development tools and techniques; team projects each with an emphasis on a different specialization within computer science; emphasis on programming techniques to ease code integration and clarity; practical exposure to software-engineering processes through large-scale projects and specification and documentation.

Course Prerequisites

Prerequisite: Grade of C or better in CSCE 314, CSCE 350/ECEN 350, or ECEN 350/CSCE 350; grade of C or better or concurrent enrollment in CSCE 313.

[*\(https://catalog.tamu.edu/\)*](https://catalog.tamu.edu/)

Special Course Designation

As a writing intensive course (W), written material is an important part of the assignments in this course. Graded writing will account for 20% of each student's overall grade in the course, and the written portion must be passed (with "C" or better) to get credit for the class.

See the University Writing Center's information page: [**W-C-Course Facts**](https://writingcenter.tamu.edu/undergrads/w-c-courses/)
[**\(https://writingcenter.tamu.edu/undergrads/w-c-courses\)**](https://writingcenter.tamu.edu/undergrads/w-c-courses/).

Course Learning Outcomes

This course is intended to be an intensive programming experience that integrates core concepts in Computer Science and familiarizes you with a variety of programming / development tools and techniques. You will primarily work in small teams on projects emphasizing different specializations within computer science. The course focuses on honing good programming techniques to ease code integration, reuse, and clarity. The primary goal for this class is for you to emerge with strong programming skills, able to address both individual and team programming challenges competently. In this course, you will improve your programming skills through significant practice.

After this course you will be able to:

- **Explain** the need for software engineering through industry examples and personal experience

- **Exercise** the fundamental concepts of software construction (including managing requirements, design, implementation, testing, and deployment)
- **Design and develop** software that is clearer, more maintainable, and integrates current software technologies – some that are new to you
- **Collaborate and communicate** effectively in small teams
- **Recognize and apply** characteristics of effective technical writing

We will cover many topics including:

- **Software system design** for portability, performance, and testability
- **Coding** layout and style considerations
- **Programming** specifications and documentation
- **Use** of basic software tools and APIs
- **Subject-specific topics** related to the team projects (databases, human-computer interaction)

Though many topics will overlap, this course is not intended to be as in-depth or comprehensive as a standard software engineering course. For a deeper understanding of software development and project management, take software engineering after completing this course.

Textbook and/or Resource Materials

We will be using the following textbook. The book will be made available to you electronically through Perusall.

Code Complete, 2nd edition, by Steve McConnell, Microsoft Press, 2004.

Grading Policy

The grading will be based on various class activities:

1. Writing : 20% (two short reports, 400 words each; and one long report, 1200 words). To receive a passing grade in this course, you have to get a passing grade on the writing component: weighted total 70/100 (equivalent to 'C' or better).
2. Three projects: 65% : 1 individual project (15%) and 2 team projects (project 2: 25%, project 3: 25%),
Project 1 [Individual]: Web-site building and deployment. HTML, JavaScript, CSS, PHP, regex, Docker
Project 2 [team]: Corporate database (personnel, sales, customer, branches, inventory, etc.). Waterfall development paradigm. Java DB connectivity (JDBC). SQL database. Java GUI API (Swing, etc.). AWS or Docker

Project 3 [team]: Agile development paradigm. Google apps scripts development (G-suite add-on: Doc, Sheet, Slides, etc.). Apps Scripts (Google's cloud-based JavaScript). HCI components.

3. Attendance: 5%, based on attendance. Each absence will deduct 1% (out of 5%) of the attendance score (this includes both the lecture and the lab). Excused absences will only be allowed for those allowed in the university rules.
4. Quizzes: 10% (total of 2, 5% each)

There will be three projects in the course. Specific grading practices for each project will be announced when that project is given out, but the grade may include factors such as evaluation of code clarity, teamwork, etc. Peer evaluation may be used as a significant contributing factor to these grades (see below).

The projects are scored by the team, however, different individual contribution can lead to differential grades given the same team score.

- i = individual score
- t = team score
- c = your contribution (X%, e.g., 25%). Sum of c for all members in the team should equal 100.
- d = contribution divisor (Y%, e.g., 25% for a team of 4, 33.3% for a team of 3, etc.)
- m = max score attainable = 110
- Formula: $i = \min(\sqrt{c/d} * t, m)$.
- Examples:
 1. Team got 90 and your contribution was 25% for a 4-person team.

$$i = \min(\sqrt{25/25} * 90, 110) = \min(1 * 90, 110) = 90.$$
 2. Team got 85 and your contribution was 45% for a 4-person team (your team mates slacked off).

$$i = \min(\sqrt{45/25} * 85, 110) = \min(114.03, 110) = 110.$$
 3. Team got 95 and your contribution was 20% for a 3-person team.

$$i = \min(\sqrt{20/33.333} * 95, 110) = \min(73.587, 110) = 73.587$$

The grading scheme will be: ≥ 89.5 : A; ≥ 79.5 : B; ≥ 69.5 : C; ≥ 59.5 : D; all else F.

Late Work Policy

Every hour past deadline will lead to 1 point (out of total of 100) deduction from the assignment score. For example, if you scored 100/100 but submitted the assignment 12 hours late, your final score will be 88/100 (12 points penalty). You may get additional time if there's a university excused absence.

Course Schedule

Among the topics to be covered in lecture periods are:

- Style considerations in writing code
- Design of software systems and APIs
- Coding beyond the single component
- Basic collaborative software coding practices
- Design for portability, performance, testability
- Specification and documentation
- Basic software tools and their use
- Object oriented design
- Design patterns
- Testing
- Subject-specific topics related to the team projects
- Writing effective technical documentation

Though many topics will overlap, this course is not intended to be as in-depth or comprehensive as a standard software engineering course, which focuses more on project management - students may take the software engineering class after taking this class.

Note: You should expect to spend a significant amount of time (>10 hours/week) outside of class time on programming projects. This may require meeting with team members outside of the class/lab periods.

Week	Monday	Wednesday	Friday	
1	1/13/2025	1/15/2025	1/17/2025	Introduction; Project 1 announcement; HTML/PHP/CSS/JavaScript basics
2	1/20/2025	1/22/2025	1/24/2025	Naming, style, commenting ; Software design principles; Testing (Monday: Martin Luther King Day)
3	1/27/2025	1/29/2025	1/31/2025	Waterfall model; Test-driven development ; Debugging; Agile development; Collaborative code development
4	2/3/2025	2/5/2025	2/7/2025	Design patterns; API design; Project 2

				announcement; Databases ; Entity-relationship model; Relational DB
5	2/10/2025	2/12/2025	2/14/2025	SQL schema; SQL queries; DB implementation
6	2/17/2025	2/19/2025	2/21/2025	Project 1 showcase; Code portability ; Code performance ; Code tuning
7	2/24/2025	2/26/2025	2/28/2025	SOLID principles; Technical writing tips; Human Computer Interaction
8	3/3/2025	3/5/2025	3/7/2025	HCI design principles and user study; Project 3 announcement; Google G-suite add-ons
9	3/10/2025	3/12/2025	3/14/2025	Spring Break
10	3/17/2025	3/19/2025	3/21/2025	No lecture. Meet in class for Q/A and work with your team on your project.
11	3/24/2025	3/26/2025	3/28/2025	Project 2 presentations (all sections, all teams)
12	3/31/2025	4/2/2025	4/4/2025	No lecture. Meet in class for Q/A and work with your team on your project.
13	4/7/2025	4/9/2025	4/11/2025	Project 3 intermediate review (all sections, all teams)
14	4/14/2025	4/16/2025	4/18/2025	No lecture. Meet in class for Q/A and work with your team on your project.
15	4/21/2025	4/23/2025	4/25/2025	Project 3 intermediate review (all sections, all teams)
16	4/28/2025	4/29/2025 (Tue)	5/2/2025 (Fri)	No lecture on Monday. Project 3 presentations on Tuesday (5 teams). Final exam 5/2/2025 : Project 3 presentations (10 teams).

Optional Course Information Items

TBA

University Policies

This section outlines the university level policies. The TAMU Faculty Senate established the wording of these policies.

NOTE: Faculty members should not change the written statements. A faculty member may add separate paragraphs if additional information is needed.

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to **Student Rule 7 (<https://student-rules.tamu.edu/rule07/>)** in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to **Student Rule 7 (<https://student-rules.tamu.edu/rule07/>)** in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" (**Student Rule 7, Section 7.4.1 (<https://student-rules.tamu.edu/rule07/>)**).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" (**Student Rule 7, Section 7.4.2 (<https://student-rules.tamu.edu/rule07/>)**).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (**See Student Rule 24 (<https://student-rules.tamu.edu/rule24/>)**).

Academic Integrity Statement and Policy

“An Aggie does not lie, cheat or steal, or tolerate those who do.”

“Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one’s work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case” ([Section 20.1.2.3, Student Rule 20 \(https://aggiehonor.tamu.edu/Rules-and-Procedures/Rules/Honor-System-Rules/\)](https://aggiehonor.tamu.edu/Rules-and-Procedures/Rules/Honor-System-Rules/)).

Texas A&M at College Station

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at [aggiehonor.tamu.edu \(https://aggiehonor.tamu.edu/\)](https://aggiehonor.tamu.edu/).

Texas A&M at Galveston

You can learn more about the Honor Council Rules and Procedures as well as your rights and responsibilities at [tamug.edu/HonorSystem. ↗\(https://www.tamug.edu/HonorSystem/\)](https://www.tamug.edu/HonorSystem/).

Texas A&M at Qatar

You can learn more about academic integrity and your rights and responsibilities at Texas A&M University at Qatar by visiting the [Aggie Honor System \(https://www.qatar.tamu.edu/students/academic-services/aggie-honor-system/\)](https://www.qatar.tamu.edu/students/academic-services/aggie-honor-system/) website.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources office on your campus (resources listed below). Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Texas A&M at College Station

Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit [https://disability.tamu.edu/ \(https://disability.tamu.edu/\)](https://disability.tamu.edu/).

Texas A&M at Galveston

Disability Resources is located in the Student Services Building or at (409) 740-4587 or visit

<https://www.tamug.edu/disabilityresources/index.html> 

(<https://www.tamug.edu/disabilityresources/index.html>)_.

Texas A&M at Qatar

Disability Services is located in the Engineering Building, room 318C or at +974.4423.0316 or visit

<https://www.qatar.tamu.edu/students/student-affairs/disability-services>

(<https://www.qatar.tamu.edu/students/student-affairs/disability-services>)_.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](https://rules-saps.tamu.edu/PDFs/08.01.01.M1.pdf) (<https://rules-saps.tamu.edu/PDFs/08.01.01.M1.pdf>)):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.


Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Texas A&M at College Station

Students wishing to discuss concerns related to mental and/or physical health in a confidential setting are encouraged to make an appointment with [University Health Services](https://uhs.tamu.edu/appointments/index.html) (<https://uhs.tamu.edu/appointments/index.html>) or download the [TELUS Health Student Support app](https://uhs.tamu.edu/mental-health/student-support.html) (<https://uhs.tamu.edu/mental-health/student-support.html>) for 24/7 access to professional counseling in multiple languages. Walk-in services for urgent, non-emergency needs are available during normal business hours at University Health Services locations; call 979.458.4584 for details.

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's **Title IX webpage** (<https://titleix.tamu.edu/>).

Texas A&M at Galveston

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with the Counseling Office in the Seibel Student Center, or call (409)740-4587. For additional information, visit <https://www.tamug.edu/counsel/index.html>  (<https://www.tamug.edu/counsel/index.html>).


Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the Galveston Campus' **Title IX webpage** (<https://titleix.tamu.edu/>).

Texas A&M at Qatar


Texas A&M University at Qatar students wishing to discuss concerns in a confidential setting are encouraged to visit the **Health and Wellness** (<https://www.qatar.tamu.edu/students/student-affairs/health-and-wellness>) website for more information.

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's **Title IX webpage** (<https://titleix.tamu.edu/>).



Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors influencing a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care practices by utilizing the resources and services available through **University Health Services** (<https://uhs.tamu.edu/>). Students needing a listening ear can call the Texas A&M Helpline (979.845.2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends for mental health peer support while classes are in session. The **TELUS Health Student Support** (<https://uhs.tamu.edu/mental-health/student-support.html>) app provides access to professional counseling in multiple languages anytime, anywhere by phone or chat, and the 988 Suicide & Crisis Lifeline offers 24-hour emergency support at 988 or **988lifeline.org**  (<http://988lifeline.org/>).

Texas A&M College Station

Students needing a listening ear can contact University Health Services (979.458.4584) or call the Texas A&M Helpline (979.845.2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends while classes are in session. 24-hour emergency help is also available through the 988 Suicide & Crisis Lifeline (988) or at **988lifeline.org**  (<http://988lifeline.org/>).

Texas A&M at Galveston

Students who need someone to talk to can call (409) 740-4736 from 8:00 a.m. to 5:00 p.m. weekdays or visit <https://www.tamug.edu/counsel/index.html>  (<https://www.tamug.edu/counsel/index.html>) for more information. For 24-hour emergency assistance during nights and weekends, contact the TAMUG Police Dept at (409) 740-4545. 24-hour emergency help is also available through the 988 Suicide & Crisis Hotline (800-273-8255) or at 988lifeline.org  (<https://988lifeline.org/>).

Texas A&M at Qatar


Texas A&M University at Qatar students wishing to discuss concerns in a confidential setting are encouraged to visit the [Health and Wellness](https://www.qatar.tamu.edu/students/student-affairs/health-and-wellness) (<https://www.qatar.tamu.edu/students/student-affairs/health-and-wellness>) website for more information.

Campus-Specific Policies

Texas A&M at Galveston

Classroom Access and Inclusion Statement

Texas A&M University is committed to engaged student participation in all of its programs and courses and provides an accessible academic environment for all students. This means that our classrooms, our virtual spaces, our practices and our interactions are as inclusive as possible and we work to provide a welcoming instructional climate and equal learning opportunities for everyone. If you have an instructional need, please notify me as soon as possible.

The Aggie Core values of respect, excellence, leadership, loyalty, integrity and selfless service in addition to civility, and the ability to listen and to observe others are the foundation of a welcoming instructional climate. Active, thoughtful and respectful participation in all aspects of the course supports a more inclusive classroom environment as well as [our mutual](https://www.tamug.edu/studentrules/Students_Rights_Responsibilities.html)  (https://www.tamug.edu/studentrules/Students_Rights_Responsibilities.html) responsibilities to the campus community.

The following statements below are optional. Leave as is to include, or delete if preferred. Either way, delete this note.

Statement on the Family Educational Rights and Privacy Act (FERPA)

FERPA is a federal law designed to protect the privacy of educational records by limiting access to these records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. Currently enrolled students wishing to withhold any or all directory information items may do so by going to howdy.tamu.edu (<https://howdy.tamu.edu/uPortal/normal/render.uP>) and clicking on

the "Directory Hold Information" link in the Student Records channel on the MyRecord tab. The complete **[FERPA Notice to Students \(https://aggie.tamu.edu/registration-and-records/transcripts-and-diplomas/student-records-policy#0-StatementofRights\)](https://aggie.tamu.edu/registration-and-records/transcripts-and-diplomas/student-records-policy#0-StatementofRights)** and the student records policy is available on the Office of the Registrar webpage.

Items that can never be identified as public information are a student's social security number, citizenship, gender, grades, GPR or class schedule. All efforts will be made in this class to protect your privacy and to ensure confidential treatment of information associated with or generated by your participation in the class.

Directory items include name, UIN, local address, permanent address, email address, local telephone number, permanent telephone number, dates of attendance, program of study (college, major, campus), classification, previous institutions attended, degrees honors and awards received, participation in officially recognized activities and sports, medical residence location and medical residence specialization.

College and Department Policies

College and departmental units may establish their own policies and minimum syllabus requirements. As long as these policies and requirements do not contradict the university level requirements, colleges and departments can add them in this section.

Please remove this section if not needed.

Click **[here \(https://facultysenate.tamu.edu/important-faculty-updates/minumum-syllabus-requirements\)](https://facultysenate.tamu.edu/important-faculty-updates/minumum-syllabus-requirements)** for more information on Texas A&M University's syllabus requirements.

