

# Syllabus

## CSCE 315: Programming Studio

It is estimated that Windows XP has 50,000,000 lines of code. The average mobile phone has over 10 million lines of code. The average developer writes 10 – 20 useful lines of code per day, so a couple of engineers and 2 friends could break away, start a new company, and create a new “Windows” operating system in only about *1700 years*. That’s not reasonable.

Up until now, most of the programs that you have been asked to write could probably fit in your mind. When you complete the letter, you fold it, seal it up, and mail it off (or hit send). But now it is plain to see that products that you use daily simply could not be recreated by you and 10 of your best friends in an afternoon, weekend, or semester. A 1700-year project is wildly unreasonable. There must be a better way.

In this course, you will learn a better way. You will dive into the world of software engineering and hone your teamwork (and, yes, coding) skills. Effective teamwork is essential, and software design methodologies make development more efficient. This course gives you very practical skills for being an effective member of a development team and producing high-quality, sustainable software. Learning these methods of working together, managing requirements, producing quality software products, and testing, delivering, and maintaining these products is every bit as valuable as coding.

### Why I Teach this Course

This course offers you a unique learning experience. I am always especially excited to teach this course, and here is why:

- Building software is fun and rewarding  
*You get many opportunities to “learn by doing”*
- There’s more to software than just coding  
*You get a taste of software engineering*
- Working on teams can be messy, but it’s worth it  
*It is amazing what you can accomplish together, so much more than on your own*

### Course Information

Course Number: 315

Course Title: Programming Studio

## Lecture:

- Sections 901-903, Face-to-Face,
  - Times: Tuesdays and Thursdays, 9:35 AM - 10:50 AM
  - Room: **Zachry Engineering Education Complex** (<https://aggiemap.tamu.edu/?bldg=0518>) 350
- Sections 904-906, Face-to-Face
  - Times: Tuesdays and Thursdays, 11:10 AM - 12:25 PM
  - Room: **Zachry Engineering Education Complex** (<https://aggiemap.tamu.edu/?bldg=0518>) 350

## Lab:

- Section 907, Face-to-Face
  - Mondays and Wednesdays, 8:00 AM - 8:50 AM
  - Room: **Zachry Engineering Education Complex** (<https://aggiemap.tamu.edu/?bldg=0518>) 596
- Section 908, Face-to-Face
  - Mondays and Wednesdays 9:10 AM - 10:00 AM
  - Room: **Zachry Engineering Education Complex** (<https://aggiemap.tamu.edu/?bldg=0518>) 596
- Section 909, Face-to-Face
  - Mondays and Wednesdays 10:20 AM - 11:10 AM
  - Room: **Zachry Engineering Education Complex** (<https://aggiemap.tamu.edu/?bldg=0518>) 596
- Section 910, Face-to-Face
  - Mondays and Wednesdays 11:30 AM - 12:20 PM
  - Room: **Zachry Engineering Education Complex** (<https://aggiemap.tamu.edu/?bldg=0518>) 596
- Section 911, Face-to-Face
  - Mondays and Wednesdays, 8:00 AM - 8:50 AM
  - Room: **Zachry Engineering Education Complex** (<https://aggiemap.tamu.edu/?bldg=0518>) 598
- Section 912, Face-to-Face
  - Mondays and Wednesdays 9:10 AM - 10:00 AM
  - Room: **Zachry Engineering Education Complex** (<https://aggiemap.tamu.edu/?bldg=0518>) 598
- Section 913, Face-to-Face
  - Mondays and Wednesdays 10:20 AM - 11:10 AM
  - Room: **Zachry Engineering Education Complex** (<https://aggiemap.tamu.edu/?bldg=0518>) 598
- Section 914, Face-to-Face
  - Mondays and Wednesdays 11:30 AM - 12:20 PM
  - Room: **Zachry Engineering Education Complex** (<https://aggiemap.tamu.edu/?bldg=0518>) 598

Credit Hours: 3 (2 Lecture Hours, 2 Lab Hours)

## Instructor Details

Instructor: Dr. Paul Taele

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- Phone: 979-862-8877
- E-Mail: [ptaele@tamu.edu](mailto:ptaele@tamu.edu) (<mailto:ptaele@tamu.edu>)
- (<mailto:ptaele@tamu.edu>)\_Help/Office Hours: TBD and by appointment, all online

## Teaching Assistants

TA: Sibbo (Yuno) Min

- Email: [minsibo0420@tamu.edu](mailto:minsibo0420@tamu.edu) (<mailto:minsibo0420@tamu.edu>)
- (<mailto:minsibo0420@tamu.edu>)\_Help/Office Hours: Mondays, 11:00 AM - 1:00 PM
- **Zoom link** ➞ (<https://tamu.zoom.us/j/9414136990>)

TA: Ravikiran (Ravi) Ramesh

- Email: [ravikiran.ramesh@tamu.edu](mailto:ravikiran.ramesh@tamu.edu) (<mailto:ravikiran.ramesh@tamu.edu>)
- (<mailto:ravikiran.ramesh@tamu.edu>)\_Help/Office Hours: Tuesdays, 3:00 PM - 5:00 PM
- Room: **Engineering Activities Building C** (<https://aggiemap.tamu.edu/map/d?bldg=0460>)\_Lobby
- **Zoom link** ➞ (<https://tamu.zoom.us/j/2285434467>)

TA: Pratyusha Vudutala

- Email: [pratyusha@tamu.edu](mailto:pratyusha@tamu.edu) (<mailto:pratyusha@tamu.edu>)
- (<mailto:ravikiran.ramesh@tamu.edu>)\_Help/Office Hours: Wednesdays, 4:00 PM - 6:00 PM
- **Zoom link** ➞ (<https://tamu.zoom.us/j/94088168496>)

TA: Shuaifang Wang

- Email: [wangshuaifang@tamu.edu](mailto:wangshuaifang@tamu.edu) (<mailto:wangshuaifang@tamu.edu>)
- (<mailto:wangshuaifang@tamu.edu>)\_Help/Office Hours: Thursdays, 1:00 PM - 3:00 PM
- **Zoom link** ➞ (<https://tamu.zoom.us/j/97017721082>)

## Course Description

Intensive programming experience that integrates core concepts in Computer Science and familiarizes with a variety of programming/development tools and techniques; students work on 2 or 3 month-long projects each emphasizing a different specialization within Computer Science; focuses on programming techniques to ease code integration, reusability, and clarity.

## Course Prerequisites

CSCE 312 and CSCE 314; or CSCE 350/ECEN 350

Corequisite: CSCE 313

## ■ Special Course Designation

W (writing intensive course)

As a writing intensive course, you will receive instruction on writing and complete writing assignments so you can master writing related to the major. **You must pass the writing components to earn a grade in the course.**

## ■ 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 month-long 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 on new projects (including managing requirements, design, implementation, testing, deployment, and maintenance)
- **Design and develop** software that is clearer, more maintainable, and solves complex problems
- **Integrate** a variety of current software technologies to build new software products
- **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 (DB, HCI)

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 class.

## Required Textbooks

**Code Complete, 2nd edition** ➞ <https://go.oreilly.com/TAMU/library/view/-/0735619670/?ar> by Steve McConnell (Microsoft Press, 2004).

**(Code Complete PDF)** ➞ <http://aroma.vn/web/wp-content/uploads/2016/11/code-complete-2nd-edition-v413hav.pdf>

**Database Design, 2nd edition** ➞ <https://opentextbc.ca/dbdesign01/> by Adrienne Watt (BCcampus Open Education, 2014).

**(Database Design PDF)** ➞ <https://opentextbc.ca/dbdesign01/open/download?type=pdf>

Other supplementary material as needed will be supplied electronically.

## Grading Policy

### **Grading Components:**

Your grade for this course reflects your mastery of course material and is determined by multiple components. As a writing course, **you must pass the writing components with a C or better to earn a grade in the course.** Failure to pass the writing components with a C or better results in an F for the course.

**Team Projects – 50%:** Two major projects, each one worth 25% of grade each, for 50% total. Specific grading practices for each project will be announced when that project is given out. Peer evaluation (mainly with-in teams and in some cases from outside) will be used as a significant contributing factor to these grades.

*Team projects include instructed and evaluated writing components that contribute to the course's written component.*

**Individual Project – 10%:** The individual project will be completed prior to the team projects. Specific grading practices will be announced when the assignment is given out.

*The individual project includes instructed and evaluated writing components that contribute to the course's written component.*

**Written Project – 20%:** This is a writing intensive course. You will compose a written report on a topic in software engineering. You will then update your report based on peer-feedback. Specific grading practices will be announced when the assignment is given out.

*The written project includes instructed and evaluated writing that contributes to the course's written component.*

**Other Course Activities – 20%:** The course has several different types of activities to help you better understand concepts and connect with the material. This includes (but is not limited to) at-home assignments, in-class assignments, quizzes, and labs. These activities bring deeper, longer-term learning as you work, either individually or with other students. For submitted assignments, grading will be based on the quality of the submitted work. For group assignments, your full participation is required to receive a grade for that assignment.

### ***Grading Scale:***

Grades will be assigned according to the following scale:

A  $\geq$  90 > B  $\geq$  80 > C  $\geq$  70 > D  $\geq$  60 > F

### ***Submission of Assignments:***

All assignments will be turned in electronically through **Canvas** (<https://canvas.tamu.edu/>) (unless otherwise specified) by the due date and time given on the assignment. Email submissions will not be accepted.

## **Late Work Policy**

Assignments turned in after the posted deadline will have a penalty applied of 5% per day late. Assignments will not be accepted after 6 working days. For team assignments, this affects the grade for the entire team. If the assignment is individual, it will only affect the grade for that team member.

## **Course Schedule**

The course is listed as a 2-hour per week lecture, and 2-hour per week lab, however it has been intentionally scheduled for 3 hours per week of lecture (along with the lab). We will meet approximately 2/3 of the lecture periods over the course of the semester. We will **“front-load” these lectures in the earlier part of the semester** to cover material that will be useful when working on the projects. We will use the remainder of the semester for completing the last project.

Below is the planned but tentative schedule of topics and major projects for the course. All assignment and project details will be communicated on **Canvas** (<https://canvas.tamu.edu/>).

Week	Lecture Topics	Lab Topics	Project Deliverables (due Sunday midnight at end of week)
1	Introductions, Professional Presence	No labs	

2	Software Construction and Design	Git commands, HTML basics	Project 1 Website Draft
3	Software Development Methodologies, Waterfall, Databases	More HTML, Javascript, CSS	Project 1 Revised Website
4	Team Success, Personal Character, Technical Writing	AWS server basics, Database design diagrams	Project 2 Phase 1
5	Code as Communication, Style Guides	Populating an AWS database	Project 2 Phase 2, Project W Topic Selection
6	Collaborative Development, Formal Inspections	Project 2 Phase 2 demos, JDBC connection and GUI	Project 2 Phase 3, Project W Source List
7	Testing/Debugging/Refactoring, Commenting and Self-Documenting Code	Project 2 Phase 3 demos	Project 2 Phase 4
8	Integration and Configuration Management, Agile	Project 2 Phase 4 demos, Ideation	Project 3 Topic Selection, Project W Full Draft
9	Accessibility, User Studies	APIs, OAuth	Project 3 Proposal, Project W Revised Paper
10	Project Workdays	Backlogs, Burn-down charts, User stories	Project 3 Sprint 1 Materials
11	Team Meetings	More Git commands, Node.js	Project 3 User Stories and User Study Proposal
12	Team Meetings	API access, Public hosting, Accessibility	Project 3 Sprint 2 Materials
13	Team Meetings	User study trades	Project 3 User Study Report
14	Team Meetings	Project workdays	Project 3 Sprint 3 Materials
15	Course Wrap-up, Final Presentation Instructions	Project workdays	Project 3 Retrospective Reports
Finals	Project 3 Final Presentations		

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# University and Course Policies

## 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/>)).

Students should submit excused absence documentation to the Canvas course.

## Communication Policy

We will use **Canvas** (<https://canvas.tamu.edu/>) to post assignments, course resources, discussions, and send announcements. **It is your responsibility to check Canvas and pay attention to class emails and announcements.**

## Bring Your Own Device Policy



BYOD is an initiative in the College of Engineering where **students are required bring their own computing device to lecture and lab**. You need to have a computing device with a headset, microphone, and webcam. You will also need stable internet access outside of lecture and lab. See the **BYOD webpage** (<https://engineering.tamu.edu/easa/areas/academics/byod>) for information on the program, approved devices, and financial assistance. BYOD devices fulfill the requirements for this class.

## ■ 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>)).

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>).

All suspected academic misconduct is taken seriously and will be reported to the Aggie Honor System Office.

**For this class, certain aspects of the honor code need to be clarified:**

1. **External code/software/libraries:** There will be times in this course where you or your team make use of external code/software/libraries. Whenever this is done, you must make sure that you:
  - Follow any licensing and/or use restrictions that library/code requires.
  - Clearly document what the source of the external code was, and how it was used.

Failure to follow licensing or usage restrictions or neglecting to clearly document usage is an honor code violation.

2. **Outside assistance:** There may be times in this course where you or your team would like to seek outside assistance related to projects and assignments. Any assistance from any person other than members of your team, the instructor, teaching assistants, or peer teachers **needs prior approval from the instructor** and needs to be clearly documented. This also includes online websites and material. **Do not assume that if you have access to something that it is approved.** Using unapproved outside assistance of any kind is an honor code violation.
3. **Working in teams:** You will be working in team environments in this course, and your work as a team will be used to determine grades. As such, it is your responsibility, when asked, to:

- **Accurately describe the work that you have done on a team project.** Claiming credit for work that you have not done or that others did instead is an honor code violation.
- **Accurately describe (to the best of your knowledge) the performance of other team members.** “Covering” for another team member (claiming they did more work than you know they did, or exaggerating the work they did) or “spiking” them (claiming they did less work than you know they did, or purposefully minimizing the work they did) are examples of honor code violations.
- **Prevent (as best you can) or report (known or suspected) violations of the honor code by your other team members.** You share responsibility when a project is turned in; if you are aware of a teammate having violated the code in his/her work on the project, and do not report it, you are claiming credit for that violation yourself.

If there are any questions or concerns about whether an action is appropriate, you should check with the professor or teaching assistant first. **If in doubt, assume that the action is not appropriate.**

## **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.

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

## **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.

*Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with **Counseling and Psychological Services** (<https://caps.tamu.edu/>)(CAPS).*

*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 that influence a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus.

*Students who need someone to talk to can contact **Counseling & Psychological Services** (<https://caps.tamu.edu/>)(CAPS) or call the **TAMU Helpline** (<https://caps.tamu.edu/helpline/>)(979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at **suicidepreventionlifeline.org**  (<https://suicidepreventionlifeline.org/>).*

