# Course Syllabus
# CSCI 4050/6050 Software Engineering
# Spring 2021

## Professor

**Dr. Eman Saleh, eman.saleh@uga.edu**
**Office Hours:** Monday and Wednesday 3:15 – 4:15**, online (live Q&A on Piazza).**

You are welcomed to request a Zoom meeting during or out of the scheduled office hour. Please send a meeting request via email, at least 24 hours in advance of the desired meeting time.

## Teaching Assistant

To be Announced

## Course Description

In this course you will study the principles of Software Engineering, focusing on Object Oriented Software Engineering. We will begin with the introductory discussion of the software development process and what constitutes well-engineered software. Then we will move on to software specification and requirements definition. The next part of the course will be devoted to software design. Although we will discuss some of the major design techniques, we will specifically concentrate on Object-Oriented Design (OOD). A significant portion of the course will be dedicated to learning the Unified Modeling Language (UML). We will also discuss Design Patterns, as well as the basic principles of user interface design and other methods and techniques for reliable software development and reuse. Furthermore, we will focus on issues related to project and team management. We will conclude the course with discussions on software verification and validation techniques.

The course will include a substantial **term project**, which will be coded in Java (C++ and Python will be considered). We will include a quick introduction to Relational Databases.

All students will complete a term project, the success of which will rely upon close collaboration in small teams, composed of 4 students. The course will have an explicit focus on **teaching teamwork skills** by integrating cooperative learning activities.

Individual projects/assignments will be assigned, as well. In all course assignments, each student is expected to do his/her own work. However, close teamwork will be expected and necessary in the term project. All suspected cases of academic dishonesty will be handled in strict accordance with department and university policy. The grade of I (incomplete) is reserved for special cases only, such as a serious illness, and will be decided on individual basis.

Although the term project is a solid main part of the course, this course **does not** teach programming. The focus is to apply your programming skills to write a high quality and a well-designed software.

## Class Meeting Times & Classrooms

| CRNs (CSCI4050/CSCI6050) | Meeting Time | Classroom | Section Symbol | Zoom Meeting ID | Password |
|---|---|---|---|---|---|
| 45016/45023 | 10:20 – 11:10 M<br>09:35 – 10:50 TR | Boyd 222<br>Boyd 222 | **A** | 930 8549 5220 | 3381A |
| 46855/49100 | 11:30 – 12:20 M<br>11:10 – 12:25 TR | Boyd 208<br>Boyd 208 | **B** | 971 9031 7848 | 3381B |
| 40774/40775 | 12:40 – 01:30 M<br>12:45 – 02:00 TR | Boyd 208<br>Boyd 208 | **C** | 987 3941 5295 | 3381C |

## Teaching Mode

This course is taught in the asynchronous hybrid mode; some lectures are recorded, and others are synchronous during the scheduled class time. For synchronous lectures, you can attend class in-person on either Monday, Tuesday, or Thursday. On the other days, you will join the class remotely via Zoom or view the recorded lecture. Streaming will be available for all face-to-face meetings. See the announcement page for your section Zoom meeting ID and password.

It is your responsibility to check eLC announcements page if the next week lectures are recorded or synchronous.

Students with ADA Accommodations will always attend the synchronous classes remotely over Zoom.

Discussions and other in-class activities will be set up so that remote students can participate alongside the socially distanced face-to-face participants.

*This plan might be adjusted based on needs and circumstances.*

## Learning Outcomes

This course presents a survey of topics in software engineering most relevant to students studying computer science. At the end of the semester, all students will be able to do the following:

1. Identify and differentiate phases of a typical software process and how it relates to the software life cycle and the different software process models.
2. Create functional requirement specifications in the form of use cases and user stories and differentiate between functional and non-functional requirements.
3. Develop static and dynamic UML diagrams to model both the structural and behavioral aspects of the software system throughout the different phases of the development life cycle.
4. Create a software architecture specification, including subsystem decomposition and subsystem interface descriptions.
5. Communicate and effectively function as a member of a software development team to develop a software system based on its specification and previously created models.
6. As a team, deliver a coherent and professional presentation and demonstration of a functioning software system and the results of its testing.

## Prerequisites

CSCI 2720.

**There are some prerequisites we expect the students to satisfy to be successful in the class:**

- You should be familiar with Java and be comfortable with coding. Knowing another object-oriented language, such as C++ or Python may be enough.
- You should have enough flexibility to work with a team that meets (remotely) on a regular basis. You and your teammates will be able to choose how and when to communicate. The term project requires you to build excellent collaboration skills. Team members should cooperate and promote each other learning to develop a working project; given the fact that a team member does not have all required skills (Database, web development, and OO programming).
- You should be comfortable learning how to develop software documents, learning about software modeling, and working with software tools. Some students regret taking this course as they consider software documentation and modeling *unnecessary* and they expect a programming course as they are not motivated to learn about documentation and modeling.

If you do not satisfy one or more of these requirements, you should seriously consider taking the course in a later semester or replacing it with another course.

## Textbooks

***Object-Oriented Software Engineering. Using UML, Patterns, and Java. 3-rd Ed.***, by Bernd Bruegge and Allen H. Dutoit, Prentice Hall, 2010.
***UML @ Classroom,*** by M. Seidl, M. Scholz , C. Huemer, and G. Kappel, Springer, 2015. **This book is available on-line and free of charge to UGA students, via UGA Library's Springerlink connection**

## References:

- Software Engineering, by Ian Sommerville, 10th edition, Addison-Wesley 2015.
- Systems Analysis and design in a changing world, 7th edition by John W. Satzinger, Cengage Learning, 2016.
- UML 2.0 in a Nutshell, by Dan Pilone, O'Reilly & Associates, 2005.
- The Unified Modeling Language User Guide (2nd Ed.), by Grady Booch, Ivar Jacobson, James Rumbaugh, Addison-Wesley, 2005.

**The following books will be very helpful. They are available on-line and free of charge to UGA students, via the UGA Library's Springerlink connection.**
- ***Database Systems: A Pragmatic Approach,*** by E.C. Foster and S. Godbole, Apress, 2016.
- ***The Essential Guide to CSS and HTML Web Design***, by Craig Grannell, Apress, 2008.

## Grading

35%: Term project
- 15% deliverables
- 17% final presentation
- 03% teamwork evaluation (group processing activities).

15% Assignments and Quizzes
- 5% Assignments
- 10% Quizzes:

05% Participation (class activities)
20%: Mid-term exam
25%: Final exam

The final course grades will be determined according to the following scale:

| | | | |
|---|---|---|---|
| 90-100 | **A** | 76-77 | **C+** |
| 88- 89 | **A-** | 70-75 | **C** |
| 85-87 | **B+** | 68-69 | **C-** |
| 80-84 | **B** | 60-67 | **D** |
| 78-79 | **B-** | Below 60 | **F** |

## Communication

- The instructor will communicate through announcements on eLC and will use eLC to send out emails, announcements, projects, and assignments to students. It is required that students check their uga.edu email and eLC at least once a day.
- Students must use their UGA email accounts; the instructor or TA will not respond to emails from other domains. **do not** send me emails through eLC.

- When emailing the instructor or the TA, please include a [CS4050/6050) section/CRN] tag in the subject line. You may not receive a reply if your subject does not include the tag.
  Please allow 24-hours for a response on a weekday and 48-hours for a response on the weekend or holiday/break.

  Email will not be used to provide private tutorials or to explain material that was covered in lectures. Email communication should NOT be treated as an alternative to meeting with the instructor (or TA) during office hours or by appointment.

  Any appointments outside of scheduled office hours are at the instructor's or TA's discretion and must be requested at least 24 hours in advance of the desired meeting time.

**Piazza page**: Piazza is our online forum. Make sure to sign up to our Piazza page here.

Ask class related questions on piazza. While private and anonymous posts are allowed, by asking questions publicly on Piazza, you can benefit from the collective knowledge of your classmates, myself, and the TA. Most importantly, it allows your classmates to see questions, answers, and discussions that can benefit them and promote student's collaboration.

You should adhere to the UGA and CS academic honesty. Do not post or share answers to assignments and quizzes. You may discuss a general question and a general solution to a problem.

Do not use piazza to send regrade requests nor personal/ team excuses.

## Exams: Dates and policies

All Exams and Quizzes are online on eLC.

**Midterm Exam:** Thursday, October 15, at regular lecture time.

**Final Exam**: Monday, December 14, 7:00 – 10:00 pm

UGA has an official policy for dealing with exam conflicts. To find thi s information, in addition to the official schedule of final exams, visit: https://reg.uga.edu/general-information/calendars/final-exam-schedule/

**Exam Policies:**

- All instructions written on an exam or stated by the instructor before or during an exam must be followed.
- If the midterm exam is missed due to an extreme and verified emergency, then it might be excused by the instructor. To be considered for an excused exam absence, students must provide detailed documentation explaining the circumstances to the instructor during office hours no more than 7 days after an exam is missed. Student must leave a copy of their documentation with the instructor. The instructor has full authority to decide whether to excuse an exam absence. If the absence is excused, then the final exam score will be counted for the missed exam. If the absence is not excused, then a grade of 0 will be given.

## Late Assignment/Project deliverables Submission

Except in the cases of serious illness or emergencies, assignments must be submitted before the specified deadline in order to receive full credit. Assignments/Projects submitted late will be subject to the following penalties:

1. If submitted 0–24 hours after the deadline, 10% will be deducted from the project score
2. If submitted 25–48 hours after the deadline, 20% will be deducted from the project score.
3. If submitted more than 48 hours after the deadline, a score of 0 will be given.

For the term project deliverables, you have one free late submission (1-48 hours after the deadline).

Students unable to submit an assignment due to a serious illness or other emergency should contact the instructor as soon as possible before the deadline. Based on the circumstances, the instructor will decide an appropriate course of action.

## Attendance & Participation

Attendance will not be taken. However, the class lectures are an integral part of the course. If you are absent, it is your responsibility to find out what was covered in class and to catch up.

**The participation grade (5%)** will be assessed by participating in the In-Class Activities. All in-class activities should be submitted to eLC during class time. In-class group/pair activities will be done via Zoom breakout rooms, due to social distancing needs. No makeup for the in-class activities. Missing one activity will not affect your participation grade.

In-person attendance is not mandatory. Attendance and engagement location (in-person or online) will not affect grading in any way.

Unless for a week or more emergency absence, Do NOT email the instructor if you missed or will miss a class. If you missed a class, you are responsible for all material covered or assigned in class.

## Regrading

Students may request a reevaluation of graded materials. To be considered, students must send a regrade request within ***5 days*** after the grade was posted on eLC for grades posted to eLC before the last instructional week. For grades posted during or after the last instructional week, students must send a regrade request within ***2 days*** after the grade was posted on eLC. Assignments regrade requests should be emailed to the **TA** unless you want to discuss your grade further with the instructor**.** Exam and quizzes regrade requests must be emailed to the instructor.

Regrade requests will not be processed if not satisfying the following:

Send a regrading request from your UGA email with a subject that contains: **"CS 4050/6050 section/CRN [Team N] regrade request for y"**, where **y** is the name of the quiz/exam, deliverable or assignment. Example: CS4050 Regrade request for Assignment1 Question 2. If **y** is a project deliverable, include your tram number **N** only if the regrade request is for a group submission**.** Example: CS 4050 A Regrade request for deliverable 2 Team 3.

## Academic Honesty

- All academic work must meet the standards contained in "A Culture of Honesty". Students are responsible for informing themselves about those standards before performing any academic work. The link to more detailed information about academic honesty can be found at http://www.uga.edu/honesty/ahpd/culture_honesty.html. The Computer Science Department Honesty Policy also applies.
- Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation.
- All assignments submitted in this course must be your own unless you have received my permission to collaborate and have properly acknowledged receiving assistance.
- You can discuss the individual programming assignments with other students if the discussion is very general. The term project will be done by teams of students, and you are encouraged to communicate with your team members and classmates on Piazza to seek help and provide solutions. However**, if you have any doubts about what you are doing, ask the instructor.**
- Note that **copying materials from the Web is a violation of academic honesty**. Copying anything from any Web site is forbidden and will be considered exactly as cheating on assignment. Furthermore, accepting code written by other students in previous or current offerings of this class will be considered a violation of the academic honesty policy.
- You do not have the instructor's permission to use notes from lectures for commercial lecture note purposes. You are not allowed to distribute any of the class material.

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*The official UGA policy for syllabi is, "The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary."*

**Coronavirus Information for Students**

**Face Coverings:**

Effective July 15, 2020, the University of Georgia—along with all University System of Georgia (USG) institutions—requires all faculty, staff, students and visitors to wear an appropriate face covering while inside campus facilities/buildings where six feet social distancing may not always be possible. Face covering use is in addition to and is not a substitute for social distancing. Anyone not using a face covering when required will be asked to wear one or must leave the area. Reasonable accommodations may be made for those who are unable to wear a face covering for documented health reasons. Students seeking an accommodation related to face coverings should contact Disability Services at https://drc.uga.edu/.

**DawgCheck:**

Please perform a quick symptom check each weekday on DawgCheck—on the UGA app or website—whether you feel sick or not. It will help health providers monitor the health situation on campus: https://dawgcheck.uga.edu/

**What do I do if I have symptoms?**

Students showing symptoms should self-isolate and schedule an appointment with the University Health Center by calling 706-542-1162 (Monday-Friday, 8 a.m.-5 p.m.). Please DO NOT walk-in. For emergencies and after-hours care, see https://www.uhs.uga.edu/info/emergencies.

**What do I do if I am notified that I have been exposed?**

Students who learn they have been directly exposed to COVID-19 but are not showing symptoms should self-quarantine for 14 days consistent with Department of Public Health (DPH) and Centers for Disease Control and Prevention (CDC) guidelines. Please correspond with your instructor via email, with a cc: to Student Care & Outreach at sco@uga.edu, to coordinate continuing your coursework while self-quarantined. If you develop symptoms, you should contact the University Health Center to make an appointment to be tested. You should continue to monitor your symptoms daily on DawgCheck.

**How do I get a test?**

Students who are demonstrating symptoms of COVID-19 should call the University Health Center. UHC is offering testing by appointment for students; appointments may be booked by calling 706-542-1162.

UGA will also be recruiting asymptomatic students to participate in surveillance tests. Students living in residence halls, Greek housing and off-campus apartment complexes are encouraged to participate.

**What do I do if I test positive?**

Any student with a positive COVID-19 test is required to report the test in DawgCheck and should self-isolate immediately. Students should not attend classes in-person until the isolation period is completed. Once you report the positive test through DawgCheck, UGA Student Care and Outreach will follow up with you.