



CSCI3340.02: Software Engineering I
CYBI3331.01/90R: Software Engineering and Project Management

SYLLABUS
Spring 2024

Subject to any new Texas legislative mandate changes.

UTRGV Syllabus Table of Contents

1. [CSCI3340.02: Software Engineering I and CYBI3331.01/90R: Software Engineering and Project Management](#)
2. [Course Information](#)
3. [Instructor Information](#)
4. [Welcome and Teaching Philosophy](#)
5. [Course Description, Prerequisites & Course Modality](#)
6. [Course Assignments & Learning Objectives](#)
7. [Learning Objectives for Core Curriculum Requirements \(if applicable\)](#)
8. [Assessment of Learning](#)
9. [Required Readings, Technology Needs, and Resource Materials](#)
10. [Tentative Calendar of Activities](#)
11. [Course Policies and Procedures](#)
12. [Student Support Resources](#)
13. [University Policy Statements](#)



CSCI3340.02: Software Engineering I CYBI3331.01/90R: Software Engineering and Project Management

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Course Information

Meeting times: MW, 1230pm - 145pm

Meeting location: MAIN 2.518, Brownsville Campus

[Campus Maps](#)

Course Modality:

TR (traditional face-to-face) for CSCI3340.02 and CYBI3331.01

OSYNC (online synchronous) for CYBI3331.90R

Instructor Information

Instructor Name: Liyu Zhang

UTRGV E-mail: liyu.zhang@utrgv.edu

Office Phone: (956) 882-6631

Office Location: BSETB 1.522 and online through Zoom meeting: 863 4976 1271

Office Hours: TR 2pm – 430pm

Course Description, Prerequisites & Course Modality

[Course Description](#) (Catalog)

CSCI3340: A formal approach to the state-of-the-art techniques in software design and development. Emphasis will be on Project Planning, Requirements, Specification, and System Design and includes object design, testing, and implementation. Provides the student with the opportunity to work on large projects in a group situation.

CYBI3331: Software Engineering with Project Management to clearly understand the processes involved in how to define, schedule, implement and manage projects in a team setting with a cybersecurity emphasis.

Course Prerequisites

CSCI3340: Grade of C or better in: [3 advanced hours in CSCI or CMPE] and [CSCI 2380 or CMPE 2380], Credit hours: 3.000, Lecture hours 3.000

CYBI3331: "C" or better in CYBI 2322, CYBI 2324, and CYBI 2326.

Course Modality: stated in the previous section, this course will be delivered in the traditional face-to-face way for CSCI3340.02 and CYBI3331.01 sections and synchronously online for the CYBI3331.90R section.

Additional Course Topics As approved and required by the computer science department, the following topics in the area of software security will also be covered by CSCI3340:

- Application security failure
 - Flaws in requirements, design, and implementation processes (case study)
 - Flaws in testing plan and execution (case study)
- Authentication and Authorization
 - Security requirements: users, roles, actions, and permissions
 - Unauthorized access vulnerabilities
 - Systematic testing based on requirements and design

Course Assignments & Learning Objectives

CSCI3340: Student learning outcomes (SLOs) for this course and program SLOs they support provided in the table below. All the SLOs will be accessed through exams and assignments including homework and programming/team projects. For team projects, students are expected to make sufficient contributions to their teams and demonstrate that they have attained a satisfactory level of relevant SLOs in a team setting. Students' team contributions will be assessed by the following course components:

- Relevant sections in the narratives of team project reports,
- Peer evaluation scores students received for each phase of their team projects, and
- Relevant questions in the exams.

| Program Student Learning Outcomes | Course Student Learning Outcomes | Major Course Requirement/Major Assignment/Examination |
|--|---|---|
| An ability to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline. | <ul style="list-style-type: none"> • Understand the principles of software engineering. • Be able to create and use planning, requirements analysis, domain analysis and design artifacts, and testing modules. • Be able to document all phases of the software development processes | Relevant problems in homework and exams, and parts of team projects |
| An ability to communicate effectively in a variety of professional contexts. | <ul style="list-style-type: none"> • Understand and be fluent in the use of software engineering terminology and nomenclature | Team project presentations, documents required by all phases of team projects |
| Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles. | <ul style="list-style-type: none"> • Be knowledgeable of ethics, professionalism, and cultural diversity in the work environment. • Be able to analyze the local and global impact of any produced software | Relevant problems in homework and exams, and parts of team projects |
| An ability to function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline. | <ul style="list-style-type: none"> • Be capable of intelligently communicating with most members in a software development organization (business and project management, analysts, architects, developers, customers, and end users) | Relevant parts and peer evaluations of team projects |

CYBI3331: Include all SLOs of CSCI3340 and the following additional SLOs, both of which will be assessed through relevant homework and exam problems:

- Understand and be able to explain concepts in software project management.
- Be able to create a viable plan for a software project of moderate magnitude.

Assessment of Learning

As mentioned in the last section, all SLOs will be assessed through assignments and exams. The grading scheme for your overall course grades is described below.

| | |
|----------------|---|
| Attendance | 10% |
| Homework | 20% |
| Projects | 25% |
| Midterm Exam | 20% |
| Final Exam | 25% |
| Grading scale: | 100% >= A >= 90% > B >= 80% > C >= 70% > D >= 60% > F |

Re-grading If you have a question about the grading of any piece of work, you should consult with the instructor of the course within one week of the date that the work was returned. In other words, if you do not pick up your work in a timely fashion, you may forfeit your right to question the grading of your work.

Required Readings, Technology Needs, and Resource Materials

The following textbook is required for this course:

R. Sethi, *Software Engineering: Basic Principles and Best Practices, 1e*, Cambridge University Press, 2023, ISBN-13: 978-1316511947.

Currently, the book can be purchased at \$44.95 for a new hard copy from Amazon or purchased at \$44.99 for a Kindle version.

We also recommend the following reference books:

R. Pressman and B. Maxim, *Software Engineering: A Practitioner's Approach, 9e*, McGraw Hill, 2019, ISBN-13: 978-1259872976.

E. Braude, *Software Engineering Modern Approaches, 2e*, Waveland Press, Inc., 2010, ISBN-13: 978-0471692089.

I. Sommerville, *Engineering Software Product: An Introduction to Modern Software Engineering*, Pearson, 2019, ISBN-13: 978-0135210642.

None of the books listed above is open education record, but the instructor will make some chapters of the book available for some required topics.

To succeed in this course, you need to be able to participate in class sessions and activities. This will require:

- A place to work and a reliable computer (laptop or desktop)
 - A tablet would be very difficult for this class, and insufficient for the major
 - Any standard computer will work. The most important considerations to compare against cost are:
 - Reliability, warranty, repair options
 - Portability, size, battery life
 - Desktops are more powerful and cheaper, but portability is a high value for most students. We have good open CS labs on campus, but that is not the same as having your own machine with you anywhere.
 - Windows is most common, and thus best supported. macOS and linux work, but you will need to have the IT knowledge and skills to adapt things (not in this class).

- Specs:
 - Minimum: 8 GB RAM, i5 processor, 256 GB storage
 - Recommended: 16 GB RAM, i7 processor, 512 GB storage
 - SSD is very nice, but is also an easier cut to reduce cost
 - 2-in-1, touchscreen, pen digitizer are all great, but they are luxuries
 - You pay a premium for a mac or a surface, you can get equivalent hardware for a lot less
 - Big GPU power only matters if you are gaming or doing heavy 3d work. A secondary desktop later on may be a better investment.
- Packages and deals are available [at the UTRGV bookstore \(https://link.utrgv.edu/campusstores-tech/\)](https://link.utrgv.edu/campusstores-tech/).
- **Daily access to online Blackboard** We will use UTRGV online Blackboard as the place for making announcements and posting course materials/information such as course calendar, lecture notes, assignments and grades etc. So please check Blackboard regularly and at least once every 24 hours. It is YOUR responsibility to keep updated with class through online Blackboard.

Tentative Calendar of Activities

Planned covered topics by weeks and corresponding assessments are shown below. Click [this link](#) for updated activities and dates including the deadlines for submitting assignments.

| Week of | Topic | Assessments |
|-----------|---|---|
| 1/15/2024 | Syllabus, Introduction to Software Engineering (SE) (Chapter 1), and Project Team Formation | Homework 1 Team Project Stage 1 Midterm Exam |
| 1/22/2024 | Software Development Process Models and Agility (Chapter 2) | Homework 2 Team Project All Stages Midterm Exam |
| 1/29/2024 | User Requirements (Chapters 3) | Homework 3 Team Project Stages 2 Midterm Exam |
| 2/5/2024 | Software Requirement Analysis (Chapter 4) | Homework 4 Team Project Stage 3 Midterm Exam |
| 2/12/2024 | Use Cases (Chapter 5) | Homework 5 Team Project Stage 3 Midterm Exam |
| 2/19/2024 | Software Design and Architecture (chapters 6 and 7) | Homework 6 Team Project Stages 4 Midterm Exam |
| 2/26/2024 | TBA | TBA |
| 3/4/2024 | Midterm Review | Midterm Exam |
| 3/11/2024 | Software Implementation (TBA) | Team Project Stages 4 |
| 3/18/2024 | Software Review (Chapter 8) | Homework 7 |

| | | |
|-----------|--|--|
| | | Team Project All Stages, Final Exam |
| 3/25/2024 | Software Testing – part I (Chapter 9) | Homework 8 Team Project Stage 5 Midterm Exam |
| 4/1/2024 | Software Testing – part II (Chapter 9) | Homework 9 Team Project Stage 5 Final Exam |
| 4/8/2024 | Software Security Engineering (TBA) | Homework 10 Team Project Stage 6 Final Exam |
| 4/15/2024 | Software Quality (Chapter 10) | Homework 11 Team Project Stage 7 Final Exam |
| 4/22/2024 | TBA | TBA |
| 4/29/2024 | Team Project Presentation | Team Project Presentation |

Course Policies and Procedures

We value a positive and supportive learning environment, and for us to thrive together, we must recognize that our responsibilities, actions, and contributions can impact and transform our learning. The course policies listed below are created to ensure your success by fulfilling course expectations while remaining flexible to account for unexpected events.

LEARNING AND TEACHING ENVIRONMENT

We expect all of you to attend all lectures, in person or online through Collaborate Ultra in Blackboard if you are in the 90R section, and complete all assignments including homework and team projects. You are also welcome to ask questions during lectures and office hours.

ATTENDANCE AND ABSENCES/SICK POLICY

Students are expected to attend all scheduled classes. [UTRGV's attendance policy](#) excuses students from attending class if they are participating in officially sponsored university activities, such as athletics, accommodation by Student Accessibility Services (SAS), observance of religious holy days, or military service. Accommodation related to long-term complications from medical conditions should go through SAS. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

Attendance of lectures is taken when you attend lectures in person or join and stay through the whole duration of the Collaborate Ultra sessions for lectures. Attendance counts towards your final grade for this course by default. No excuse other than officially documented cases allowable by the university policies, which are usually only for family or extreme health emergencies, will be accepted for absences. You are not required to attend class on days listed in the university calendar as major religious holy days (although I assume that you practice at most one religion). In addition, you're allowed two absences without excuses or grade penalties. Students have the option to be exempted from attendance of lectures, in which case the percentage weight of attendance will be distributed proportionally among other grading

components. To activate this option, however, students must notify the instructor no later than **Friday, February 9th, 2024.**

Use of Lecture Recordings

All lectures of this course will be recorded and made available to you for review purpose. The use of lecture recordings is governed by the Federal Educational Rights and Privacy Act (FERPA), UTRGV's acceptable-use policy, and UTRGV HOP Policy STU 02-100 Student Conduct and Discipline. A recording of class sessions will be kept and stored by UTRGV, in accordance with FERPA and UTRGV policies. Your instructor will not share the recordings of your class activities outside of course participants, which include your fellow students, teaching assistants, or graduate assistants, and any guest faculty or community-based learning partners with whom we may engage during a class session. **You may not share recordings outside of this course.** As referenced in [UTRGV HOP Policy STU 02-100 Student Conduct and Discipline](#), doing so may result in disciplinary action.

COURSE DROPS

Instructor-initiated drops can have significant financial consequences for students. According to UTRGV policy, students may drop any class without penalty earning a grade of DR (drop) until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the "3-peat rule" and the "6-drop" rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.

ACADEMIC INTEGRITY

Members of the UTRGV community uphold the [Vaquero Honor Code](#)'s shared values of honesty, integrity and mutual respect in our interactions and relationships. In this regard, academic integrity is fundamental in our actions, as any act of dishonesty conflicts as much with academic achievement as with the values of honesty and integrity. The Writing Center is an excellent resource to assist in learning about and avoiding plagiarism in writing. Violations of academic integrity include, but are not limited to: cheating, [plagiarism \(including self-plagiarism\)](#), and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts (Board of Regents Rules and Regulations, STU 02-100, and UTRGV Academic Integrity Guidelines). **All violations of Academic Integrity will be reported to Student Rights and Responsibilities through [Vaqueros Report It](#).**

Specifically for this course, a grade of 0 will be given to the cheated work if a cheating is caught for the first time for involved students, and an F grade will be given for the whole course to any student who is caught for cheating for the second time. In the latter case the incident will be forwarded to the department chair and beyond if necessary.

Student Support Resources

[The following student support resources are required on course syllabi. DO NOT Modify]

We are committed to your personal, academic, and professional success; please know you can reach out to me for questions and/or I can help you identify the resources you need. UTRGV offers student support resources designed to contribute to your well-being and academic excellence.

Students seeking academic help in their studies can use university resources in addition to an instructor's office hours. University Resources include the Advising Center, Career Center, Counseling Center, Learning Center, and Writing Center. These centers provide services such as tutoring, writing help, counseling services, critical thinking, study skills, degree planning, and connections student employment (through [Handshake](#) and [HR Student Employment](#)). In addition, services, such as the Food Pantry are also provided. Locations are listed below.

| Center Name | E-mail | Brownsville Campus | Edinburg Campus |
|---------------------------|--|-----------------------------------|-------------------------------|
| Advising Center | AcademicAdvising@utrgv.edu | BMAIN 1.400 (956) 665-7120 | EITTB 1.000 (956) 665-7120 |
| Career Center | CareerCenter@utrgv.edu | BINAB 1.105 (956) 882-5627 | ESTAC 2.101 (956) 665-2243 |
| Counseling Center | Counseling@utrgv.edu Mental Health Counseling and Related Services List | BSTUN 2.10 (956) 882-3897 | EUCTR 109 (956) 665-2574 |
| Food Pantry | FoodPantry@utrgv.edu | BCAVL 101 & 102 (956) 882-7126 | EUCTR 114 (956) 665-3663 |
| Learning Center | LearningCenter@utrgv.edu | BMSLC 2.118 (956) 882-8208 | ELCTR 100 (956) 665-2585 |
| University Library | circulation@utrgv.edu www.utrgv.edu/library | BLIBR (956) 882-8221 | ELIBR (956) 665-2005 |
| Writing Center | WC@utrgv.edu | BLIBR 3.206 (956) 882-7065 | ESTAC 3.119 (956) 665-2538 |

Financial Need

Students who demonstrate financial need have a variety of options when it comes to paying for college costs, such as scholarships, grants, loans and work-study. Students should visit the Student Services Center (U Central) for additional information. U Central is located in BMAIN 1.100 (Brownsville) or ESSBL 1.145 (Edinburg) or can be reached by email (ucentral@utrgv.edu) or telephone: (956) 882-4026. In addition to financial aid, U Central can assist students with registration and admissions.

Blackboard Support

If you need assistance with course technology at any time, please contact the Center for Online Learning and Teaching Technology (COLTT).

| Campus: | Brownsville | Edinburg |
|------------------------|---|--|
| Location | Casa Bella (BCASA) 613 | Marialice Shary Shivers (EMASS) 3.142 |
| Phone | (956)-882-6792 | (956)-665-5327 |
| Toll Free | 1-(866)-654-4555 | |
| Support Tickets | Submit a Support Case via our Ask COLTT Portal | |
| Online Support | Chat with a Support Specialist online. | |
| 24/7 Support | Need Blackboard assistance after hours? You can call our main office numbers, (956)-882-6792 or (956)-665-5327, to speak with a support representative. | |

University Policy Statements

[The following UTRGV policy statements are required on all syllabi. DO NOT Modify.]

We care about creating a safe and supportive learning environment for all students. The University policy statements below are intended to create transparency for your rights and responsibilities as students. We each contribute to ensuring a safe and positive environment through our actions and conduct, and students are encouraged to advocate for their needs.

STUDENT ACCESSIBILITY SERVICES

Student Accessibility Services staff can be contacted at either campus to learn about and explore accessibility services.

| | | |
|------------------|--|--------------------------------|
| Campus: | Brownsville | Edinburg |
| Location: | Music and Learning Center (BMSLC, 1.107) | University Center (EUCTR, 108) |
| Phone: | phone (956) 882-7374 | phone (956) 665-7005 |
| e-mail | ability@utrgv.edu | |

STUDENTS WITH DISABILITIES

Students with a documented disability (physical, psychological, learning, or other disability which affects academic performance) who would like to receive reasonable academic accommodations should contact **Student Accessibility Services (SAS)** for additional information. In order for accommodation requests to be considered for approval, the student must apply using the [mySAS portal](#) and is responsible for providing sufficient documentation of the disability to SAS. Students are required to participate in an interactive discussion, or an intake appointment, with SAS staff. Accommodations may be requested at any time but are not retroactive, meaning they are valid once approved by SAS. Please contact SAS early in the semester/module for guidance. Students who experience a broken bone, severe injury, or undergo surgery may also be eligible for temporary accommodations.

PREGNANCY, PREGNANCY-RELATED, AND PARENTING ACCOMODATIONS

Title IX of the Education Amendments of 1972 prohibits sex discrimination, which includes discrimination based on pregnancy, marital status, or parental status. Students seeking accommodations related to pregnancy, pregnancy-related condition, or parenting should submit the request using the form found at [Pregnancy and Parenting | UTRGV](#).

For questions about campus support services or public benefit programs for students who are pregnant, or parenting contact the Parenting Liaison officer in the Dean of Students Office.

Edinburg: UCTR rm. 325
Brownsville: BCAVL rm. 209

Phone: 956.665.2260
Email: dos@utrgv.edu

SEXUAL MISCONDUCT AND MANDATORY REPORTING

In accordance with UT System regulations, your instructor is a "Responsible Employee" for reporting purposes under Title IX regulations and so must report to the Office of Institutional Equity & Diversity (OIED@utrgv.edu) any instance, occurring during a student's time in college, of sexual misconduct, which includes sexual assault, stalking, dating violence, domestic violence, and sexual harassment, about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and

staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect that is free from sexual misconduct, discrimination, and all forms of violence. If students, faculty, or staff would like confidential assistance, or have questions, they can contact OAVP (Office for Advocacy & Violence Prevention) at (956) 665-8287, (956) 882-8282, or OAVP@utrgv.edu.

DEAN OF STUDENTS

The Dean of Students office assists students when they experience a challenge with an administrative process, unexpected situation, such as an illness, accident, or family situation, and aids in resolving complaints. Additionally, the office facilitates student academic related requests for religious accommodations, support students formerly in foster care, helps to advocate on behalf of students and inform them about their rights and responsibilities, and serves as a resource and support for faculty and campus departments.

[Vaqueros Report It](#) allows students, staff, and faculty a way to report concern about the well-being of a student, seek assistance in resolving a complaint, or report allegations of behaviors contrary to community standards or campus policies. The Dean of Students can be reached by email (dos@utrgv.edu), phone (956-665-2260), (956-882-5141), or by visiting one of the following office locations: Cavalry (BCAVL) 204 or University Center (EUCTR 323).

MANDATORY COURSE EVALUATION PERIOD

Students have the opportunity to complete an ONLINE evaluation of this course, accessed through your UTRGV account (<http://my.utrgv.edu>). Course evaluations are used by the instructor to better understand the student experience in the course, which can inform revisions of the course to ensure student success. Additionally, course evaluations are also used by the instructor for annual performance review and promotion applications, teaching award applications, among others. For these reasons, your feedback, reflections, and insights on your experience in the course are invaluable to ensure student success and a quality education for all. You will be contacted through email with further instructions. Students who complete their evaluations will have priority access to their grades.

Online evaluations will be available on or about:

| | |
|---------------------------|------------------------|
| Spring Module 1 (7 weeks) | February 21 – 27, 2024 |
| Spring Regular Term 2024 | April 10 – May 1, 2024 |
| Spring Module 2 (7 weeks) | April 17 – 23, 2024 |