

**CSE 5324: Software Engineering: Analysis, Design, and Testing**  
Fall 2019

**Instructor(s):** Dr. John H Robb

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**Office Hours:** T/TH 2:00-3:00pm, ERB 646

**GTA:** Sanika Gupta - sanikasunil.gupta@mavs.uta.edu

**Section Information:** CSE 5324 Section 001

**Time and Place of Class Meetings:** T/Th 11am-12:20pm, NH 111

**Description of Course Content:** Motivations, principles, and goals of software engineering; technical aspects of software projects, including: review of structured analysis and structured design, emphasis on object-oriented methods of requirements analysis and specification, design, and implementation; software testing concepts; team project

**Student Learning Outcomes:** Students will be able to create, explain, and critique software products. In order to reach these outcomes, students will specify, design, implement, and test an object-oriented application present deliverables review deliverables of other teams

For each of the above tasks, students will use a language, tool, or technique that is being widely used in industry, i.e. the:

- Unified Modeling Language, including use-case, sequence, and class diagrams
- Programming language Java
- Integrated development environment Eclipse
- Test automation framework JUnit.

**Required Textbooks and Other Course Materials:**

1. David Kung, Object-Oriented Software Engineering: An Agile Unified Methodology (ISBN 9780073376257) – please make sure you have this version

Recommended (but not required):

1. James Gosling, Bill Joy, Guy Steele, Gilad Bracha, and Alex Buckley: Java Language Specification. Java SE 8 edition. available online at <http://docs.oracle.com/javase/specs>
2. Craig Larman: Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development. 3rd edition. Prentice Hall, 2004. Available on the UTA network at <http://proquestcombo.safaribooksonline.com.ezproxy.uta.edu/0131489062>
3. Grady Booch, James Rumbaugh, and Ivar Jacobson: The Unified Modeling Language User Guide. 2nd edition. Addison-Wesley, 2005. Available on the UTA network at <http://proquestcombo.safaribooksonline.com.ezproxy.uta.edu/0321267974>

**Attendance:** At The University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. **As the instructor of this section, students are required to attend classes.** Attendance will be taken and used as indicated below.

**Please do not ask for excused absences - I cannot keep up with these during the very busy semester - one class missed will not make that much difference.**

**Prerequisites:**

- Undergraduate algorithms and data structures.
- Undergraduate discrete mathematics (set, relation, function, graph) and first-order logic.
- Undergraduate programming in Java

**Grading:** 60% exams, 5% attendance, 35% project, which includes the presentation and the presentation materials and documents. The project will be a Java Web program – we will be developing UML class diagrams and use cases, requirements, design, code, test cases.

The final letter grades will be based on a curve of students' performance. The instructor will use class and team participation to determine border-line grades. Students who have a quiz average below 70 are strongly in the C grade range.

**Deadline for Project Deliverables:** Deadlines will be announced in class.

**Late Policy:** Assignments must be submitted when they are due - no late delivery of materials will be accepted. Please make sure that you submit team materials on time and that you review materials BEFORE the due date and time.

**Deadline for Project Deliverables:** Deadlines will be announced in class.

**Make-up Exams:** Assignments are expected to be turned in on time. **Please ensure to schedule make-up exams before the exam date.** No make-up work is offered for other assignments or for the final grade.

**Project** grading criteria is as follows:

Goal: Create, explain, and critique software products.

This is a team project. A team consists of five to six students. To make collaboration as easy as possible, you are encouraged (but not required) to use a free open-source project hosting service such as Google Code, GitHub, or Bitbucket. Although a Java Web project is developed, the class emphasis is on the software engineering concepts presented in class. The project will be graded based on how well you use these techniques. The project demonstrated must be working at the end of the semester.

The project consists of three iterations. After each iteration, each team will present some aspects of their project, both in writing and by oral presentation. The first two iterations will not be formally graded but comments will be provided to help with the final iteration which will be graded.

You should distribute project work fairly among yourselves, but I leave the detailed project management to you. The oral presentations are an exception. Here I expect that each team member present a similar amount of material.

For each project-related deliverable, written or oral, each team will receive a team score. The sum of these team scores will determine the majority of your project-related grade.

**Communications with Professor:** subject line in email should start with "**CSE 5324-001**"

**Format.** All written deliverables (homework, hand-outs, project reports, etc.) should be in plain text, HTML, or PDF, unless otherwise announced.

**Expectations for Out-of-Class Study:** Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 9 hours per week of their own time in course-related activities, including work on the class project, reading required materials, completing assignments, preparing for exams, etc

**Grade Grievances:** Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current graduate catalog. See: [http://grad.pci.uta.edu/about/catalog/current/general/regulations/#grade\\_grievances](http://grad.pci.uta.edu/about/catalog/current/general/regulations/#grade_grievances).

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/aao/faol/>).

**Americans with Disabilities Act:** The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Title IX:** The University of Texas at Arlington ("University") is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. *For information regarding Title IX, visit [www.uta.edu/titleIX](http://www.uta.edu/titleIX) or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or [jmhood@uta.edu](mailto:jmhood@uta.edu).*

**Academic Integrity:** Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University. Additional information is available at <https://www.uta.edu/conduct/>.

**Campus Carry:** Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

**Final Review Week:** A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located towards the left as you exit the room. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.

**Student Support Services:** UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to [resources@uta.edu](mailto:resources@uta.edu), or view the information at [www.uta.edu/resources](http://www.uta.edu/resources).

**The IDEAS Center** (2<sup>nd</sup> Floor of Central Library) offers **free** tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email [IDEAS@uta.edu](mailto:IDEAS@uta.edu) or call (817) 272-6593.

**Course Schedule (key dates in red are fixed, all else subject to change as needed)**

<b>Date</b>	<b>Lecture materials</b>	<b>Due</b>	<b>Review</b>	<b>Prep</b>
8/22/2019	Overview, M01, Review project	Teamlist (8/23)		
8/27/2019	M01,M02			
8/29/2019	M03			
9/3/2019	M03a - Requirements/Project, Review Professors Proje	Proj Analysis		Iteration 1.1
9/5/2019	M04- Git, Install Tomcat/ develop first App			
9/10/2019	M05, HTML, Servlet Overview			Exam 1
9/12/2019	M06, Use-Case and UCD checklists	Iteration 1.1		
9/17/2019	Exam 1 (M01-M04)			Iteration 1
9/19/2019	Review Professors Requirements Solution		Exam 1 scores	
9/24/2019	M07 - Expanded Use Cases			Inc Matrix
9/26/2019	Iteration 1 presentations	Iteration 1		
10/1/2019	Iteration 1 presentations			
10/3/2019	M08, Review Class Solutions	Inc Matrix		
10/8/2019	Detailed review of instructors code			Exam 2
10/10/2019	Exam 2 (M05-M08)			Iteration 2
10/15/2019	M09		Exam 2 scores	
10/17/2019	M10			
10/22/2019	M11/M12			
10/24/2019	Iteration 2 presentations	Iteration 2		
10/29/2019	Iteration 2 presentations			
10/31/2019	M11/M12			Exam 3
11/5/2019	Exam 3 (M09-M12)			
11/7/2019	M13/M14		Exam 3 scores	
11/12/2019	M15			
11/14/2019	M16			Iteration 3
11/19/2019	M17/M18			
11/21/2019	M19, Prep Exam 4, Detailed review of It 3 requirements			Exam 4, Iteration 3
11/26/2019	Exam 4 (M13-M16)			
11/28/2019	Iteration 3 presentations	Iteration 3		
12/3/2019	Iteration 3 presentations			

**NOTE THAT DATES ABOVE (EXCEPT EXAMS AND PRESENTATIONS) ARE APPROXIMATE AND THAT BLACKBOARD DUE DATES ARE THE EXACT DATES**

## Course Material

Module	Description
M01	Introduction to Software Engineering
M02	Software Process and Systems Engineering
M03	Software Requirements Elicitation
M04	Overview of Domain Modeling
M05	Deriving Use Cases from Requirements
M06	Architecture Design
M07	Actor System Interaction Modeling (Expanded Use Cases)
M08	Object Interaction Modeling (Sequence Diagrams)
M09	Design Patterns
M10	Deriving a Design Class Diagram
M11	User Interface Design
M12	Object State Modeling
M13	Activity Modeling and Agile
M14	Implementation Considerations
M15	Software Quality Assurance
M16	Software Testing
M17	Software Technical Reviews
M18	Security Considerations in Software Development
M19	Course Review

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. The latest version of this course schedule is available on the BlackBoard module for this course.

**Emergency Phone Numbers:** In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911.

Library Home Page..... <http://www.uta.edu/library>  
Subject Guides..... <http://libguides.uta.edu>  
Subject Librarians..... <http://www.uta.edu/library/help/subject-librarians.php>  
Database List..... <http://www.uta.edu/library/databases/index.php>  
Course Reserves..... <http://pulse.uta.edu/vwebv/enterCourseReserve.do>  
Library Tutorials ..... <http://www.uta.edu/library/help/tutorials.php>  
Connecting from Off- Campus..... <http://libguides.uta.edu/offcampus>  
Ask A Librarian..... <http://ask.uta.edu>

The following URL houses a page where we have gathered many commonly used resources needed by students in online courses: <http://www.uta.edu/library/services/distance.php>.

The subject librarian for your area can work with you to build a customized course page to support your class if you wish. For examples, visit <http://libguides.uta.edu/os> and <http://libguides.uta.edu/pols2311fm> . If you have any questions, please feel free to contact Suzanne Beckett, at [sbeckett@uta.edu](mailto:sbeckett@uta.edu) or at 817.272.0923.