

Course Syllabus

[Jump to Today](#)  Edit



17-626: Requirements for Information Systems

Class Time: Tuesday and Thursday, 11:00-12:20
Location: 3SC 265
Semester: A2, Fall 2025, 6 units

Instructors and Teaching Assistants

Instructor

Prof. Travis Breaux

Office Hours: By Appointment

Email: tdbreaux@andrew.cmu.edu (<mailto:tdbreaux@andrew.cmu.edu>)

Teaching Assistants

Monish Kamtikar

Office Hours: TBD

Email: mkamtika@andrew.cmu.edu (<mailto:mkamtika@andrew.cmu.edu>)

Sarah Santos

Office Hours: TBD

Email: ssantos@andrew.cmu.edu (<mailto:ssantos@andrew.cmu.edu>)

Anmol Singhal

Office Hours: TBD

Email: singhal2@andrew.cmu.edu (<mailto:singhal2@andrew.cmu.edu>)

Introduction. The practical engineering and design of software requires a technical understanding of the problem space and product domain, in order to envision the right solution. In this course, students will study a variety of ways to understand the problem that they're solving, the various factors that constrain the solution space, and approaches to deciding among alternatives.

This course integrates emerging technology in the form of generative multi-modal language models to

investigate how this technology can advance both learning and practice.

Learning Objectives. After completing this course, student's will be able to:

- Interact with potential users in order to gather data about work contexts
- Analyze marketing and user data, and bring it to bear on system design
- Identify requirements conflicts and risks, then reconcile using functional alternatives

Assessments. Students learn more by applying and explaining ideas to others, thus, the course requires the following activities:

- **Homework assignments**, including individual and group work to help you focus on important points in the readings and to exercise particular skills
- **Quizzes** to check your learning and reinforce key concepts
- **Class participation**, to enrich the discussion with your insight, relevant experience, critical questions, and analysis of the material. The quality of contribution is more important than the quantity.
- **Final Exam**, to demonstrate your cumulative knowledge on practical examples. The final exam will be a take-home, open book, open notes exam that is due one week after the final day of class.

Assessment	Final Grade %		Grade	Percentage Interval
Assignments	50%		A	90-100%
Quizzes	10%		B	80-89%
Final exam	20%		C	70-79%
Class participation	20%		D	60-69%
			R (F)	59% or below

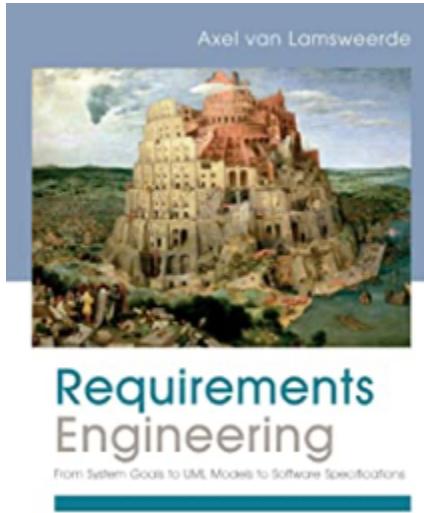
The course includes the following homework assignments:

- **Goals.** Given an interview transcript and a technical article, identify goals and goal refinements for a prospective system.
- **Obstacles.** Given a description of a system failure, identify obstacles and propose mitigations.

- **Use Cases.** Create a scenario from the interview transcript and article using one of your two personas. Create an activity diagram from the scenario. Elaborate three use cases from the activity diagram, including soft goals as non-functional requirements.

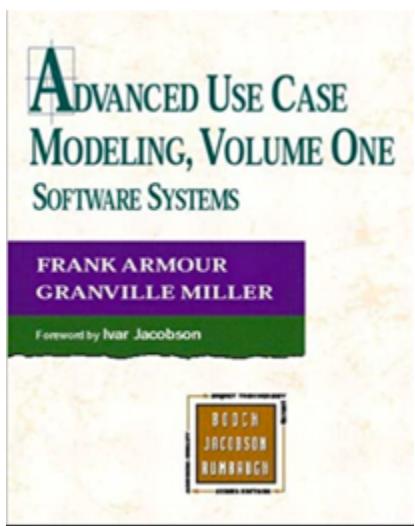
Required Textbooks

Author: Axel van Lamsweerde



Requirements engineering (RE) deals with the variety of prerequisites that must be met by a software system within an organization in order for that system to produce stellar results. With that explanation in mind, this must-have book presents a disciplined approach to the engineering of high-quality requirements. Serving as a helpful introduction to the fundamental concepts and principles of requirements engineering, this guide offers a comprehensive review of the aim, scope, and role of requirements engineering as well as best practices and flaws to avoid. Wiley, 2009. [Order it from Amazon.](https://www.amazon.com/Requirements-Engineering-System-Software-Specifications/dp/0470012706) [\(https://www.amazon.com/Requirements-Engineering-System-Software-Specifications/dp/0470012706\)](https://www.amazon.com/Requirements-Engineering-System-Software-Specifications/dp/0470012706)

Author: Frank Armour, Granville Miller



Software developers often employ use cases to specify what should be performed by the system they're constructing. Although use case-driven analysis, design, and testing of software systems has become increasingly popular, little has been written on the role of use cases in the complete software cycle. This book fills that need by describing how to create use case models for complex software development projects, using practical examples to explain conceptual information. Addison-Wesley, 2000. [Order it from Amazon.](https://www.amazon.com/Advanced-Use-Case-Modeling-Software/dp/0201615924) [\(https://www.amazon.com/Advanced-Use-Case-Modeling-Software/dp/0201615924\)](https://www.amazon.com/Advanced-Use-Case-Modeling-Software/dp/0201615924)

Course and Grading Policies

- **Late-work policy:** All work is expected to be handed in before the indicated due date and time.

Each student is allotted five (5) total late day "tokens" that can be used during the course. To use one or more late day tokens, students must e-mail the TAs before the submission due date and indicate the number of tokens they plan to use. Any tokens remaining by the end of class will be counted as extra credit toward the final grade.

- **Participation policy.** Class participation will be graded by in-class engagement, including asking relevant questions based on a critical review of required readings, on lectures, and on comments made by your peers. The lack of attendance, and the use of mobile devices, including phones and laptops, for non-classroom purposes will count against your participation grade.
- **AI-assistance policy:** Each assignment will indicate the level of AI assistance permitted on the assignment and students are expected to follow these instructions. This policy does not apply to spell checkers or grammar assistance that is built into existing word processors (e.g., Google Docs), but it does apply to all generative AI assistance. If AI assistance is permitted, then students must follow the assignment instructions on what kind of assistance is permitted and how to report the assistance. If AI assistance is not permitted or is not reported and students are found to have used AI to prepare their assignment, then this finding will be designated as evidence of cheating, consistent with the course academic integrity policy, below. If students have questions about this policy, they must ask prior to using AI assistance.

Learning Disabilities. If you have a documented learning disability, please notify the instructor during the first week of class.

Academic Integrity. Honesty and transparency are important to good scholarship. Plagiarism and cheating, however, are serious academic offenses with serious consequences. If you are discovered engaging in either behavior in this course, you will earn a failing grade on the assignment in question, and further disciplinary action may be taken. For a clear description of what counts as plagiarism, cheating, and/or the use of unauthorized sources, please see the [University's Policy on Academic Integrity](https://www.cmu.edu/policies/student-and-student-life/academic-integrity.html) (<https://www.cmu.edu/policies/student-and-student-life/academic-integrity.html>) .

If you have any questions regarding plagiarism or cheating, please ask the instructor as soon as possible to avoid any misunderstandings.

Student Wellness. As a student, you may experience a range of challenges that can interfere with learning, such as strained relationships, increased anxiety, substance use, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may diminish your academic performance and/or reduce your ability to participate in daily activities. CMU services are available, and treatment does work. You can learn more about confidential mental health services available on campus at: <http://www.cmu.edu/counseling> (<http://www.cmu.edu/counseling>) . Support is always available (24/7) from Counseling and Psychological Services: 412-268-2922

Course Schedule

The following schedule provides a general overview of topics and assignments. Please refer to the

syllabus online in Canvas for specific lecture topics, reading assignments and due dates.

Class	Date	Topic and Lectures
1	10/21	System Boundaries
2	10/23	Requirements Elicitation
3	10/28	Goal Modeling
4	10/30	In-Class: Generating Personas
	11/4	No Class - Election Day
5	11/6	Goal Conflicts and Refinement
6	11/11	Risk and Obstacle Analysis
7	11/13	In Class: Generating Obstacles
8	11/18	System Failures and Standards
9	11/20	In-Class: Design Walk-through
10	11/25	Use Cases
	11/27	No Class - Thanksgiving
11	12/2	Use Case Analysis
12	12/3	In-Class: Data-flow Diagrams

Course Summary:

Date	Details	Due
-------------	----------------	------------

Date	Details	Due
Thu Oct 2, 2025	 In-Class: Data-flow Diagrams (https://canvas.cmu.edu/courses/47536/assignments/895230)	due by 12:30pm
Thu Oct 30, 2025	 In-Class: Persona Generation (https://canvas.cmu.edu/courses/47536/assignments/895220)	due by 12:30pm
Fri Oct 31, 2025	 Assignment: Requirements Elicitation (https://canvas.cmu.edu/courses/47536/assignments/841154)	due by 11:59pm
Wed Nov 12, 2025	 Assignment: Goal Modeling and Analysis (https://canvas.cmu.edu/courses/47536/assignments/841152)	due by 11:59pm
Thu Nov 13, 2025	 In-Class: Obstacle Generation (https://canvas.cmu.edu/courses/47536/assignments/895222)	due by 12:30pm
Wed Nov 19, 2025	 Assignment: Obstacle Analysis (https://canvas.cmu.edu/courses/47536/assignments/841153)	due by 11:59pm
Thu Nov 20, 2025	 In-Class: Design Walk-through (https://canvas.cmu.edu/courses/47536/assignments/895228)	due by 12:30pm
Wed Dec 3, 2025	 Assignment: Use Case Templates (https://canvas.cmu.edu/courses/47536/assignments/841155)	due by 11:59pm
Fri Dec 12, 2025	 Final Exam (https://canvas.cmu.edu/courses/47536/assignments/841151)	due by 8pm
	 Class Participation (https://canvas.cmu.edu/courses/47536/assignments/841156)	
	 Final Exam (Make-up) (https://canvas.cmu.edu/courses/47536/)	

Date	Details	Due
	<u>assignments/841148)</u>	
	 <u>Quiz: Goal Analysis (https://canvas.cmu.edu/courses/47536/assignments/841147)</u>	
	 <u>Quiz: Goal Modeling (https://canvas.cmu.edu/courses/47536/assignments/841149)</u>	
	 <u>Quiz: Obstacle Analysis (https://canvas.cmu.edu/courses/47536/assignments/841150)</u>	
	 <u>Quiz: System Boundaries (https://canvas.cmu.edu/courses/47536/assignments/841145)</u>	
	 <u>Quiz: Use Cases (https://canvas.cmu.edu/courses/47536/assignments/841146)</u>	