

COMS 309

Software Engineering

SIMANTA MITRA, PH.D.
DEPARTMENT OF COMPUTER SCIENCE
IOWA STATE UNIVERSITY

Contact Information

(also on Canvas)

● Simanta Mitra, 103 Atanasoff, smitra@iastate.edu

Emails must include "309" in subject line

- Teaching Assistants

Matthew Gardner, HEAD TA, mattga@iastate.edu,

Preethi Pandian, ppandian@iastate.edu,

Gavin Kijkul, gkijkul@iastate.edu,

Shang Da, dashang@iastate.edu,

Sumon Biswas, sumon@iastate.edu,

Shruti Sahu, shruti@iastate.edu,

Tanmay Ghosh, tghosh@iastate.edu,

Vamsi Calpakkam, vamsi@iastate.edu,

Ye Tian, yetian@iastate.edu

Catalog Description

Com S 309. Software Development Practices. (3-1)

Cr. 3. F.S. *Prereq: Com S 228 with C- or better..*

A practical introduction to methods for managing software development. Process models, requirements analysis, structured and object-oriented design, coding, testing, maintenance, cost and schedule estimation, metrics. Programming projects.

Recommended Course Text

Software Engineering – Modern Approaches

Second Edition

Eric J Braude and Michael E. Bernstein

Waveland Press Inc.

ISBN 10: 1-4786-3230-5

OTHER AUTHORS

- Roger S. **Pressman**,
- Ian **Sommerville**

COURSE OBJECTIVES

#1. Major Goal

To **transition** from programmer to Software Engineer and become **knowledgeable** about common software engineering techniques and concepts.

#2. Major Goal

To learn how to **work effectively with a team** and to hold each other accountable for contributing to the project.

#3. Major Goal


To **experience development** of a reasonably sized project from concept to release.

- have followed **good practices** for the different stages of the development process
- **used software engineering tools** for development and design including IDE, Source-Control, Modeling, Test execution, and coverage.

Course Outcomes

- (A) An ability to apply knowledge of computing and mathematics appropriate to the discipline.
- (B) An ability to analyze a problem and identify and define the computing requirements appropriate to its solution.
- (C) An ability to design, implement, and evaluate a computer-based system, process, component or program to meet desired needs.
- (D) An ability to function effectively on teams to accomplish a common goal.
- (E) An ability to understand professional, ethical, legal, security, and social issues and responsibilities.
- (F) An ability to communicate effectively with a range of audiences.
- (G) An ability to analyze the local and global impact of computing on individuals, organizations, and society.
- (H) An ability to engage in continuing professional development.
- (I) An ability to use current techniques, skills, and tools necessary for computing practices.

Course Organization

- Course is organized around a 4 member team project.
Most problems manifest themselves only on larger/complex projects - we require the projects be somewhat complex.
-  For UG courses, each credit requires 3 hrs outside class work – i.e. **at least 9 hours total outside class for this course per week.**
- Teams will also need to reserve times to meet with TAs for weekly project status and for the four project demos.
- We will post notes on Canvas. You are expected to read on your own (usually easy to understand materials). We will discuss these in class. Exams will be on these notes.

GRADING POLICY

COMS 309

Tentative Grading Scale

Grading Scale (we first give letter grade and THEN number grade)

- Excellent: ≥ 90 **A-** ≥ 93 **A**
- Good: ≥ 80 **B-** ≥ 83 **B** ≥ 87 **B+**
- Average: ≥ 70 **C-** ≥ 73 **C** ≥ 77 **C+**
- Poor: ≥ 60 **D-** ≥ 63 **D** ≥ 67 **D+**
- **Failing: 0 to < 60**

Tentative grading policy

- To pass the class
 - Must pass EACH and EVERY demo (at least C- i.e. $\geq 70\%$)
 - Must pass EACH component of exam (at least C- i.e. $\geq 70\%$)
 - Adequate **Team participation** (as per TA)
- Project is worth 65%. (both documents + code)
- Exams are worth 25%
- In-class activities worth 10%
- 3 unexcused absences allowed; each 4 unexcused absences = minus one letter grade.

Tentative Project Grades

Total Points = 650/1000

DOCUMENTS GRADE (150 points)

- (50) Screen sketches (R1)
- (35) Block diagram/tables (D1)
- (25) Interfaces (D2)
- (25) Design Issues (D3)
- (10) P1 Poster
- (05) P2 Final Report

Here team work is important.

CODING GRADE (500 points)

(teamwork + codingwork)

- (10+25) C1 – Demo-1
- (30+100) C2 – Demo-2
- (30+100) C3 – Demo-3
- (30+175) C4 – Demo-4
- **teamwork grade is for being a good team member as indicated by your team members**
- **Below C- in ANY demo is a fail for the course. This will be strictly enforced.**

	EXAMS	PROJECT due	WK
1st Half		Tue teams due Wed teams freeze Sun proposals due	1
		Fri props freeze	2
		Sun scrnskchts due	3
	Fri Exam-1 on Reqs, GIT, teamwork	Mon/Tue DEMO-1	4
2nd Half			5
			6
		Mon/Tue DEMO-2	7
	Fri Exam-2 on Dsgn-UML, Dsgn-process, Design-Patterns-1		8
3rd Half		Fri blk diags due	9
			10
		Fri design i/f due	11
		Mon/Tue DEMO-3	12
	Fri Exam-3 on Design- Patterns-2, Testing, Ethics		13
4th Half		Fri design rat due	14
		Fri reflection due Fri posters due	15
		Mon/Tue DEMO-4 Wed BestProjects Fri poster session	16
	MON APR 30 EXAM-4 12-2pm on process models, proj mgmt		17

COMMITMENT

You agree that you understand that this class is a LOT of work. You MUST put in the time otherwise it affects your entire team.

You agree to RESERVE adequate time and energy for working with your team on the class project.

Block times on calendar!

Suggestion: do not take multiple hard courses together (examples 309+311 or 309+342 or 309+329 or 309+319)

OTHER POLICIES

COMS 309

Academic Dishonesty

- The class will follow Iowa State University's policy on academic dishonesty. Anyone suspected of academic dishonesty will be reported to the Dean of Students Office.
- Code/documents that you submit as your own – must have been created by you.
- <http://www.dso.iastate.edu/ja/academic/misconduct.html>

Project Code

- Your team must come up with your own idea and implement it from scratch. If you use ANY libraries and frameworks, you must get it approved by us AHEAD of time.
- When you show code to TA – make sure it is code that YOU wrote (and not libraries or what others wrote). No credit for non-code work (like css, html, image creation etc)

Disability Accommodation

- Iowa State University complies with the Americans with Disabilities Act and Sect 504 of the Rehabilitation Act. If you have a disability and anticipate needing accommodations in this course, please contact me to set up a meeting within the first two weeks of the semester or as soon as you become aware of your need. Before meeting with (instructor name), you will need to obtain a SAAR form with recommendations for accommodations from the [Disability Resources Office](#), located in Room 1076 on the main floor of the Student Services Building. Their telephone number is 515-294-7220 or email disabilityresources@iastate.edu . Retroactive requests for accommodations will not be honored.

Dead Week

- This class follows the Iowa State University Dead Week policy as noted in section 10.6.4 of the Faculty Handbook
<http://www.provost.iastate.edu/resources/faculty-handbook> .

Harassment and Discrimination

- Iowa State University strives to maintain our campus as a place of work and study for faculty, staff, and students that is free of all forms of prohibited discrimination and harassment based upon race, ethnicity, sex (including sexual assault), pregnancy, color, religion, national origin, physical or mental disability, age, marital status, sexual orientation, gender identity, genetic information, or status as a U.S. veteran. Any student who has concerns about such behavior should contact his/her instructor, [Student Assistance](#) at 515-294-1020 or email dso-sas@iastate.edu, or the [Office of Equal Opportunity and Compliance](#) at 515-294-7612.

Religious Accommodation

- If an academic or work requirement conflicts with your religious practices and/or observances, you may request reasonable accommodations. Your request must be in writing, and your instructor or supervisor will review the request. You or your instructor may also seek assistance from the [Dean of Students Office](#) or the [Office of Equal Opportunity and Compliance](#).