

Fall 2019

IS 390-001: Analysis and Systems Design

Ye Xiong

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IS 390

System Analysis and Design

Course Syllabus

Fall 2019

Part I. Course and Instructor Information

Semester	Fall 2019
Course	IS 390-001 System Analysis and Design
Lecture	M/W 8:30-9:55 am, KUPF 107
Instructor	Ye Xiong
Email	yx98@njit.edu
Office	GITC 5601
Office Hours	Monday 10-11:30 am, Wednesday 10-11:30 am, or by appointment

Part II. Course Description

1. Course Introduction

As the industry need for a robust IT infrastructure arises, companies realize the need for people who understand both the basics of information technology and the essence of the business domain, people who could communicate with both computer programmers and business managers, people who serve as the “bridge” between the IS department and other business function units. These people are called system analysts or business analysts.

The purpose of this class is to prepare you to become such people by giving you a thorough understanding of different types of information systems as well as business processes that they support. In this class, systems analysis and design methods that facilitate an object oriented approach to the modeling of the data and applications supporting these processes will be introduced and practiced. This course lays out a solid foundation for more advanced technical courses such as database management or networking by offering you a systematic methodology that should be followed when managing the development of any information systems.

2. Course Objectives

When you complete this course you will have the ability to:

- Be familiar with different types of System Development Life Cycle (SDLC) models
- Know how to choose appropriate SDLC models based on the nature of system development projects

- Effectively use UML diagrams and process models for system analysis phase
- Be able to use Rational Modeler to develop UML models
- Master the designing skill for interface, database and program design frequently used in business information systems
- Participate as an analyst/team member on a systems development team working with a real world organization
- Effectively utilize appropriate data gathering tools and techniques associated with the collection of system user requirements, constraints and expectations
- Describe, structure and plan an information systems development project's activities using basic Project Management techniques and tools
- Perform basic feasibility study activities associated with systems proposals
- Understand the basics of object-oriented system analysis and design methods

3. Prerequisite Courses or Knowledge

- 1) Course Prerequisites: CS 103, CS 113, CS 115, IS 218 or IT 202
- 2) Basic understanding of modern trends in business and information analysis, information technology, data modeling, object-oriented principles and agility

4. Course Materials

1) Lecture Slides

Lecture slides are the basic course materials for this course. All lecture slides, readings, assignments and other information are made available via Canvas (<https://njit.instructure.com/>).

2) Textbook

There is NO required textbook for this class, but the following book is highly recommended as a reference.

Systems Analysis and Design with UML

By Alan Dennis, Barbara Haley Wixom and David P. Tegarden

Publisher: John Wiley & Sons Inc.; 4th International Student Edition.

ISBN-10: 1118092368

ISBN-13: 978-1118092361

5. Course Activities

1) Team Project Execution and Deliverables:

One of the biggest difficulties for many students in this class is their lack of real world system development experiences. Imagine trying to learn how to drive through a series of lectures without ever touching a car. That is why the team project is extremely important for your learning in this class. The team project should be based on a real life business situation where the team is engaged in a significant portion of a systems project. You will work together as a project

team. Your team will be responsible for preparing key project deliverables, including but not limited to:

Project Milestone	Project Deliverables
Milestone 1	<ul style="list-style-type: none"> • Project Initiation
Milestone 2	<ul style="list-style-type: none"> • Project Management: <i>Gantt Chart</i> • Requirements Analysis: <i>Interviews</i> • Requirements Analysis: <i>Use Cases</i>
Milestone 3	<ul style="list-style-type: none"> • System Analysis: <i>More Use Cases</i> • System Analysis: <i>Class Model</i> • System Analysis: <i>Sequence & Collaboration Diagrams</i>
Milestone 4	<ul style="list-style-type: none"> • System Design: <i>Database Design</i> • System Design: <i>Interface Design</i> • System Design: <i>Program Design</i> • System Design: <i>Cost & Benefit Analysis</i> • Final Report that incorporates all of the above

It is extremely important that you do not miss any of the milestones above. Failure to deliver on time will result in a 0 grade for your milestone. Do not worry if you have no clue about the above milestones. I will highlight the knowledge points that will be applied in your projects in my lectures, and explain how you could use them effectively in the real world setting - so it is extremely important that you come to class. At the end of the semester, we will have one or two presentation sessions where all teams present their work.

2) Assignments:

You will be given five individual assignments throughout the semester. Details of the assignments will be posted on Canvas.

3) Final Exam:

You will be given the final exam at the end of the semester to evaluate your commandment of the course materials and its application to solving practical problems. Details of the final exam will be posted on Canvas.

4) Class Participation:

You may have noticed that in-class performance is worth 10% of your total grade. Here is how I measure it: In each class, I will give out several questions for you to think about. I will then randomly pick two or three of you to answer these questions (and to challenge me with follow-up questions, if you have any). In addition to attendance, your performance in answering these questions throughout the semester will be the basis on which I grade your in-class performances. Some questions will be group-based, in which case the whole group will be evaluated based on your answers.

Part III. Grading

1. Assignment Weighting

Category	Description	Points
Assignments: 25%	Assignment 1	5
	Assignment 2	5
	Assignment 3	5
	Assignment 4	5
	Assignment 5	5
Team Project: 35%	Project Milestone 1	5
	Project Milestone 2	7
	Project Milestone 3	8
	Project Milestone 4	10
	Team Presentations	5
Final Exam: 30%	Comprehensive Final Exam	30
Participation: 10%	In-class Discussion, Exercises, etc.	10
Total		100 Points

***Late Assignment Policy:**

Late assignment submissions will be accepted for partial credit, with every day late accruing a 5% penalty unless prior arrangements have been made.

2. Letter Grade

Letter grades will be assigned approximately as follows (the grades may be curved):

Points	Letter Grade	Significance
90% and above	A	Superior
85% to 89%	B+	Excellent
80% to 84%	B	Very Good
75% to 79%	C+	Good
70% to 74%	C	Acceptable
60% to 69%	D	Minimum
Below 60%	F	Inadequate

Part IV. Academic Integrity Policy

All students are expected to pursue the highest standards of academic honesty. Plagiarism or cheating on an assignment or examination can lead to an E on the assignment or examination, an E in the course, and other disciplinary action. Plagiarism or academic dishonesty will not be tolerated. "Plagiarism" means the intentional unacknowledged use or incorporation of any other person's work in, or as a basis for, one's own work offered for academic consideration or credit for public presentation. Plagiarism includes, but is not limited to, representing as one's own,

without attribution, any individual's words, phrasing, ideas, sequence of ideas, information or any other mode or content of expression. All work submitted for this class should be original; that is, it should be your own. Also, do not turn in work that you have turned in for other classes. The NJIT Honor Code (<https://www.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>) will be upheld, and any violations will be brought to the immediate attention of the Dean of Students.

Part V. Course Schedule

Schedule		Lecture	Deliverables	
Week	Date		Assignment	Project
1	Sept 4, Sept 9	<u>Foundations:</u> • Introduction • Four Dimensions of System Analysis and Design I	Assignment 1	Milestone 1 <u>Project Initiation</u>
2	Sept 11, Sept 16	<u>Foundations:</u> • Four Dimensions of System Analysis and Design II • System Development Lifecycle (SDLC)		
3	Sept 18, Sept 23	<u>System Planning</u> • Project Initiation • System Development Methodologies	Assignment 2	
4	Sept 25, Sept 30	<u>System Planning</u> • Requirements Determination I • Requirements Determination II		
5	Oct 2, Oct 7	<u>System Planning</u> • Project Management I • Project Management II	Assignment 3	Milestone 2 <u>System Planning</u>
6	Oct 9, Oct 14	<u>System Analysis</u> • Use Case Modeling I • Use Case Modeling II		
7	Oct 16, Oct 21	<u>System Analysis</u> • Use Case Modeling III • Business Process Modeling		
8	Oct 23, Oct 28	<u>System Analysis</u> • Class Modeling I • Class Modeling II	Assignment 4	Milestone 3
9	Oct 30, Nov 4	<u>System Analysis</u> • Class Modeling III		
10	Nov 6,	<u>System Analysis</u>		

	Nov 11	<ul style="list-style-type: none"> • Sequence Diagram • Collaboration Diagram 		<u>System Analysis</u>
11	Nov 13, Nov 18	<u>System Design</u> <ul style="list-style-type: none"> • Object-Oriented System Analysis and Design (OOAD) • Design Strategy 	Assignment 5	Milestone 4 <u>System Design</u>
12	Nov 20, Nov 25	<u>System Design</u> <ul style="list-style-type: none"> • Interface Design I • Interface Design II 		
13	Nov 27, Dec 2	<u>System Design</u> <ul style="list-style-type: none"> • Program Design • Database Design 		
14	Dec 4, Dec 9	<ul style="list-style-type: none"> • Final Presentation 		
15	Dec 11, Dec 16	<ul style="list-style-type: none"> • Final Exam Review • Final Exam 		

***NOTE:** The schedules and procedures in this course are subject to change in the event of extenuating circumstances. You will be notified of deviations.*