

Fall 2019

IS 390-101: Analysis and Systems Design

David F. Ullman

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New Jersey Institute of Technology
Ying Wu College of Computing
Department of Informatics

IS 390-101: Analysis and Systems Design

Class Meets Tuesdays, 6:00 pm – 8:50 PM, KUPF 204

Instructor: David F. Ullman

Professor of Practice

Office: 4401 Guttenberg Information Technology Center

Phone: (973) 596-2915 * E-Mail: david.ullman@njit.edu

Office Hours: Tuesday: 4-5:30 PM; Wednesday, 11:30 AM – 1:00 pm

Course Summary

This course is designed to be a study of the information systems development life-cycle, from the initial stages of information requirements analysis and determination to the ultimate activities involving systems design. The course offers theory, methodologies and strategies for information requirements analysis, including the assessment of transactions and decisions, fact-finding methodologies, structured analysis development tools, strategies of prototype development, and an overview of computer-aided software engineering (CASE) tools. The course includes theory, methodologies and strategies for systems design, including design of user-interfaces, particularly menu-driven and keyword dialogue strategies, and issues in the proper design of computer output.

As the industry need for a robust IT infrastructure arise, 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 / 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.

Required Background

Prerequisites: One of the following: (CS 103, CS 113, CS 115, IS 218 or IT 202) or permission of instructor.

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

Required Text:

Dennis, Alan; Barbara Haley Wixom and Roberta M. Roth, *Systems Analysis and Design*, 7th Edition, Wiley (2018).

ISBN-13: 978-1119496502; ISBN-10: 1119496500; Digital Versions are acceptable.

Note this is the 7th Edition, published in December 2018. The sixth edition is acceptable. However, the 7th edition will have the most recent relevant examples and case studies. Do consider this as an investment you may keep during your initial professional working days.

Additional readings will be posted in Moodle.

Academic Integrity

Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found [here](#).

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. *Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university.*

There will be no warnings or second chances with regard to cheating. It is your responsibility to understand specifically, what constitutes academic dishonesty. Ignorance is not an excuse or a defense. It is also your responsibility to understand the rules for properly citing the work of others in submission of classwork. Improper citation with a simple "copy/paste" from online sources may be grounds for failure of the assignment and/or the course.

If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu.

Learning Management System:

We shall be using the Moodle learning management system (LMS) for on-line discussions, assignment submissions, distribution of readings, announcements and other activities. It is your responsibility to check Moodle regularly. In the event we cannot meet at the regularly scheduled class time (e.g. inclement weather), the class will be held asynchronously, with lecture recordings and discussions in Moodle.

Course Structure and Components:

1. Assignments

You will be given five assignments throughout the semester. Some of them are individual assignments – you should independently work on the problems and find the solution. Others are team-based – you are expected to work closely with your teammates to collectively design a solution. Details of the assignments will be posted in Moodle.

2. Quizzes and Exams

There will be three quizzes/mini-exams throughout the semester, and a cumulative final exam during finals week.

You will need to bring a laptop computer to class to take the exam, and install special software, the Respondus Lockdown Browser, on the computer for each exams. See section in Moodle on Taking Online exams that is posted in the Header Block.

3. Discussion

During each class, I will give out several questions for you to think about. I will pose the questions to the class in general for anyone to answer. If I don't get a response I will 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. There will also be a group discussion for each phase of the SDLC that will be conducted online in Moodle.

4. Group Project

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 group project is extremely important for your learning in this class. The group project will simulate 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. Further details will be provided in Moodle.

Grading

- Assignments – 5 @ 5% each 25%
 - Quizzes – Mini-Exams – 3 @ 8% each 24%
 - Final Exam – cumulative 16%
 - Group Project with 5 milestones @ 5% each 25%
 - Discussion / Participation 10%
- Total: 100%

Grade	Description	Percentage
A	Superior	90 – 100
B+	Excellent	85 – 89
B	Very Good	80 – 84
C+	Good	75 – 79
C	Acceptable	70-74
D	Minimum	65-69
F	Inadequate	Below 65

Miscellaneous:

1. Moodle has two Important Discussion Forums. You are auto-subscribed to both with your NJIT email address:
 - News and Instructor Announcements – This will be used for general news and announcements for the instructor. The instructor generally initiates original postings. Students may ask questions as REPLIES to Instructor postings.
 - Help and Open Discussion, and Interesting Links Forum – This is for you to ask a general question on the course, start a discussion on something course related (that is not discussed elsewhere), or share interesting course related material you come across. Student should feel free to answer questions posed by classmates.
2. If you have a question that is particular to you as an individual (e.g. grade, late assignment) you may e-mail me directly. Please put IS-390 in the subject line so that I can filter your emails to be read quickly (as opposed to them being ignored as junk e-mail).
3. I am happy to meet with students outside of class. Feel free to stop by my office anytime and during the posted office hours. If you would like an appointment outside of office hours, its best to email me so we can set a convenient time. (Put IS-390 in subject line).

IS 390-101 - Course Schedule/ Weekly Outline – Fall 2019

Week	Book Chapter/Topic	Exam	Assignment	Project Milestone
#1: Sep 3	Chapter 1: The Systems Analyst and Information Systems Development		<u>Assignment #1:</u> Introduce Yourself	
#2: Sep 10	Chapter 2: Project Selection and Management			
#3: Sep 17	Chapter 3: Requirements Determination			<u>Milestone #1:</u> TBD
#4: Sep 24	Chapter 4: Use Case Analysis	<u>Exam #1:</u> Chapters 1-3		
#5: Oct 1	Chapter 5: Process Modeling		<u>Assignment #2:</u> Interview	
#6: Oct 8	Chapter 6: Data Modeling			<u>Milestone #2:</u> System Planning
#7: Oct 15	Chapter 7: Moving into Design		<u>Assignment #3:</u> Use Case Modeling	
#8: Oct 22	Chapter 8: Architecture Design	<u>Exam #2:</u> Chapters 4-7		
#9: Oct 29	Chapter 9: User Interface Design		<u>Assignment #4:</u> Class Modeling	
#10: Nov 5	Chapter 10: Program Design			<u>Milestone #3:</u> System Analysis
#11: Nov 12	Chapter 11: Data Storage Design			
#12: Nov. 19	Chapter 12: Moving into Implementation	<u>Exam #3:</u> Chapters 8-11		
Nov 26	Thanksgiving Week – NJIT Classes Follow Thursday and Friday Schedules on November 26-27.		<u>Assignment #5:</u> Database Design	
#13: Dec 3	Chapter 13: Transition to the New System			
#14: Dec 10	Group Presentations			<u>Milestones #4 and #5:</u> Final Report and Presentation
#15: Dec. 17	Final Exam	Chapters 1-13		