CpSc 413, Systems Analysis
Syllabus: Fall, 2013
Dr. Conlon

Catalog Description: A course in computer-based information systems. Course content includes: foundations of information science, techniques for system development, information architectures, and resource allocations. Case studies are discussed and utilized as class projects. Prerequisite: CPSC 323. 3 credits.

Professor's Description: In this course you will learn how to analyze business systems with the goal of automating them with an object-oriented, computerized system. It will be assumed that the automated system will include a database. You will learn how to model business and computerized systems with diagrams from Uniform Modeling Language, UML.

Class Meetings:

Section	Time	Place
2	MWF 4 (11:00-11:50 a.m.)	ATSH 129

Instructor:

Name	Phone	Email	Office
Michael P. Conlon, Ph.D.	724-738-2143	michael.conlon@sru.edu	252 ATS

Office hours:

Mon	Tue	Wed	Thu	Fri
2 p.m.-4 p.m.	2 p.m.-4 p.m.		9:30 a.m.-10:30 a.m.	

Text: *Systems Analysis & Design with UML Version 2.0 An Object-oriented Approach*; Dennis, Wixom & Tegarden; Wiley. ISBN 978-1-118-03742-3

Specialized software: *Umbrello* version 2.8 or later. 2.10.2 is the latest version I've seen. See uml.sourceforge.net. Windows users will need to install *Umbrello* as part of the *KDE on Windows* distribution, using the *KDE-Installer*. See http://docs.kde.org/stable/en/kdesdk/umbrello/index.html for the *Umbrello* user manual.

Important Dates:

Section	Exam 1	Exam 2	Late Work Deadline	Final
2	Oct 4	Nov 4	Mon, Dec 2	Fri, Dec 13, 10:30 a.m.-12:30 p.m.

Grading:

Exams	Project	Homework, quizzes, service, etc.	Attendance
40%	40%	10%	10%

Grading Policy:

- To pass this course you must take all exams, submit all assignments, and earn a passing grade.
- Late assignments will be penalized a full letter grade for each day, or fraction thereof, that they are late.
- No assignment which is more than one week late will be accepted after Monday of the last full week of classes. (i.e., Dec. 2 is the drop-dead date.)
- No assignment will be accepted after the last class of the semester.
- Exceptions to this policy may be made in extraordinary circumstances.

Attendance, reading, and participation: You are expected to attend every class and to arrive on time. Do not expect to be admitted to class if you are late. Latenesses will be treated as absences. Please do all assigned reading *before* the class in which it is covered. You are expected to attend and participate in class, and you must do the reading and homework to participate.

Service,etc: You will be expected to complete four service/professional-development activities during the semester. For an activity to be eligible, it must be an organized activity and it must meet one of the following criteria:

- It helps you prepare for the world of work you will enter after graduation.
- You help others to use computers.
- You learn more about computing, jobs in computing, or computing in industry.

Such activities may take the form of lectures on or off campus, resumé workshops, dress-for-success workshops, Computer Technology Club meetings, and service activities for high school students or others. If you are not sure whether an activity will count, ask me! Day-long activities count double.

In general, I do not produce these activities. You are expected to watch the bulletin boards around campus and find activities that qualify. There will be plenty of them available, but if you wait until the end of the semester to start looking, you will not be able to complete this assignment.

Exams:

- Exams will cover both text and lecture material; some text material may not be covered in class. So, read the text!
- If you must be absent for an examination, please see me one week in advance to make alternate arrangements to take the exam.
- Please take care of bodily needs before coming to an exam: you will not be permitted to leave the room during an exam until your paper is handed in.
- All electronic communication and entertainment devices must be turned off and put away during exams. Use of such devices during an exam will be considered cheating.
- You are permitted to bring a calculator to exams. Calculators with multi-line or graphic displays or with facilities for alphabetic input are not acceptable, and use of them will be considered cheating.

Plagiarism policy: Students determined guilty of plagiarism or cheating will receive a failing grade for the assignment. While I encourage you to cooperate during study, all written assignments must be your own work.

Copyright notice: By registering in this course you grant the SRU Computer Science Department permission to copy any of your work from the course for use in assessment or accreditation processes. Information that might identify you will be removed from such copies.

Course Outcomes: This course and its outcomes support the Information Systems Learning Outcomes of *Problem Solving and Critical Thinking* (PS&CT), *Communication and Interpersonal Skills* (C&IS), and *Ethical and Professional Responsibilities* (E&PR). These Information Systems Learning Outcomes are tied directly to the University Wide Outcomes of *Critical Thinking and Problem Solving, Communication*, and *Values and Ethics*.

Degree	Program Objective	Assessed Course Objective
IS	I.b. Make informed choices among alternative hardware and software configurations for the design, development, and implementation of an information system	1. Propose solutions to information systems problems by using such techniques as: prototypes; organization charts; CASE tools; UML software; data dictionaries; and entity-relationship, dataflow, and network diagrams
IT	I.c. Perform critical analyses of the impacts of decisions	
IS	I.d. Perform critical analyses and write feasibility studies of system implementations	
IS	I.e. Evaluate the effectiveness of information systems design and implementation	
IS	II.a. Write clear and concise user documentation	2. Communicate problem solutions through written and oral reports that use systems analysis vocabulary and visuals to detail systems life cycle processes
IT	II.a. Document all aspects of a system precisely and clearly	
IT	II.b. Use written, oral, and electronic communication to convey technical information effectively	
IS	II.c. Use oral and electronic communication effectively	
IT	II.c. Devise effective user interfaces for the web	
IT	II.d. Work cooperatively in teams and with others	3. Work in teams to recognize flaws in organizations that affect information systems, ensure the security, integrity and privacy of data, and realize the need for continuing professional development.

Additional Course Objectives include:
    The student will be able to:

1. Define terms of the systems analyst's technical vocabulary.
2. Describe in detail the steps in the system life cycle.
3. Demonstrate an understanding of the Association for Computing Machinery (ACM) Code of Professional Ethics.

Calendar (tentative)

Date		Subject	Reading
Aug	26	SDLC, Methodologies	Chapter 1
	28	Roles, the *Unified Process* and *UML*	
	30	Object-oriented systems: Wumpus	
Sep	4	1Project identification; feasibility analysis	Chapter 2
	6	Project management. tools	
	9	Managing the workplan	
	11	Requirements determination	Chapter 3
	13		
	16		
	18	Use-case diagrams	Chapter 4
	20	Walkthroughs for verification and validation	
	23		
	25	Structural Modeling	Chapter 5
	27	CRC cards, Class diagrams	
	30		
Oct	2	Behavioral modeling: sequence and communication diagrams	Chapter 6
	4	Exam 1	
	9		
	11	Behavioral state machines	
	14	Verifying the analysis models	Chapter 7
	16	Design models, package diagrams	
	18	Choosing a design strategy: build, buy, or download	
	21	Class and method design: coupling, cohesion, and connascence	Chapter 8
	23	Contracts and constraints; methods	
	25		
	28	Data Management Layer:match the design to a database	Chapter 9
	30		
Nov	1		
	4	Exam 2	
	6	HCI	Chapter 10
	8		
	11		

	13	Physical Architecture Layer	Chapter 11
	15		
	18		
	20	Construction	Chapter 12
	22		
	25		
Dec	2	Installation and Operation	Chapter 13
	4		Project Presentations
	6		
	9		
	11	Section 4 Final: 1:00 p.m.-3:00 p.m	