Syllabus for CIS 3150

Introduction to Object-Oriented Systems Analysis and Design

California State Polytechnic University, Pomona, California

College of Business Administration, Department of Computer Information Systems

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Spring 2019

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Office Hours: Tuesday, Thursday 2-3:50 pm

This syllabus provides the guide for the entire course.

Course Guide

Class Meetings and Office Hours, Holidays

Term Dates

Classes run each week from January 22st through May 9th, Tuesday and Thursdays.

Final Exam Time

TBA, currently on the university website. Final exam day is May 14 or 16. Students will be informed of the final exam time via email, and an announcement via Blackboard.

Class Meeting Times and Locations

8:30 PM–9:45 PM TuTh, Building 98C 4-027

Holidays

Spring Break takes place April 30 through May 5th. Two normal class sessions will be missed during this week, yet assignments may be due, to be announced.

Course Description

Our course Introduces object-oriented systems analysis and design using unified modeling language (UML). System development life cycle. Determination of information system requirements. use cases, use case diagrams, domain models, interaction diagrams, and design class diagrams. This course also introduces design patterns, as well as project management for software development and fundamentals of software testing.

Learning Objectives

Students successfully completing this course should have acquired the ability to:
- Foundational knowledge
    - Understand system development life cycle (SDLC) and several methodologies of SDLC, in particular, the rational unified process (RUP).
    - Be able to perform systems analysis tasks, such as identifying systems requirements, producing requirements definition, generating use case descriptions, use case diagram, and domain model.
    - Be able to perform systems design tasks, such as generating sequence diagrams for use cases, and producing design class diagram.
- Application
    - Be able to apply your knowledge and perform systems analysis and design tasks for a case.
- Human Dimensions
    - Work with teammates of your group coordinately in order to produce group-based deliverables for some project milestones.

Prerequisites

A minimum grade of C (2.0) in CIS 304, 305

Textbook and Software

Required Textbook:
None

Required Online (free) Reference Guides:
- The Object Management Group Websites on UML: http://www.uml.org/#Links-Tutorials
- Si Alhir, Sinan. UML in a Nutshell. O'Reilly Press, 1998. http://books.google.com/books/about/UML_in_a_Nutshell.html?id=dCqTP7ySywEC

Software:
For UML and diagramming software:
- Microsoft Word, Microsoft Visio 2010 (free and available on CIS dept website -> MSDNAA Download), OR
- Google Drive / Lucidchart Academic edition (choose the free version and proceed to register your free academic license)

■ draw.io free UML tool, via Google Docs or Chrome webstore

Exams, Projects and Assignments

3150 will collect graded items in a white paper, formal academic paper format. APA standards are to be used, and submitted every three major lecture topics. Due dates are available in the section below, 'Graded Assignments in 3150.'

Grade Change Requests
All grade change requests are to follow strict adherence to University guidelines. Do not ask for grade changes without a personal visit to the faculty during office hours. No emailed grade revision requests are accepted. Reasons for grade change cannot include **your desire for a different grade point**, and will not be accepted for this reason. Instead, please identify areas where grading errors took place, or you failed to complete the assignment.

Attendance: Attendance is required for each class session, barring hospitalization. Any illness treated with doctor visits are to be substantiated with a letterhead note from your physician. Attendance is scored in your team's weekly presentation and recorded on a time card with your name on it. Absences will be printed on the card, and the card is not to be altered by the student. Please pick up the attendance card at the start of each class, then return the card at the close, proving your attendance or absence.

Make-up policy: There will be no make-up exams except for serious and compelling reasons that are substantiated with formal documents. For example, medical cases have to be substantiated with valid doctor or hospital note stating that the student is too ill to attend the exam.

Late assignments or projects: Provided under 'Graded Assignments in 3150.'

Tutoring: For free tutoring on campus, contact the Learning Center in the library
http://www.csupomona.edu/~lrc/

Grading

The grade scale will follow this chart.

Grade	Percentage
A	93.00-100.00
A-	90.00-92.99
B+	87.00-89.99
B	83.00-86.99

B-	80.00-82.99
C+	77.00-79.99
C	73.00-76.99
C-	70.00-72.99
D+	67.00-69.99
D	63.00-66.99
D-	60.00-62.99
F	0-59.99

The course final grade will be based upon the following gradable items.

Graded Items	%
papers, 15 each	75
final paper, exam date	25
Total	100

** Please see due dates for your team presentations in the Lesson Plan, below.

Class Communication

Asking Questions Outside Class Meetings

Academic questions may be posted on github, in the Issues section of our repository. (See link above) These will be available for the public internet, and other classmates to see, but will receive speedy attention from the Instructor, given the following conditions.

 • The Issues post asks four questions, maximum. Compose your posts carefully.

Email requirements

1. Compose emails carefully, so to avoid offending your reader. Expect to read through your email several times to ensure its professionalism.
2. Avoid emails with more than several sentences. Ask questions which may be answered in a few words or sentences. Long emails run the risk of not being answered to your satisfaction.
3. Consult the syllabus and assignment before sending email. Remember, electronic communications are inherently limited, and cannot replace in-person office hours.

4. Unprofessional communications will not be responded to, and may be forwarded to University officials before reply. Avoid venting, hostile or other language deemed unwise to use personally.

Blackboard

Grades will be posted on the University Blackboard. Announcements will be posted on Blackboard and forwarded through email.

Official communications

Email is the official communication method of the University **and** CIS 3150. Therefore, maintain your school email, as all official messages will flow to it.

Blackboard communications

Messages sent by students via Blackboard do not reach the Instructor via email. Hence, use your university email for contact.

Subject to Change

This syllabus and class schedule are subject to change. If the student is absent from class, it is the student's responsibility to check on announcements made and make up the work while absent. All lecture, assignment and learning materials will be posted to this syllabus, available on Github for each week.

Assignments

Assignments bearing the bulk of course credit are available at the start of the course. Rubrics and other details may change. Assignments are always posted to this syllabus.

Course Policies

Classroom environment

The classroom is a special environment in which students and faculty come together to promote learning and growth. It is essential to this learning environment that respect for the rights of others seeking to learn, respect for the professionalism of the instructor, and the general goals of academic freedom are maintained. Student conduct which disrupts the learning process shall not be tolerated and may lead to disciplinary action and/or removal from class.

Using laptops, cellphones and other electronic devices
- Using laptops during the class for anything other than this class, personal conversations, talking or texting on cell phones or other distracting behavior are prohibited.
- As a courtesy to all, please turn off all cell phones and pagers during class. If the student needs to be reached for family medical or significant work-related issues, the student must present evidence to the instructor before the class starts.

Attendance
- Arrive on time. Do not disturb other students by asking for directions or help on exercises when arrived late.
- If the student needs to leave early, the student must let the instructor know before the class starts, and choose a seat that minimizes disruption to the class when leaving.
- If the student has to miss the class, the student must send an email to let instructor know before class and explain the reason.
- If the student is sick and contagious, the student should not come to the class and risk getting others sick.
- If the student miss an exam due to this reason, a make up may be given. However students shall not abuse the trust - if the student appears to be sick very often then the student may be asked to present evidence such as doctor notes to the instructor.

Student responsibilities
- Each student is responsible for the successful completion and submission of all assignments and projects. Corrupted files or incomplete submission will not be credited. Students are also responsible for keeping a backup copy of each submission.
- The instructor will not review your assignments or projects before grading for the entire class to ensure fairness. The instructor will, however, help you understand the expectations and clarify the requirements.
- The instructor will not debug assignments or projects for individual student. The instructor will, however, help you gain knowledge and skills in analysis and design, problem solving, coding, testing and debugging, and answer **specific questions** about course topics. Make sure you have spent significant and reasonable amount of time and effort in research and working on your own before asking help.

Turnitin
Students written assignments may be checked through Turnitin.com for plagiarism detection.

University Policies

Students with Disabilities: Upon identifying themselves to the instructor and the university, students with disabilities will receive reasonable accommodation for learning and evaluation. For more information, contact Services to Students with Disabilities at http://dsa.csupomona.edu/drc/.

Academic Integrity: Students should understand or seek clarification about expectations for academic integrity in this course (including no cheating, plagiarism, or inappropriate collaboration); neither give nor receive unauthorized aid on examinations or other course work that is used by the instructor as the basis of grading; take responsibility to monitor academic dishonesty in any form and to report it to the instructor or other appropriate official for action.

Cheating and Plagiarism: Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one's grade or obtaining course credit; such acts also include assisting another student to do so. Typically, such acts occur in relation to examinations. However, it is the intent of this definition that the term 'cheating' not be limited to examination situations only, but that it include any and all actions by a student that are intended to gain an unearned academic advantage by fraudulent or deceptive means. Plagiarism is a specific form of cheating which consists of the misuse of the published and/or unpublished works of others by misrepresenting the material (i.e., their intellectual property) so used as one's own work. Penalties for cheating and plagiarism range from a 0 or F on a particular assignment, through an F for the course, to expulsion from the university.

Computing Resources: At Cal Poly Pomona, computers and communications links to remote resources are recognized as being integral to the education and research experience. Every student is required to have his/her own laptop/computer or have other access to a computer with all the recommended software for this course. Find out more about how to access to the university's information resources from Information Technology Services.

Copyright Policy: Copyright laws and fair use policies protect the rights of those who have produced the material. The copy in this course has been provided for private study, scholarship, or research. Other uses may require permission from the copyright holder. The user of this work is responsible for adhering to copyright law of the U.S. (Title 17, U.S. Code). A full description of Cal Poly Pomona's copyright policy is included in the University's Intellectual Property policy. The course web site contains material protected by copyrights held by the instructor, other individuals or institutions. Such material is used for educational purposes in accord with copyright law and/or with permission given by the owners of the original material. Students may download one copy of the materials on any single computer for non-commercial, personal, or educational purposes only, provided that (1) do not modify it, (2) use it only for the duration of this course, and (3) include both this notice and any copyright notice originally included with the material. Beyond this use, no material from the course web site may be copied, reproduced, re-published, uploaded, posted, transmitted, or distributed in any way without the permission of the original copyright holder. The instructor assumes no responsibility for individuals who improperly use copyrighted material placed on the web site.

Tentative Course Schedule

The Instructor will make the effort to deliver lessons along these guidelines. Students should use the following time table as reference for homework that is due.

Graded Assignments in 3150

In 3150, we will demonstrate a complete Software Development Lifecycle, including all systems analysis functions. Since this does not include coding, but all elements outside of it in a systems project, 18 analysis steps will be taken. This tool set forms a cohesive experience in systems

analysis, preparing students for immediate integration into corporate life, in this role. The following skills are covered, in this sequence.

Lecture Topics
1. PESTLE, for your industry
2. 5 forces analysis, for a firm
3. Value Stream Analysis [paper 1 due]
4. Ishikawa, root causes of problem
5. Business Motivation Model
6. Organizational Chart [paper 2 due]
7. BPMN
8. Use Case
9. UI [paper 3 due]
10. ERD
11. Activity
12. Class [paper 4 due]
13. Sequence
14. Deployment, N tier
15. Network Diagram [paper 5 due]
16. Project Management: GANTT, PERT
17. Business Model Canvas
18. SWOT, proof of concept and business case [paper 6 due]

The student body will be broken into teams, according to their industrial affinities and interests. A poll will be taken at the start of the class, helping to organize everyone:
- https://goo.gl/forms/m9qeqIH98YyyEgh92

Groups will form immediately and pursue analysis of their industry, resulting in an innovative proposal for a new system, theoretically assisting firms with similar issues, in that industry. Feedback from a member of their industry will be required, and incorporated, to complete the project. The project will be graded on these factors, weighted equally:
1. The degree to which real industry feedback was collected (stakeholder analysis)
2. The degree to which real industry feedback was incorporated, and designed into the final product (agile development)
3. The completion of domain analysis, related to the industry (PESTLE, 5 forces, Org chart, Value Stream)
4. The completion of strategic analysis (Ishikawa, SWOT, BMC)
5. The completion of tactical software innovation (Activity, Use Case, BPMN, UI)
6. The completion of software feature modeling (Class, Sequence, Deployment, Network Diagram, ERD)
7. Written presentation of material

Graded student products

6 written 'progress reports' which represent the running state of the project. Student teams will compile all analytic products in a combined diagram and written format. Each document should be turned after each third analysis is taught, and the team has absorbed the skill. Since there will be time during class to experience the skill and discuss it within the team format, the instructor can be consulted on the work, and asked to help refine their results. Students should thus present their work for feedback at every available opportunity, during class and office hours.

Deadlines

Papers can be turned in without deadline. However, each analysis will be required, in sequence. For example, the PESTLE analysis must precede the Ishikawa analysis, to be accepted. It is recommended that students submit their work as immediately as possible, after each skill is taught. Students, as adult learners who analyse their own chosen industries, will need to exercise discipline and professional discretion in rendering a work product. Delays or negligence on their part will only result in a sub-par deliverable, and this will be recorded.

Paper rubric

A Papers deliver these 4 things with equal focus:
1. Submit an APA formatted paper that contains diagrams of the analyses taught by SB.
2. Group input must refine the diagrams, which must be conventional and done accurate, according to instruction. No creative leeway was taken in the analysis, and the final diagram is done with a professional diagramming/UML tool such as draw.io/ LucidChart/ Visio.
3. Critical to this paper is the fact that the discussion is elaborate, and cites facts, concepts and innovation which were clarified in a prior analysis. A papers develop a layered product, which develops ideas on top of prior ideas. No prior analysis is ignored nor cast aside, and the final work conservatively accommodates all prior work by the team.
4. The team clearly assigns work to its members and collaborates according to a charter, established in the initial week. The team can also document what work items were delegated to each member in case there is a deficiency in the work.

B papers deliver approximately 85% of an A paper.
C papers deliver approximately 75% of an A paper.
D papers deliver approximately 65% of an A paper.
E papers deliver approximately 55% of an A paper.

Schedule of Lectures

3150 schedule				

week #	month	t	th	topic #
1	jan	22	24	1, 2
2		29	31	3, 4
3	feb	5	7	5
4		12	14	6, 7
5		19	21	8
6		26	28	9
7	mar	5	7	10
8		12	14	11
9		19	21	12
10		26	28	13
11	apr	2	4	holiday
12		9	11	14
13		16	18	15
14		23	25	16
15	may	30	2	17
16		7	9	18
		14	16	finals days
		21		grades submitted