General Information

**Instructor:** Richard Fry, PhD, Associate Professor, Department of Computer Science  
E-mail: rich@richfry.com (Preferred) or rfrey@weber.edu (Forwarded)  
Class Meetings: Mondays and Wednesdays 11:30AM - 1:20PM (Tech Ed Bldg 103D)  
Add me to Google Hangouts for Instant Chat: rich@richfry.com  
Office Hours (M&W before/after class, check in with front desk first)

**Required Textbook:** Systems Analysis and Design with UML Version 2.0, 4th edition by Dennis, Wixom, and Tegarden. Note! As of this writing of this syllabus, this book was electronically available FREE on Safari Books On-line (with your WSU account). You may use this edition to save yourself some money. However, this title may be pulled without notice at any time. Also note, you must have an active Internet connection to read the book online, and you cannot print it. The exams are based off of the 4th edition. Keep this in mind, if you chose to purchase an earlier edition.

Course Description

This course provides an introductory understanding of Systems Analysis and Design (SAD) and provides practical guidance on the construction of object-oriented systems by gathering requirements from a client, then analyzing and designing a software/hardware solution to fit their needs. This course covers the Unified Modeling Language (UML) 2.0 and explores various Software Engineering methodologies, design activities, and human-computer interface (HCI) design. The overall goal of this course is for each student to understand the concepts of software modeling by planning, diagramming and formalizing system requirements as they relate to the Software Development Lifecycle (SDLC).

Course Outcomes

Upon successful completion of this course, the student shall be able to

- Interview and communicate with clients to gather and refine their software requirements.
- Produce UML object oriented modeling artifacts with focus on system analysis and design principles.
- Design Human-Computer Interfaces.
- Write a Software Design Document (SDD) for programmers.

ABET Accreditation program objectives

- An ability to apply knowledge of math, science, and engineering.
- An ability to design and implement programs as well as to analyze and interpret code and data.
- An ability to design a system, component, or process to meet desired needs.
- An ability to identify, formulate and solve computing problems.
- An ability to communicate effectively.
- To understand the impact of computing solutions in a global and societal context.
- To gain knowledge of contemporary issues.
- To gain an ability to use the techniques, skills, and modern computing tools necessary for computing practice.
Assignment Due Dates

All assignment due dates are clearly posted several weeks in advance. Consequently, the posted due dates are the absolute latest you can turn in an assignment for full potential credit (11:59 PM MST on the second Friday (also known as “FRYday”, so you can remember my policy easier) after it’s assigned). I will not accept late work for full credit under any circumstance (even emergencies). Late assignments are my pet peeve and are penalized severely (see chart below). If you are a procrastinator, then I suggest you give yourself a deadline of a week earlier than my drop dead due dates. I find procrastinators who wait until the last couple of days often encounter an emergency situation the last minute or do not have enough time to adequately finish the work. You’ve been warned. Please work ahead!!

<table>
<thead>
<tr>
<th>If Assignment is submitted...</th>
<th>You are awarded (or penalized)...</th>
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<tbody>
<tr>
<td>On-Time BEFORE the due date (on or before “FRYday” @ 11:59 PM)</td>
<td>Awarded Original Earned Credit</td>
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<tr>
<td>1 min to 12 hours late (Saturday by Noon)</td>
<td>-10% penalty subtracted from original score</td>
</tr>
<tr>
<td>12-24 hours late (Saturday by Midnight)</td>
<td>-25% penalty subtracted from original score</td>
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<tr>
<td>24-48 hours late (Sunday by Midnight)</td>
<td>-50% penalty subtracted from original score</td>
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<tr>
<td>48-72 hours late (Monday by Midnight)</td>
<td>-75% penalty subtracted from original score</td>
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<tr>
<td>More than 72 hours late (Tuesday or later)</td>
<td>No points awarded – No exceptions</td>
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Required Software

Microsoft Visio 2010*: For UML Modeling, The Department's MSDN Academic Alliance program permits students to install fully licensed Microsoft software on their personal computers. Instructions for obtaining various titles, including Visio, can be found [here](#). If you have any problems logging into the system, please contact [PatrickBeck@weber.edu](mailto:PatrickBeck@weber.edu) for technical assistance. Meanwhile, you can also download and install the [trial version of Visio](#) directly from Microsoft (good for 60 days) if you are waiting.

*Note this title is also accessible via [Remote Desktop Server (Athena)](#) from Weber CS Department, with [active](#) Internet Connection. No installation necessary, so even you Mac users can use it.

Or ANY OTHER UML modeling software that will save the results to .PDF format. I do not recommend using Visio 2013.
Cheating and Our Departmental Policy if you are caught...

Although cheating has many forms, I generally consider cheating to be any attempt to claim someone else's work as your own. Also, I consider both the provider and the user of the work guilty of cheating. Therefore, students should NOT give (or receive) creative assistance or ongoing support to one another on individual assignments or exams, unless this assistance is PUBLICALLY posted within the official class discussion forum.

Any assistance given to another student which is not publicly posted is considered cheating...because I assume you came up with the solution on your own. If you have any questions about this policy, please ask me. I strongly encourage students to use the discussion forum to ask for (and provide) assistance to one another - this will help avoid any accusations of cheating, so I know what assistance is being given. Any posting on the discussion forum is fair game, except for direct answers to homework/exams. If you have any doubts or questions about a course of action or a specific situation, please ask for clarification. This policy does not apply to group assignments.

**EFFECTIVE 8/23/2012:** CS Department policy dictates that any verifiable evidence of student academic cheating, as defined and determined by the instructor above, will result in: 1) an automatic failing grade for the class and 2) a report to the Dean of Students that will include the student's name and a description of the student's dishonest conduct.

Class Participation / Virtual Meetings with Instructor

Communication is a two way street. I strongly encourage you to ask questions in a timely manner, in class...or after class, post questions to the discussion board (so all students see the response). If it's of a more personal nature, you can e-mail me (Rich@richfry.com) or schedule a private office session (by appointment request) anytime you feel you are having difficulty with the material, or would like personal feedback on your performance. Of course these appointments should be made well in advance and you should not wait to the last minute to ask for help. Note: I do not give “free” reviews of assignments, but I will let you know if your homework is on the right track (again with sufficient notice).

Participation

In order to maximize my teaching effectiveness as well as student participation and learning outcomes, I have broken down class each week into specific goals (for the entire week, not by particular class day). In class, when I give presentations, they are intended to provide you with information to supplement content in the book or to demonstrate modeling techniques that will help you in completing your individual homework assignments as well as provide you additional information needed to pass the exams. To get the most out of these lectures, I ask that you come prepared. You are expected to have read the chapter prior to class, so you are prepared with questions on information you did not understand from the book or something I did not discuss during the presentation. You will also be given some time in class to start your homework (and ask for assistance), before you continue to work on the assignment on your own over the weekend. You should also have some class time to finish these assignments and ask for additional assistance, if necessary. Finally, throughout the semester you will be required to meet outside of class to work on your team projects with 3 to 4 other students. These will be real community projects with real clients obtained from my current CS 3750 class. Some of these projects may require additional communication and collaboration with the clients themselves outside of class. However, at a minimum, I want to give your teams an opportunity to set aside designated class time to work on your projects and/or meet with your client in class, whenever possible. Consequently, your attendance is expected on the designated weeks set aside as team project meeting weeks. Failure to show up without notice or consideration to your teammates may result in negative peer reviews at the end of the semester, and receiving a failing grade for the project.
Evaluation

Students will be evaluated by a total of accumulated points in a combination of 8 individual homework assignments (32%), 2 open book "Take Home" exams (18%), and 1 final team project (50%).

Individual Evaluation (52% Total)

It is highly recommended that you keep current with reading assignments and spend as much time studying the chapter material as possible. Assignments are due by MIDNIGHT, typically on a FRiday, with an assignment due once per week, so it’s easy to fall behind. Remember late assignments are penalized heavily....please work ahead.

Group Evaluation (48% Total - 32% from me, 16% from your peers)

The best way to learn and understand system analysis and design is for students to actually analyze and design software systems. As such, students in this class will be working on a final project as a team (of 4-5 individuals) during the end of the semester. The final project will involve building a detailed Software Requirements Specification (SRS) document based on a real business and client in the local or global community. It will encompass everything you were taught (and should have learned) throughout the course.

Before issuing a final grade, peer evaluations will also be performed in which students confidentially evaluate their group members at the end of the project. Based on the evaluations, all students in the group may not receive the same grade. Teamwork is critical in this class, and internal communication is a must. Group evaluation is a way to fairly distribute grades to those who are actually doing the work. If there is a problem with team members, I reserve the right to redistribute team assignments at any time.

<table>
<thead>
<tr>
<th>The following assessments are used in order to determine your final letter grade</th>
<th>POINTS</th>
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<tr>
<td>8 Individual Assignments (20 Points each)</td>
<td>160</td>
</tr>
<tr>
<td>2 &quot;Take Home&quot; Exams</td>
<td>100</td>
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<tr>
<td>Group Project 1 – SRS - Instructor's Grade</td>
<td>80</td>
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<tr>
<td>Group Project 2 – SDD - Instructor's Grade</td>
<td>80</td>
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<tr>
<td>Group Project - Peer Review Grades (2@40 points each)</td>
<td>80</td>
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<tr>
<td>FINAL POINTS</td>
<td>500</td>
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A-/A = 90-100% of the total points, B- to B+ = 80-89% of total points, C to C+ = 72-79% of total points.

You need 360 points or more to pass the course with at least a “C”.

**Bonus Study Abroad Opportunity**

There is a bonus (not required) opportunity to travel to Thailand for 10 days at the end of the semester (Dec 11-21) for an additional 2 credits of Upper Division course work (which can substitute for an elective class when combined with a 2 credit Independent project). The additional cost of the Study Abroad trip is approximately $2875 (added to your normal fall 2013 tuition, and can have financial aid applied to it). The cost includes almost everything - course credit, airfare, several tours and activities, hotel accommodations, meals, and attendance at a three day software engineering conference. If interested, please let me know ASAP.
<table>
<thead>
<tr>
<th>Week</th>
<th>Goals</th>
<th>Due by end of week - (FRYday at 11:59 PM - Midnight)</th>
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</table>
| 1: Aug 26-Sept 1 | **Read** Dennis Chapter 1  
**Read** Dennis Chapter 2 (through page 87 only)  
**Presentations**  
• Class Introduction  
• Introduction to Systems Analysis and Design / Feasibility Studies and Project Management  
• Economic Feasibility Study Demo  
**Start** Homework 1 (Due NLT Sep 13)*  
*Although HW is always due on the 2nd Friday after it is assigned (providing you a minimum of one full weekend to work on it), the “FRYday” due dates will eventually start to overlap into the following weeks’ lessons (when you should be focusing on learning new material). HW1 is the one exception – in that you get two full weeks to get started. However, FRYdays should be considered “drop dead” dates. You are strongly encouraged to give yourself an earlier due date of the prior Sunday. For example: imagine HW 1 is due at the end of week 2 – Sunday Sept 8, instead of five days later. Doing this will still give you plenty of time to do HW2...as well as time to adequately learn new material and complete remaining homework assignments spaced ONE WEEK APART). If you do this consistent “early Sunday turn-in” throughout the semester, you will not fall behind, or have unnecessary stress (or excuses). Pace yourself. Work ahead, and do not fall behind! | Nothing Due – but see note*. |
| 2: Sept 2-8   | **MONDAY IS LABOR DAY – NO CLASS**  
**Read** Dennis Chapter 3  
**Presentation:** Requirements Analysis and the System Requirements Specification (SRS) Document  
**Finish** Homework 1 (Due NLT 13 September)  
**Start** Homework 2 (Due NLT 13 September)  
**Download and Install** Visio 2010 from the MSDNAA website (if the site is down, or you have difficulties, consider downloading the 60-day trial from Microsoft in the interim). | Homework 1 Suggested Due Date  
Sunday September 8th |
| 3: Sept 9-15 | **Read** Dennis Chapter 4  
**Presentations**  
- Use Case Diagrams  
- Activity Diagrams  

**Web** - Creating a Use Case Diagram with Visio  
**Web** - Creating an Activity Diagram with Visio  
Finish Homework 2 (Due NLT Sept 13)  
Start Homework 3 (Due NLT Sept 20)  
Additional Homework 3 Resources:  
- **Web** - UML basics: An introduction to the Unified Modeling Language (IBM)  
- **Web** - Capturing business requirements using use cases (IBM)  
- **Web** - Web services programming tips and tricks: Use case modeling tips (IBM) | **Homeworks 1&2 Due FRYday, Sept 13 by midnight** |
| 4: Sept 16-22 | **GROUP FORMATIONS** – Final Projects released this week  
**Read** Dennis Chapter 5  
**Web** - Creating a Static Structure Diagram in Visio  
**Presentation**  
- Analysis Class Diagramming  
Finish Homework 3 (Due NLT Sept 20)  
Start Homework 4 (Due NLT Sept 27) | **Homework 3 Due FRYday, Sept 20 by midnight** |
| 5: Sept 23-29 | **GROUP WEEK**  
**Take Home Exam 1**: Dennis  
Chapters 1-5 (Due NLT Oct 18)  
**MEETINGS (MANDATORY)** - with your group members to introduce yourselves and discuss the final project scenario and individual responsibilities.  
Finish Homework 4 (Due NLT Sept 27)  
**Start Team Final Project Part 1 (SRS)** – Due NLT Oct 11 | **Homework 4 Due FRYday, Sept 27 by midnight** |
<table>
<thead>
<tr>
<th>Week</th>
<th>Group Week</th>
<th>Meetings (Mandatory)</th>
<th>Team Weekend - Nothing Due (but you should be working on Final Project Part 1)</th>
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<tr>
<td>6: Sept 30-Oct 6</td>
<td><strong>GROUP WEEK</strong>&lt;br&gt;Take Home Exam 1: Dennis Chapters 1-5 (Due NLT Oct 18)</td>
<td>with your group members to work with on the Team Project and meet with client as necessary.</td>
<td><strong>TEAM WEEKEND – NOTHING DUE</strong>&lt;br&gt;<strong>but you should be working on Final Project Part 1</strong></td>
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<td>7: Oct 7-13</td>
<td><strong>GROUP WEEK</strong>&lt;br&gt;Take Home Exam 1: Dennis Chapters 1-5 (Due NLT Oct 18)</td>
<td>with your group members to work with on the Team Project and meet with client as necessary.</td>
<td>Final Project Part I and Peer Reviews Due&lt;br&gt;Friday, Oct 11 by midnight</td>
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<td>8: Oct 14-20</td>
<td><strong>Read</strong> Dennis Chapter 6&lt;br&gt;Web – Creating a Sequence Diagram in Visio&lt;br&gt;<strong>Presentation</strong>&lt;br&gt; - Communication Diagramming&lt;br&gt;<strong>Start</strong> Homework 5 (Due NLT Oct 25)</td>
<td><strong>Take Home Exam 1 Due</strong>&lt;br&gt;Friday, Oct 18 by midnight</td>
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<td>9: Oct 21-27</td>
<td><strong>Read</strong> Dennis Chapter 7 (through page 289 only) and Chapter 8&lt;br&gt;<strong>Presentation</strong>&lt;br&gt; - Class Design&lt;br&gt;<strong>Finish</strong> Homework 5 (Due NLT Oct 25)&lt;br&gt;<strong>Start</strong> Homework 6 (Due NLT Nov 1)</td>
<td><strong>Homework 5 Due</strong>&lt;br&gt;Friday, Oct 25 by midnight</td>
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<td>10: Oct 28-Nov 3</td>
<td><strong>Read</strong> Dennis Chapter 9&lt;br&gt;<strong>Presentation</strong>&lt;br&gt; - Data Access Layer Diagramming&lt;br&gt;<strong>Web</strong> - Handout Database Modeling in UML&lt;br&gt;<strong>Web</strong> - Handout on Converting Classes to Database Schemas&lt;br&gt;<strong>Presentation</strong>&lt;br&gt; - Visio Database Diagramming&lt;br&gt;<strong>Finish</strong> Homework 6 (Due NLT Nov 1)&lt;br&gt;<strong>Start</strong> Homework 7 (Due NLT Nov 8)</td>
<td><strong>Homework 6 Due</strong>&lt;br&gt;Friday, Nov 1 by midnight</td>
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<tr>
<td>Date</td>
<td>Activity</td>
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| 11: Nov 4-10 | **Read** Dennis Chapter 10  
**Presentation**  
• User Interface Design  
**Finish** Homework 7 (Due NLT Nov 8)  
**Start** Homework 8 (Due NLT Nov 15)  
**Homework 7 Due** FRYday, Nov 8 by midnight |
| 12: Nov 11-17| **GROUP WEEK**  
**Finish** Homework 8 (Due NLT Nov 15)  
**Take Home Exam 2**: Dennis Chapters 6-10 (Due NLT Dec 6)  
**MEETINGS (MANDATORY)** - with your group members to work with on the Team Project and meet with client as necessary.  
**Homework 8 Due** FRYday, Nov 15 by midnight |
| 13: Nov 18-24| **GROUP WEEK**  
**Take Home Exam 2**: Dennis Chapters 6-10 (Due NLT Dec 6)  
**MEETINGS (MANDATORY)** - with your group members to work with on the Team Project and meet with client as necessary.  
**TEAM WEEKEND – NOTHING DUE** (but you should be working on Final Project Part 2) |
| 14: Nov 25 – Dec 1 | **GROUP WEEK**  
**THANKSGIVING WEEKEND**  
**MEETINGS (MANDATORY)** - with your group members to work with on the Team Project and meet with client as necessary.  
**TEAM WEEKEND – NOTHING DUE** (but you should be working on Final Project Part 2 in between snacking on leftover Turkey) |
| 15: Dec 2-8  | **GROUP WEEK**  
**Take Home Exam 2**: Dennis Chapters 6-10 (Due NLT Dec 6)  
**MEETINGS (MANDATORY)** - with your group members to work with on the Team Project and meet with client as necessary.  
**Take Home Exam 2 Due** Dec 6 by midnight. |
| **FINAL’S WEEK**:  
**MONDAY 12/9** | **FINAL Project 2 and Peer Reviews**  
**DUE MONDAY BY NOON!**  
**Submit** one bounded hard copy of final SRS/SDD document to my office in person before NOON!  
**TGI “Fryday”**  
**GRADUATION DAY**  
**Enjoy the winter break!** |

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