

## General Information



**Instructor:** Richard Fry, PhD, Associate Professor, Department of Computer Science

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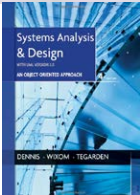
Please DO NOT send messages via the Canvas system

**Google talk** for Instant Chat: [rich@richfry.com](mailto:rich@richfry.com) (Note my 6-20 hour time difference)

**Class Meetings:** <http://canvas.weber.edu>

**Virtual Office Hours:** By appointment

**Required Textbook\*:** *Systems Analysis and Design with UML Version 2.0, 4th Edition* by Dennis, Wixom, and Tegarden.



\*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 4<sup>th</sup> 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 solution to fit their needs. This course covers the Unified Modeling Language (UML) 2.0 and explores IBM'S Rational Unified Process as one possible Software Engineering methodology. The overall goal of this course is for each student to understand the concepts of software modeling by 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 their Software Requirements and Specifications.
- Produce UML object oriented modeling artifacts with focus on system analysis and design principles.
- Create Use-Case models, narratives, and Data Flow Diagrams describing the system.
- Create Class Objects, including Class Diagrams and Interaction Diagrams.
- Create Component and Deployment Diagrams.
- Develop a relational database schema.
- Design User Interfaces.
- Write a Software Requirements and Specification (SRS) Document for a client.
- 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.
- The broad education necessary to understand the impact of computing solutions in a global and societal context.
- Knowledge of contemporary issues.
- 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 (typically 11:59PM MST on a Sunday) for full potential credit. **I will not accept late work for full credit under any circumstance (even emergencies).** Late assignments are my pet peeve and are penalized severely. Conversely, I tend to be more lenient to those who work ahead, and even offer extra credit to students who turn in their homework early (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 just before the submission deadline, or do not have enough time to adequately finish the work. You've been warned. Please work ahead!!

<b>More than 72 hours early</b> (Thurs or earlier)	<b>+10% extra credit</b> on original points awarded
<b>48 hours early</b> (Friday by Midnight)	<b>+5% extra credit</b> on original points awarded
<b>24 hours early</b> (Saturday by Midnight)	<b>+2.5% extra credit</b> on original points awarded
<b>Turned in anytime Sunday (by Midnight)</b>	<b>Original points awarded</b>
<b>1 min to 12 hours late</b> (Monday by Noon)	<b>-10% penalty</b> on original points awarded
<b>12-24 hours late</b> (Monday by Midnight)	<b>-25% penalty</b> on original points awarded
<b>24-48 hours late</b> (Tuesday by Midnight)	<b>-50% penalty</b> on original points awarded
<b>48-72 hours late</b> (Wednesday by Midnight)	<b>-75% penalty</b> on original points awarded
<b>After 72 hours late</b> (Thurs or later)	<b>No points awarded – No exceptions</b>

## 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.


## **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 publically 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. Although this is an on-line course, I strongly encourage you to ask questions via our discussion forum first (hopefully other students can help answer your questions in a timely manner, as I'm not always on-line 24/7). If it's of a more personal nature, you can e-mail me ([Rich@richfry.com](mailto:Rich@richfry.com)) or chat live with me when I'm on-line via , or schedule a help session via our Conference Forum in Canvas (by appointment request) anytime you feel you are having difficulty with the material, or would like personal feedback on your performance (after an assignment is graded). Of course these appointments should be made well in advance and you should not wait to the last minute to ask for help.

## **Participation**

This may be your first online course, so you may wonder how the lessons are organized and how much time is required of you to earn a good grade. There are about the same number of lessons as there would be lectures in a walk-in class that meets two times (4 hours) per week for 15 weeks. This does not count reading and homework time, which is usually double the amount of class time. So, realistically, **you should expect to devote at least 12 hours per week on this course to successfully pass it.** I will be presenting new material almost every week. You will be responsible for reading at least one chapter per week, plus viewing my videos and completing a homework assignment approximately once per week.

Just as attendance is a significant factor in a student's success in a traditional class, your online participation in this course will be important to your learning and academic success. You should plan to log in to the course, even if briefly, at least every couple days. This will allow you to check for any new announcements, read and participate in discussions, and review other materials that might have been posted. The benefits of actively

participating in the class are numerous: you will become a more involved learner, get to know your fellow classmates and benefit from their questions and comments, as well as contributing your own. Also, don't wait until the last minute to start your work - it's a guaranteed way to fail my course!

## Evaluation

Students will be evaluated by a total of accumulated points in a combination of 9 individual homework assignments (36%), 2 open book "Take Home" exams (30%), and 1 final team project (34%).

### Individual Evaluation (66% 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 Sunday, with an assignment due once per week, so it's easy to fall behind. Remember late assignments are penalized heavily....but if you turn any individual assignment in early, you're eligible for up to a 10% extra credit bonus (5% on exams) - this equates to up to 25 extra points for the semester, which could make the difference between a letter grade and provide you with some added assurance.

### Group Evaluation (34% Total - 24% from me, 10% 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 simulated final project as a team (of 3-4 individuals) during the end of the semester. It is not required that your teams meet in person - as everything can be done virtually via our Conferencing Software in Canvas (as long as everyone agrees on a specific meeting time). The final project will involve building a detailed Software Requirements Specification (SRS) document based on a simulated business similar to your homework assignments. It will encompass everything you were taught (and should have learned) throughout the course. Since all teams have the same project, the grading is competitive based – with only one team getting the full points for the best submission.

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 on-line environment, 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.

The following assessments are used in order to determine your final letter grade	POINTS
9 Individual Assignments (20 Points each) due each week	180
2 "Take Home" Exams (75 Points each)	150
Group Project - Instructor's Grade – Competitive Based - (Only one team gets 120 points)	120
Group Project - Peer Review Grade	50
<b>FINAL POINTS</b>	<b>500</b>

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".**

**25 Extra Credit Points can make a big difference, so turn assignments in early.**

**Proposed Schedule – From Around the World (Subject to change)**

**\*\*\* ALWAYS follow LIVE calendar on Canvas\*\*\***

Week	To Do	Due by end of week - (Sunday at 11:59 PM - Midnight)
<p><b>1: Jan 7-13</b></p>  <p>Dr. Fry is in Sharm el-Sheikh, Egypt this week (+9 hours ahead)</p> <p>Then Chiang Mai, Thailand (+14 hours ahead)</p> 	<p><b>Read</b> Dennis Chapter 1 <b>Review</b> Dennis Chapter 2</p> <p><b>Post</b> a discussion to introduce yourself to the class and/or ask a question.</p> <p><b>Download and Install</b> 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)</p> <p><b>Watch</b> the following presentations (Let me know if there are any technical issues)</p> <ul style="list-style-type: none"> <li>• Class Introduction</li> <li>• Gathering and Documenting User Requirements with UML</li> <li>• Software Requirements Specification Document</li> </ul> <p><b>Do</b> Homework 1 (Due NLT Jan 20)</p>	<p><b>Nothing</b> - but give yourself a goal to work one week ahead!!</p> <p>Due dates are the latest times to submit.</p> <p>You are encouraged to turn work in early, as Homework will be due ONE WEEK APART!</p> <p><b>PLAN AHEAD...AND EARN SOME EXTRA CREDIT!</b></p>
<p><b>2: Jan 14-20</b></p> <p>Dr. Fry is in Chiang Mai, Thailand this week (+14 hours ahead)</p> 	<p><b>Attend</b> one of the 15 minute LIVE demonstrations of Wimba Conferencing Software, including a class Q&amp;A Session regarding HW 1. <b>You will need a headset/microphone.</b></p> <ul style="list-style-type: none"> <li>• Monday, January 14 at 7 PM (9 AM next day my time)</li> <li>• Tuesday, January 15 at 7 PM (9 AM next day my time)</li> </ul> <p><b>Read</b> Dennis Chapters 3&amp;4</p> <p><b>Web</b> - Creating a Use Case Diagram with Visio</p>	<p><b>Homework 1</b> <b>Due NLT Sunday, January 20 midnight.</b></p> <p>Up to 10% extra credit bonus for early turn in (on or before Thursday 17 January at Midnight).</p>

	<p><b>Watch</b> the video on Use Case Diagrams</p> <p><b>Do</b> Homework 2 (Due NLT 27 January)</p> <p><b>Review</b> Additional Homework 2 Resources:</p> <ul style="list-style-type: none"> <li>• <b>Web</b> - UML basics: An introduction to the Unified Modeling Language (IBM)</li> <li>• <b>Web</b> - Capturing business requirements using use cases (IBM)</li> <li>• <b>Web</b> - Web services programming tips and tricks: Use case modeling tips (IBM)</li> <li>• <b>Web</b> - UML 2 Use Case Diagrams (Agile Modeling)</li> </ul>	
<p><b>3: Jan 21-27</b></p>    <p>Dr. Fry is in Chiang Mai, Thailand this week (+14 hours ahead)</p>	<p><b>JANUARY 21, 2013 – Martin Luther King Holiday</b></p> <p><b>Web</b> – Creating an Activity Diagram with Visio</p> <p><b>Web</b> - Creating a State chart Diagram with Visio</p> <p><b>Watch</b> the presentation on Activity /State Machine Diagramming</p> <p><b>Do</b> Homework 3 (Due NLT Feb 3)</p>	<p><b>Homework 2 Due NLT Sunday, Jan 27 by midnight.</b></p> <p>Up to 10% extra credit bonus for early turn in (on or before Thursday 24 January at Midnight).</p>

<p><b>4: Jan 28-Feb 3</b></p>  <p>Dr. Fry is in Chiang Mai, Thailand this week (+14 hours ahead)</p>	<p><b>Catch up week - work ahead</b></p> <p><b>Feedback on Assignments</b> (by virtual appointment request)</p> <p><b>Take Home Exam 1:</b> Dennis Chapters 1-4 (Due NLT Feb 10)</p>	<p><b>Homework 3 Due NLT Sunday, Feb 3 by midnight.</b></p> <p>Up to 10% extra credit bonus for early turn in (on or before Thursday 31 January at Midnight).</p>
<p><b>5: Feb 4-10</b></p>  <p>Dr. Fry is in Bali, Indonesia this week (+15 hours ahead)</p>	<p><b>Read</b> Dennis Chapter 5</p> <p><b>Web</b> - Creating a Static Structure Diagram in Visio</p> <p><b>Watch</b> the presentation on Class Diagramming</p> <p><b>Do</b> Homework 4 (Due NLT Feb 17)</p>	<p><b>Take Home Exam 1 Due NLT Sunday, Feb 10 by midnight.</b></p> <p>Up to 5%* extra credit bonus for early turn in (on or before Thursday 7 February at Midnight).</p> <p>*Exams have a ½ extra credit policy, but the same late policy.</p>
<p><b>6: Feb 11-17</b></p>  <p>Dr. Fry is in Bali, Indonesia (+15 hours ahead) and Phuket, Thailand (+14 hours) this week</p>	<p><b>Read</b> Dennis Chapter 6</p> <p><b>Web</b> – Creating a Sequence Diagram in Visio</p> <p><b>Watch</b> the presentation on Communication Diagramming</p> <p><b>Do</b> Homework 5 (Due NLT Feb 24)</p>	<p><b>Homework 4 Due NLT Sunday, Feb 17 by midnight.</b></p> <p>Up to 10% extra credit bonus for early turn in (on or before Thursday 14 February at Midnight).</p>

7: Feb 18-24



Dr. Fry is in Phuket, Thailand (+14 hours ahead) and Gold Coast Australia (+17 hours) this week

**FEBRUARY 18, 2013 –  
President's Day Holiday**

**Casually Review** Dennis  
Chapters 7&8

**Read** Dennis Chapter 9

**Watch** the presentation on Data  
Access Layer  
Diagramming

**Web** - Handout Database  
Modeling in UML

**Web** - Handout on Converting  
Classes to Database  
Schemas

**Watch** the Visio Database  
Diagramming Tutorial  
(Excerpt from my CS 3550 class)

- Ignore Conceptual Modeling.  
Logical Modeling starts at time  
3:45.

**Do** Homework 6 (Due NLT March  
3)

**Homework 5 Due NLT Sunday,  
Feb 24 by midnight.**

Up to 10% extra credit bonus for  
early turn in (on or before  
Thursday 21 February at  
Midnight).

8: Feb 25-Mar 3



Dr. Fry is in Sydney, Australia (+17  
hours ahead) this week

**Catch up week - work ahead.**




**Feedback on Assignments** (by  
virtual appointment request)



**Take Home Exam 2:** Dennis  
Chapters 5-8 (due March 17).

**Homework 6 Due NLT Sunday,  
March 3 by midnight.**

Up to 10% extra credit bonus for  
early turn in (on or before  
Thursday 28 February at  
Midnight).

<p><b>SPRING BREAK MARCH 4-10</b></p>  <p>Dr. Fry is RVing and Camping the South Island of New Zealand (+20 hours ahead) this week</p>	<p><b>SPRING BREAK!</b>  <b>Catch up week - work ahead.</b></p> <p><b>Dr. Fry will be off-line all week.</b>  <b>No internet access.</b></p>	<p><b>Nothing. Work ahead! Get those bonus points...</b></p>
<p><b>9: March 11-17</b></p>  <p>Dr. Fry is in Rotorua, New Zealand (+19 hours ahead) this week</p>	<p><b>Read</b> Dennis Chapter 10</p> <p><b>Watch</b> the Video on User Interface Design - Part I</p> <p><b>Do</b> Homework 7 (Due NLT March 24)</p>	<p><b>Take Home Exam 2 Due NLT Sunday, March 17 by midnight.</b></p> <p>Up to 5%* extra credit bonus for early turn in (on or before Thursday 14 March at Midnight).</p> <p>*Exams have a ½ extra credit policy, but the same late policy.</p>
<p><b>10: March 18-24</b></p>  <p>Dr. Fry is in Phuket, Thailand (+13 hours ahead) this week</p>	<p><b>Watch</b> the Video on User Interface Design - Part II</p> <p><b>Do</b> Homework 8 (Due NLT March 31)</p>	<p><b>Homework 7 Due NLT Sunday, March 24 by midnight.</b></p> <p>Up to 10% extra credit bonus for early turn in (on or before Thursday 21 March at Midnight).</p>

<p><b>11: March 25-31</b></p>  <p>Dr. Fry is in Paris, France (+6 hours ahead) this week</p>	<p><b>Read</b> Dennis Chapter 11</p> <p><b>Web</b> – Creating a Component Diagram in Visio</p> <p><b>Watch</b> the presentation on Component Diagramming</p> <p><b>Do</b> Homework 9 (Due NLT April 7)</p>	<p><b>Homework 8 Due NLT Sunday, March 31 by midnight.</b></p> <p>Up to 10% extra credit bonus for early turn in (on or before Thursday 28 March at Midnight).</p>
<p><b>12: April 1-7</b></p>  <p>Dr. Fry is in on a Caribbean cruise (limited internet) this week</p>	<p><b>GROUP FORMATIONS</b> - Final Project Scenario released week</p> <p><b>MEET (MANDATORY)</b> - with your group to discuss the final project scenario and responsibilities.</p> <p><b>Do</b> Final Project</p>	<p><b>Homework 9 Due NLT Sunday, April 7 by midnight.</b></p> <p>Up to 10% extra credit bonus for early turn in (on or before Thursday 4 April at Midnight).</p>
<p><b>13: April 8-14</b></p>  <p>Dr. Fry is back home in Utah (April 8-10 only)</p>	<p><b>WORK ON FINAL PROJECT</b></p> <p><b>Optional</b> (by appointment April 8-10 only) Wimba Conference meetings with client, if necessary for Q&amp;A about final project.</p> <p>Schedule only after the team has had the opportunity to meet and formulate their initial questions for the client.</p>	

<p><b>14: April 15-21</b></p>  <p>Dr. Fry is in Chiang Mai and Bangkok, Thailand (+13 hours ahead) this week.</p> <p><b>CS 4830 - STUDY ABROAD PROGRAM WITH STUDENTS (April 11-21, 2013)</b></p>	<p><b>Work on Final Project.</b></p> <p>Meet with "client" as necessary.</p>	
<p><b>FINAL'S WEEK: April 22-24</b></p>  <p>Dr. Fry is home for the summer.</p>	<p><b>Submit</b> one bounded hard copy of SRS document (my office) and individual Peer Reviews no later than April 24, 2013 at NOON.</p> <p>Mail by Monday to: 2401 University Circle Ogden, UT 84405</p> <p>Or Drop off in person by Wednesday at Noon.</p>	<p><b>FINAL Project and Peer Reviews due by <u>Wednesday, April 24 at NOON.</u></b></p> <p>*Extra Credit does not apply to final project. Late penalties do.</p>