CS 3202 Software Requirements and Specifications

Course Description
Students will gain technical and non-technical professional skills by performing requirements engineering. Students will learn the tools, techniques, and methods for modeling software systems. Topics include requirements elicitation, prototyping, functional and non-functional requirements, and requirements tracking. Students will practice written and oral communication skills in eliciting and documenting requirements from users. Students will consider the impact of computing on individuals, organizations and society in the creation of requirements and specifications for a computational system. Students will demonstrate their ability to engage in lifelong learning by gaining background in a domain outside of their own.

Prerequisites: CS 2413 and CS 2813 or Mathematics 2513

Textbooks

Instructor and Office Hours
John Antonio, Professor of Computer Science
Office address: Devon Energy Hall, Room 232
Email address: antonio@ou.edu
Phone: 325-4397
Office hours: Monday 3:30 – 4:30 pm
             Wednesday 2:00 – 3:00 pm
             Thursday 10:00 – 11:00 am

ABET/CAC Outcomes to be met by CS 3202
Outcome B: An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
Outcome D: An ability to function effectively on teams to accomplish a common goal
Outcome E: An understanding of professional, ethical, legal, security and social issues and responsibilities
Outcome F: An ability to communicate effectively with a range of audiences
Outcome G: An ability to analyze the local and global impact of computing on individuals, organizations, and society
Outcome H: Recognition of the need for and an ability to engage in continuing professional development

Course Overview, Topics, and Schedule
This course integrates two types of learning: theoretical (through the study of books) and experiential (through practice). Our class times together will provide opportunities for both types of learning. The first hour of our class will involve quizzes, lectures, and discussions based on readings from the text books. The second hour will generally involve experiential learning, where the class will hear from (and engage with) practicing professionals from the software industry, and work together in project teams.
Although the class as a whole only has one scheduled meeting time per week, it is required that much learning take place outside of class through both individual study as well as through team meetings. It is critical for students to arrive at class on time being prepared to:

- take a quiz covering assigned reading materials plus materials covered by previous guest speakers;
- participate in class discussions and project team work; and
- engage with our guest speakers.

The second half of the course (starting about week 9) is when students practice the collection and assimilation of software requirements. During this part of the course, students will work in teams to elicit requirements from clients (simulated and/or real), begin producing a written requirements document, and also begin preparing for a final oral presentation. It is the responsibility of each team to maintain regular communication among themselves and with their client through the remainder of the semester. Final oral presentations will be made on the last regularly scheduled class period and the final written document is due during finals week.

**Grading**

<table>
<thead>
<tr>
<th>Event</th>
<th>Percentage of Grade</th>
<th>Description</th>
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<tbody>
<tr>
<td>Quizzes / Participation / Attendance</td>
<td>27%</td>
<td>12 quizzes at 1 point each. Attendance and class participation combined are worth a total of 1 point for each of the 15 class periods.</td>
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<tr>
<td>Peer Evaluation</td>
<td>25%</td>
<td>You will be required to turn in an evaluation of peers on your team (you will be given an evaluation survey). Not turning in your peer evaluations will result in a 0 for this portion of the grade.</td>
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<tr>
<td>Oral Presentation</td>
<td>15%</td>
<td>Oral presentation of a portion of your team’s requirements document.</td>
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<tr>
<td>Final Written Document</td>
<td>33%</td>
<td>Final requirements document.</td>
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## Schedule for CS 3202 Software Requirements and Specifications

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Reading Assignment</th>
<th>Notes</th>
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</table>
| 1    | Aug 21  | **Chapter 1** The Requirements Problem  
Chapter 2 Introduction to Requirements Management  
Chapter 3 Requirements and the Software Lifecycle  
Chapter 4 The Software Team  
**Aug 21 to Oct 23, Managing Software Requirements**  
Oct 30 to Nov 20, *Telling Stories*  
**Notes**  
Quiz 1 (ch 1-4)  
| 2    | Aug 28  | **Chapter 5** The Five Steps in Problem Analysis  
Chapter 6 Business Modeling  
Chapter 7 Systems Engineering of Software-Intensive Systems  
**Notes**  
| 3    | Sep 4   | **Chapter 8** The Challenge of Requirements Elicitation  
Chapter 9 The Features of a Product or System  
Chapter 10 Interviewing  
Chapter 11 Requirements Workshops  
Chapter 12 Brainstorming and Idea Reduction  
Chapter 13 Storyboarding  
**Notes**  
Quiz 2 (ch 5-7)  
| 4    | Sep 11  | **Chapter 14** A Use Case Primer  
Chapter 15 Organizing Requirements Information  
Chapter 16 The Vision Document  
Chapter 17 Product Management  
**Notes**  
Quiz 3 (ch 8-13)  
| 5    | Sep 18  | **Chapter 18** Establishing Project Scope  
Chapter 19 Managing Your Customer  
**Notes**  
Quiz 4 (ch 14-17)  
| 6    | Sep 25  | **Chapter 20** Software Requirements – A More Rigorous Look  
Chapter 21 Refining the Use Cases  
Chapter 22 Developing the Supplementary Specification  
Chapter 23 On Ambiguity and Specificity  
Chapter 24 Technical Methods for Specifying Requirements  
**Notes**  
Quiz 5 (ch 18,19)  
| 7    | Oct 2   | Guest lecture only today  
**Notes**  
| 8    | Oct 9   | **Chapter 27** Tracing Requirements  
Chapter 28 Managing Change  
Chapter 29 Assessing Requirements Quality in Iterative Development  
**Notes**  
Quiz 6 (ch 20-24)  
| 9    | Oct 16  | **Project documentation and requirements**  
**Project Q&A**  
**Notes**  
Quiz 7 (ch 27-29)  
**Team Formation**  
**Project kickoff**  
| 10   | Oct 23  | **Chapter 25** From Use Cases to Implementation  
Chapter 26 From Use Cases to Test Cases  
Getting Started (pp. 375-380)  
Chapter 30 Agile Requirements Methods  
Chapter 31 Your Prescriptions for Requirements Management  
**Notes**  
Document Construction  
<p>|</p>
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics and Due Dates</th>
</tr>
</thead>
</table>
| 11   | Oct 30 | Chapter 1 Telling Stories
Chapter 2 The Language of your Story |
|      |       | Quiz 8 (ch 25,26,30,31, Getting Started) Document Construction |
| 12   | Nov 6  | Chapter 3 Drawing Pictures
Chapter 4 Explaining Processes and Finding Requirements |
|      |       | Quiz 9 (ch 1,2) Document Construction |
|      | Nov 10 | Draft Vision Document due to D2L dropbox by 11:59 pm |
|      |       | Quiz 10 (ch 3,4) Document Construction |
| 13   | Nov 13 | Chapter 5 Finding and Structuring the Content
Chapter 6 Creating the Body of the Document |
|      |       | Document/ Presentation Construction |
| 14   | Nov 20 | Chapter 7 And Finally, the Beginning
Chapter 8 Reviewing, Reusing, and Maintenance
Appendix A: A Software Requirements Document Template |
|      |       | Quiz 11 (ch 5,6) Document/ Presentation Construction |
|      | Nov 27 | Thanksgiving Holiday – No Class |
| 15   | Dec 4  | Final Presentations |
|      |       | Quiz 12 (ch 7,8, Appendix A) |
| 16   | Dec 9-10 | Final Requirements Document due to D2L dropbox by 11:59 pm Dec 9
Peer Reviews due to D2L dropbox by by 11:59 pm Dec 10 |
|      |       | Document Due Peer Reviews Due |

**Students with Disabilities**

Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact the instructor as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.

**Religious Holidays**

It is the policy of the University to excuse the absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required class work that may fall on religious holidays. Any student in this course who plans to observe a religious holiday that might conflict with course requirements should contact the instructor personally as soon as possible so we can make appropriate arrangements.

**Academic Integrity**

The Provost’s web pages include information on expectations for academic integrity. Please review the material at [http://integrity.ou.edu/students_guide.html](http://integrity.ou.edu/students_guide.html). The statement above on Student Expectations gives additional clarification for this class.