

# SYLLABUS

## SYST 510 - Systems Definition and Cost Modeling

Spring 2015

**Professor:** Dr. Rosana R. Stoica

**Assignment Submission:** Blackboard usage is required in the class; instructions are below.

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**Office:** GMU: Engineering Building – Room 2219

**Office Hours:** Wednesday 2 - 4 PM EST and by appointment

**Course Description:** During this course, the Systems Definition phase of the Systems Development Life Cycle will be explored. This phase of the systems engineering effort includes such activities as requirement elicitation, problem analysis, system specification, and system cost estimation. Lectures concerning these topics will be given by the instructor and will be supported by the listed texts. Students will be tested to ensure understanding of material contained within the lectures and the texts. Additionally, students will gain practical knowledge concerning this subject by participating in a group project to create a System Requirement Specification (SRS) and cost model of the system to be developed.

**Course Objectives:**

- understand and realize the importance of requirements engineering
- prepare descriptions of functional and non-functional requirements in formal and informal notations
- create low-fidelity models of user requirements of the system
- understand the costs and risks of the system and their relationship to the rest of the system development lifecycle.

**Course Hours:** Tuesday 4:30 pm to 7:10 PM EST, ENT 274 (and via Distance Learning)

**Text:** Requirements Engineering, Elizabeth Hull; Publisher: Springer, ISBN-10: 1849964041/ ISBN-13: 978-1849964043, Publication Date: October 11, 2010, Edition: 3rd ed.

**Grades:** 50% - group project:  
5% SOW;  
20% Final Presentation  
25% Final Deliverable  
50% - individual grades:  
15% - exam 1  
15% - exam 2  
20% - cost model exam

## Group Project

The Group Project is the focal point of student effort within this course. Although groups may be able to meet during class time occasionally, the majority of effort toward the group projects will be expended outside of class. There will be groups of several people self-formed during the first meeting of the class. Each group will have two roles: User Group and Requirement Group.

**Beginning User Group Activities:** As a user, the group will formulate a Statement of Work (SOW) that they will pass to their “mate group”. Mate groups will be assigned after the SOW is completed.

**Beginning Requirement Group Activities:** Each group will exchange their SOW with their assigned mate group. The SOW that they receive from their mate group will form the basis for their role as a Requirement Group. In this role, they will

- study the SOW they have received,
- elicit requirements from the mate group to develop a Systems Requirement Specification (SRS) including problem analysis and system definition models,
- run individual cost models and discuss differences in final presentation
- and document their final SRS

Each member of the group will be required to run a different cost model (e.g. COCOMO2, CostXpert, etc.). This individual run of the model will constitute the third exam for the course. The final analysis of the cost models will be a comparison of the individual models with a discussion of differences in the final presentation. Their mate group will be doing these same functions with the SOW they receive.

**Ending User Group Activities:** After completion of the SRS and cost models, the mate groups will again exchange documents: the SRS. In the User Group role, each group will evaluate the SRS of their mate group. A recommended evaluation strategy will be given to you.

**Ending Requirement Group Activities:** At the end of the semester, each group will present their work. Groups will be required to hand in their final package to the professor including:

- original annotated SOW they wrote,
- preliminary annotated SRS,
- final SRS,
- group Cost Model comparison, and
- evaluation of Mate Group SRS

In addition, each person in class will be required to do an evaluation of the other members of their group. The format of this is contained in a separate handout. This evaluation will be private. It should be included in a sealed envelope with student signature across flap **as part of the final package**.

## Exams

Three exams: The first will be in-class and will cover chapters 1 through 4 of Hull's book. The second will be in-class and will cover chapters 5 through 8 of Hull's book. The third will be a take home exam consisting of individual running of cost models.

## How To Access Blackboard?

- Go to [mymason.gmu.edu](http://mymason.gmu.edu)
- Enter Blackboard ID and password:  
Students need a Blackboard ID and password to login. Their Blackboard ID is their Mason mail user name (e.g. the Blackboard ID for jdoe@gmu.edu would be jdoe). Logging into Blackboard will require the user to enter the same password required to access their Mason email account.
- If you do not know your Mason mail user name, go to <http://mail.gmu.edu> and click on "Activating My Account" icon, follow the steps.
- All assignments have due dates and submissions after the due date/time will not be possible, since Blackboard will automatically block "submit my homework" option.
- From time to time, Blackboard works too slowly. Especially from a dial-up internet connection, Blackboard access may not be so efficient all the time; students are encouraged to submit their work earlier than the deadline.
- If you experience any problem while accessing/using Blackboard, please send an e-mail to Dr. Stoica, [retoica@gmu.edu](mailto:retoica@gmu.edu)

## Academic Integrity

**The Honor Code will be read and signed by all students the first day of class and before the exams.**

GMU is an Honor Code university; please see the University Catalog for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. What does academic integrity mean in this course? Essentially this: when you are responsible for a task, you will perform that task. When you rely on someone else's work in an aspect of the performance of that task, you will give full credit in the proper, accepted form. Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will

be conducted with civility and respect for differing ideas, perspectives, and traditions. When in doubt (of any kind) please ask for guidance and clarification.

### **GMU EMAIL Accounts**

Students must activate their GMU email accounts to receive important University information, including messages related to this class.

### **Disabilities Statement**

If you are a student with a disability and you need academic accommodations, please see me and contact the Disability Resource Center (DRC) at 993-2474. All academic accommodations must be arranged through the DRC.

### **Other Useful Campus Resources:**

WRITING CENTER: A114 Robinson Hall; (703) 993-1200; <http://writingcenter.gmu.edu>

UNIVERSITY LIBRARIES “Ask a Librarian”  
<http://library.gmu.edu/mudge/IM/IMRef.html>

COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS): (703) 993-2380;  
<http://caps.gmu.edu>

UNIVERSITY POLICIES  
The University Catalog, <http://catalog.gmu.edu>, is the central resource for university policies affecting student, faculty, and staff conduct in university affairs.

## CLASS SCHEDULE

Week 1>	20 January	<ul style="list-style-type: none"> <li>◆ Handout syllabus, Honor Code, introduction sheet</li> <li>◆ Introduction</li> <li>◆ Review Blackboard (if available)</li> <li>◆ Group formulation; work on SOW</li> </ul>
Week 2>	27 January	<ul style="list-style-type: none"> <li>◆ Lecture: Introduction, Generic Process for Requirements Engineering [Hull Chapters 1, 2]</li> </ul>
Week 3>	3 February	<ul style="list-style-type: none"> <li>◆ Lecture: Systems Modeling [Hull Chapter 3]</li> </ul>
Week 4>	10 February	<ul style="list-style-type: none"> <li>◆ <b>Groups: 10 minute presentation of SOW</b></li> <li>◆ <b>Groups: SOW (via Blackboard) due to professor</b></li> <li>◆ Lecture: Writing and Reviewing Requirements [Hull Chapter 4]</li> </ul>
Week 5>	17 February	<ul style="list-style-type: none"> <li>◆ SOW returned; Mate Group assignments given</li> <li>◆ <b>Bring copy of SOW to class to give to your Mate Group</b></li> <li>◆ <b>In-class Exam Number 1</b></li> </ul>
Week 6>	24 February	<ul style="list-style-type: none"> <li>◆ Return Exam 1</li> <li>◆ Lecture: Requirements Engineering in the Problem Domain [Hull Chapter 5]; Requirements Engineering in the Solution Domain [Hull Chapter 6]</li> </ul>
Week 7>	3 March	<ul style="list-style-type: none"> <li>◆ Lecture: Advanced Traceability [Hull Chapter 7]; Non-functional requirements</li> </ul>
Week 8>	10 March	<b>SPRING BREAK</b>
Week 9>	17 March	<ul style="list-style-type: none"> <li>◆ <b>Groups: Preliminary SRS due to professor (via Blackboard)</b></li> <li>◆ Lecture: Management Aspects of Requirements Analysis [Hull Chapter 8]; DOORS [Hull Chapter 9]</li> </ul>
Week 10>	24 March	<ul style="list-style-type: none"> <li>◆ <b>In class Exam Number 2</b></li> <li>◆ Return preliminary SRS</li> </ul>
Week 11>	31 March	<ul style="list-style-type: none"> <li>◆ Return exam 2</li> <li>◆ Lecture: Cost models</li> </ul>
Week 12>	7 April	<ul style="list-style-type: none"> <li>◆ Demonstration of cost models to be used in the class assignment</li> <li>◆ Final Test Sheet for Take-home Exam Number 3 (covers Cost Modeling) handed to students</li> </ul>
Week 13>	14 April	<ul style="list-style-type: none"> <li>◆ Lecture: Configuration Management</li> <li>◆ <b>Groups: Exchange SRS with Mate Group</b></li> <li>◆ <b>Take-home Exam 3: Individual Cost Models</b></li> </ul>

Week 14>	21 April	<ul style="list-style-type: none"> <li>◆ Take-home Exam 3: Individual Cost Models due</li> <li>◆ Student group presentations of final SRS and individual cost model results</li> </ul>
Week 15>	28 April	<ul style="list-style-type: none"> <li>◆ Student group presentations of final SRS and individual cost model results</li> <li>◆ Group Deliverables Due: to include SOW and Evaluation for each project from Users Group as well as SRS, Cost Model Comparison, and Final SRS for each project from Requirements Group</li> </ul>