**CS/MGT 4052**

**“SYSTEMS ANALYSIS & DESIGN” SYLLABUS**

**SPRING 2011**

**Instructor:** **Professor Sandra Slaughter**

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**Course Web Site:** see *T-Square*

**Course Schedule:** 3:05 pm – 4:25 pm, Mondays and Wednesdays

College of Management, Room 202

**Course Materials:** ***Systems Analysis & Design with UML version 2.0, 3rd ed.,***

Alan Dennis, Barbara Haley Wixom, and David Tegarden, Wiley, 2009, ISBN: 9780470074787 (*available for Purchase from the Bookstore*)

***Visio Professional Edition***

*Visio 2007 is available in College of Management computer*

*labs. Visio 2007 is also available for free trial from CNET at:*

**Course Description and Objectives**

You have come to the study of systems analysis and design at an exciting time. Since some of the first software systems were used to perform repetitive calculations and to decipher secret code in WWII, software systems have become increasingly complex. For example, MS Windows has more than 45 million lines of code! Today’s applications such as business-to-business electronic procurement systems are much more sophisticated and must meet more demanding requirements than in the past.

The practice of systems development is undergoing major transformations. On the one hand, structured methodologies advocate analyzing and designing software through *functional decomposition*: examining an information system in terms of the functions it performs and the data it maintains. Many companies still use structured methodologies to develop their information systems. However, the software and data components of an information system are increasingly being viewed as a collection of related objects. In the *object-oriented* paradigm, the emphasis is on the things that comprise the system. Object-oriented methodologies promise to be easier to use than the more traditional methods and should result in higher quality systems. Many companies are now making the shift to object-oriented design. Further, companies have more alternative strategies for developing their information systems than ever before including outsourcing, off-shoring, open sourcing and purchasing off-the-shelf components and packages in addition to traditional information systems development.

*What does this mean for you?* It means that you must have a clear understanding of the concepts, tools and techniques of the object-oriented methodologies. It means that you must understand the different development strategies and when each is most appropriate. Finally, it means that you must have an in-depth understanding of the systems analysis process because this process is required whether the system is actually coded in-house or not.

The intent of this course is to provide you with a strong foundation in the methods and practice of systems analysis and design. In this course, you will learn to identify areas of problems or opportunities for information systems development. You will learn to identify opportunities for information systems, evaluate the feasibility of a proposed information systems project, and then proceed to determine the best development approach for the project. You will learn to define user problems, isolate user requirements, model information objects, identify use cases, and design the user interface for an internet-based system. Today, many information systems are developed for the Web; thus, you will learn about the particular analysis and design issues relevant to developing internet-based information systems. We will also talk about current and emerging trends and opportunities in information systems development. A number of homework exercises and a class project will give you the opportunity to apply what you are learning in the course.

The goals of this course are to enable you to:

1. understand the requirements determination process in general and for object oriented systems development, in particular
2. understand fundamental object oriented concepts and see how they are similar to and different from other approaches
3. gain experience in using CASE tools such as Visio to design a system
4. be aware of the organizational, political, social and technical issues in systems development
5. work in teams on systems analysis and design tasks
6. understand the analysis and design issues relevant to Internet based information systems and how these issues can be addressed
7. determine the various alternatives for systems development and understand when each is appropriate
8. apply what you have learned in a realistic systems development situation

**Grading, Tests, Project, Homework Exercises**

Your evaluation will be based on the following:

1. Tests (best 2 of 3, each worth 15%) 30%

2. Team Project 40%

Project Demo (10%)

Project Reports (30% total; each worth 10%)

3. Homework Exercises (each worth 10%) 20%

4. Class Participation (5% individual; 5% team) 10%

Note that final grades in the course are determined based on a student’s total weighted score (i.e., points earned for each element in the course described above, weighted by the percentages given above). For example, if a student received scores of 100 on all elements of the class, the student’s final weighted score would be ((100\*30%) + (100\*40%) + (100\*20%) + (100\*10%)) = 100 points. If a student received scores of 50 on all elements of the class, the student’s final weighted score would be ((50\*30%) + (50\*40%) + (50\*20%) + (50\*10%)) = 50 points. The maximum total weighted score that can be achieved by a student in this class is 100 points. Final grades are set based on a curve using the average of students’ total weighted scores in the class. Typically, students whose scores are above the average of the class’s total weighted score will receive an “A”, while those scoring below the class average total weighted score will receive a “B” or lower grade, depending on their scores. For example if the average of the total weighted score for the class is 92 points, to earn an “A” in this class would require a student to have a total weighted score greater than 92 points.

*Tests*. There are three tests throughout the semester, one during the final exam period. The best two scores for these tests will count toward your final grade. The tests are not cumulative. They consist of multiple choice and short answer questions. All tests cover material from the lectures, in-class exercises, homework exercises and assigned readings. Tests are to be completed by you individually *without* the help of any other student.

*Team Project*. There is a team project to analyze and design a prototype of an information system for an actual client. The project will integrate and apply the concepts we have learned in class. Detailed guidelines for the project reports and presentations will be distributed and discussed. Project deliverables are due at the beginning of class on the dates specified.

*Homework Exercises*. Two homework exercises will be assigned throughout the semester. You should work on these exercises with your team. These exercises will give you practice in implementing the concepts we have discussed in class or in using the computer software aided engineering (CASE) tools. Exercises are due at the beginning of class on the date specified.

*Class Participation*. Success in this course depends on your being prepared, completing assignments, and participating in in-class exercises and class discussions. There are two kinds of class participation: individual and team.

Your *individual* participation will be assessed throughout the semester by completion of in-class exercises as well as the quality of your questions and comments in class. In-class exercises must be turned in during class; no credit will be given for late submission of in-class exercises. In-class exercises will be graded using the following scale: acceptable/complete (10 points); some effort (5 points); unacceptable/not submitted (0 points). Note that two in-class exercises will be dropped in computing your in-class exercise average.

Your *team* participation will be assessed by completion of peer evaluations during the semester: if your performance on your team is judged below par by a majority of your peers, you may receive a deduction of your score for team participation and for the team assignments, depending on your level of participation.

*Re-grade Policy*. If you wish to request a re-grade of an item on an assignment, you must submit to me: (1) the original document containing the item to be re-graded and (2) a written request (email or hardcopy) explaining your re-grade request (what you are requesting to be re-graded and why you believe your answer is correct). Re-grade requests must be submitted within 1 week after the assignment is returned; any re-grade requests submitted after this will not be considered. *Note that your entire assignment is subject to re-grading when you submit a re-grade request.*

*Late Submissions, Missed Work and Examinations*. All assignments are due on the date specified in the syllabus at the beginning of class. “Late” submissions refers to those submitted after class on the due date or after the due date. In the absence of documented extenuating circumstances, late work will not be accepted. If your personal circumstance requires you to miss a test, you must make arrangements with me at least 24 hours prior to the scheduled date and time of the examination. Last minute emergencies will only be accommodated, at my discretion, with authentic, substantial, written documentation of your situation. Expect that any makeup examinations or other accommodations will be different than the original examination. Makeup tests must be taken no more than 1 week after the originally scheduled date or no credit will be given.

*Academic Honesty and Integrity, Academic Rights*. All students at Georgia Tech are expected to follow the ethical guidelines and adhere to the policies on cheating and plagiarism and on ethical use of computing and information resources as defined in the Student Honor Code. Detail on the Code is available at [*www.honor.gatech.edu*](http://www.honor.gatech.edu). You will be held accountable for violations of these guidelines and policies. In addition, the Student Bill of Academic Rights (see Section XXII of the Georgia Tech Scholastic Regulations) outlines a number of rights that are directly tied to how classes are conducted.

*Classroom Etiquette*. The College of Management has adopted guidelines for both faculty and students. The guidelines stipulate that:

*For professors*: Professors are expected to treat each student with courtesy and respect; be fully prepared for each class session; conduct courses in line with the details of the course syllabus and provide the complete outline to all students; and enforce the honor code and deal with disruptive behavior.

*For students*: Students are expected to treat each other and the professor with courtesy and respect; conduct themselves with honor and be active about upholding the honor code; prepare for class and participate actively; and take responsibility for their actions.

**Weekly Schedule and Assignments**

**Week 1:**

**Monday, January 10.**

* Introduction, Course Overview and Administration. Why Systems Fail.
  + **Readings:** Dennis, et al., Chapter 1

**Wednesday, January 12**.

* Project Initiation and Feasibility Analysis
  + **Readings:** Dennis, et al., Chapter 2

**Week 2:**

**Monday, January 17.**

* Martin Luther King, Jr. Day. \*\* **NO CLASS** \*\*

**Wednesday, January 19.**

* Project Feasibility and Risk Assessment (cont’d).
  + **Readings:** Dennis, et al., Chapter 2.
  + **Assigned**: Homework Exercise #1 (Feasibility and Risk Assessment)

**Week 3:**

**Monday, January 24.**

* Analysis of Project Opportunities and Requirements.
  + **Readings:** Dennis et al., Chapter 4.

**Wednesday, January 26.**

* Analysis of Project Opportunities and Requirements (cont’d)
  + **Readings:** Dennis et al., Chapter 4

**Week 4:**

**Monday, January 31.**

* Project Management.
  + **Readings:** Dennis et al., Chapter 3
  + **DUE: Homework Exercise #1**

**Wednesday, February 2.**

* Project Management (cont’d).
  + **Readings**: Dennis, et al., Chapter 3.

**Week 5:**

**Monday, February 7.**

* Project Management (cont’d). Review for Test #1.
  + **Readings**: Dennis, et al., Chapter 3.

**Wednesday, February 9.**

* Test #1.
  + **DUE: In-Class Test #1. Covers Dennis, et al., Chapters 1, 2, 3 & 4.**

**Week 6:**

**Monday, February 14.**

* Functional Modeling.
  + **Readings**: Dennis, et al., Chapter 5.

**Wednesday, February 16.**

* Functional Modeling (cont’d).
  + **Readings**: Dennis, et al., Chapter 5.
  + **Assigned:** Homework Exercise #2 (Functional Modeling)

**Week 7:**

**Monday, February 21.**

* Functional Modeling (cont’d).
  + **Readings**: Dennis, et al., Chapter 5.

**Wednesday, February 23.**

* Functional Modeling (cont’d). Using Visio 2007 for Functional Modeling.
  + **Readings:** Dennis, et al., Chapter 5.

**Week 8**

**Monday, February 28.**

* Structural Modeling.
  + **Readings:** Dennis, et al., Chapter 6.

**Wednesday, March 2.**

* Structural Modeling (cont’d). Team Project.
  + **Readings:** Dennis, et al., Chapter 6.
  + **Assigned:** Project Report #1 (Feasibility and Process Analysis)
  + **DUE: Homework Exercise #2**

**Week 9**

**Monday, March 7.**

* Structural Modeling (cont’d).
  + **Readings:** Dennis, et al., Chapter 6.

**Wednesday, March 9.**

* Structural Modeling (cont’d). Using Visio 2007 for Structural Modeling. Review for Test #2.
  + **Readings:** Dennis, et al., Chapter 6.

**Week 10**

**Monday, March 14.**

* Test #2.
  + **DUE: In-Class Test #2. Covers Dennis, et al., Chapters 5 & 6**

**Wednesday, March 16.**

* Project Work Day

**Week 11:**

**Monday, March 21.**

* **Spring Break.** ☺ **No Class** ☺

**Wednesday, March 23.**

* **Spring Break.** ☺ **No Class** ☺

**Week 12:**

**Monday, March 28.**

* Behavioral Modeling
  + **Readings:** Dennis, et al., Chapter 7.

**Wednesday, March 30.**

* Behavioral Modeling (Cont’d).
  + **Readings:** Dennis, et al., Chapter 7.
  + **Assigned:** Project Report #2 (Structural and Behavioral Modeling)
  + **DUE: Project Report #1**

**Week 13:**

**Monday, April 4.**

* Behavioral Modeling (Cont’d).
  + **Readings:** Dennis, et al., Chapter 7.

**Wednesday, April 6.**

* Behavioral Modeling. Using Visio 2007 for Behavioral Modeling.
  + **Readings:** Dennis, et al., Chapter 7.

**Week 14:**

**Monday, April 11.**

* Moving on to Design. Designing Classes and Methods.
  + **Readings:** Dennis, et al., Chapter 8.

**Wednesday, April 13.**

* Designing Classes and Methods (Cont’d).
  + **Readings:** Dennis, et al., Chapter 9.
  + **Assigned:** Project Report #3 (Project Design)
  + **DUE: Project Report #2.**

**Week 15:**

**Monday, April 18.**

* Mapping Classes to Databases.
  + **Readings:** Dennis, et al., Chapter 10.

**Wednesday, April 20.**

* Designing User Interfaces.
  + **Readings:** Dennis, et al., Chapter 11.

**Week 16:**

**Monday, April 25.**

* Project Demos.
  + **DUE: Project Demo (presenting teams).**

**Wednesday, April 27.**

* Project Demos.
  + **DUE: Project Demo (presenting teams).**
  + **DUE: Project Report #3 (all teams**)

**Final Exam: Monday, May 2, 2:50 pm to 5:40 pm.**

* Test #3.
  + **DUE: Test #3. Covers Dennis, et al., Chapters 7 – 11**