IE 410.001 – Systems Simulation
Course Syllabus: Spring 2015
MWF 9:00 – 9:50 AM, AGIT 211

Instructor: Dr. Andrea Graham
Assistant Professor
Department of Engineering & Technology

Office Location: Charles J. Austin Engineering & Technology Building, Room 216
Office Hours: MWF 10:00am – 12:00pm or by appointment
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COURSE INFORMATION
Class Meeting Time and Room: MWF 9:00-9:50AM AGIT 211

Course Textbook (Required):

Course Description:
Systems Simulation. Three semester hours. The application of simulation to facilities layout for manufacturing industries, service business models, entertainment and crisis management is emphasized. Areas covered include system structure, system analysis, model construction, data collection, and computer simulation languages. Prerequisite: IE 311

Student Learning Outcomes:
After successfully completing the course, students should be able to do the following:

1. Understand the definition of simulation and how to develop and analyze a simulation model
2. Understand the fundamental logic, structure, components and management of simulation modeling.
3. Demonstrate knowledge of how to use Arena
4. Build a simulation model with basic operations and inputs
5. Build a simulation model with detailed operations
6. Perform statistical analysis of output from terminating simulation
This course will be presented by using lectures, in-class exercises, homework and discussions. Student learning outcomes will be evaluated based on quizzes, homework, a project and exams.

1. There will be two semester exams and one final exam (see course schedule). Exam will have open and closed book formats. The format for a specific test will be announced in class prior to exam. Students are allowed to bring a calculator during exams. There will be no make-up exams except in the cases noted below (see item #5).

2. There will be announced and unannounced quizzes. All quizzes will be closed book format. There will be no make-up quizzes except in the cases noted below (see item #5).

3. If a Simulation Problem is assigned as homework, you are permitted to discuss the problem with your class mates and compare simulation results. You are encouraged to help a fellow student over a specific problem. Providing a classmate with a copy of your computer program listing is not considered an appropriate form of assistance. Each student is expected to enter his or her own simulation problem solution.

If a Simulation Problem is assigned as a Take Home Test or Class Project, you are not allowed to discuss any aspect of the problem with other students. If you have a question about the problem, ask during class or consult the instructor.

4. There will be one semester project required related to the course content delivered. A detailed project description will be given mid-semester.

5. No make-up exams and quizzes will be permitted unless official documentation for absences is provided. All documented absences due to religious observances and officially approved trips will be guaranteed as a make-up opportunity. Absences due to other unavoidable reasons (e.g., death in the family, illness) will be considered on a case-by-case basis, with appropriate documentation required. Except in the case of an emergency, the student must always seek instructor consent prior to the absence. Typically, make-up exams and quizzes might occur before the scheduled absence and as close to the original assignment date as possible. Generally, students who miss quizzes for officially documented absences may either elect to take a make-up quiz or use grade replacement with the next quiz.

**Grading**
The final course grade will be based upon the following:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework/Quizzes</td>
<td>5%</td>
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<tr>
<td>Exam 1</td>
<td>25%</td>
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<tr>
<td>Exam 2</td>
<td>25%</td>
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<tr>
<td>Class Project</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>25%</td>
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**Grading Scale:**
A = 90% and above
B = 80% - 89%
C = 70% - 79%
D = 60% - 69%
F = 0% - 59%
TECHNOLOGY REQUIREMENTS

The following technologies will be required for this class.

- Arena. A student version can be downloaded from www.mhhe.com/kelton. The software is also freely available to students in the computer labs campus.
- Internet access to download class notes, assignments, and readings from the course Web site (if applicable).
- Microsoft Excel

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures:
1. Students are expected to attend all class periods and be fully prepared for each class.
2. While in class, please turn off your cell phone, iPods, and other music devices.
3. Homework must be turned in at the beginning of the class on the day it is due. Late assignments will not be accepted.
4. As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.

Academic Dishonesty
Texas A&M University-Commerce will not allow plagiarism in any form. The students’ course works should be their own. Plagiarism represents disregard for academic standards and is strictly against University policy. If you have a question regarding academic dishonesty and integrity, please talk to the instructor or refer to the Code of Student Conduct from Student Guide Handbook.

University Specific Procedures:

A&M-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Students with Disabilities:
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library
Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamuc.edu
<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATES</th>
<th>TOPICS</th>
<th>Reading</th>
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| Jan 20 | -First day of class | -Course Introduction  
-Overview of Simulation Introduction to Systems and Modeling |         |
| Week 1 | 1/21-1/23   | - Fundamental of Simulation Concepts  
-Introduction to Arena | Ch 1    |
| Week 2 | 1/26-1/30   | - Fundamental of Simulation Concepts, cont  
-A Guided Tour Through Arena | Ch 2    |
| Week 3 | 2/2-2/6     | - Fundamental of Simulation Concepts, cont  
-A Guided Tour Through Arena | Ch 3    |
| Week 4 | 2/9-2/13    | - Fundamental of Simulation Concepts, cont  
-A Guided Tour Through Arena, Cont.  
-A Guided Tour Through Arena, Cont | Ch 3    |
| Week 5 | 2/16-2/20   | - Exam 1 (2/25)  
-Chapter 3 Case Study | Ch 3    |
| Week 6 | 2/23-2/27   | - Modeling Basic Operations and Inputs  
-Modeling Basic Operations and Inputs, Cont.  
-Find and Fixing Errors and Input Analysis | Ch 4    |
| Mar 16-20 | Spring Break- No classes |             |         |
| Week 7 | 3/2-3/6     | - Exam 2 (4/8)  
-Statistical Analysis of Output from Terminating Simulations | Ch 6    |
| Week 8 | 3/9-3/13    | - More Simulation Modeling  
-Statistical Analysis of Output from Terminating Simulations | Ch 6    |
-Statistical Analysis of Outputs from Terminating Simulations | Ch 6    |
| Week 10| 3/30, 4/3   | - More Simulation Modeling  
-Statistical Analysis of Outputs from Terminating Simulations | Ch 6    |
| Week 11| 4/6- 4/10   | - More Simulation Modeling  
-Statistical Analysis of Outputs from Terminating Simulations | Ch 6    |
| Week 12| 4/27- 5/1   | - Conducting Simulation  
-Project Discussions and Class Wrap up | Ch 13   |
| Week 13| 5/4- 5/8    | - Conducting Simulation, Cont  
-Project Discussions and Class Wrap up | Ch 13   |
| 5/11-5/15 | Final Exam  | See Univ. Final Exam Schedule |         |

**Important Dates:**
- Exam #1: Wednesday, February 25
- Exam #2: Wednesday, April 8
- Final Projects Due: May 6
- Final Exam: See University Final Exam Schedule