IE 410.001 – Systems Simulation

COURSE SYLLABUS: Spring 2020

INSTRUCTOR INFORMATION

Instructor: Dr. Sojung Kim, Assistant Professor
Office Location: AG/IT Room 216
Office Hours: MW 7:30 AM – 9:00 AM; 12:00 PM – 1:00 PM; or by appointment
Office Phone: (903) 468-8122
Office Fax: (903) 886-5690
University Email Address: sojung.kim@tamuc.edu
Preferred Form of Communication**:** email or face-to-face
Communication Response Time: 2 days

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings

Textbook Required
Borshchev, A. (2013) *The Big Book of Simulation Modeling*. AnyLogic North America, ISBN-13: 978-0989573177

Textbook Optional
Kelton, W.D, Sadowski, R.P., and Zupick, N.B. (2014) *Simulation with ARENA*. 6th Edition. McGraw-Hill Higher Education, ISBN-13: 978-0073401317.

Software Required
- A calculator for exams.
- Microsoft Word, Excel, and PowerPoint.
- Arena simulation software

Course Description

The *syllabus/schedule are subject to change.*

The application of simulation to facilities layout for manufacturing industries, service business models, entertainment and crisis management is emphasized. Areas covered include concepts of discrete event simulation, data collection, simulation modeling, and analysis of simulation outputs.

(2019-2020 Undergraduate Catalog, Texas A&M University-Commerce, http://catalog.tamuc.edu/undergrad/)

Prerequisites: IE 311 (or equivalent) with a minimum grade of C.

Student Learning Outcomes

1. Describe the fundamental logic, structure, components and management of discrete event simulation.
2. Construct a statistical distribution of input data for simulation modeling.
3. Develop a simulation model with basic and detailed operations.
4. Explain simulation outputs with statistical methods.

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Using Microsoft Word, Excel, and PowerPoint.

Instructional Methods

This is a face-to-face class. Students are required to attend each lecture in a class room. The instructor will mainly utilize power point slides during his lecture.

Student Responsibilities or Tips for Success in the Course

Although this class is a face-to-face class, all teaching materials (e.g., slides and assignments) will be posted on D2L. Thus, students are required to frequently check their D2L and email accounts (at least two times a week). In addition, to get a good grade in this class, students are required to spend about 6 hours (2 hours per credit hour) a week to study this course.

GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%
B = 80%-89%
C = 70%-79%
D = 60%-69%
F = 59% or Below

Grading rubric

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Exam 1:	25%
Exam 2:	25%
Assignments:	10%
Labs:	10%
Term project:	30%

Assessments

This course utilizes lectures and assignments to assist students in achieving the course learning outcomes. The assessment criteria for the stated student learning outcomes will include a term project, assignments, labs, and exams.

Assignments and labs will be given to support the instructional material (either in-class assignment or homework assignment). Students will have an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice. Students will have an ability to communicate effectively.

There will be two exams. Students will apply theory and mathematical principles to solve applied engineering problems. Exams will be used to asses a student's knowledge and skills related to simulation modeling and analysis.

The student project is devised to make students utilize their knowledge to solve real world problems. The types of projects will be left up to the student teams. The final report should be comprehensive, should describe methods used, and should show and illustrate the improvements and the final solution. A detail written procedure will be provided at the time of team member formation.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:
https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements

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ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport

Interaction with Instructor Statement

Outside of the classroom, email will be the primary communication tool. Students should communicate with the instructor via email at the address provided in this syllabus. The instructor will communicate with students via email through their myLeo email address. The instructor will respond to any inquires (e.g., questions of teaching materials, exams, and assignments) of students within 2 days.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

- Each exam will be given in class and all the exams are comprehensive. Students may need a scientific calculator for exams. Cell phones are not acceptable as a calculator. Use of unauthorized aids on exams will result in a grade of zero.
- All assignments are due one week from the day they were assigned unless specified otherwise in the syllabus or by the instructor. Late work will not be accepted and a grade of “0” will be assigned, unless prior arrangements are worked out with the instructor. Late penalties will be assessed to any prior-arranged approved late work.
- You will be expected to do all the readings throughout the semester.
- No make-up exams will be permitted unless official documentation for absences is provided (e.g., death in the family or illness).

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Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:
https://www.britannica.com/topic/netiquette

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf

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Students with Disabilities-- ADA Statement

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 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu
Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-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.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

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COURSE OUTLINE / CALENDAR

Week	Date	Topics	Reading
1	1/13	Introduction to Simulation	Slide 1
	1/15	Fundamental Simulation Concepts	Slide 2
2	1/20	Basic Operation Modeling with Arena	Slide 3
	1/22		
3	1/27		
	1/29	Exam-1	
4	2/3	System Dynamics with AnyLogic	Slide 4
	2/5		
5	2/10	Statistical Analysis of Output from Terminating Simulations	Slide 5
	2/12		
6	2/17	Intermediate Modeling and Steady-State Statistical Analysis	Slide 6
	2/19		
7	2/24	Exam-2	
	2/26	Manufacturing system modeling with AnyLogic	Slide 7
8	3/2		
	3/4		
9	3/9	Spring break	
	3/11		
10	3/16	Term Project	
	3/18		
11	3/23		
	3/25		
12	3/30		
	4/1		
13	4/6		
	4/8		
14	4/13		
	4/15		
15	4/20		
	4/22		
16	4/27		
	4/29		
17		Final Presentation	

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