SIE 431/531
Simulation Modeling and Analysis
Fall 2018

Class hours: MWF 10:00 – 10:50 a.m.
Office hours: M 9 – 10 W 11 – 12 or by appointment

Instructor: Dr. Wei Lin
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Teaching Assistant: Keeli Ginsbach
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Office hour: 11:00am to 1:00pm Tuesday

Purpose: This course is designed to develop student's ability to *model* and *analyze* real *systems* using *discrete event simulation*. Through this course, the student will understand the power and characteristics of discrete event simulation modeling. During the course, the student will get experience in: (1) formulating an appropriate simulation model for a system, (2) implementing the model as a computer program, and (3) evaluating the output of the model.

Textbook: *Simulation with Arena*, W. David Kelton, et al, 6th edition, McGraw-Hill, Boston, MA, 2014

Topics to be covered:
1. Basic concepts of simulation (definitions and types of simulations)
2. Mechanism of discrete event simulation
3. Random number generation
4. Input data analysis (input distribution modeling)
5. Simulation modeling using Arena package
6. Review of probability and statistics
7. Simulation output analysis
8. Monte Carlo simulation
9. Verification and validation of simulation models
10. Other simulation approaches (Time driven simulations).

Grading (SIE 431 on campus):
1. Homework: 15% (homework policy will be announced on D2L)
2. Midterm Exam: 20%
3. Final Exam: 30%
4. Term project: 30%
5. Quiz: 5%

Grading (SIE 531 on campus):
1. Homework: 15% (homework policy will be announced on D2L)
2. Midterm Exam: 20%
3. Final Exam: 30%
4. Term project: 30%
5. Quiz: 5%

Grading (SIE 431/531 online):
1. Homework: 20% (homework policy will be announced on D2L)

2. Midterm Exam: 20%
3. Final Exam: 30%
4. Term project: 30%

Course Rules:
1. Assignments need to be done individually unless otherwise mentioned. One assignment with the lowest score will be dropped. All assignments need to be submitted to D2L. Late assignment will not be accepted.
2. Students are expected to attend lectures. The instructor reserves the right to give a pop quiz at any time. You should expect such a quiz on any day where less than 50% of the registered students are not in class at the designated start time.
3. You can miss one quiz without affecting your grade. However, no make-up quizzes or assignments will be given under any circumstances (except the situation mentioned in the item 4 below).
4. All holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion; Absences pre-approved by the UA Dean of Students (or Dean's designee) will be honored.
5. Students are not allowed to use pagers and cell phones during the class.
6. Plagiarism is not allowed to any extent for the assignments, exams, and final projects.
7. Students with Disabilities: If you anticipate the need for reasonable accommodations to meet the requirements of this course, you must register with the Disability Resource Center and request that the DRC send me official notification of your accommodation needs as soon as possible. Please plan to meet with me by appointment or during office hours to discuss accommodations and how my course requirements and activities may impact your ability to fully participate.
8. The information contained in the syllabus (except the grade and absence policies) may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.