EIND 422/ CSCI 477: Introduction to Simulation
Fall 2013

Instructor: David Claudio, Ph.D., PE, CPIM
304 Roberts Hall, 406-994-5943, david.claudio@ie.montana.edu
Office Hours: M, W, and Th 9:00 -10:00 AM, or by appointment (Note: not available on Tuesdays)

TA: Lenore “Len” Page
417 Roberts Hall, lenore.page@msu.montana.edu
Office Hours: T 4:00-5:00 PM, TH 6:00-7:00 PM, or by appointment

Class: MWF 10:00-10:50, Roberts Hall 312 or 109 (as needed)

Course Web: Desire 2 Learn (D2L): https://ecat.montana.edu/

Credits: 3 credits lecture


Prerequisites: CSCI 111 (formerly CS 160) or equivalent; EIND 354 or equivalent.

Course Objective:
This course introduces students to dynamic systems models and provides a platform to integrate and apply principles and techniques from other course work. Stochastic simulation model development, verification, validation, and output analysis is emphasized. The course should also reinforce statistical and system design concepts, computer programming and technical writing skills.

Topics:
1. Introduction to systems, modeling, etc.
2. Statistics review/queuing systems
3. Next-event simulation
4. Computer simulation with Arena: basic operations and inputs
5. Components of simulation models: entities, attributes, variables, resources, queues, events
6. Model verification and validation
7. Output interpretation and analysis
8. Simulation inputs and distribution selection
Rules:
1. Be considerate of others — Be on time. Pay attention. Listen. **Turn cell phones off.**
2. Be an active learner — Participate. Ask questions. Engage the material.
3. Be honest.
4. Hand assignments in on time.
5. Have fun.

Course Listserv:
An email listserv has been created for this class. Since I will periodically post messages to the listserv (such as clarifications to homework assignments), please make sure the email address you regularly use is on the listserv, and check your email frequently.

All registered students will have their MSU email address added to the listserv automatically. If you’d like to add another address to the listserv, send a message from that account to listserv@listserv.montana.edu with the following as the only text in the body of the message:

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SUBSCRIBE EIND422001
QUIT
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You should receive a message from the listserv manager that you’ve been successfully added to the EIND 422 listserv.

Sending an Email:
When sending an email, please make sure you comply with the following:
1. In the subject heading, start the message with the title: EIND 422- Then the subject title
2. Please be respectful and courteous. Address the professor with respect. For example, start the message with: Dr. Claudio, Professor Claudio, Dear Dr. Claudio, Dear Professor, or any similar heading.
3. Note: If you start a message with “Hey”, I will not respond.

Grading:
Grades will be determined by each student’s percentage score, according to the following weights:

- 50% Exams (2 exams @ 25% each)
- 25% Homework
- 15% Class Project
- 10% Class Attendance and Participation

A letter grade will be assessed according to the following table. Grades will not be “curved.” I may lower the standard for a grade category, but I will not raise the standard (i.e., in theory, everyone could earn A’s!).

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>93-100%</td>
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<tr>
<td>A-</td>
<td>89-92.99%</td>
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<tr>
<td>B+</td>
<td>87-88.99%</td>
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<tr>
<td>B</td>
<td>84-86.99%</td>
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<tr>
<td>B-</td>
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<td>C-</td>
<td>69-72.99%</td>
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<tr>
<td>D+</td>
<td>65-68.99%</td>
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<tr>
<td>D</td>
<td>58-59.99%</td>
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<tr>
<td>F</td>
<td>Below 57.99%</td>
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Homework:
A minimum of 6 assignments will be made during the semester. Assignments will be collected at the beginning of the period. Late papers will be penalized 20% of the total points per day!

All group or team assignments will be identified as such. Collaboration on homework that involves sharing solutions, dividing the problem, solving as a group, etc. are strictly forbidden unless otherwise specified.

Policies:
• Assignments are due at the start of class on the assigned due date. I do not accept late work. Exceptions may be granted for extenuating circumstances at my discretion.
• There will be no make-up exams unless you notify me before exam day. Exceptions may be granted for extenuating circumstances.
• The final exam time is set by the registrar’s office. Attendance is mandatory.
• I expect each student to make full effort to attend every class. If you miss class, you are still responsible to get assignments in on time and for knowing the material covered in class that day. If you know you will miss class, try to see me beforehand.
• If you have a documented disability for which you are or may be requesting special accommodation, please contact Disabled Student Services as soon as possible, and discuss your specific situation with the instructor before the first exam.
• Students who entered MSU in Fall 2005 or later, or who plan to graduate under the 2006-2008 or later catalog, are subject to the University’s minimum competency requirement. According to the policy, a grade of C- or better is required for any course needed to complete a major, minor, or certificate program and for all core requirements.
• All records related to this course are confidential and will not be shared with anyone, including parents, without a signed, written release. Before giving such authorization, you should understand the purpose of the release, to whom, and for how long the information is authorized for release.
• Chronic tardiness is unprofessional and unacceptable, and may result in you being asked to leave class. The same holds for disruptive or disrespectful behavior.
• ACADEMIC EXPECTATIONS: According to the MSU Conduct Guidelines and Grievance Procedures for Students, (http://www2.montana.edu/policy/student_conduct/#academicexpect), under section 310.00, students must:
  A. be prompt and regular in attending classes;
  B. be well prepared for classes;
  C. submit required assignments in a timely manner;
  D. take exams when scheduled, unless rescheduled under 310.01;
  E. act in a respectful manner toward other students and the instructor and in a way that does not detract from the learning experience; and
  F. make and keep appointments when necessary to meet with the instructor. In addition to the above items, students are expected to meet any additional course and behavioral standards as defined by the instructor and listed in the syllabus.
• Lying, cheating, plagiarism, or any other form of dishonesty will not be tolerated. Students who engage in such behavior will be subject to the severest sanction allowed under University policy, even for a first offense. Students should familiarize themselves with MSU Student Conduct Guidelines, particularly sections 300, 400, and 600 (see: http://www2.montana.edu/policy/student_conduct/student_conduct-code_2008-2009.htm).
Tentative course outline

The following is a general outline of the order of the chapters. “DESS” refers to the book entitled “Discrete-Event System Simulation”, whereas “SWA” refers to “Simulation with Arena”.

<table>
<thead>
<tr>
<th>Week</th>
<th>Book</th>
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<tbody>
<tr>
<td>1</td>
<td>DESS</td>
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<tr>
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<td>DESS</td>
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<td>DESS</td>
<td>6</td>
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<td>DESS</td>
<td>9</td>
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<tr>
<td>6</td>
<td>SWA</td>
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<tr>
<td>7-8</td>
<td>SWA</td>
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<tr>
<td>11</td>
<td>SWA</td>
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<tr>
<td>12</td>
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<td>13</td>
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<tr>
<td>14-15</td>
<td>SWA</td>
<td>8</td>
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This is a tentative schedule and is subject to change.