Instructor: Mohammad Hosein Yarmand

Office: ITB 223

Telephone: x-23101

e-mail: yarmanmh@mcmaster.ca

Office Hours: (instructor) Tuesday 10:00-12:00

Lectures: Tuesday, Thursday, Friday 8:30 (BSB/137)

Tutorials: Thursday 12:30 (BSB/137)

TA contact: Aysan Rasooli – rasooa@mcmaster.ca
Yinghui Wang – wang382@mcmaster.ca

Mission:
The mission of this course is to teach students how to use mathematical modelling and simulation to estimate quantitative aspects of a computer system's behaviour. They should also learn how modelling results can guide them in the selection of a computer system's hardware and the design of the software. The course should provide students with experience in studying a proposed design and producing a model, deciding whether there are explicit symbolic solutions to the problem or whether simulation should be used. Students should be able to evaluate the effect of using simplified models so that solutions can be found.

Grading: (test dates TBD)

<table>
<thead>
<tr>
<th>Test</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Test 1</td>
<td>22.5%</td>
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<tr>
<td>Test 2</td>
<td>22.5%</td>
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<tr>
<td>Assignments</td>
<td>10%</td>
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<tr>
<td>Final exam (3 hours)</td>
<td>45%</td>
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There will be 7 assignments, your assignment mark will consist of the best five of these.
There will be no extensions for assignment due dates.

(The instructor reserves the right to conduct deferred examinations orally.)
Text:
There will be no course text. I will provide a set of course notes. I will also put a number of useful references on reserve in Thode.

Outline of Topics:
(This is only a brief outline indicating the major topics. A detailed description of each of the main topics will be given as the term progresses.)
1. Course overview
2. Overview of probability and statistics: reliability will be the running example for this material.
3. Queueing and network of queues
4. Simulation
5. Concurrency – issues and models (Petri nets)
6. Experimental methodology
7. Applications – these will be interspersed throughout the course, with most likely a couple of larger case studies at the end
8. Wrap-up

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

References:

Academic Dishonesty:
You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.
Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at [http://www.mcmaster.ca/academicintegrity](http://www.mcmaster.ca/academicintegrity)

The following illustrates only three forms of academic dishonesty:

1. **Plagiarism**, e.g. the submission of work that is not one’s own or for which other credit has been obtained.
2. **Improper collaboration** in group work.
3. **Copying** or using unauthorized aids in tests and examinations.