Winter 2021

COURSE NO: PHYS 2010 Computational Modeling of Natural and Human-Created Systems

Web Site: http://drop.physics.umanitoba.ca/~jsirker

LECTURES

Tu/Th 10:00 a.m. **Synchronous online course**

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Consultation Times: by appointment

REQUIRED TEXTBOOKS & MATERIALS

There are no required textbooks for this course. Lecture notes will be posted online.

ASSIGNMENTS

Homework problems will be assigned on a regular basis (usually every two to three weeks) and collected for marking (usually one week later). In addition, there will also be in-class problems which will be collected for marking at the end of the class.

EVALUATION PROCEDURE:

Assignments and in-class problems:	50%
Final project:	50%
Total	100%

The schedule of assignments, in-class problems, and the final project are detailed below. The marks of the assignments, in-class problems, and final project will be made available within one week after submission. A sufficient percentage of the total mark will be provided to the students before the Voluntary Withdrawal deadline. The final grades will be submitted to Aurora by the grade submission deadline.

The preliminary low-numerical-boundaries for the letter grades:

A+	90%
A	80%
B+	75%
B	66%
C+	60%
C	50%
D	45%
F	Below 45%

Note that the final numerical boundary for each letter grade may be adjusted depending on the total mark distribution of the class. No student's final grade will be reduced due to the boundary adjustment.

SCHEDULE OF ASSIGNMENTS AND FINAL PROJECT:

3-4 assignments	(every two to three weeks)
2 in-class problems	(at suitable times)
Final project	will be handed out at the beginning of December

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POLICY ON LATE ASSIGNMENTS

Late assignments will be penalized 10% of the total mark per day overdue, unless a satisfactory reason for the delay is given.

STUDENT ACCESSIBILITY SERVICES

If you are a student with a disability, please contact SAS for academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.

Student Accessibility Services
520 University Centre
204 474 7423
http://umanitoba.ca/student/saa/accessibility/
Student_accessibility@umanitoba.ca

SCHEDULE A

A Schedule A document is posted on the course website. This is a Policy and Resource Document with information on various University and Unit policies regarding academic integrity, student discipline, and respectful learning environment, for example, and on academic and student supports that are available, including a statement regarding mental health with referral information to the Student Counselling Centre and University Health Services.

PHYS 2010 Course Outline
Winter 2021

This course serves as an introduction to computational modeling. An important goal of the course will be to present the basic principles of modeling and illustrate these principles using contemporary examples.

1. COURSE OBJECTIVES

2. BUILDING A MODEL

3. BRIEF INTRODUCTION TO PROGRAMMING

4. SIMULATION OF RANDOM PROCESSES

5. SIMULATION OF SIMPLE DYNAMICAL SYSTEMS

6. CELLULAR AUTOMATA

7. AGENT-BASED MODELS

PLAGIARISM AND CHEATING
(University of Manitoba Undergraduate Calendar, General Academic Regulations, Academic Integrity)

To plagiarize is to take ideas or words of another person and pass them off as one's own. In short, it is stealing something intangible rather than an object. Obviously it is not necessary to state the source of well known or easily verifiable facts, but students are expected to acknowledge the sources of ideas and expressions they use in their written work, whether quoted directly or paraphrased. This applies to diagrams, statistical tables and the like, as well as to written material, and materials or information from Internet sources. To provide adequate documentation is not only an indication of academic honesty but also a courtesy which enables the reader to consult these sources with ease. Failure to do so constitutes plagiarism. It will also be considered plagiarism and/or cheating if a student submits a term paper written in whole or in part by someone other than him/herself, or copies the answer or answers of another student in any test, examination, or take-home assignment.

Plagiarism or any other form of cheating in examinations or term tests (e.g., crib notes) is subject to serious academic penalty (e.g. suspension or expulsion from the faculty or university). A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty.

EXAMINATIONS: PERSONATIONS

(University of Manitoba Undergraduate Calendar, General Academic Regulations, Final Examinations)

A student who arranges for another individual to undertake or write any nature of examination for and on his/her behalf, as well as the individual who undertakes or writes the examination, will be subject to discipline under the university's Student Discipline Bylaw, which could lead to suspension or expulsion from the university. In addition, the Canadian Criminal Code treats the personation of a candidate at a competitive or qualifying examination held at a university as an offence punishable by summary conviction. Section 362 of the Code provides:

Personation at Examination

> 362. Every one who falsely, with intent to gain advantage for him/herself or some other person, personates a candidate at a competitive or qualifying examination held under the authority of law or in connection with a university, college or school or who knowingly avails him/herself of the results of such personation is guilty of an offence punishable on summary conviction. 1953- 54,c.51,s.347.

Both the personator and the individual who avails him/herself of the personation could be found guilty. Summary conviction could result in a fine being levied or up to two years of imprisonment.

FACULTY OF SCIENCE STATEMENT ON ACADEMIC DISHONESTY

The Faculty of Science and The University of Manitoba regard acts of academic dishonesty in quizzes, tests, examinations, laboratory reports or assignments as serious offences and may assess a variety of penalties depending on the nature of the offence.

Acts of academic dishonesty include, but are not limited to bringing unauthorized materials into a test or exam, copying from another individual, using answers provided by tutors, plagiarism, and examination personation.

Note: cell phones, pagers, PDAs, MP3 units or electronic translators are explicitly listed as unauthorized materials, and must not be present during tests or examinations.

Penalties that may apply, as provided for under the University of Manitoba's Student Discipline ByLaw, range from a grade of zero for the assignment or examination, failure in the course, to expulsion from the University. The Student Discipline ByLaw may be accessed at:

http://umanitoba.ca/admin/governance/media/Student_Discipline_Bylaw_-_2009_01_01.pdf

The Faculty of Science guidelines on plagiarism and cheating and suggested minimum penalties are available at:

http://umanitoba.ca/faculties/science/resources/Acad_Dishon_TABLE_RevCSS_AdminC_Jul2012_WEB.pdf

All Faculty members (and their teaching assistants) have been instructed to be vigilant and report all incidents of academic dishonesty to the Head of the Department.