

**DEPARTMENT OF MATHEMATICAL AND COMPUTATIONAL SCIENCES
UNIVERSITY OF TORONTO MISSISSAUGA**

**CSC338H5S LEC0101
Numerical Methods
Course Outline - Winter 2019**

Class Location & Time Wed, 03:00 PM - 05:00 PM NE 2110
Instructor Lisa Zhang
Office Location DH3068
Office Hours MF11:00-12:00, W13:00-14:00
E-mail Address lczhang [at] cs [dot] toronto [dot] edu
Course Web Site <https://www.cs.toronto.edu/~lczhang/338>

Teaching Assistant Hossein Kabir

Teaching Assistant Vladislav Sytchenko

Course Description

Computational methods for solving numerical problems in science, engineering and business. Linear and non-linear equations, approximation, optimization, interpolation, integration and differentiation. The aim is to give students a basic understanding of floating-point arithmetic and the implementation of algorithms used to solve numerical problems, as well as a familiarity with current numerical computing environments. Course concepts are crucial to a wide range of practical applications such as computational finance and portfolio management, graphics and special effects, data mining and machine learning, as well as robotics, bioinformatics, medical imaging and others. [24L, 12T]

Prerequisite: CSC148H5, CSC290H5/MAT202H5; MAT134Y5/MAT135Y5/MAT137Y5/MAT157Y5, MAT223H5/MAT240H5; CSC263H5/1.0 MAT credit at the 200+ level.

Exclusion: CSC336H1, CSC350H5, CSC350H1, CSC351H1, CSC337H3 (SCI)

Distribution Requirement: SCI

Students who lack a pre/co-requisite can be removed at any time unless they have received an explicit waiver from the department. The waiver form can be downloaded from [here](#).

Textbooks and Other Materials

Michael Heath, "Scientific Computing: An Introductory Survey," Second Edition, Mc-Graw Hill, 2002.

Assessment and Deadlines

Type	Description	Due Date	Weight
Assignment	Assignment 1	2019-01-21	8%
Assignment	Assignment 2	2019-02-04	8%
Term Test	Midterm Test	2019-02-13	20%
Assignment	Assignment 3	2019-03-04	8%
Assignment	Assignment 4	2019-03-18	8%
Assignment	Assignment 5	2019-04-01	8%
Final Exam		TBA	40%
Total			100%

More Details for Assessment and Deadlines

Students must receive at least 40% on the final exam to pass the course.

Penalties for Lateness

Assignments are to be submitted electronically using MarkUs by 9pm on the due date. Assignments submitted electronically will be timestamped based on the server time, not the student's local/PC time.

Each student will receive six grace tokens; each grace token can be used for a four-hour extension for an assignment. For example, you may choose to use all six grace tokens on the first assignment, extending its deadline by 24 hours. Or, you may wish to use three tokens for each of two assignments, extending each deadline by 12 hours. MarkUs automatically tracks and deducts grace tokens.

Procedures and Rules

Missed Term Work

Students should immediately contact the instructor via email by no later than the due date if a deadline cannot be met. In the case of medical problems, you are required to have a doctor complete a *UTM medical certificate*, which must say "I saw [student's name] on [date] and it is my medical opinion based on my examination that the student is medically unfit to complete his work at this time. He/she should be able to continue with their studies by [date]." Medical notes saying that the Doctor saw you after you recovered are not adequate and will not be accepted.

Missed Final Exam

Students who cannot write a final examination due to illness or other serious causes must file an [online petition](#) **within 72 hours of the missed examination**. Original supporting documentation must also be submitted to the Office of the Registrar **within 72 hours of the missed exam**. Late petitions will **NOT** be considered. If illness is cited as the reason for a deferred exam request, a U of T Verification of Student Illness or Injury Form must show that you were **examined and diagnosed at the time of illness and on the date of the exam, or by the day after at the latest**. Students must also record their absence on ACORN on the day of the missed exam or by the day after at the latest. Upon approval of a deferred exam request, a non-refundable fee of \$70 is required for each examination approved.

Academic Integrity

Honesty and fairness are fundamental to the University of Toronto's mission. Plagiarism is a form of academic fraud and is treated very seriously. The work that you submit must be your own and cannot contain anyone else's work or ideas without proper attribution. You are expected to read the handout How not to plagiarize (<http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize>) and to be familiar with the Code of behaviour on academic matters, which is linked from the UTM calendar under the link Codes and policies.

Final Exam Information

Duration: 2 hours
Aids Permitted: Non-Programmable Calculators
1 page(s) of double-sided Letter (8-1/2 x 11) sheet

Additional Information

The aid sheet for the final exam must contain no more than 12,000 characters total. If typed, it should use 12-point font or larger.

Here is the tentative schedule for the course:

Week	Topic	Textbook Chapter
1-2	Scientific Computing	1
3-5	Systems of Linear Equations	2
6	Midterm	
7	Linear Least Squares	3
8-9	Non-linear Equations	5
10-11	Optimization	6
12	TBD	

Last Date to drop course from Academic Record and GPA is March 17, 2019.