

NUMERICAL METHODS — CSC 336

Computer Science

Course Outline

Fall 2019

Course Description:

The study of computational methods for solving problems in linear algebra, non-linear equations, and approximation. The aim is to give students a basic understanding of both floating-point arithmetic and the implementation of algorithms used to solve numerical problems, as well as a familiarity with current numerical computing environments.

Instructor: K. R. Jackson, BA 4228, 416-978-7075 or krj@cs.toronto.edu

(I may change offices during the term. I'll update my room number above if I do.)

Office Hours: by appointment

Email: I'll try to answer your email within a day or so. If my reply will be long, I'll probably ask you to talk to me instead about your question. If the answer to your question will benefit many other students in the class, I will likely copy my reply to the whole class (after removing anything from it that will identify you).

I get a lot of email, so it is a good idea to start the subject line of your email with **CSC 336** so that I can easily distinguish it from other email.

Web Page: <http://www.cs.toronto.edu/~krj/courses/336/>

Quercus and Bulletin Board: I believe we will have a Quercus page for CSC 336 as well as a Bulletin Board (BB): <https://bb-2019-09.teach.cs.toronto.edu/c/csc336>

However, the Fall 2019 BBs were not up when I wrote this course outline. Also, I tend not to use BBs; I prefer email. I probably won't use Quercus much either. If I change my mind about this, I'll let you know.

Prerequisite: CSC148H1;

MAT133Y1(70%)/(MAT135H1, MAT136H1)/MAT135Y1/MAT137Y1/MAT157Y1,
MAT221H1/MAT223H1/MAT240H1

Exclusion: CSC350H1, CSC351H1.

NOTE: Students not enrolled in the Computer Science Major or Specialist program at the UTSG, UTM, or UTSC are limited to a maximum of three 300-/400-level CSC/ECE half-courses.

Lectures: Thursdays, 6–9 PM, in BA 1170 (starting September 5).

Most weeks (including the first week) we will use the tutorial hour for a lecture in BA 1170.

Course Textbook: Michael T. Heath, *Scientific Computing: An Introductory Survey*, Revised Second Edition, SIAM, 2018.

You can buy this book directly from SIAM. If you are taking CSC 336, you are eligible for a 20% discount. I'll hand out the "Textbook Discount" flyer in the first few classes. (If you missed the classes and want a copy of the flyer, email me.)

This is a slightly revised version of the book we used last year (Second Edition, McGraw Hill, 2002). You may be able to get a copy of the Second Edition of the book from a student who

took CSC 336 last year. There are some small differences between the Second Edition and the Revised Second Edition, but you can probably get by with the Second Edition if you are careful about monitoring the changes between editions. If you get the book elsewhere, make sure that you get the **Revised Second Edition** or the **Second Edition**.

Grading:

1. Term Assignments: 30%
Four assignments due October 3, October 24, November 14 and November 28;
each assignment is worth 7.5%.
2. Midterm Test on October 17: 25%
3. Final Exam: 45%.

To pass this course, you need a total mark of at least 50%, and you must receive at least 35% on the Final Exam.

The Midterm Test and Final Exam are both closed-book: no aids, no calculators, no computers, no tablets, no phones, etc. allowed.

Late Policy: Completed assignments must be submitted on paper at the beginning of the lecture on the date that they are due. Late assignments will be accepted, **with a penalty of 25%**, up to the *late assignment deadline*, which is 11:59 PM on the Sunday following the Thursday on which they are due. Email the assignment to me at krj@cs.toronto.edu.

For example, if you hand in your assignment late, but before the *late assignment deadline*, the assignment is out of 60 and you get 48/60 before the late penalty is applied, then you will get a final mark of 33/60 for the assignment. That is,

$$\max(48 - 60 \times 0.25, 0) = 33$$

The max above ensures that you won't get a negative mark for an assignment.

Assignments will be accepted after the *late assignment deadline* specified above only if you have a very good reason for being late.

Moreover, if you have a very good reason for being late with an assignment, it's best to talk to me about an extension before the assignment is due.

Academic Integrity: Please read

<http://www.cs.toronto.edu/~fpitt/documents/plagiarism.html>

<http://www.governingcouncil.utoronto.ca/Assets/Governing+Council+Digital+Assets/Policies/PDF/ppjun011995.pdf>

<http://www.governingcouncil.utoronto.ca/Assets/Governing+Council+Digital+Assets/Policies/PDF/ppjul012002.pdf>

<http://advice.writing.utoronto.ca/using-sources/how-not-to-plagiarize/>

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