

COURSE SYLLABUS - FALL 2019

Math 180-02: Mathematical Tools for Computing

Instructor: Eric Peterson

Class Meeting Times: TuTh 9:30 - 10:45am

Classroom: Swan Hall, room 305

Office: Lippitt 102G (Africana Studies wing)

Email: epeterson11492@my.uri.edu

Office Hours: Check Sakai

Sakai: <https://sakai.uri.edu/>

The Sakai site for this course will contain blank lecture notes, grades, administrative announcements, and other important resources (such as homework solutions). Check it often!

Course Content: The course introduces basic mathematical tools and formal methods of reasoning used in computing. Each topic will be motivated and connected to computer science applications. The course puts emphasis on problem solving and applications. Topics include propositional logic, proofs, recursion, elementary number theory, counting, and linear algebra.

To succeed in MTH 180, you need to have basic familiarity with arithmetic and algebra. The course does not require any higher math as a prerequisite; only high school algebra. Complex numbers, calculus, limits, etc. are not necessary. Here's a list of skills I will assume you have:

- Multiplying polynomials.
- Manipulating equalities (i.e. $2x + 3 = 5$).
- Adding, subtracting, multiplying, and dividing fractions.
- Working with exponents and roots.
- Basic categorizing of types of numbers (integers, rationals, real numbers).
- Manipulating inequalities.

General Education Areas: MTH 180 is a General Education course. The general education education areas satisfied by MTH 180 are:

A1 Scientific, Technology, Engineering, and Mathematical Disciplines (STEM).

B3 Mathematical, Statistical, or Computational Strategies (MSC).

Textbook: Susanna S. Epp, *Discrete Mathematics with Applications*, 5th Edition, Cengage Learning, <https://www.cengage.com/c/discrete-mathematics-with-applications-5e-epp/> with an access to the *WebAssign* online homework system.

The textbook is available in the URI bookstore as well as online on the publisher's website and websites of other booksellers. There are several options described below that you can consider to obtain the textbook together with an access code for WebAssign (I recommend the first option).

1. The ISBN for WebAssign only is 9780357035252. WebAssign contains an access to the e-book if you prefer to read our textbook from a screen. **This is the most economical option.**
2. The ISBN for the loose-leaf edition and WebAssign is 9780357097724.
3. The ISBN for the bound book with WebAssign is 9780357097618. This is the priciest option, costing considerably more than options 1 and 2.

Remark: If you are using a textbook published by Cengage in another course you are taking this semester, you might want to explore 'Cengage Unlimited'. Cengage Unlimited gives you an access to Cengage's entire catalogue (which would include the e-book and WebAssign). If you are taking multiple courses with Cengage textbooks, this would be the most economical option (www.cengage.com/unlimited/).

Please see the **Homework** section of the syllabus for more information about WebAssign.

Calculators: Scientific/graphing calculators are permitted for this course and can be used to support your calculations.

Evaluation: The course grade will be based on weekly homework, three midterm exams, and a final exam.

- Homework: 20%
- Midterm Exams: 20% each (60% total)
- Final Exam: 20%

Scores will be posted in the Sakai gradebook.

A rough guideline for grading is as follows:

A: 93.00% and above		A-: 90.00% - 92.99%
B+: 87.00% - 89.99%	B: 83.00% - 86.99%	B-: 80.00% - 82.99%
C+: 77.00% - 79.99%	C: 73.00% - 76.99%	C-: 70.00% - 72.99%
D+: 67.00% - 69.99%	D: 60.00% - 66.99%	
F: 59.99% and below		

If you have any questions about the grading of a particular assignment, please let me know.

Homework: Weekly homework assignments will be assigned based on the material covered throughout the week. Each homework will have an online component (WebAssign online homework system) and a written component. To register for our section on WebAssign and have access to the online homework component:

1. Go to www.GetEnrolled.com.
2. Enter the Class Key: uri 7293 7440
3. Follow the on-screen instructions to complete your WebAssign registration.

Don't wait until the deadline! It's to your benefit to complete the assignments promptly. Working through the homework will reinforce your understanding of the material, which will make it easier to follow subsequent lectures. You may work with your fellow classmates on homework assignments, but **the work you submit must always be your own.**

Midterm Exams: There will be three midterm exams given throughout the semester (the following dates are tentative):

- Exam #1: Thursday, Oct 10
- Exam #2: Thursday, Oct 31
- Exam #3: Tuesday, Nov 26

Exam #1 and #3 will be administered during class (meaning closed notes, closed textbook). Exam #2 will be take-home. Calculators are allowed and encouraged for exams.

Final Exam: There will be a comprehensive final exam given during finals week (TBD by Enrollment Services). The final exam will be common among all sections of MTH 180.

Course Goals: At the conclusion of this semester, you will be able to:

- Understand logic statements, mathematical logic and set notation, and basic proofs.
- Understand sum notation and recurrences and be able to apply them to analysis of algorithms.
- Understand and be able to do calculations using modular arithmetic.
- Understand the concept of graphs and their applications to algorithms and networks.
- Understand the basic properties of vectors, matrices, and systems of linear equations. as well as their computer science applications
- Model basic algorithmic problems using the mathematical concepts covered in the course.
- Improve your problem-solving skills and effective communication of your solutions.

Attendance Policy: I will be keeping attendance and fully expect you to attend every single class. Legitimate absences where appropriate documentation (e.g. note from Health Center) is provided will be acknowledged accordingly.

Classroom Conduct: The classroom is a place for learning. While you are in class, I expect you to remain focused on the course material, and also to maintain an environment in which other students can do the same. In particular:

- Laptops and tablets can be useful for taking notes, but they can also be major distractions. Avoid the temptation to screw around on the Internet during class! This is distracting not only to you, but also to other students sitting nearby.
- All in-class discussion should pertain to the course material as off-topic chatter can be distracting to other students. Be respectful of your fellow students (and of me)!

Academic Accommodations: If you require academic accommodations and have documentation from Disability Services (874-2098), please get in touch with me as soon as possible.

Academic Integrity: Cheating is prohibited in all aspects of the course and will result in severe consequences. Cheating includes but is not limited to: communication with other students during an exam, reading another student's written work during an exam, and copying another student's homework assignment.

Office Hours / Email: I will remind you over the course of the semester to utilize my office hours and email to the fullest of your advantage! My goal is to help you understand the course material to the best of my ability. I am very welcoming of any questions you may have over email or in person and will do my best to answer them. If you feel you are struggling in this course, please contact me sooner rather than later!

Tutoring: In addition to my office hours, the Academic Enhancement Center (www.uri.edu/aec) is a walk-in tutoring center that provides free support for this course (or any math course up to MTH 243). The AEC is a great environment for reviewing material with classmates and preparing for exams, as there are tutors available to help with any questions you might have.

Important Dates:

- **Open Add Period:** Wed, Sept 4 - Tues, Sept 10.
- **Open Drop Period:** Wed, Sept 4 - Wed, Sept 25. (no mark on transcript)
- **Late Withdrawal Period:** Thurs, Sept 26 - Thurs, Oct 17. ("W" on transcript)

A course may be dropped by official procedures determined by the Office of Enrollment Services (e-Campus) on or before the end of the third week of classes (Open Drop Period) with no mark on a student's transcript. Courses may be dropped through e-Campus between the fourth and end of the sixth week of classes (Late Withdrawal Period) and will be recognized on a student's transcript with a "W."

After the end of the Late Withdrawal Period, a student may drop a course only in exceptional circumstances with authorization of the dean of the college in which the student is enrolled. Such drops will also be recognized on a student's transcript with a "W." If the student has not dropped a course by the end of the withdrawal period, the instructor must submit a grade.