Syllabus

MTH 355 Discrete Mathematics

Course credits: 3.0

Place and time: MWF 1:00 pm to 1:50 pm in Bexell Hall 412

Instructor: Yevgeniy Kovchegov
Email: kovchegy@math.oregonstate.edu
Office: Kidder 60
Office Phone No: 7-1379
Office Hours: MW 11:00 -11:50 in MSLC (Kidder 108)

Grading scheme:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework</td>
<td>20%</td>
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<tr>
<td>Midterm I</td>
<td>20%</td>
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<tr>
<td>Midterm II</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
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Prerequisites: MTH 253 with a minimum grade of C-.


Course Content:

1. Basic logic, including quantifiers and DeMorgan’s Laws for negations.
2. Direct proof techniques.
3. Indirect proof techniques of contradiction and contraposition.
4. Elementary set theory and functions.
5. Mathematical induction and recursion.
7. Basic graph theory, including connectedness.
8. Algorithm for either shortest-path routing or minimal spanning trees, including a proof of the correctness.

MTH 355 Measurable Student Learning Outcomes: A successful student in MTH 355 will be able to:

- Apply basic set operations.
- Be able to negate compound and quantified statements and form contrapositives.
- Be able to construct a direct proof (from definitions) of simple statements.
- Learn and apply the Principle of Mathematical Induction.
- Demonstrate an understanding of the construction of indirect proofs by contraposition and contradiction.
- Construct complete explanations for solutions to counting problems.

Be able to use at least one algorithm for finding a shortest path or a minimal spanning tree in a connected graph.
**Midterm:** There will be two midterm exams.

**Midterm 1** is scheduled for Wednesday, **February 5** in class. The midterm is closed books. However, an 8.5 by 11 inch sheet of notes is allowed with HANDWRITTEN notes on both sides. Calculators are allowed. Midterm 1 will test what we covered in the first four weeks of the quarter.

**Midterm 2** is scheduled for Wednesday, **February 26** in class. The midterm is closed books. However, an 8.5 by 11 inch sheet of notes is allowed with HANDWRITTEN notes on both sides. Calculators are allowed.

**Final Exam:** TBA

**STUDENTS WITH DISABILITIES:**

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at [http://ds.oregonstate.edu](http://ds.oregonstate.edu). DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.
ACADEMIC HONESTY AND STUDENT CONDUCT:
Students are expected to be familiar with Oregon State University's Student Conduct Expectations. Please review this statement at the following web link:

http://studentlife.oregonstate.edu/code

REACH OUT FOR SUCCESS: University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it’s important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about resources that assist with wellness and academic success at oregonstate.edu/ReachOut. If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255)