COMBINATORICS
Spring 2020
MATH-UA.0240-001

Instructor: Liming PANG
Email: liming@cims.nyu.edu
Lecture Time: Mon. Wed. 15:30 – 16:45
Classroom: CIWW 312
Office Hour: Tue. 10:00 – 12:00
Office: CIWW 720


Teaching Assistant: Jumageldi Charyyev (charyyev@cims.nyu.edu)

Recitation: Fri. 15:30 – 16:45 at CIWW 317

Grading Policy: Homework (20%), Quiz 1 (5%), Quiz 2 (5%), Midterm (30%), Final (40%).

Exam Schedule:

<table>
<thead>
<tr>
<th>Test</th>
<th>Date</th>
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<tbody>
<tr>
<td>Quiz 1</td>
<td>Feb. 21 2020</td>
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<tr>
<td>Midterm</td>
<td>Mar. 27 2020</td>
</tr>
<tr>
<td>Quiz 2</td>
<td>Apr. 24 2020</td>
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<tr>
<td>Final Exam</td>
<td>TBD</td>
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Class Policy:

- Homework will be released each Thursday or Friday, and due on the following Friday during recitation. Late homework or emailed version shall NOT be accepted.

- You may discuss with your classmates about homework, but you should organize and write your solutions by yourself. Copying others’ homework is violation of university academic integrity policy.

- If you miss any due day of assignments or exams due to emergency such as illness, the corresponding documentation proofs should be submitted no later than 24 hours after the deadline or scheduled exam time in order to apply for making up.

- We will not be able to accommodate out-of-sequence exams for purposes of more convenient travel, including already purchased tickets. Please note again the date of the exams and plan your travel accordingly.

- Exams will be close book. Books, paper or electronic material, calculator or electronic devices are prohibited during exams.

Integrity: We value integrity and do not tolerate academic dishonesty. You are expected to uphold academic integrity as specified by the university and the College of Arts and Science (https://cas.nyu.edu/content/nyu-as/cas/academic-integrity.html).
Tentative Course Outline:

01/27: Graph, Graph Isomorphism
01/29: Edge Counting
02/03: Planar Graphs
02/05: Euler Cycles
02/10: Hamilton Circuits
02/12: Graph Colouring
02/17: No Class: Presidents’ Day
02/19: Trees
02/24: Search Trees and Spanning Trees
02/26: The Travelling Sales Person Problem
03/02: Shortest Paths and Minimum Spanning Trees
03/04: Network Flows
03/09: Algorithmic Matching
03/11: Review
03/16: No Class: Spring Recess
03/18: No Class: Spring Recess
03/23: Addition and Multiplication Principle
03/25: Arrangements and Selections
03/30: Distributions
04/01: Binomial Identities
04/06: Generating Functions
04/08: Partitions
04/13: Recurrence Relations
04/15: Linear Recurrence Relations
04/20: Inclusion-Exclusion Formula
04/22: Restricted Positions and Rook Polynomials
04/27: Equivalence and Symmetry Groups
04/29: Burnside’s Theorem
05/04: The Cycle Index
05/06: Polya’s Formula
05/11: Review