Math 450 – Combinatorics
Fall Semester 2017
MWF 9:30–10:20 in Theodore Jorgensen Hall (JH) 249

1   Instructor

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Office Hours: MWF 10:30 am - 11:30 am

2   Prerequisites

MATH 310 or 310H or 325. You are expected to know how to present a mathematical proof. If you think that your proving skill is not solid, I recommend you *"Book of Proof"* by Richard Hammack. You can download for free from the author website at `http://www.people.vcu.edu/∼rhammack/BookOfProof/`.

3   Textbook

"A Walk through Combinatorics: An Introduction to Enumeration and Graph Theory" by Miklós Bóna (Third or Fourth Edition). The fourth edition of the book is recommended, however the third edition is also good.

4   Contacting me

The best way to contact with me is by email, `tlai3@unl.edu`. Please put "[MATH 450]" at the beginning of the title and make sure to include your whole name in your email. Using your official UNL email to contact me is strongly recommended. My office is Avery Hall 339. My office hours are MWF 10:30 am - 11:30 am (right after the class). If you want to meet at another time, please email me in advance, and we will try to schedule a time to meet.

5   Course Description

Intuitively speaking, *Combinatorics* is the branch of mathematics focusing on human's earliest mathematical action: counting. More precisely, Combinatorics studies enumeration and/or existence of arrangements of objects.

In this course we will explore classical topics of the field, including the pigeonhole principle, inclusion–exclusion, recurrence relations / induction method, partitions, permutations, and generating functions. We will cover chapters 1–8 of the excellent book *"A Walk through Combinatorics: An Introduction to Enumeration and Graph Theory"* by Miklós Bóna. If time allows, we will investigate several more advanced topics at the end of the course, such that *Enumeration of tilings* and *Bijective proofs*.

6   Homework and quizzes

Homework is designed to help students understand the materials and to prepare them for exams. We would have homework almost every week. Pop quizzes will be given if needed. There are ***no*** make-up quizzes.

Collaboration is encouraged in this course. However, copying someone else's work and submitting it as your own is unacceptable. This act of academic dishonesty will be prosecuted in accordance with university policy.

Besides homework and quizzes, you are expected to read the appropriate sections of the text before coming to the class. You are also expected to work through the indicated exercises after the corresponding material is presented in class, and **before** the next class meeting.

7   Calculators and Electronics

You are **not** allowed to have on your person during exams or quizzes any devices that can access the internet or communicate in any way. Cell phones, Apple watches, etc. should be put in backpacks/purses. Calculators, laptops, tablets, cell phones, and other non-medical electronic devices are not permitted during exams unless otherwise stated. During class, cell phones should be set on vibrate or off. If you need to take a call, send a text message, etc., please quietly leave the classroom to do so, so that you do not distract other students. You are welcome to return to class quietly when you are finished. If you wish to take notes using an electronic device, you must first demonstrate to me that you can type or write fast enough to do so properly, and that you can do it without distracting others, before the privilege to use such devices may be granted. If you are found to be abusing this privilege, you risk forfeiting it.

8   Grading

Your minimal course grade will be computed as follows.

Homework+Quizzes:	35%
Midterm:	30%
Final Exam:	35%
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Total:	100%

A+	95.00%	–	100%	B-	76.66%	–	79.99%	D	60.00%	–	63.32%
A	90.00%	–	94.99%	C+	73.33%	–	76.65%	D-	56.66%	–	59.99%
A-	86.66%	–	89.99%	C	70.00%	–	73.32%	F	0%	–	56.65%
B+	83.33%	–	86.65%	C-	66.66%	–	69.99%				
B	80.00%	–	83.32%	D+	63.33%	–	66.65%				

9   Attendance

Daily attendance for class lectures is expected and is **extremely important**. While attendance is not recorded, <u>missing even one class will put you behind</u>. Note that there is a strong correlation between class absences and poor grades. You are responsible for all material and announcements in class regardless of whether or not you attended. **You are also responsible for making arrangements with another classmate to find out what you missed. You should <u>not</u> ask me to go over material you missed (due to tardiness or absences) during office hours or over email.**

10   Exams

There are two exams: one midterm and a final. Students are expected to arrange their personal and work schedule to allow them to take the final exam at the scheduled time. No student will be permitted to take the final exam early.

Make-up exams will only be given with written evidence of an official university excused absence.

11   Incompletes

A grade of "Incomplete" may be considered if all but a small portion of the class has been successfully completed, but the student in question is prevented from completing the course by a severe, unexpected, and documented event. Students who are simply behind in their work should consider dropping the course.

12   ADA Statement

Students with disabilities are encouraged to contact the instructor for confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.

13   Grade Questions

Any questions regarding grading/scoring of homework, exams, or projects must be made **within two class days** from when they were handed back, or no change in grade will be made.

Because of privacy rights, **I cannot discuss grades over email or telephone. Please do not email or call me asking about your grade. I will not be able to give you any information.** Of course, I am happy to discuss grades in my office.

14   Special Dates

September 1, 2017 (Friday):	last day to withdraw from this course and not have it appear on your transcript.
October 13, 2017 (Friday):	last day to change your grade option to or from Pass/No Pass.
November 10, 2017 (Friday):	last day to drop this course and receive a grade of W. (No permission required.) After this date you cannot drop.

15   Departmental Grading Appeals Policy

Students who believe their academic evaluation has been prejudiced or capricious have recourse for appeals to (in order) the instructor, the departmental chair, the departmental appeals committee, and the college appeals committee.

16   Course Evaluation

The Department of Mathematics Course Evaluation Form will be available through your Canvas account during the last two weeks of class. You will get an email when the form becomes available. Evaluations are anonymous and instructors do not see any of the responses until after final grades have been submitted. Evaluations are important—the department uses evaluations to improve instruction. Please complete the evaluation and take the time to do so thoughtfully.