Math 871: Topics in Mathematics
Discrete Mathematics for Teachers
Summer 2017

Instructor: Dr. Jacob Weiss

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- **Course Webpage:** All the material for the course will be on Blackboard (http://blackboard.unk.edu/webapps/portal/frameset.jsp). If you have trouble logging onto Blackboard, let me know. All lectures, homework assignments, textbook, and other materials will be on Blackboard.

- **Textbook:** We will be using the book "Discrete Mathematics for Teachers" by Wheeler and Brawner (Preliminary Edition, Houghton Mifflin Company). I will be making chapters of this book available for your use in the Course Documents section of Blackboard as necessary. If you prefer to purchase a complete copy of the text, you are welcome to do so.

- **Class Attendance:** Each day (Monday to Thursday), we will cover one or two sections from the book, and the corresponding textbook material will be made available. Also, I will give a short video lecture covering the key points of the mater, providing clarity, and showing more examples. You are expected to watch the video and read the material each day.

- **Email:** If you have any questions, feel free to email me. All emails should have Math 805 in the subject line. I will respond to emails within 24 hours, or by Monday if the email was received after Friday morning.

- **Homework:** There will be 3 weekly homework assignments the first 3 weeks worth 25 points each and a final homework assignment the final week of class worth 50 points. These will be in the Assignment Folder on Blackboard. Homework Policies:

    - Homework will be assigned each day, and all problems for a week will be turned in Monday.
    - Homework assignments are due by 3:00 pm CST on the Monday following the week of the assignment. For instance, the assignment for the first week (June 9 - 13) will be due Monday, June 16 at 3:00pm. The final assignment is due Monday, July 7 at 3:00 pm. Late homework will not be accepted.
    - Please turn in assignments via email to me. They are to be either typed or hand-written and scanned, then sent as an attachment.
    - You are encouraged to work in groups. This can be done on Blackboard using Collaborate, or arrange some way to meet as a group for the homework.

- Each member is expected to do his/her part to contribute to the solutions of the problems.

- Please turn in one assignment per group. Each member is expected to participate in the write-up in some way, that is up to each group.

- Assignments will be graded promply, and grades will be entered into Blackboard. I will provide solutions to problems.

- **Grade Policy:** Grading is based on mathematics learned, on effort, and on teamwork. These will be factored into your score along with the scores from the homework. It is my hope that everyone will earn a grade of B or higher.

B- (or lower)	A grade below B is a statement that the instructor does not believe that the student made a reasonable effort to use the opportunity provided by this course to develop into a stronger teacher. Possible issues are attendance, assignments that incomplete, late, or lacking in effort to learn.
B	Regular class attendance, most assignments submitted on-time, cooperative with peers, good effort to complete assignments and mathematics.
B+	Regular class attendance, assignments submitted on-time, supportive and helpful to peers, admirable effort to complete assignments, good progress in learning mathematics.
A-	All of the work from the B+ grade, plus strong participation or strong progress in learning mathematics.
A	All of the work from the B+ grade, plus outstanding participation or outstanding progress in learning mathematics.
A+	All of the work from the B+ grade, plus outstanding participation and outstanding progress in learning mathematics.

- **Students with Disabilities**: Students with disabilities are encouraged to contact me for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students with documented disabilities. To receive accommodation services, students must be registered with UNK Disabilities Services Coordinator, David Brandt, in the Academic Success Office, 163 Memorial Student Affairs Building, 308-865-8214 or by email brandtdl@unk.edu.

Course Outline:

The topics to be covered in this class include

- Sets

- Mathematical Reasoning

- Graph Theory

- Travelling Salesman Problem

- Complete Graphs

- Shortest Path Algorithm

- Euler's Theorem

- Coloring Graphs

- Trees

- Combinatorics

- Combinations and Permutations

- Pascal's Triangle

- Pigeonhole Principle

- Inclusive-Exclusive Principle

- Probability

- Voting Theory