Marshall University   MTH 440/635   Syllabus

Course Title/Number	Graph Theory and Combinatorics
	MTH 440/635 - Section 201 - CRN 3968/3990 - Credits 3
Semester/Year	Spring 2018
Days/Time	**MWF** 3:00 pm - 3:50 pm
Location	Smith Hall 514

Instructor	Dr. JiYoon Jung
Office	Smith Hall 742D
Phone	(304) 696-3285
E-Mail	jungj@marshall.edu
Office Hours	**MWF** 01:00 pm - 02:50 pm or by appointment I am always happy to answer questions or talk about the course material any time. To make an appointment, email in advance when possible or stop by my office, Smith Hall 742D.
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to www.marshall.edu/academic-affairs/policies/. Academic Dishonesty/Excused Absence Policy for Undergraduates/Computing Services Acceptable Use/Inclement Weather/Dead Week/Students with Disabilities/Academic Dismissal/Academic Forgiveness/Academic Probation and Suspension/Academic Rights and Responsibilities of Students/Affirmative Action/Sexual Harassment

Course Description: From Catalog

This course is designed to introduce students in mathematical sciences to the theorems, techniques, and applications of graph theory and combinatorics.

PR: The course requires a few "content" prerequisites – our main objects of study will be natural numbers, finite sets, and functions, which you have seen before. The course also requires a significant amount of "mathematical maturity" and the ability to write mathematical proofs. For these reasons, Math 300 is a required prerequisite course.

Required Texts, Additional Reading, and Other Materials

- Textbook: *How to Count*, by R.B.J.T. Allenby and Alan Slomson, 2nd edition (ISBN 9781420082609)
- You do not need a calculator for this course, and you will not be permitted to use a calculator on in-class assignments or examinations.
- I will post handouts and announcements on MU Online. You should check there often for updates. You will also require access to your Marshall email account for course communications.

MU Online: It is important to visit MU Online regularly for up-to-date information about the course. It hosts all the course materials including announcements, handouts, assignments, and reading materials. Although I will make my best effort to announce everything in class, it is your responsibility to keep up to date with assignments on MU Online.

Attendance Policy

Students are expected to attend each class. **Every three unexcused absences will be subject to a full letter downgrade until a student reaches an "F".** There will be no credit for the daily quiz you missed unless you have an excused absence. If you have an excused absence, any daily quizzes that you miss will be waived. To obtain an excused absence, please go to the Dean of Students' Office in the MSC. **Students must notify the instructor by phone or e-mail prior to an exam if they cannot take a scheduled exam.** Students must present a serious reason for missing any exam. Makeup exams will be given to students outside of class time at the convenience of the instructor.

Course policies

Cheating or plagiarism is a serious offense and will not be tolerated. It will be thoroughly investigated, and might lead to failure in the course or even to expulsion from the university. **If you are late to class,** if you leave class early, if you are disruptive, if you are sleeping, reading the newspaper, working on other homework, **surfing the internet** or for any other reason are not actively engaged in activities related to math class, **you will not receive credit for participating in class that day.** I expect that you will not only attend class, but that you will participate in class. If you do not respect yourself, other students, or the instructor during class, you may be asked to leave class.

Course Schedule/Course Requirements/Due Dates

January 8 – February 9   Chapter 1 & 2 & 3
February 12 – Mar 16   Chapter 4 & 5 & 7
March 26 – April 27   Chapter 8 & 9 & 10

Exam 1 on Friday (February 9)   3:00 pm – 3:50 pm
Exam 2 on Friday (March 16)   3:00 pm – 3:50 pm
Graduate Assignment due by Friday (April 27) 3:00 pm
Final on Monday (April 30)   3:00 pm – 5:00 pm

Objectives of Course: The table below shows the following relationships: How each student learning outcome will be practiced and assessed in the course.

Course student learning outcomes	How students will practice each outcome in this course	How student achievement of each outcome will be assessed in this course
Students will be able to recall and state precisely the definitions of the fundamental concepts of graph theory.	Discussions, group work, board work, homework	Homework, quizzes and exams.
Students will be able to recall key theorems of graph theory, including their hypotheses, and state theorems precisely when given their names.	Discussions, group work, board work, homework	Homework, quizzes and exams.
Students will be able to solve standard combinatorial problems using a variety of combinatorial techniques.	Discussions, group work, board work, homework	Homework, quizzes and exams.
Students will be able to recall and explain examples, compare them with each other, and apply them to produce counterexamples.	Discussions, group work, board work, homework	Homework, quizzes and exams.
Students will be able to write proofs to verify the correctness of propositions related to the course material.	Discussions, group work, board work, homework	Homework, quizzes and exams.
Students proofs will show a level of mathematical correctness and precision appropriate for an undergraduate mathematics major.	Discussions, group work, board work, homework	Homework, quizzes and exams.

Grading Policy for MTH 440

You will be able to obtain a maximum of 500 points in this class, divided as follows:

- **Exams (350 points):** There will be two in-class exams (100 each) and one final exam (150 each). These exams will focus on the topics discussed in class and in the homework. **Homework will be assigned on MU Online after each lecture session.** You can bring questions about homework problems to class, office hours, or the tutoring lab. **The Final exam will be comprehensive.**

- **Participation Quizzes (150 points):** There will be six participation quizzes (25 each). These daily quizzes will focus on the topics discussed in class. Graduate students will be required to present quiz problems throughout the semester.

- The **total number of points you earn** will be divided by the **total number of points possible** to determine your final percentage. At the end of the semester, your overall letter grade will be assigned on the following scale:

  A: 90 – 100%   B: 80 – 89%   C: 70 – 79%   D: 60 – 69%   F: Below 60%

Grading Policy for MTH 635

You will be able to obtain a maximum of 600 points in this class, divided as follows:

- **Exams (350 points):** There will be two in-class exams (100 each) and one final exam (150 each). These exams will focus on the topics discussed in class and in the homework. **Homework will be assigned on MU Online after each lecture session.** You can bring questions about homework problems to class, office hours, or the tutoring lab. **The Final exam will be comprehensive.**

- **Participation Quizzes (150 points):** There will be six participation quizzes (25 each). These daily quizzes will focus on the topics discussed in class. Graduate students will be required to present quiz problems throughout the semester.

- **Graduate Assignment (100 points):** Read Chapter 6 & 12 & 15 independently and write complete solutions to all the "B" problems. We will not discuss these chapters during class, but I can discuss them with you during office hours. Graduate assignment must be typeset using LaTeX.

- The **total number of points you earn** will be divided by the **total number of points possible** to determine your final percentage. At the end of the semester, your overall letter grade will be assigned on the following scale:

  A: 90 – 100%   B: 80 – 89%   C: 70 – 79%   D: 60 – 69%   F: Below 60%