

# MAT 545

# Syllabus

Fall 2017

## Time and Place:

Tuesday and Thursday, 12:30pm - 1:50pm; Room219 Carnegie

**Description:** Combinatorics is one branch of mathematics which has many applications in the “real world.” It is a problem oriented subject. Both of these facts are reflected in the design of the course. Two of the most important topics within combinatorics are Graph Theory and the Theory of Enumeration. Graph Theory is the study of abstract incidence relations and Enumeration is the study of counting techniques. The course is divided evenly between these two topics.

**Text:** *Applied Combinatorics 6th Ed.* by Alan Tucker. We will cover most of each of the chapters 1 through 8 of the text. Exactly which sections will be omitted will be decided as the course progresses.

**Instructor:** Professor Jack E. Graver

Office: 300C Carnegie

Office hours: Monday 10:30am to 11:30am,

Monday 2:00pm to 3:30pm

Email: jegraver@syr.edu, Extension: 3-1576.

**Grading:** There will a problems assigned each week to be collected Thursday of the next week, a test on each part and a comprehensive (open book) final exam. These items will be weighted as follows:

Problem sets	( 4% each)	40%
2 Tests	(20% each)	40%
Final Exam		20%

**The Problem Sets:** The problem sets are a key component of the course: **One learns mathematics by doing mathematics!** One also learns from one another: I strongly suggest that you work together on the problem sets; I only request that you each write up your own solutions. You may also get help from me if you are stuck. The idea is that you will submit a perfect problem set each time (and on time).

**Final Grades:** The assignment of the final letter grades will be based on the standard scale:

A	93-100	A-	90-92	B+	87-89	B	83-86	B-	80-82
C+	77-79	C	73-76	C-	70-72	D	60-69	F	0-59

**Tentative Schedule:** Test #1, Oct. 17, will cover topics from Chapters 1, 2, 3 & 4. Test #2, Dec. 7, will cover Chapters 5, 6, 7 & 8.

**Tentative Calendar:**

	<i>Tuesday</i>	<i>Thursday</i>		
<i>Aug.</i>	29	§1.1 – 1.2	31	§1.3
<i>Sept.</i>	05	§1.4	07	§1.4
	12	§2.2	14	§2.3
	19	§2.4	21	§3.1 – 3.2
<i>Oct.</i>	26	§3.3 – 3.4	28	§3.4 – 3.5
	03	§4.1 – 4 – 2	05	§4.2 – 4.3
	10	§4.4	12	<i>Review</i>
	17	<i>test#1</i>	19	§5.1 – 5.2
	24	§5.3 – 5.4	26	§5.5
	31	§6.1 – 6.2	02	§6.3 – 6.5
<i>Nov.</i>	07	§7.1 – 7.2	09	§7.3
	14	§7.4 – 7.5	16	§7.5 – 7.6
	21	<i>no class</i>	23	<i>no class</i>
<i>Dec.</i>	28	§8.1 – 8.2	30	§8.3 – 8.4
	05	<i>Review</i>	07	<i>test#2</i>

**FINAL EXAM**  
*Wednesday, Dec.13*  
 5:15pm to 7:15pm  
**Every student is  
 expected to take  
 the final exam  
 at this time!**

**MAT 545 EXPECTED LEARNING OUTCOMES:**

- ability to use and understand the usage of mathematical notation;
- ability to follow proofs and other mathematical discourse;
- ability to write simple proofs in the major proof formats (direct, indirect, inductive), and to engage in mathematical discourse;
- ability to select an appropriate mathematical model for a given real world problem;
- ability to apprehend and enunciate the limitations of conclusions drawn from mathematical models;
- ability to do calculations with the aid of appropriate hardware and/or software.

## College and Department Policy Statements

**Getting Help:** Your instructor and recitation instructor will be holding regular office hours and will make appointments with students having class conflicts with their scheduled office hours. In addition, the Mathematics Department offers regular math clinics. These will be set up by the second week of the semester and a schedule of the clinics will be posted outside the math office.

**Cell Phones:** all electronic devices other than the calculator should be turned off and put away during class. Calculators on cell phones are not to be used on tests or quizzes.

**Students with Disabilities:** If you believe that you need academic adjustments (accommodations) for a disability, please contact the Office of Disability Services (ODS), visit the ODS website <http://disabilityservices.syr.edu>, located in Room 309 of 804 University Avenue, or call (315) 443-4498 or TDD: (315) 443-1371 for an appointment to discuss your needs and the process for requesting academic adjustments. ODS is responsible for coordinating disability-related academic adjustments and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since academic adjustments may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

**Religious Observances Policy.** SU religious observances policy recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to are religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice (Student Services → Enrollment → My Religious Observances) from the first day of class until the end of the second week of class.

**Academic Integrity:** Syracuse University's Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students

from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the University's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice. The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in course failure regardless of violation level. For more information and the complete policy, see <http://class.syr.edu/academic-integrity/>