

MATH 597 01W & 001: COMBINATORICS
SPRING 2014

CONTACT INFORMATION:

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OFFICE HOURS : M 2:30-4:15p in Commerce, W 2:30-4:15p in Mesquite
TR 2:30-4:15p online via Skype, otherwise by appointment

DESCRIPTION AND POLICIES:

1. CLASS SCHEDULE: Online (Section 01W) & M 4:30p-8:00p, BIN 302 (Section 001)
Some office hours will meet in person, and others will be held online via Skype (email your Skype ID to the instructor), or via Adobe Connect at the website <http://connect.tamuc.edu/coskun> at times as indicated above.
2. TEXTBOOK: Enumerative Combinatorics, volumes 1 & 2, by R. P. Stanley (ISBN: 978-1107602625 for volume 1, and ISBN: 978-0521789875 for volume 2). The volume 1 of the textbook is available free of charge at the author's website <http://www-math.mit.edu/~rstan/ec/ec1.pdf>.
3. WEBSITE & INTERNET: An eCollege website has been created for the course which may be accessed from student myLEO accounts following the eCollege and then the My Courses tabs. All files and documents, lecture notes and outlines, links to video content, and software modules that the instructor shares with the class will be posted in the Doc Sharing folder in the course website. All material posted at the course website is copyrighted ©. You are allowed to retain one copy of each file for your personal use, but the files should not be distributed in any form without instructor's written consent.
4. COURSE DESCRIPTION: This is an introductory course in combinatorics; the study of discrete structures, their arrangements and properties. We will cover a sampling of topics from enumerative and algebraic combinatorics, and graph theory; including generating functions, recurrence relations, partitions, Young tableau, symmetric functions, lattices, combinatorial numbers and generalizations. We will develop the terminology and the methods, and explore significant applications from recent research projects as well as their computer implementations using the Mathematica software. Prerequisites: C or higher in Math 331 (Discrete Math) or Math 334 (Abstract Algebra).

5. **SOFTWARE:** *Mathematica* software is required for the course. It will be used for carrying out computations in discussion sessions, homework exercises and projects. Mathematica 9.0 is installed and available in Mathematics computer lab in BIN 328, and in computer labs at the Metroplex center in Mesquite. Personal student licenses may be purchased online at the Wolfram Mathematica website <http://www.wolfram.com/products/student>.
6. **TESTS & PROJECTS:** There will be a midterm test/project (200 points) and a comprehensive final/project (200 points). The tests must be taken in the Mathematics Department office in Commerce, or in the main office at the Metroplex Center in Mesquite. Students should inform the instructor beforehand for the location where they plan to take the exams. No make-up test will be given without an official, written, university accepted excuse. The student must contact the instructor the next working day and present the documented excuse to make up a test.
7. **HOMEWORK** Homework will be assigned in every class meeting on a regular basis. Selected assignments and problems will be graded only, but all homework problems should be worked out. The assignments will be turned in electronically (in form of a Mathematica notebook) by due dates to the Dropbox for that week at the eCollege website. Student name and homework number should be printed at the top of each notebook. You may work in groups unless otherwise instructed, however the paper you turn in must be your own work. Late homework is not accepted. Homework score is worth 50 points of the total semester grade.
8. **LEARNING OUTCOMES:** Students who complete this course successfully will
 - a) learn the *terminology* of Combinatorics;
 - b) learn the *methods* employed in the field of Combinatorial Analysis;
 - c) learn the *applications* of theoretical methods to practical problems.
9. **TENTATIVE EXAM SCHEDULE:**

Midterm	200 pts	Monday, March 17	4:20-6:20p	EDS 101 & MPLX 123
Final	200 pts	Monday, May 05	4:20-6:20p	EDS 101 & MPLX 123
10. **GRADING SCALE:** All scores will be added and a letter grade will be assigned according to the following table.
 - A 406 - 450 pts
 - B 361 - 405 pts
 - C 316 - 360 pts
 - D 271 - 315 pts
 - F 0 - 270 pts

11. TENTATIVE COURSE OUTLINE: We plan to cover parts of these topics each week as time permits.

1. Introduction To *Mathematica* (Week 1)
2. Essentials of Enumerative Combinatorics (Weeks 2, 3, and 4)
3. Combinatorial Numbers and Generalizations (Week 5, 6, and 7)
4. Generating Functions and Recurrence Relations (Week 8, 9, and 10)
5. Symmetric Functions (Weeks 11, 12, and 13)

12. OTHER IMPORTANT DATES:

March 10-14, 2014	Spring break
March 25, 2014	Last day to drop a class
April 25, 2014	Last day to withdraw from Spring 2014
May 02, 2014	Last class day

13. MISCELLANEOUS: Your enrollment in this course indicates that you agree to observe all the conditions and regulations of this syllabus and the Student Handbook. Your test and homework scores may be filed to be used anonymously for educational research.

It is your responsibility to secure the software licenses and other resources (such as a personal computer with proper operating system to run the software, broadband internet access to view the video recordings and participate in online discussion sessions, etc.) to be able to complete and communicate all assignments, tests and projects to the instructor as required. The access information to Library resources, and Help Desk for technical support are available through the eCollege website.

Policies pertaining to scholastic dishonesty are identical to TAMU-Commerce regulations given in the Student Handbook, available online at the website <http://web.tamuc.edu/studentLife/documents/studentGuidebook.pdf>. All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment (See Student's Guide Handbook, Policies and Procedures, Conduct). Disruptive behavior and scholastic dishonesty in any form will not be tolerated.

Students requesting accommodations for a disability should contact the Office of Student Disability Resources and Services, Texas A&M University-Commerce, Gee Library, Room 132, Phone: (903) 886-5150 or (903) 886-5835, Fax: (903) 468-8148, or Email: StudentDisabilityServices@tamuc.edu.

Any possible changes to be made in this syllabus by the instructor during the semester will be announced in class.