

MATH 572 01W: MODERN APPLICATIONS OF MATHEMATICS
SUMMER II 2014

CONTACT INFORMATION:

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OFFICE HOURS : TR 2:30-3:30p, otherwise by appt.

DESCRIPTION AND POLICIES:

1. CLASS SCHEDULE: Online (Section 01W)
Office hours 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 indicated above.
2. TEXTBOOK: No textbook is required. Instructor's lecture notes and software modules will be used in the course. Two lecture outlines will be posted every week on Mondays and Thursdays in DocSharing folder, covering an overview of the lectures, the outcomes, the activities, and the assignments.
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 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 or shared 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 course, specifically designed for teachers, covers a range of applications of mathematics. Specific topics may vary but have included classical (private key) encryption, data compression ideas, coding theory ideas (Hamming 7,4 code), private and public key cryptography, data compression including wavelets, difference equations (populations models, disease models) and stochastic difference equations (stocks), GPS systems, computer tomography (e.g. CAT scans), polynomial interpolation/Belief curves, and topics from student presentations.

5. **LEARNING OUTCOMES:** Students who complete this course successfully will
 - a) learn the *terminology* of certain modern applications of mathematics;
 - b) learn the *methods* employed in the selected applications;
 - c) learn the *applications* of theoretical methods to practical problems.
6. **SOFTWARE:** *Mathematica* software is required for the course. It will be used for carrying out computations in discussion sessions, homework exercises, exams and projects. Mathematica 9.0 is installed and available in Mathematics computer lab in BIN 328, and in computer labs at the Metroplex center. Personal student licenses may be purchased online at the Wolfram Mathematica website <http://www.wolfram.com/mathematica/how-to-buy/education/>.
7. **HOMEWORK:** Progress reports on projects are due twice every week for homework, and will be turned in electronically to the Dropboxes for that week at the eCollege website. You may work in groups unless otherwise instructed, however the file you turn in must be your own work. Late homework is not accepted. Homework score will make 50 points of the final grade.
8. **TENTATIVE COURSE OUTLINE:**
 1. Introduction to Mathematica (Week 1)
 2. Descriptive statistics with Mathematica (Week 1 & 2)
 3. Designing public key cryptosystems (Week 3 & 4)
 4. Signal (sound and image) processing (Week 4 & 5)
9. **TESTS & PROJECTS:** There will be three projects for the applications covered in class. Late work is not accepted.
10. **TENTATIVE EXAM SCHEDULE:**

Descriptive Statistics project	140 pts	Thursday July 17, 2014
Cryptography project	130 pts	Monday July 28, 2014
Signal Processing project	130 pts	Thursday August 7, 2014
11. **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
12. **OTHER IMPORTANT DATES:**

July 28, 2014	Last day to drop a class ?
August 03, 2014	Last day to withdraw from Summer II 2014 ?
August 07, 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. The test and homework scores may be filed to be used anonymously for educational research.

It is the student's 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 by email.