MATH 112-01/02, The Nature of Modern Mathematics, Winter 2012

Instructor: Sean Gasiorek	**Meeting Times:** 8:10-9am (01) MTRF, 9:10-10am (02) MTRF
Office: 38-209	**Location:** 112-01: 21-237; 112-02: 38-227
Phone: (805) 756-1127	**Office Hours:** MTR 12:10-1pm, W 1:30-3:30pm and by appointment
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Text: Burger, E & Starbird, M, *The Heart of Mathematics*, 3rd edition, Wiley, 2010. (**REQUIRED**)

Course Description: Topics from contemporary mathematics, their development, applications, and role in society. Some typical topics, to be chosen by the instructor: graph theory, topology, statistical inference, coding, game theory, geometry, and symmetry. 4 lectures. Prerequisite: Passing score on ELM examination, or an ELM exemption, or credit in MATH 104.

Course Content: We will cover a handful of topics from chapters 1-7, and some topics from other texts as well.

Homework: Homework will be assigned on PolyLearn with each section and will be due a few days after it is assigned. For each problem, write out a complete solution – don't just give an answer. Show your work, explain your answers, etc. Homework will be graded for both completeness and correctness. **Late homework will not be accepted,** however, early homework will always be accepted**.** If you have questions on the homework please come see me during my office hours.

Project/Presentation: Details about this project/presentation will be given at a later date. You can expect this to be a small-group, in-class presentation on a relevant mathematical topic.

Exams: You will have two in-class exams and one final exam to help assess your understanding of the content covered in class. Exams will be around weeks 4 and 8, with more specific dates to be determined. The final exam is scheduled for the following dates, times, and locations:

112-01	Friday 3/16 7:10am-10am	21-237
112-02	Monday 3/12 7:10am-10am	38-227

Failure to take the final exam will result in an "F" grade in the course (i.e. you must take the final in order to pass the class). Make-up exams will be determined on a case-by-case basis; however, if you know you will be missing an exam let me know as soon as possible.

Course Objectives: At the end of the quarter, the student should a) Have an enhanced awareness and understanding of mathematical models as tools for solving a variety of complex problems; b) Master some techniques basic to contemporary applications of mathematics; c) Have an enhanced knowledge of some topics of current interest in mathematics; d) Know that mathematical knowledge is growing at an astonishing rate, and that mathematics is an active area of research.

Studying: It is very unlikely that simply attending class and watching the lectures will help you meet the learning objectives. First, attend class and participate actively: work lecture problems along with instructor, catch mistakes on the board, take notes and ask questions either in class, during office hours, or with fellow students. Second, expect to spend between 8-12 hours per week doing homework, projects, and preparing for quizzes and exams. Studying and doing homework with other students in the class is beneficial, but make sure that you contribute as much as anyone else in your group. Look at a solutions manual only after you have tackled a problem. Math requires you to practice problem solving to really learn, understand, and gain insight into the material.

Attendance: Attendance is not mandatory but is required for success in this class. If less than half of the class attends on any given day, a class "quiz" will be given which will be worth extra credit points.

Grading System:

Project/Presentation	20%
Homework	15%
Exams (2 x 20%)	40%
Final	25%
Total	**100%**

Academic Integrity: The University will not condone academic cheating or plagiarism in any form. Students will be responsible for the content related to the University's policy regarding cheating and plagiarism found in the Campus Administration Manual, Section 684. Any violation of said policy will result in a report filed with the appropriate office.

This syllabus is subject to change with notice at any time (as needed).