

COURSE INFORMATION	Location: MTH 115 Class Times: MW 10:00-10:50 Instructor: Dr. Karl Frinkle Office: MTH 112 Office Hours: MWF 13:00 – 15:00, TR 11:00 – 12:15 Office Phone: (580) 745 – 2028 E-mail: kfrinkle@se.edu Website: http://homepages.se.edu/kfrinkle
TEXT	none required
SOFTWARE	A personal computing device capable of installing L ^A T _E X and running a L ^A T _E X editor.
COURSE OBJECTIVES	This course is a capstone course that includes a review of undergraduate mathematics, two standardized tests, a research project and a class presentation. A student who successfully competes the course will have: <ul style="list-style-type: none"> • developed a synthesis of undergraduate mathematics, • written a research paper over some topic in mathematics, • presented the results of their research to the class, • built a resume.
COURSE OUTLINE	<p>Review: There are 5 topical areas which we will focus on: (1) Calculus and differential equations, (2) abstract algebra and topology, (3) linear algebra, (4) complex analysis, and (5) probability and statistics. There are 20 problems from each area, taken mainly from practice GRE exams. You are required to attempt all 100 problems over the course of the semester.</p> <p>Testing: You are required to take the official version of the Educational Testing Service (ETS) Major Field Exam in Mathematics. The exam will be broken into two parts, spread over two days of class.</p> <p>Research Paper and Presentation: This is the major component of the course and comprises 50% of your grade. You will be required to write a paper on some topic in mathematics. If there is an area of mathematics that you find particularly interesting please let me know. If appropriate, I will let you choose a research topic in that area. Otherwise I will assign a topic for you. To decide on a topic it is highly recommended that you think about the topics which interested you the most in the mathematics courses you have taken thus far. For your paper, you are required to have at least two print sources, properly documented online sources are acceptable as well. Thus you should attempt to pick a topic that is well-documented. Availability of adequate reference material is crucial to the creation of a good research paper. Your paper should contain significant mathematical content, at least some of which is new to you. Your paper will be evaluated on depth and correctness of mathematical content and clarity of exposition.</p> <p>The length of the paper should be at least 10 typed pages with one inch margins and 12 point font. You will be required to use L^AT_EX when writing up your paper. You should read and study material on your topic from no fewer than four sources, at least two of which should be books or journals.</p> <p>You will also be required to give a 20-25 minute presentation on your research project using at least one visual aid, such as an overhead projector, power point, etc. Your presentation will be open to the public and your audience will likely include several members of the mathematics faculty and</p>

your peers. It will be evaluated on the basis of depth and correctness of mathematical content, clarity, and effective use of visual aids. Most of the presentations will be scheduled for finals week.

Resume: You will build a resume during the course of the semester using both Word and L^AT_EX templates.

Attendance and Participation: You are expected to show up to class and participate regularly in scheduled activities.

GRADES

Your final grade will be based upon the following items

- 5% - Attendance/Class participation¹
- 5% - Resume²
- 20% - GRE Practice Problems³
- 20% - ETS Major Field Test⁴
- Research paper
 - 5% - Proposal
 - 5% - Working bibliography
 - 5% - Rough outline
 - 10% - Rough draft
 - 10% - Final draft
 - 15% - Oral presentation

Notes:

1. Attendance/Class participation (5 percentage points) – Attendance is not mandatory, but if you miss more than 5 class meetings, you will lose 1 percentage point per absence over the 5 miss limit.

2. Resume building (5 percentage points) – You will write up a resume in both Microsoft Word and L^AT_EX, and have at least two faculty members review and critique it.

3. GRE practice problems (20 percentage points) – There are 100 problems for you to work on from previous GRE exams. You will get 1 point for each problem you answer correctly on the first try, 1/2 a point for a correct solution on the second try, and 1/4 of a point for a correct solution on a third try. You are expected to attempt ALL problems on the practice GRE and will lose one point for each problem not attempted. After week 1, you will be required to write up your solutions with L^AT_EX. You should expect to hand in approximately 15 problems per week.

4. ETS Major Field Test (20 percentage points) – The number of points accumulated for this part of the course is $2P/5$, where P is your national percentile rank on the ETS exam. Thus a percentile rank of 50 on the ETS will result in full credit of $2(50)/5 = 20$ points. Percentile ranks higher than 50 will receive $(P - 50)/5$ bonus points. For example, a percentile rank of 70 would result in an overall score of $(20 + 20)/5 = 24$.

POLICIES

I reserve the right to change any policies as I see fit to ensure that you are indeed receiving the best possible education that I can give you in the subject matter at hand. If I feel a certain aspect of the course does not appear to be effective in its method, I will attempt to change it (for the better I hope). All changes will be made in writing.

IMPORTANT DATES FOR SPRING 2016

- 2016.01.11 - Classes begin
- 2016.01.15 - Last day to enroll in or add classes
- 2016.01.15 - Last day to drop a class with no grade record
- 2016.01.15 - Last day to drop a class with refund/no charges
- 2016.01.18 - Martin Luther King Jr Day (no class)
- 2016.01.22 - Faculty Certifications due by noon on this day
- 2016.03.02 - Assessment Testing Day
- 2016.03.14–18 - Spring Break
- 2016.03.25 - Easter Holiday

- 2016.04.01 - Last day to complete final application for graduation
- 2016.04.08 - Last day to drop a class
- 2016.05.06 - Semester ends
- 2016.05.07 - Commencement

SPECIAL ACCOMMODATIONS Any student needing special accommodations due to a disability should contact the Coordinator for Disability Services, GDJ Student Union, Suite 328 or call (580) 745–2392 (TDD# 745–2704). It is the responsibility of each student to make an official request for accommodations to the Coordinator.

AT-RISK STUDENTS Any student experiencing mental or emotional issues who desires free, confidential, clinical counseling is encouraged to contact the SE Counseling Center at (580) 745–2988 to schedule an appointment during normal working hours Monday – Friday, 8:00 AM to 5:00 PM. For after hours mental health emergencies, please call SE Campus Police at (580) 745–2911 or the Mental Health Crisis Hotline at 1–(800)–522–1090.

EQUAL OPPORTUNITY STATEMENT In Compliance with Title VI of the Civil Rights Act of 1964, Executive Order 11246 as amended, Title IX of the Education Amendments of 1972, Sections 503 and 504 of the Rehabilitation Act of 1973, and other Federal Laws and Regulations, Southeastern Oklahoma State University does not discriminate on the basis of race, color, national origin, sex, sexual identity, sexual orientation, age, religion, handicap, disability, or status as a veteran in any of its policies, practices or procedures, this includes but is not limited to admissions, employment, financial aid, and educational services.

TITLE IX OF THE EDUCATION AMENDMENTS OF 1972 (20 U.S.C. §1681) states: “No person in the United States, shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance...” Southeastern Oklahoma State University does not discriminate on the basis of sex in its education programs or activities, in compliance with Title IX and the U.S. Department of Education’s regulations at 34 C.F.R. §§86.1 et seq. Individuals who believe they have been discriminated against on the basis of sex may contact S.E.’s Title IX Coordinator at (580) 745–3090, titleix@se.edu, or PMB 2750.