

Course Syllabus
Mathematics 484: Survey of Mathematical Ideas
Spring 2008

CLASSROOM AND SCHEDULE: TTh 12:30-2:00
Lee Drain Building, Room 205

INSTRUCTOR: Dr. Max Coleman
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Office Hours: MW 8:30-11:00 and TTh 8:30-9:30 and 11:00-12:00
Others by appointment

Description: This course brings together and supplements the technical material of other mathematics courses in the secondary school mathematics teacher education program and relates it to the mathematics curriculum of the secondary school. Mathematical modeling and communication- reading, writing, and speaking- is emphasized. Students gain independence as learners of mathematics. They read text material and make in-class presentations of selected topics which embed the topic in a problem solving setting (see topics/presenters list).

Objective: This course focuses on the understanding of and the ability to communicate ideas concerning some of the fundamental concepts of algebra. Other areas of emphasis are 1) national (NCTM) and state (TEKS) standards, 2) the use of graphing calculators to enhance the teaching of algebraic concepts, and 3) areas of mathematics not included in other required courses but needed by the competent secondary school mathematics teacher, such as finance.

Textbook: Demana, Waits, Foley, and Kennedy (2003). *Precalculus: Functions and Graphs* (5th edition). Reading, MA: Addison-Wesley.

Calculator: Graphing calculator required. TI-84 recommended.

GRADING:

Each student's grade for this course will be based on the number of points earned out of the total points possible for the course, as listed below:

A = 90% or higher, B = 80% - 89%, C = 70% - 79%, D = 60% - 69% F = below 60%

Grades will be assigned for the following areas:
Three exams, weighted 100 points each
Comprehensive final exam - 100 points

ATTENDANCE:

Regular and punctual attendance is expected of every student. As a prospective teacher, you must demonstrate your reliability and conscientious attitude by your faithful attendance. Students who have two or less absences during the semester will be allowed to substitute their final exam grade for their lowest grade on the three major exams.

Attendance will be taken every class. If you are late to class, it is your responsibility to let me know immediately after the class that was missed. Any student who is more than 30 minutes late to class will be counted absent. Tardies will count against your attendance record (2 tardies = 1 absence). Unless approved by the instructor, leaving class early will count as an absence. If absent or tardy, you are still responsible for all material covered in class, and you will need to check with a classmate about what was discussed. Serious health or family problems that are well documented will be handled individually. In addition to attending class faithfully, students are expected to put forth their best effort in this class.

MAKE-UP TESTS AND WORK:

Unless approved by the instructor prior to the date of a test, there will be no make-up for a missed test. If a student misses a test, then the score on the final exam will be given for the first test missed. A score of zero will be given for any subsequent missed exams. Late homework and projects will not be accepted. Zero points will be recorded for any assignment not turned in on or before the class date when it is due (even if you are absent that day). A missed final examination can be made up only by approval of the Dean of the College of Arts and Sciences or a higher administrative official.

Major Examinations

There will be three major examinations in this course. You should notify the instructor in advance if you must miss a class during which time a major examination is scheduled. The instructor, at his discretion, may allow you to take the exam at a different time. In the event this is not possible, the final exam grade will replace the exam missed. Each major exam will be worth 100 points.

Final Examination

The final examination is comprehensive. It will be worth 100 points.

Academic Dishonesty

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.

Classroom Rules of Conduct

Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Cellular telephones and pagers must be turned off before class begins. Students are prohibited from eating in class, using tobacco products, making offensive remarks, reading newspapers, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.

Visitors in the Classroom

Unannounced visitors to class must present a current, official SHSU identification card to be permitted in the classroom. They must not present a disruption to the class by their attendance. If the visitor is not a registered student, it is at the instructor's discretion whether or not the visitor will be allowed to remain in the classroom.

Americans with Disabilities Act

It is the policy of Sam Houston State University that no otherwise qualified disabled individual shall, solely by reason of his/her handicap, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any academic or Student Life program or activity. Disabled students may request assistance with academically related problem stemming from individual disabilities by contacting the Director of the Counseling Center in the Lee Drain Annex or by calling 936-294-1720.

Religious Holidays

A student who is absent from class for the observance of a religious holy day will be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence. Students will be excused to travel for observance of a religious holy day. A student who wishes to be excused for a religious holy day must present the instructor with a written statement describing the holy day(s) and the travel involved. Upon receiving the statement the instructor will provide the student with a written description of the deadline for the completion of missed exams or assignments.

Instructor Evaluations

You may be asked to complete a course/instructor evaluation form toward the end of the semester.

Syllabus Revision

The instructor reserves the right to revise any part of this syllabus as deemed necessary throughout the semester. Revision, if necessary, will be announced during class.

Course Outline:**I. National and State Standards****II. See topics list below.**

Math 484 Topics	Presenter
1) Classification of Numbers	Dr. Coleman
2) Functions and Multiple Representations (section P.5. and 1.1)	Dr. Coleman
3) Sequences (section 9.4)	
4) Solving Equations Numerically, Algebraically, and Graphically (section P.5 and 2.8)	Dr. Coleman
5) Operations on Functions (section 1.4)	
6) Composition of Functions (section 1.4)	
7) Transformations (section 1.5)	
a) Vertical and Horizontal Translations	
b) Vertical and Horizontal Stretch and Shrink	
c) Reflections	
8) Modeling from Data (section 1.6)	Dr. Coleman
9) Modeling with Linear, Quadratic, and Power Functions (sections 2.1-2.2)	Dr. Coleman
10) Polynomial Functions of Higher Degree (section 2..3)	
a) End Behavior	
b) Intermediate Value Theorem	
c) Zeros of Polynomial Functions (section 2.4)	
11) Rational Functions (section 2.7)	
a) End Behavior	
b) Vertical Asymptotes and intercepts (section 2.7)	
12) Exponential Functions (section 3.1)	Dr. Coleman
13) Power Functions (section 2.2)	
14) Logistic Functions (section 3.1)	
15) Inverse Relations and Functions (section 2.7)	Dr. Coleman
16) Logarithmic Functions as inverses (chapter 3.3)	Dr. Coleman
17) Mathematics of Finance (section 3.6)	Dr. Coleman
18) Parametric Equations (sections 2.5 & 9.1)	Dr. Coleman
19) Solving Systems of Two Equations (section 10.1)	
20) Solving Systems of Linear Equations using Matrices (section 7.2)	Dr. Coleman
21) Sequential Graphing	Dr. Coleman

Final Exam: May 13 from 11:00am – 1:00pm