MATH 305
Foundations of Mathematics

Course Designation
MAT 305. Foundations of Mathematics. Prerequisite: MAT 251. 3

Conceptual Framework: "The purposes of the Department of Mathematics are to prepare teachers of mathematics for the elementary and secondary schools, to provide a foundation for professional careers in mathematics, and to provide for the mathematical needs of the general student," (*2005-2006 Delta State Bulletin*). This view of education supports the College of Education's Conceptual Framework Delta Model which is based on Performance, Professionalism, and Preparation of candidates to become the educators that are needed not only in the delta, but also throughout the state and nation.

The Conceptual Framework can be found at:
http://www.deltastate.edu/docs/math/ConceptualFramework.pdf

General Course Goals

Text
A Transition to Mathematics with Proofs by Michael J. Cullinane. Jones & Bartlett Learning, 2013. ISBN-13:978-1-4496-2778-2; ISBN-10:1-4496-2778-1

General Course Objectives
Upon completion of the course, the student will be able:

1. The student will be able to explain the importance of writing with respect to mathematics.
2. The student will be able to explain the difference between a proof and a set of examples.
3. The student will be able to explain the importance of undefined terms to an axiomatical system.
4. The student will be able to use set operations to answer questions.
5. The student will be able to use the axioms of set theory and real number system to solve problems.
6. The student will be able to use the rules of elementary logic to make both formal and informal arguments.
7. The stude4nt will be able to use an axiomatic system to prove statements.
8. The student will be able to prove statements of the form if, then.
9. The student will be able to prove statements involving "for all" statements.
10. The student will be able to prove statements about existence and uniqueness.
11. The student will be able to prove statements using indirect proofs.

Technology will be used as a tool for presentations to you and as part of assignments. Students will be asked to use different software packages to complete assignments.

Presentation Methods
1. Lecture- 70%
2. Class discussions/demonstrations/activities- 30%

Major Student Activities
1. Attend all classes.
2. Read, summarize, and discuss text assignments and other outside readings.
3. Prepare and present assigned projects.
4. Participate in class discussions and activities.
5. Prepare and demonstrate assigned homework exercises from the textbook which reinforce subject matter content.
7. Complete all assessments given.

Evaluation and Grading
Test – 50%
Final – 25%
Written paper - 10%
Homework and Quizzes-15%

Semester grades will be determined on the following scale:
90-100 A; 80-89 B; 70-79 C; 60-69 D; below 60 F.

Class Attendance
Prompt and regular attendance is necessary for success in this course. Any student that exceeds two weeks worth of classes without verifiable excuses will receive a lowered final grade by one letter. A student is allowed a maximum of 3 weeks worth of classes. Any person exceeding this number will receive a semester grade of "F." Please be on time for each class meeting. If your class schedule is such that prompt and regular attendance cannot be accomplished, please arrange to take this course during a later semester.

Cheating:
Cheating and plagiarism will not be tolerated in this course. Students will be held to the highest standards of conduct, which means students will not use other students nor individuals, in any fashion or form of communication, for information beyond common knowledge in this course.

You will adhere to the spirit of becoming an educated individual with self reliance and resolve being your guide. Students shall foster the ability to find, value, and analyse information for themselves. The first infraction of this policy will result in a zero on the assignment, and a second may result in being dismissed from the class.

Delta State University is committed to a policy of equal employment and educational opportunity. Delta State University does not discriminate on the basis of race, color, religion, national origin, sex, age, disability, or veteran status. This policy extends to all programs and activities supported by the University.

If a student has a disability that qualifies under the American with Disabilities Act and requires accommodation, he should contact the Academic Support Lab (Union 311; phone 846-4654) for information on Appropriate policies and procedures.

Cellular telephones and devises may be used in class without penalty as long as the telephone or devise is kept in plain sight at all times. The exception to this rule is testing in which not such device may be used unless the instructions tell you so to do.

GENERAL COURSE INFORMATION

Mathematics Department
Caylor White Walters Hall 209A,Phone 662-846-4508
Dr. David Jay Hebert
dhebert@deltastate.edu

Office Hours are posted on my office door. Additional time may be arranged by appointment.
09.00-10.00 Monday, Wednesday, and Friday
09.00-10.30; 13.30-15.30 Tuesday and Thursday
Other times by appointment.

Disabilities Statement and Policy:

It is the responsibility of students who have professionally diagnosed disabilities to notify the instructor so that necessary and/or appropriate modifications can be made to meet any special learning needs. Students are also directed to contact the Disability Director for the University who will coordinate the accommodations process.

Important Dates:

Final Exam Schedule