

Course Syllabus
MAT 305-Fundamental Structures of Mathematics
Fall 2013
Dr. John Peter

Course Description: This course is an introduction to the concepts that are necessary to understand advanced and abstract mathematics. That is, this is essentially a course in writing proofs! We will study logic, set theory, relations, functions, and cardinality, with the aim of preparing for upper-level courses in mathematics.

Course Learning Goals:

- In accordance with the Program Learning Goals of the Mathematics Department, this course will assess the student's ability to formulate and solve mathematical problems, as well as the student's ability to read, write, and analyze mathematical proofs. This course will also assess the student's ability to communicate mathematics both orally and in written form.
- The student should learn the basics of logic, including (but not limited to) propositions, connectives, (bi)conditionals, quantifiers, and some of the basic methods of writing proofs.
- The student should become familiar with the theory of sets, including operations with sets and mathematical induction.
- The student should understand the notions of relations, partitions, and orderings.
- The student should know the abstract definition of function, and become familiar with the notions of injectivity, surjectivity, inverse functions, and images of functions.
- The student should understand the concept of cardinality. In particular, the student should become familiar with finite sets, countable and uncountable infinite sets, and the Axiom of Choice.

Class Meetings: Tuesday & Thursday from 11:30am to 12:45pm in 202 Hubbard Hall

Required Text: *A Transition to Advanced Mathematics*, Seventh Edition, by Douglas Smith, Maurice Eggen, and Richard St. Andre. ISBN: 0-495-56202-5

Contacting me: EMAIL: jwpeter@utica.edu (The best way to contact me)
OFFICE PHONE: 315-792-3730

Office/Hours: Room 104 DePerno Hall
Monday from 12:00PM to 1:30PM
Tuesday and Thursday from 10:00AM to 11:15AM
By Appointment (made either in person or by email)

Coursework/Weights: (See the tentative course schedule for specific dates)

Assessment	% of Final Grade
Daily Homework (Exercises from text/Never Collected)	0%
Weekly Homework (Assigned/Collected every Thursday)	25%
Midterm Exam 1	25%
Midterm Exam 2	25%
Final Exam	25%

NO MAKE-UP WORK WILL BE GIVEN.

Grading: The grading scale will be *no worse* than:

90 – 100% = A/A- 70 – 79% = C+/C/C- Below 60% = F
80 – 89% = B+/B/B- 60 – 69% = D+/D

Course Webpage: (Including this syllabus, a tentative course schedule, and a link to assigned homework)

https://www.utica.edu/faculty_staff/jpeter/mat305f13.cfm

Secrets to success in this course:

- Do lots of problems ... homework and more!
- Come to class
- Read the book
- ASK QUESTIONS!

Attendance: It is mandatory that I keep track of your attendance. An attendance sheet will be available for you to sign at the beginning of each class. Your attendance will not formally count for any part of your grade. However, it may be used, at the

instructor's discretion, to determine borderline grades at the end of the semester. **YOU ARE EXPECTED TO ATTEND EVERY CLASS PERIOD.** In the event that you miss class (or are mentally absent from class!) it is your responsibility to keep up with all announcements, syllabus adjustments, and/or policy changes made during scheduled class time and/or sent to you via your Utica College email. Please make sure that your Utica College email is functioning properly, and make every effort to contact me using your Utica College email address (as opposed to hotmail, yahoo, etc.) to avoid confusion. If class must be canceled for some reason, you will be notified as early as possible via your Utica College email.

Classroom Etiquette: Always keep in mind that you are in a college classroom. You and all of the people around you have paid to be here. By simply showing up for class, you are demonstrating that you take very seriously the opportunity to pursue the best learning experience possible. You are expected to treat all people in the classroom with respect, and to come to class prepared to learn. Disruptive behavior, including (but not limited to) talking, whispering, texting, eating loudly, etc. will negatively impact EVERYONE'S experience and will not be tolerated.

Intellectual Honesty: Academic honesty is necessary for the free exchange of ideas and Utica College expects academic honesty from all students. Academic dishonesty includes both *cheating* and *plagiarism*. Plagiarism is the intentional or unintentional use of other people's ideas, words, and/or factual information without crediting the source. Cheating refers to both the giving and the receiving of unauthorized assistance in the taking of examinations or in the creation of assigned and/or graded class work. Utica College faculty are authorized to assign a wide range of academic penalties for incidents of academic dishonesty. Depending on the nature of the offense, the penalty may include a reduced grade for the particular assignment or course, a grade of "F" for the course, or the grade of "F for cheating" for the course. Incidents of academic dishonesty will be reported to the Vice President for Academic Affairs, who will refer any repeat offense, or any particularly egregious first offense, to the Academic Standards Committee, which may recommend a more severe penalty than that imposed by the faculty member.

Disability Disclosure: Any student who has need of special accommodations in this class due to a documented disability should speak with me as soon as possible, preferably within the first two weeks of class. You should also contact Kateri Henkel, Director of Learning Services in the Academic Support Services Center (315-792-3032 or khenkel@utica.edu) in order to determine eligibility for services and to receive an accommodation letter. We will work with you to help you in your efforts to master

the course content in an effective and appropriate way.

Writing Proficiency: Students are expected to possess and use adequate writing skills. All written assignments should be well-written and free of grammar, punctuation, and spelling errors. Help is available in the Writing Center located in the library.

The author of this syllabus reserves the right to change it at any time during the semester.