Course Information
CRN 26751

June 3, 2015

Instructor: Prof. Lance D. Drager. Office: Math 236. Office Phone: 834-8161. If you let the office phone ring long enough, you’ll get me or a voice mail system you can leave a message on. My e-mail address is lance.drager@ttu.edu.

Course materials will sometimes be posted on my web page, which is http://www.math.ttu.edu/~drager.

Announcements and Class Forum: This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. You can post a question anonymously, if you want. If you have any problems or feedback for the developers, email team@piazza.com. I will look at this at least once each business day.

Sign up for our site at piazza.com/ ttu/summerterm12015/math3310.
Find our class page at: piazza.com/ ttu/summerterm12015/math3310/home

I will also post class announcements (including assignments) on Piazza, so check it to see what is happening.

If your message is not of general interest to the class, or you want to keep it private, send it to me privately or use my regular email (email address above).

There is a formula editor for generating and posting mathematical formulas in \LaTeX. This is the standard system for doing math on computers in science and engineering, so it’s worth learning about it. The Piazza help has a link to a tutorial, and there are many resources for \LaTeX on the web (we only need to look at how to do formulas, not how to do a whole document).

Alternatively, you can use the equation editor in Piazza, and if you search for online equation editors on the web, you’ll find WYSIWYG editors with a mouse/menu interface that produce the \LaTeX code for the formula, which you can then cut and paste into Piazza (put it between double dollar signs: $$ ... $$). Some of these editors also produce PNG or GIF files you can paste into
email, if you need to do that. (If you use Thunderbird, look for \LaTeX plugins.) I can’t really tell you which editor is the best. This is a topic the class may want to discuss.

**Office Hours:** M–F 3:00pm–5:00pm, unless I have an appointment. You can come by outside of formal office hours; I’ll usually have time to talk to you. Please feel free to come by if you need help.

**Other Sources of Help:**

The Mathematics Department Office has a list of people who offer tutoring for pay. Forming informal study groups with other students can be very helpful. I encourage you to ask me questions.

I encourage students to work together in room 238 during my office hours when I can help.

**Text:** Julie Rowlett, *Blast into Math!,* 2013. This is a free ebook, available at bookboon.com

**About the Course:** This course will teach students how to construct and organize their mathematical reasoning and develop skill for writing mathematical proofs. This is a writing intensive course.

**Learning Outcomes:**

- Students are expected to understand the following concepts and use them in various problems:
  - Sets, cardinality, subsets, elements, union, intersection, functions (including the meaning of injectivity, surjectivity and bijectivity), equivalence relations/classes, as well as an introduction to modular arithmetic.

- Students are expected to become proficient in reading and writing proofs. The following represent the basic mandatory sections to be covered:
  - Truth tables and general logic (implications, quantifiers, negation
  - Direct proofs
  - Contrapositive Proofs
  - Proof by Contradiction
  - Proof by Induction
  - Proofs involving sets
  - Proof that a function is 1:1 and/or onto
  - Proofs involving composite and inverse functions
  - Proofs involving images and pre-images of functions
  - Proofs involving suprema and infima
  - Proofs involving convergence (of sequences and series)

The following represent some optional topics to be covered if time permits:
Assessment of Learning Outcomes: The assessment of student’s mastery of the skills and concepts as specified in the expected learning outcomes will occur, with appropriate course grades assigned, as follows:

1. 2 in-class exams.
2. The final exam.
4. Homework score for mathematical understanding and correctness
5. Homework score for aspects of writing.

The final and the exams are equally weighted. I will apply a curve to the scores on the exams.

The exams will count for 30% of the final grade. The exam corrections will count for 10%, the homework score for mathematics with count 40%, and the writing score will count for 20%.

The procedure for the exam corrections will be discussed in class after the first exam.

The 90-80-70-60 cut offs will be sufficient for the final grade, I will grade the course by the students relative position in the course.

If you need help getting started on a problem you are highly encouraged to talk with me. You may discuss the homework problems with your classmates, but after understanding how to do it, go off by yourself and write up the assignment; don’t just copy someone else’s writeup.

Final Exam: The final exam is on Friday, July 3, from 11:00am to 1:30pm. It will be in our usual classroom.

Makeups: If you are absent from an exam and convince me that your reason was legitimate, I will give a makeup exam. For late homework I may require a serious, legitimate excuse.

Class Schedule: The tentative schedule for the class is as follows:

June 2–4 Chapter 2, Pure mathematics: the proof of the pudding is in the eating
June 5–9 Chapter 3, Sets of numbers: mathematical playgrounds
June 10–12 Chapter 4, The Euclidean algorithm: a computational recipe
June 15 Exam 1
June 16–18 Chapter 5, Prime numbers: indestructible building blocks
June 22–24 Chapter 6, Mathematical perspectives: all your base are belong to us

June 25–June 30 Chapter 7, Analytic number theory: ants, ghosts and giants

June 26 Exam 2

July 1 Last Day of Classes

July 3, Friday Final Exam, 11:00am–1:30pm

If these dates are changed, the changes will be discussed in class and will appear on the calendar on my website. However, this document will not be changed.

Class Attendance: To begin with, I will not count attendance towards the grade, although I may pass out a sign up sheet to check the class roll. Many studies show that class attendance is important in getting a good grade. I will institute an attendance system if it seems necessary!

Remember, you are responsible for all material covered in class and all announcements made in class or on Piazza. If you have to miss a class, you should check with Piazza and me or a classmate to see what happened.

Formative Assessment: Continuous formative assessment of the progress of the course will occur via ongoing communication between the instructor and the students. To this end, all students are encouraged to ask questions during class and to seek the instructor’s help out of class when needed. Other activities in support of student-instructor communication will include: practice exams and quizzes, review of homework, and personal interviews with students doing poorly on work assigned at the beginning of the course.

Identification: You should be prepared to show your Texas Tech picture ID at any quiz or exam.

Accommodations for Disabilities: Any student who, because of a disability, may require special arrangements in order to meet course requirements should contact the instructor as soon as possible to make necessary accommodations. Students should present appropriate verification from Disabled Student Services, Dean of Students Office (AccessTECH). No requirement exists that accommodations be made prior to completion of this approved University process.

Religious Holy Days: A student may be absent from class for a religious holy day, as legally defined, and will be allowed to make up any missed examination or assignment within a reasonable time after the absence. See [http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php](http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php)

Academic Misconduct: It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and a high standard of integrity. The attempt of students to present as their own work any work that they have not honestly performed is regarded by the faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension.
For more information, and a description of what is considered to be misconduct, see [http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php](http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php)

**Civility in the Classroom**: Students are expected to assist in maintaining a classroom environment that is conducive to learning. In order to assure that all students have the opportunity to gain from time spent in class, unless otherwise approved by the instructor, students are prohibited from engaging in any other form of distraction. Inappropriate behavior in the classroom shall result, minimally, in a request to leave class.

For more information, see [http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php](http://www.depts.ttu.edu/officialpublications/catalog/_AcademicsRegulations.php)