Syllabus for Math 3325, Fall 2014
Transition to Advanced Mathematics

Instructor: Dr. Mark Tomforde
Office: 601 PGH
Instructor Web Site: www.math.uh.edu/∼tomforde
Course Web Site: www.math.uh.edu/∼tomforde/Math3325F14.html

Office Hours: Dr. Tomforde, MWF, Noon–1:00PM in 601PGH.
Dr. Ott, TR, 2:30–3:30PM in 603PGH.

Note About Office Hours: I encourage you to come by my office if you have any questions, need help with homework problems, or would just like to talk about the material. If for some reason you are unable to make it to Office Hours, you are welcome to email me to set up an appointment at another time.

Dr. Ott and I are both teaching sections of Math 3325 this semester. To give all of our students more opportunities for Office Hours, we agreed that students from either section can come to both of our Office Hours. Therefore, if you can't make it to my office hours, you are welcome to attend Dr. Ott's to ask questions about the material.

Meeting Times: Lecture is MW 4:00–5:30PM in CBB 108.

Course Description: This course is an introduction to proofs and the abstract approach that characterizes upper level mathematics courses. It serves as a transition into advanced mathematics, and ideally is taken after the initial calculus sequence and before (or concurrently with) mid-level mathematics courses. The goal is to give students the skills and techniques that they will need as they study any type of advanced mathematics, whether it be in pure mathematics, applied mathematics, or application-oriented courses. In particular, this course covers topics that are ubiquitous throughout mathematics (e.g. logic, sets, functions, relations) and helps prepare students for classes such as Real Analysis, Abstract Algebra, and Advanced Linear Algebra, that are required for math majors and math minors.

A major objective of the course is for students to learn to read, write, and understand proofs. Throughout the course students will be exposed to the notation, language, and methods used by mathematicians, and will gain practice using these in their own proofs. In addition, great emphasis will be placed on writing and communication.

Prerequisites: Math 1432 (Calculus II).

Text: *A Transition to Advanced Mathematics*, 7^{th} Ed., by Douglas Smith, Maurice Eggen, and Richard St. Andre.

Course Web Page: The course web page is located at

www.math.uh.edu/∼tomforde/Math3325F14.html

On the course web page you will find the homework as it is assigned, as well as a copy of this syllabus, dates of quizzes, exam dates, and announcements as they are made.

Grading: The final grade for the class will be determined as follows:

Class Participation:	10%
Homework:	15%
Written Proofs:	15%
Exam 1:	20%
Exam 2:	20%
Final Exam:	20%

Class Participation: Class participation will be based on attendance and how engaged you are in class meetings. It is vital to attend every lecture and pay attention. Some lecture material does not appear in the text. Questions on the exams will be drawn from homework, reading, and lectures. I also encourage you to ask questions and participate in class. As stated above, 10% of your final grade will be based on class participation. If you have to miss class for school approved reasons (e.g., school sponsored events, major religious holidays) you need to let me know as soon as possible, and prior to the missed class, for it to not count against your grade. Please keep in mind that class participation is a significant portion of your grade, and that a 10% difference in your final score in the class can change your grade by an entire letter grade or more (e.g., an A- to a B-, or a C+ to a D+).

HOMEWORK: A list of assigned homework problems will be given every week on the course web page.

- Homework is due at the beginning of class on Wednesdays. Late homework will not be accepted for any reason. Homework is considered late once I have started lecturing.
- Homework that is not picked up within two weeks of the date it is handed back will be discarded.
- Your lowest homework score throughout the term will be dropped when calculating your final grade. This is meant to account for unexpected absences (e.g., illness or getting caught in traffic).
- You are encouraged to discuss homework problems with others, but the write up should be done by you alone and in your own words.

With regards to the homework that is turned in, the following policies will be in effect:

- Homework without a name will not be accepted.
- Homework will not be accepted by email.
- You must write legibly, and use only one side of the paper. Leave enough room for the grader to make comments.
- Your homework should be stapled in the upper-left-hand corner.
- Homework should be written on standard-sized paper (8.5" x 11"), with no "fringe" running down the side as a result of the paper having been torn out of a spiral notebook
- Solutions to homework should be written up in sequential order. For example, if Section 2.1, Problems #6, and #12 are assigned together with Section 2.2, Problem #2, then your write-up should contain Section 2.1, Problem #6 first; Section 2.1, Problem #12 second; and Section 2.2, Problem #2 third.

If homework that is turned in violates any of these policies, the grader has been instructed to take off points from your homework. Multiple points will be taken off for multiple infractions.

It is vital to do the homework exercises to learn the material and prepare for exams. Keep in mind that . . .

"You learn mathematics by doing mathematics."

Expect to spend at least three hours working on homework outside of class for every hour spent in class. There is a graduate student grader for the course who will be grading homework. If you have any issues with the way a particular problem is graded, please come to my office to discuss it.

WRITTEN PROOFS: You will be assigned 5 Written Proofs throughout the semester. You should think of these as writing assignments. These problems will ask you to prove a statement and write up the proof in "textbook style". In the first few weeks of class we will talk about what is expected in these proofs, but you should be aware that, at a minimum, they should contain complete sentences, proper spelling and grammar, correct English usage, and follow the conventions of mathematics writing. I will grade these Written Proofs and give you detailed feedback when I do so. As with the homework, you may discuss with others as you figure out how to do the problem or establish its truth, but the writeup (which is a bulk of the work on these assignments) should be done by you alone and in your own words. As with homework, **Written Proofs are due at the beginning of class on the date they are due. Late Written Proofs will not be accepted. Once I begin lecturing, material to be turned in that day is considered late.** Your lowest Written Proof score throughout the semester will be dropped when calculating your final grade. This is meant to account for unexpected absences (e.g., illness or getting caught in traffic).

EXAMS: There will be two exams and one final. All will be held in our usual classroom.

Exam 1: Wednesday, September 24 in class.
Exam 2: Wednesday, October 29 in class.
Final: Monday, December 15, 5–8PM in our usual classroom.

Calculator Policy: Calculators are not allowed during quizzes or exams.

Makeup Policy: In general, not being present for an exam or turning in an assignment late results in a score of zero, and you will not be allowed to make up the work. Exceptions may be made in the case of extreme circumstances, such as a documented, serious illness. In the event that you cannot be present to take an exam on the day it is held you need to speak to me *in advance*, and make every attempt to do the work *before* (and not after) the rest of the class.

Reading Assignments: Reading assignments will be given weekly on the course web page. Completing the reading assignments is just as critical as doing the written homework. You should read the assigned sections *before* we cover them in classes, so you are prepared to answer questions or ask about material you do not understand.

Honor Principal: University of Houston students are expected to adhere to the Academic Honesty Policy (see the Student Handbook for more details). In this course this shall mean the following: Exams shall be worked on independently and without the use of your textbook, homework, calculators, or class notes. Homework and Written Proofs may be discussed with others, but the write-up must be done one the student's own and in the student's own words, without the help of other people or outside sources. If you are aware of anyone who is cheating or receiving unfair, outside assistance, you are honor bound to inform the instructor of what is occurring, and will be considered an accomplice if you do not. Anyone caught cheating will receive a failing grade in the course and be turned over to the department chair and dean for further disciplinary action.

Special Needs: Any student with a disability or chronic health problem for whom special accommodations would be helpful is encouraged to discuss with the instructor the types of assistance that might be offered. If you have forms from CSD that need to be filled out, you should come to my office to discuss the accommodations being made, and to fill out the required forms.

Policy on Incompletes: Incompletes are given only in very unusual circumstances, and never just to prevent a bad grade or provide the student with more time to prepare for an exam. Many students have misconceptions

about what an incomplete is, so I have quoted part of the description from the UH Math Department policies here:

> *UH Math Department Policy on Incompletes:* The grade of I (Incomplete) is a conditional and temporary grade given when students are passing a course but for reasons beyond their control, have not completed a *relatively small* part of all requirements. Students are responsible for informing the instructor immediately of the reasons for not submitting an assignment on time or not taking an examination. . . . The grade of "I" may not be changed to a grade of "W", but may only be changed to another letter grade. Students should understand that the only way to have an "I" (Incomplete) changed to a passing grade is to fulfill the specific course requirements by the appropriate date and to earn a passing average in the course. Students should not re-register for courses in which they previously received an "I" grade. . . . After the course work is completed, the instructor will submit a change-of-grade form to change the "I" grade to the grade earned. The student should understand that both grades, the original "I" and the earned grade, will appear on the transcript.

Important Dates: The following are some important dates you should keep in mind:

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September 1, Labor Day, No Class.
September 10, Last day to Drop/Withdraw without receiving a grade.
September 24, Exam 1 (during class time in our usual classroom)
October 29, Exam 2 (during class time in our usual classroom)
October 31, Last day to Drop/Withdraw with a W grade.
November 7, Dr. Tomforde at a conference. Office Hours Cancelled.
November 26 – November 30, Thanksgiving Break, no class.
December 6, Last Day of Classes
December 15, Final Exam (from 5-8PM, in our usual classroom)