

# MAT 395 – Intro to Mathematical Analysis

MWF 10:00–10:50 AM Petty Building 217

Fall 2014

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**Instructor:** Greg Bell      **Email:** gcbell@uncg.edu  
**Office Hours:** MW 11–12; F 1–2 or by appointment.

**Office Location:** 144 Petty Building  
**Office Phone:** (336) 256-1117

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**Course Number** MAT 395-01

**Course Title** Intro to Mathematical Analysis

**Credits** 3:3

**Prerequisites** Grade of C or better in MAT 293

**For Whom Planned** Mathematics majors

**Catalog Description** Introduction to fundamental concepts of single variable calculus, including properties of real numbers, notion of limit, continuity, differentiation, integration, and infinite series.

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**Student Learning Outcomes** Upon successful completion of this course students shall be able to

**SLO 1 define** basic terms associated with real-valued, one-variable calculus such as real number, limit, sequence, continuity, convergence, derivative and integral;

**SLO 2 give examples** of numbers, sequences and functions exhibiting properties outlined in SLO 1 in addition to examples of monotone sequences, subsequences, continuous functions, derivatives and integrals;

**SLO 3 explain** definitions and important theorems of real-valued, one-variable calculus such as the sequence limit theorem, uniform continuity, the mean value theorem and the fundamental theorem of calculus; and

**SLO 4 construct** and **defend** coherent mathematical proofs of statements in calculus based on definitions and previous theorems using direct proof, proof by induction or proof by contradiction.

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## Teaching Methods for Achieving SLOs

**Reading:** Reading the sections we discuss before class is essential if you wish to get the most out of lectures. This allows you to form questions before you see me present the material so that you can focus on the confusing aspects of the topics we discuss. (SLO 1)

**Lectures:** This is the primary method of content delivery. I plan to follow the book closely, but I will supplement the book's material with some of my own when questions arise or when I feel it is appropriate. (SLO 1-3)

**Quizzes:** There will be 11 weekly quizzes on most Wednesdays. These will be short; they should take approximately 10 min. You should expect two problems – one asking you to state a definition or result and the second asking you to apply that definition or result in some way. (SLO 1-3)

**Exams:** Exams serve as the primary gauge of evaluation. (SLO 1-4)

**Homework:** Homework is the most important way to actually “learn” mathematics. This is the same sort of practice that is used to learn to play tennis or learn to play the piano. One cannot learn these things by watching them on television or reading about them in a book no more than one can learn mathematics by watching a lecture or reading a mathematics book. (SLO1-4)

## Evaluation and Grading

**Homework:** Homework will almost always be assigned and collected on Wednesdays. Expect approximately 5-10 problems per assignment. There are 11 total assignments. I will drop your lowest two scores. Late homework will be accepted at a penalty of 10% per day. Homework is considered late if it is handed in after I ask for it. All assignments are weighted equally. Homework counts for 20% of your final grade.

**Quizzes:** There will be 11 weekly quizzes on Wednesdays. I will drop the two lowest scores. No make-up quizzes will be given for any reason. I will excuse you from a quiz only with advance notice of absence for a documented reason (illness requires a doctor's note, university activity requires documentation). An unexcused absence on a quiz results in a zero on that quiz. An excused absence means that the missed quiz neither counts towards or against your final grade.

**Exams:** Mid-term exams count 15% of your grade each. The final exam counts for 25% of your final grade. I do not drop any exam scores, but I will replace your lowest mid-term exam score with the score on your final, provided your final exam is higher than your lowest midterm grade. The following dates are **tentative** (except for the final, which is determined by the registrar).

Exam 1 Wednesday, September 10, 2014 (in class)

Exam 2 Wednesday, October 8, 2014 (in class)

Exam 3 Wednesday, November 12, 2014 (in class)

Final Wednesday, December 3, 2014 (12-3PM, in class)

**Final Grades:** Your weighted total is computed and rounded to the nearest whole number. The grading scale appears below.

Grading Scale out of 100%									
100-97	A+	89-87	B+	79-77	C+	69-67	D+		
96-93	A	86-83	B	76-73	C	66-63	D	59-0	F
92-90	A-	82-80	B-	72-70	C-	62-60	D-		

**Required Text** Abbott, Stephen *Understanding Analysis*. Undergraduate Texts in Mathematics. Springer-Verlag, New York, 2001. ISBN: 978-0-387-21506-8 (Available for free through Springer Link.)

**Attendance Policy:** I expect you to come to class each day; this is critical for success in a mathematics course. If you must miss class or an exam for a religious observance, you must notify me in writing of participation in this observance at least one week prior to the event.

**Academic Integrity:** On all exams and papers you will be asked to sign the paper saying that you agree to abide by the UNCG Academic Integrity Policy. The complete policy may be viewed at <http://academicintegrity.uncg.edu/complete/>. Please review this important document with an attention to detail, and feel free to ask questions if there is any part of the policy which you do not understand.

**Students with Disabilities:** If you have a documented disability and wish to discuss academic accommodations, please contact me as soon as possible. You are responsible for contacting the ODS in 215 EUC (334-5440, <http://ods.dept.uncg.edu/>) and for arranging the necessary forms for me to fill out and sign. Without these forms the services provided by the ODS will not be available. ODS cannot schedule or reschedule tests without consent from the instructor.

**Contacting Me:** You don't need an appointment to see me during office hours. When I'm in my office, my door is usually open and you can feel free to ask questions. Feel free to email me; you can generally expect a reply within one business day.