

Math 313 Analysis I  
Mtht 490 Analysis I for Teachers  
Fall 2015

MWF 10:00 - 10:50  
T 12:30 - 1:45

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SH 312

*Instructor* Bonnie Saunders [saunders@math.uic.edu](mailto:saunders@math.uic.edu) [www.math.uic.edu/~saunders](http://www.math.uic.edu/~saunders)  
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## Course Description

Math 313 will cover the basic properties of real numbers, with special emphasis on completeness of the real numbers, and a rigorous development of Calculus through the fundamental theorem with attention paid to limits, continuous functions, differentiability, and the Riemann integral. Although the material is familiar, the point of view is different as we will accomplish our goals in a mathematically rigorous way beginning with a few basic notions. Mtht 490 extends the material to cover connections with teaching high school mathematics.

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## Requirements

**Prerequisite** Grade of C or better in Math 215. Students will be writing proofs and inventing interesting examples throughout this course. Experience in Math 215 is invaluable for success.

**Required Text** Interactive Notes for Real Analysis by Bonnie Saunders, 2015. Available at [www.math.uic.edu/~saunders/MATH313](http://www.math.uic.edu/~saunders/MATH313)

**Technology** *Overleaf* This is a free online system for collaborative writing using Latex. Students will use this tool to complete team assignments. No knowledge of LaTeX is required for the class. Students are welcome to use a laptop during class. We will be making some use of Geogebra. This free, downloadable software is a combination of a graphing calculator, a spreadsheet and something similar to geometer's sketchpad.

**Suggested further reading** Understanding Analysis by Stephen Abbott, 2010, which is available online through the UIC Library.

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## Grading

**Attendance and homework** [15%] There will be homework assignments and/or quizzes weekly.

**Team assignments** [15%] These will be completed and graded on *Overleaf* .

**Midterms and quizzes** [40%] There will be two midterm exams.

**Final** [30%] The final exam will be comprehensive.

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## Course Webpage

**For more information** go to [www.math.uic.edu/~saunders/MATH313](http://www.math.uic.edu/~saunders/MATH313)