REAL ANALYSIS 1   MWF 10:00-10:50AM   FALL 2006   STUART 309

Instructor: Jonathan White

E-Mail: JWhite@Coe.Edu

Web Page: http://www.coe.edu/~jwhite/

Office: Stuart 316

Office Hours: 9:00-9:50 MTWF, and by appointment

Office Phone: 399-8280

Home Phone: 841-5111 (between 7am and 10pm)

Text: *A Friendly Introduction to Analysis, Single and Multivariable*, 2nd Edition, by Witold Kosmala, Prentice-Hall; *A Tour of the Calculus*, by David Berlinski.

Problem Sets: Problem Sets will be given throughout the term to supplement class work. Combined these will be worth 200 points (33.3% of the final grade).

Exams: There will be two exams during the course of the semester, administered during class time. The dates of these are indicated in the schedule on the back side of this sheet. These exams will be worth 100 points (16.7% of the final grade) each.

                 The final exam will be given Wednesday, December 11th, and will be worth 200 points (33.3% of the final grade).

Grading: Grading will approximately follow a 90% A, 80% B, 70% C, 60% D scale.

> *"And what are these fluxions? The velocities of evanescent increments. And what are these same evanescent increments? They are neither finite quantities, nor quantities infinitely small, nor yet nothing. May we not call them ghosts of departed quantities?"*
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> -Bishop George Berkeley, 1685-1753

Real Analysis is in many ways a dramatically different course than anything which precedes it in the mathematics curriculum. In some regards, students finally get a chance to see the sorts of things that professional mathematicians deal with -- but at the same time, many of these underpinnings are beneath notice once they've been properly laid. The simplest thing that can safely be said is that there are genuinely troubling issues left unaddressed by the undergraduate calculus sequence, and they must be dealt with before moving on.

It is also important to note at this point that the demands on students become qualitatively different in this course than in its prerequisites. Learning strategies which have succeeded in previous classes will not necessarily suffice at this level. If at some point these challenges or frustrations get too bad, I strongly encourage you to see me for extra explanation -- don't wait until you're overwhelmed. I'm here to help.

Tentative Schedule

Monday, August 28th §1.7 Real Numbers	Wednesday, August 30th §1.8 Properties of Real Numbers	Friday, September 1st §1.9 Review
Monday, September 4th No Class – Labor Day	Wednesday, September 6th §2.1 Convergence	Friday, September 8th §2.2 Limit Theorems
Monday, September 11th §2.3 Infinite Limits	Wednesday, September 13th §2.4 Monotone Sequences	Friday, September 15th §2.5 Cauchy Sequences
Monday, September 18th §2.5 Cauchy Sequences	Wednesday, September 20th §2.6 Subsequences	Friday, September 22nd §2.7 Review
Monday, September 25th §3.1 Limit at Infinity	Wednesday, September 27th §3.2 Limit at a Real Number	Friday, September 29th §3.2 Limit at a Real Number
Monday, October 2nd §3.3 One-Sided Limits	Wednesday, October 4th §3.4 Review	Friday, October 6th **Exam 1**
Monday, October 9th §4.1 Continuity	Wednesday, October 11th §4.2 Discontinuity	Friday, October 13th §4.3 Properties of Continuous Functions
Monday, October 16th No Class – Fall Break	Wednesday, October 18th §4.3 Properties of Continuous Functions	Friday, October 20th §4.4 Uniform Continuity
Monday, October 23rd §4.5 Review	Wednesday, October 25th §5.1 Derivatives	Friday, October 27th §5.2 Properties of Differentiable Func.
Monday, October 30th §5.3 Mean Value Theorems	Wednesday, November 1st §5.3 Mean Value Theorems	Friday, November 3rd §5.4 Higher Derivatives
Monday, November 6th §5.5 L'Hôpital's Rules	Wednesday, November 8th §5.6 Review	Friday, November 10th **Exam 2**
Monday, November 13th §6.1 Riemann Integrals	Wednesday, November 15th §6.1 Riemann Integrals	Friday, November 17th §6.2 Integrable Functions
Monday, November 20th §6.2 Integrable Functions	Wednesday, November 22nd No Class – Thanksgiving Break	Friday, November 24th No Class – Thanksgiving Break
Monday, November 27th §6.3 Properties of Riemann Integrals	Wednesday, November 29th §6.4 Integration and Differentiation	Friday, December 1st §6.4 Integration and Differentiation
Monday, December 4th §6.5 Improper Integrals	Wednesday, December 6th §6.7 Review	Friday, December 8th Dedekind Cuts
Final Exam – 8am Wednesday 12/13		

Any students with disabilities which might affect their performance in this class should contact me as soon as possible to arrange accommodations.

The faculty has adopted a policy on academic integrity. It is your responsibility to understand and follow it.

Diversity, in all its forms, is valuable.