

# MAC 2312H, Calculus with Analytic Geometry II (Honors), Fall 2006

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**Course Title:** Calculus with Analytic Geometry II (Honors)

**Catalog Number:** MAC 2312H, Section 0201

**Class Number:** 82294

**Credit Hours:** 4

**Meeting times:** Monday Wednesday Thursday Friday, 1:30 - 2:20

**Course Location:** BHC 131

**Professor:** Dr. Michael Reid

**Office:** MAP 231C

**Office Hours:** TBA, and also by appointment.

No appointment is necessary during normal office hours.

**Phone:** x3-6462

**E-mail:** [reid@math.ucf.edu](mailto:reid@math.ucf.edu) (please do not use any format other than **text format** for e-mail)

**Textbook:** *Calculus*, 5th Edition, by James Stewart

**Course Web page:** <http://www.math.ucf.edu/~reid/Teaching/Fall2006/mac2312h.html>

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**Prerequisite:** MAC 2311H or equivalent.

You should have a solid understanding of all the material covered in MAC 2311H, as well as a strong background in high school algebra, geometry, trigonometry and precalculus.

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## Course goals:

This course is the continuation of MAC 2311H. We give a thorough treatment of techniques of integration and series. We also cover some applications, such as polar coordinates, areas in polar coordinates, Maclaurin and Taylor series. I prefer to emphasize concepts, rather than opaque formulae. By the end of the semester, everyone should have a solid working knowledge of differential calculus, and a sufficient understanding of the basics of integral calculus in preparation for the continuation of this course, MAC 2313H or MAC 2313.

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## Topics to cover:

Logarithmic and exponential functions  
Inverse functions, inverse trigonometric functions  
Indeterminate forms and L'Hôpital's rule  
Techniques of integration:  
Integration by parts  
Integrals of trigonometric functions, trigonometric substitution  
Partial fractions  
Improper integrals  
Arclength of curves, areas of surfaces of revolution  
Parametric curves and their tangents, areas, arclength  
Polar coordinates, arclength and area in polar coordinates  
Conic sections  
Sequences and series  
Integral test  
Comparison tests  
Alternating series  
Absolute convergence  
Ratio and root tests  
Power series  
Taylor and Maclaurin series

This is a lot to cover, so we will move at a very brisk pace. It is extremely important not to fall behind. If you do so, please catch up immediately.

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### **Grades:**

I prefer students to focus on learning, instead of worrying about grades. If you learn the material well, and demonstrate that on the exams, your grade will take care of itself.

### **Grading formula:**

Homework: 15%  
First Midterm: 15%  
Second Midterm: 15%  
Third Midterm: 15%  
Final Exam: 35%  
Best Exam: 5%

I expect to use standard gradelines, i.e. 90% for an A, 80% for a B, 70% for a C, 60% for a D. If appropriate, there may be a curve which would ease these cutoffs, but you should not count on that. Plus and minus grades will be used.

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## **Exams:**

Each in-class exam will be announced a week or two before it is given. The final exam is tentatively scheduled for Monday, December 4th at 1PM.

Exams may not be missed for any reason other than documented emergencies.

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## **Homework policy:**

Homework is an important part of this class. Weekly homework will be assigned, collected and graded. You are expected to do all of it. Homework must be written neatly and stapled together. This typically means that you work out the problems on scratch paper, and then transcribe your solutions neatly on separate paper to turn in. Late homework will not be accepted. If you're behind schedule, complete as much as you can, and turn that in. (Of course you should finish the rest to bolster your understanding of that material.) I will drop your lowest homework score.

The expectation for homework is as follows: you should solve all the assigned problems completely and correctly. It's ok if this requires several attempts at some of them. When you're finished with the assignment, ideally you should be able to do those types of problems without referencing your notes or the textbook. This is what you'll be required to do on the exams!

[The homework assignments are listed here.](#)

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## **Attendance Policy:**

Students are expected to attend every lecture. You are responsible for knowing the contents of every lecture as well as any announcements.

Cell phones must be turned off. In general, students should be respectful of their classmates and the instructor (i.e. do not be a distraction).

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## **Additional student resources:**

Besides attending class, reading the text, and doing the assigned homework problems, students can also attend my office hours for help, can do additional problems from the book, and also attend the [Math Lab](#) (in MAP 113). Please make use of all available resources!

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## **Special accommodations:**

Anyone who needs special accommodations for this class must let me know during the first week of the

semester (by August 28th at the very latest).

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Last updated: August 19, 2006