Instructor: Matthew Junge	**TA:** Siddharth Petunia Mathur
Lecture Time: MWF, 9:40-10:40 ARC 160	**Section Time:** T,TH, 9:40 - 10:40 SMI 407
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Let R be the largest area rectangle which fits inside the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$. Suppose that a and b constantly decrease at π m/s. At what rate is the area of R changing when $a = \sqrt{3}$ and $b = 2\sqrt{3}$?   (ans: 3π m/s)

Overview: The topic of this course is differential calculus. To get above a 3.0 you will need a rock-solid algebra background, a cultivated sense of geometry and be comfortable with parametric equations. If these are not well developed and you wish to get a decent grade I recommend taking Math 120 first. We will start with *limits*, then define *the derivative* and *differentiation rules*. With this we will cover *implicit differentiation, derivatives of parametric equations, tangent line approximation, related rates, curve sketching and optimization*. The main point of Math 124 is to learn to solve problems and *communicate* your solutions to others, and this skill will be useful regardless of what you ultimately study.

Text: *Calculus Single Variable (Custom 7 edition) with WebAssign*. Most students never look at the book, so unless you know you will use it, I recommend not buying the hard copy. You'll download worksheets from the calendar on the class website. DO NOT use the materials website for worksheets – these are outdated.

The Math Study Center: The Math Study Center (MSC), located in COM B014, is a great place to work on calculus, whether or not you need help. There is a staff of tutors available to help you if you get stuck. If you end up wanting a private tutor, ask me for recommendations.

Grading: Grades will be *curved* in such a way that the median for the course, depending on the classes' performance, will result in a grade between a 2.7 and a 3.0.

> Homework: **15%**, Worksheets: **5%**, Midterms: **40%**, Final Exam: **40%**

Homework: Homework assignments are all via Webassign (www.webassign.net/washington/login.html) and typically due Friday. Expect to spend at least 5-8 hours a week on homework. Log into webassign this week and add yourself to the course. IF YOU PLAN TO TAKE 125 YOU SHOULD GET THE COMBO WEBASSIGN PACKAGE DIRECTLY FROM UW BOOKSTORE.

Worksets: Each Tuesday, you will work in groups on worksheets. Print your own worksheet and bring it to class. DON'T START IT UNTIL YOU COME TO CLASS. Links are on the website calendar. Oftentimes the TA will bring supplemental materials for you to work on. You must stay the whole time to get full credit. The point scale is (0=no show or very late), (1=off task or moderately late), (2=diligent and focused), (3=you did something amazing and extraordinary). There are no makeup worksheets. There will be 7 worksheets. You're lowest worksheet score will be dropped. So, 12 points will be a perfect score – any additional points (from 3's) are extra credit.

Thursdays: Come to Thursday with questions about the homework. Sometimes you will take a quiz that does not count towards your grade but is meant to help you know how well you are learning the material.

Exams: There will be two midterms and a two day final. The final will be cumulative. All exams are 60 minutes long. The only electronic device permitted during exams is a scientific calculator without calculus or graphing features. You also may use one double-sided 8.5" × 11" sheet of notes in your own handwriting. Here are the exam dates:

> **Midterm One:** 7/16   **Midterm Two:** 8/6   **Final:** 8/22 + 8/23

There are no make-up exams. If you miss a the midterm due to an unavoidable, compelling and well-documented circumstance, your final exam will be weighted more heavily. Contact me immediately if you are in such a situation. Additionally, there is no possibility to take the final *early*. Again, should a compelling excuse arrive please contact me and we will work out a time *after* the scheduled final for a makeup. (Note that leaving for a vacation is not compelling.)