

Instructor: Mr. Diego Vela
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Lecture Times: MTWRF 1:00-4:00PM
Classroom: Hermann Brown 22
Office Hours: MTWRF 4:00 - 5:00 PM

Class Webpage: TBA

Textbook: This course will cover chapters 1 through 6 of *Calculus Early Transcendentals 6E* by James Stewart. The campus bookstore has a custom-made book for Rice (ISBN: 9781111699314), which includes a WebAssign account. You may also use other versions of the 6th edition of this textbook (including Stewart's Single Variable Calculus: Early Transcendentals or Stewart's Calculus: Early Transcendentals), but you'll have to purchase a WebAssign account separately in this case.

Homework: There will be two components to homework in this course: webAssign problems and written problems from the text.

1. WebAssign homework will be **due on each class day at 12:00PM** (starting Friday, August 26) and will be assigned through the WebAssign website. Each student is responsible for obtaining a WebAssign account and becoming familiar with the WebAssign system as soon as possible. These online problems are quite similar to the textbook exercises.

The WebAssign.net key for this course is: **rice 8414 7395**

Due to the nature of these online assignments, it is tempting to not write very much down. It is **strongly recommended** that you maintain a notebook in which you write down complete problems and solutions to the online homework problems as you work through them. Such a notebook will be very helpful when you are studying for exams!

2. Each day, I will also assign problems from the textbook, which must be **handed in the next day during the first five minutes of lecture (i.e. by 1:05PM)**. The first such written assignment will be due on **Wednesday, May 16**. These will be problems of a nature which cannot be handles by online systems (e.g. graphing problems).

Homework is not pledged, and collaboration is allowed. However, make sure that you understand the solution to a problem before typing it into WebAssign. Also, your solutions to the textbook problem sets must be your own.

Late homework assignments will not be accepted for ANY reason! Instead, your three lowest WebAssign scores and your lowest paper assignment will be dropped.

Exams: There will be two midterm tests during the semester, which will both occur outside of class time. They will be **Monday May 21, 2012 at 5:00pm** and **Tuesday May 29, 2012 at 5:00pm**.

The final exam will be *on Monday, June 4, 2012*. It is the policy of the Mathematics Department that no final may be given early to accommodate student travel plans. If you have made travel plans which conflict with the final exam date, then it is your responsibility to either reschedule your travel plans or take a zero on the final.

Books, notes, and calculators **will not be allowed on exams**. Make-up exams will only be allowed in the case of a documented medical emergency (and you must contact me as soon as possible regarding such a situation). If the exam dates conflict with a holiday you observe, please let me know **during the first couple classes**.

Grades: Your grade will be computed via the following scheme:

**20% Homework and Quizzes + 20% Midterm 1 + 20% Midterm 2 + 40%
Final Exam**

Expectations: I expect that you attend every lecture and arrive on time. It is also your responsibility to stay informed of any announcements, adjustments to the syllabus, or policy changes made during scheduled classes (and not all announcements will necessarily be posted on the website).

In a math lecture, what's most important is that you look for the big picture and stay attuned to the lecturer's advice about what's important and what isn't. I don't necessarily expect you to follow every step of the lecture, but I do expect you to study on your own at home to fill in the gaps. Nonetheless, attending lectures is a crucial component to understanding the material, while skipping them puts you at a real disadvantage.

I encourage you to make use of your classmates and office hours whenever you are struggling with the material. Furthermore, you should seek help as questions arise, rather than waiting until an exam is looming or until you have lots of questions.

Honor Code: You should be familiar with the Rice University Honor Code (the Handbook can be found at <http://honor.rice.edu/honor-system-handbook/>). **Both midterm exams and the final exam will be pledged.**

Disability Support: Any student with a documented disability seeking academic adjustments or accommodations is requested to speak with me **during the first two days of class**. All such discussions will remain as confidential as possible. Students with disabilities will also need to contact Disability Support Services in the Allen Center.

Disclaimer: I reserve the right to make changes to this syllabus and to course policies during the semester. Such changes will be announced in lecture when they are made.

Tentative Lecture Schedule:**Day 1**

Section 1.1-1.2: Basics of functions
Section 1.3: New functions from old functions
Section 1.5: Exponential functions
Section 1.6: Inverse functions and logarithms

Day 2

Section 2.1: Tangents and velocity problems
Section 2.2: The limit of a function
Section 2.3: Limit laws

Day 3

Section 2.4: The precise definition of a limit (epsilon and delta)
Section 2.5: Continuity
Section 2.6: Limits at infinity; horizontal asymptotes

Day 4

Section 2.7: Derivatives
Section 2.8: Derivatives as functions
Section 3.1: Derivatives of polynomials and exponential functions

Day 5**Thursday, 09/29, 8AM: Midterm Exam 1**

Section 3.2: Product and quotient rules
Section 3.3: Derivatives of trigonometric functions
Section 3.4: The chain rule

Day 6

Section 3.5: Implicit differentiation
Section 3.6: Derivatives of logarithmic functions
Section 3.7: Rates of change

Day 7

Section 3.8: Exponential growth and decay
Section 3.9: Related rates
Section 3.10-3.11: Linear approximations and differentials; Hyperbolic functions

Day 8

Section 4.1: Maximum and minimum values

Section 4.2: The Mean Value Theorem

Section 4.3: Derivatives and graphs

Day 9

Section 4.4: L'Hospital's Rule

Section 4.5-4.6: Curve sketching

Section 4.7-4.8: Optimization; Newton's Method

Day 10

Tuesday, 11/08, 8AM: Midterm Exam 2

Section 4.9: Antiderivatives

Section 5.1: Areas and distances

Section 5.2: Definite integration

Day 11

Section 5.3: The Fundamental Theorem of Calculus

Section 5.4: Indefinite integrals

Section 5.5: The substitution rule

Day 12

Section 6.1: Areas between curves

Section 6.2: Volumes

Section 6.3: Cylindrical shells

Day 13

Section 6.4: Work

Section 6.5: Average value of a function