# MATH 2433–Section 001 Honors Calculus III

This is the information sheet for Honors Calculus III, MATH 2433–Section 001, for the Fall Semester 2008. It is your responsibility to acquaint yourself with all the information in this handout, and with any modifications to it that may be announced in class.

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**Course Web Page:** http://math.ou.edu/~nbrady/teaching/f08-2433
**Office Hours:** M 11–12 and 2–3, W 2:30–3:30.

**Text and Course Outline:** We shall cover Chapters 11 through 14 of the textbook; *Calculus* ($6^{\text{th}}$ Edition), by James Stewart.

In Calculus I and II we were concerned with functions whose inputs and outputs are real numbers. In Calculus III we extend these ideas to the case of functions whose inputs are real numbers, and whose outputs are $n$-tuples of real numbers.

We interpret these functions as *parametric curves* in $n$-dimensional space. You will also encounter the phrase "vector-valued functions". Parametric curves are of central importance to geometers (who typically use arc length as a parameter) and to physicists (who often think of the parameter as time). In many of the applications we shall meet, $n = 2$ or 3. Topics that are closely related to these ideas include the theory of vectors in 2- and 3-dimensions, and the *polar coordinate system* in 2-dimensions. Together, these topics comprise the bulk of chapters 11, 13 and 14 of the textbook.

The other major topic is the theory of infinite series, and in particular the theory of Taylor series of analytic functions. Taylor series are like infinitely long "recipes" for "cooking up" functions, using only the simple polynomials $x^n$ as ingredients. A Taylor "cook" has an infinitely refined palate, and will typically add progressively smaller pinches of polynomials of higher degree (ad infinitum!) before being satisfied! These recipes have some cool applications. Also, the basic ideas behind the Taylor recipes foreshadow the theories of Fourier series and of wavelet analysis in modern signal processing.

**Lectures:** You are expected to attend all lectures, and are responsible for all information given out during them. In particular, this includes any changes to the quiz/midterm dates or content.

Your participation is important in lectures. At a minimum, you will have to periodically get up to the board and write out solutions to homework exercises. Ideally, you will participate in classroom discussions. As in any course, you will optimize your gain from the lectures if you try to read the relevant sections of the textbook **before** attending class.

**Grading Scheme:** Grades will be assigned by weighting your totals from Homeworks, Quizzes, Midterms, and a Final Examination as follows:

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| *Homeworks* | 18% |
| *Quizzes* | 3% |
| *Midterm Total* | 54% |
| *Final Examination* | 25% |

The total number of points in the course is 100. Grades are assigned on the following scale:

A : 85 – 100, B : 70 – 84, C : 55 – 69, D : 40 – 54, F : 0 – 39.

Here is a detailed description of each of these components.

**Homework:** Homework will be due at the **start** of class on Tuesdays and Thursdays. You are responsible for ensuring that your homework gets turned in on time. Late homework will not be accepted; it upsets the grading process and is unfair to other students.

The homework assignments are there to provide you with a **minimum** level of exposure to the materials outside of class time. You will need to do many more problems before you feel comfortable with the concepts involved. Take it from experience (of generations of students!) that the way to succeed in a math course is to work (and understand) a large number of problems.

**Quizzes:** Six short Quizzes are held in class during regular lecture times. Here are the (approximate) quiz dates.

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| *Quiz 1:* | Thursday | Sept. 04. | *Quiz 4:* | Thursday | Oct. 30. |
| *Quiz 2:* | Thursday | Sept. 18. | *Quiz 5:* | Thursday | Nov. 20. |
| *Quiz 3:* | Thursday | Oct. 16. | *Quiz 6:* | Thursday | Dec. 04. |

**Midterms:** There are three midterms, two of which are held during regular lecture times in the usual classroom, and the third is a set of extra homeworks. They are held/due on the following dates:

*Midterm 1:* Tuesday, Sept. 30.

*Midterm 2:* Thursday, Nov. 06.

*Midterm 3:* A series of take home "extra homework" problem sets. Due in class.

**Final Examination:** The final examination is cumulative. It is scheduled for Tuesday, December 16 from 8:00am until 10:00am, and is held in the usual classroom — PHSC 1105.

The final examination schedule for all your classes is available online
http://www.ou.edu/enrollment/home/final_exams/fall_semester_final0.html

**Taking Examinations:** Here are a few notes on taking Examinations.

- I will hold extra Office Hours and/or schedule Review Sessions before the Midterms and Final Examinations. You are strongly encouraged to attend the Review Sessions, and to attend Office Hours regularly.
- You cannot use calculators/computers, books or any type of notes during the examinations.
- All examinations must be taken at scheduled times, except in *very extreme circumstances.* So be careful not to make travel arrangements that conflict with examination times. If you cannot take an examination at a scheduled time, you should contact me *well in advance of the test time.* Otherwise, an absence at an exam will result in a score of zero.

**Policy on W/I Grades:** Check out the academic calendar at
http://www.ou.edu/admissions/home/academic_calendar/Fall_2008.html

Until Sept 8, there is no record of grade for dropped courses. From Sept 9 through Oct 3, you may withdraw and receive an automatic W grade, *no matter what scores you have so far achieved.* From Oct 6 onward, the grade for a dropped course is either W or F; you will need to see me about grades if you wish to withdraw. From Nov 3 on, University regulations specify that you may withdraw only with the permission of the College Dean.

Students who are failing the course should not expect to receive an "I" grade in place of a "W" grade. I will only consider assigning an "I" grade if the situation satisfies the following criteria.

1. the student is already maintaining a passing grade,
2. the student has completed most of the course work, and
3. the student can demonstrate that he/she is unable to complete the work at this time due to circumstances beyond his/her control.

**Academic misconduct:** Visit http://www.ou.edu/provost/integrity for the rules governing cases of academic misconduct. See also the *Academic Misconduct Code*, which is part of the *Student Code* and can be found at http://judicial.ou.edu/content/view/27/32/.

**Accommodation of Disabilities:** The University of Oklahoma is committed to providing reasonable accomodation for all students with disabilities. If you require special accomodation in this course you are requested to speak with me as early in the semester as possible. Students with disabilities must be registered with the Office of Disability Services prior to receiving accomodations in this course. The Office of Disability Services is located in Goddard Health Center, Suite 166, phone (405) 325-3852 or TDD only (405) 325-4173. Their website is at http://drc.ou.edu.

**Religious Holidays:** It is the policy of the University to excuse absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required class work that may fall on religious holidays.

Students who plan to observe a religious holiday which may conflict with a class time, should notify me as soon as possible (preferably within the first week of the semester), so we can make appropriate arrangements.