

COURSE SYLLABUS

Calculus for Graduate Students – STAT388-001

Fall Semester, 2012: Tuesdays and Thursdays 2.30 – 3.30pm in MUND 408

Prerequisites: Differential and integral calculus is essential; some background in multivariate calculus and linear algebra is helpful but not assumed

Text: none required; recommended: good to have an old calculus text or else: Ayres, Jr., F. & Mendelson, E., 2009, Calculus, Schaum's Outline Series, 5th edition, ISBN: 978-0-07-150861-2 (\$11.85 on Amazon)

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Office Hours: Tuesdays and Thursdays 10am to 12-noon and by appointment

Course Web Page: <http://webpages.math.luc.edu/~tobrien/courses/calc4stat/course-homepage.html>

Course Overview

Since study of mathematical statistics requires a good working knowledge of calculus (including sums of infinite series, differentiation, and single and double integration), this course helps students needing a review of these concepts; the course is very much linked with the material in STAT404/5. Topics covered include:

- Precalculus (review of conic sections, functions, trigonometry)
- Differential calculus – techniques and applications
- Integral calculus – techniques and applications
- Indefinite integrals, l'Hôpital's rule, linear algebra, polar coordinates
- Multivariate calculus – techniques and applications for double and triple integrals, partial derivatives
- Jacobians and applications
- Sums and infinite sums

Homework and Quizzes

Homework assignments will be given typically each week and graded and returned to students in a timely manner to give students needed feedback. Late homework will be penalized, and will not be accepted after the assignment has been graded and returned to students. The lowest homework score will be dropped in the final grade calculation. It is very important that students show all work on homework and quizzes; just giving answers with no shown work will be penalized. No programmable calculators, personal computers, cell phones, etc. will be permitted during quizzes. Quizzes will be closed book/closed notes.

Grading Scheme

Participation	10%
Homework	30%
Quiz Average	60%

Participation is based upon participating in class discussion and solving problems in-class.

Final course (letter) grades will be awarded according to the following grading scheme:

[87.5 , 90.0) = B+	[92.5 , 100] = A	[90.0 , 92.5) = A-
[77.5 , 80.0) = C+	[82.5 , 87.5) = B	[80.0 , 82.5) = B-
[67.5 , 70.0) = D+	[72.5 , 77.5) = C	[70.0 , 72.5) = C-
	[60.0 , 67.5) = D	[0.0 , 60.0) = F

Make-up Exams

A make up for any quiz will be given only in case of an illness verified by a note from a physician or a death in your family.

Academic Honesty

It is presumed that you will do your own work on the homework and quizzes. Discussing homework problems with others is encouraged but it is extremely important to understand the difference between working with another person and copying that person's work. **If you discuss homework with others, you must cite their names on your homework paper (at the top of the first page).** Submitting work as your own which is copied or paraphrased from someone else is not permitted. Cheating includes, but is not limited to, illegal collaboration, copying, using materials not permitted on quizzes, and aiding others on tests. Anyone found cheating will not be permitted to withdraw and will receive a grade of F for the course. Your academic dean will be informed and a statement will be placed in your permanent file.

Tentative Semester Schedule (Text Sections) – this schedule is subject to change (check website)

Tuesday	Thursday
08/28 – Functions, conic sections, domain/range	08/30 – Limits, continuity, monotonicity
09/04 – Derivatives, chain rule	09/06 – Min/max, tangent and normal lines
09/11 – Curve sketching	09/13 – Trigonometry I
09/18 – Quiz 1	09/20 – Trigonometry II
09/25 – Inverse trig. functions	09/27 – Exponentials/logarithms
10/02 – L'Hôpital's rule, exponential growth/decay	10/04 – Applications of Integration: area, volume
10/09 – Fall Break	10/11 – Integration techniques I
10/16 – Quiz 2	10/18 – Integration techniques II
10/23 – Linear algebra	10/25 – Improper integrals
10/30 – Polar coordinates	11/01 – Double integrals I
11/06 – Double integrals II	11/08 – Quiz 3
11/13 – Triple integrals	11/15 – Jacobians I
11/20 – Jacobians II	11/22 – Thanksgiving Break
11/27 – Partial derivatives	11/29 – Limits (MGF, Poisson, Normal, etc.)
12/04 – Likelihood	12/06 – Quiz 4

Note #1: All quizzes & exams will be closed book; students will be permitted to bring in an index card.

Note #2: The last day that a student may withdraw without a penalty grade of "WF" is Friday, November 2nd