MATH 1134-01: CALCULUS II

INSTRUCTOR: **Angela Gallant, LA 121, (651) 450-3646**

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ROOM & TIME: **HH 307 10 – 10:25 AM, MWF**
OFFICE HOURS: **11:30 AM – 12:30 PM MWF and 5:00 – 5:50 p.m., MW**

REQUIRED TEXT: Access to WebAssign is required ($75 for access to homework and eBook at www.webassign.net) . You may access the book electronically through the WebAssign site if you prefer not to purchase a hard copy of the text.
Calculus of a Single Variable, Early Transcendentals (5^{th} Edition) by Larson & Edwards

TECHNOLOGY REQUIREMENTS: Use of a graphing calculator and Maple will be embedded throughout the course. Maple is available as a free download through the library.

PREREQUISITE: Recommendation based on the placement exam or grade of C or better in Math 1133 (Calculus I)

COURSE DESCRIPTION: This is the second course in the two-semester sequence of single variable calculus. The topics include applications of the integral: area, volume, surface area, center of mass, work, liquid pressure and arc length; techniques of integration; improper integrals; conics; calculus in polar coordinates; calculus involving parametrically-defined curves; and infinite series. Familiarity with a computer algebra system, such as Maple, is expected. Use of technology will be embedded throughout the course.

COURSE OUTCOMES:
1. Demonstrate the ability to solve various applications of the integral.
2. Demonstrate the ability to use polar coordinates and to apply methods of calculus within the polar coordinate system.
3. Demonstrate the ability to sketch parametrically-defined curves and to apply methods of calculus to parametrically-defined curves.
4. Demonstrate the ability to determine convergence/divergence of infinite series of constant terms as well as to power series.
5. Develop power series representative of non-algebraic functions.
6. Evaluate definite and indefinite integrals using various techniques including the use of tables and technology.

MnTC: This course satisfies Goal 2 and Goal 4 of the Minnesota Transfer Curriculum.

CLASS FORMAT:

Class time will be mainly lecture interspersed with calculator and computer demonstrations. Occasionally there will be some group work and question – answer sessions. I have typed up course notes that I will follow fairly closely. Those notes are available on our class D2L site. Occasionally, supplemental online lectures will be posted on the D2L site.

HOMEWORK:

Homework will be a combination of online assignments using Enhanced WebAssign and problems from the textbook. The WebAssign problems will account for a portion of your grade (up to 4 points per assignment). A list of problems from the textbook is provided. For the most part, problems from the text are similar to those included in the WebAssign system and should be done for extra practice. Your seven lowest homework scores will be excluded from the final grade calculation.

Points will be assigned as follows:

90% - 100%:	4 points
70% - 89.99%:	3 points
50% - 69.99%:	2 points
30% - 49.99%:	1 points
<30%:	0 points

The class key for our course on WebAssign is: inverhills 3572 3982

EXAMS:

Exam 1 (100 points) will cover Sections 6.3, 7.1 – 7.5 and 7.7 (Applications of Integration)
Exam 2 (100 points) will cover the material from Chapter 8 (Integration Techniques, L'Hopital's Rule)
Exam 3 (100 points) will cover 9.1 – 9.10 (Sequences & Series)
Exam 4 (75 points) will cover 10.1 – 10.5 (Conics, Parametric Curves, Polar Equations)
Final Exam (150 points) will be a comprehensive exam covering the material from the entire course.

IN-CLASS QUIZZES: In-class quizzes will be announced in advance and will be worth 15 points each. Your lowest 2 quiz scores will be dropped to account for unavoidable absences. *Quizzes may not be made up.*

GROUP ASSIGNMENTS: There will be several take-home group assignments worth 20 points each. Most of these assignments will involve the use of Maple and/or graphing calculators.

CHEATING:

Any student caught cheating will receive a score of zero for the assignment on which the cheating occurs. A second violation will result in a failing grade for the course.

Final grades will be assigned according to the following scale:

90—100 % A 80 – 89.9% B 70 – 79.9% C 60—69.9% D

<60% F

MISCELLANEOUS:

- If you are unable to take an exam at the time the exam is to be administered, you **MUST inform me in advance if you wish to make up the exam**. (Voice mail message is acceptable.) If you fail to notify me PRIOR to the exam time, you will not be allowed to make up the exam. Exceptions will be made only in rare circumstances according to the instructor's discretion.
- There are **no retakes of any of the exams**.
- The assigned homework for this course typically requires around **2 hours of work outside of class for each hour spent in lecture**. So, PLAN to spend time learning outside of class. You should learn FAR more outside of class as you spend time with the problems than you learn in class becoming familiar with new techniques.
- The last day to drop this course for a grade of "W" is November 25, 2014.
- I would like to make sure that all the materials, discussions and activities that are part of the course are accessible to you. If you would like to request accommodations or other services, please contact me as soon as possible. It is also possible to contact the Disabled Student Services Office, L-224; phone, 651/450-8628; TTY, 651/450-8369.

I want you to pass this course. The biggest key to your success will be getting into a pattern of completing your homework in a timely manner. Working at the math center on a regular basis is a great way for you to get your questions answered and to get to know other students in the class. <u>This course is not easy</u>. A pattern of hard work established early on makes success much more likely.

Section	Title	Page	Problems
	EXAM 1 MATERIAL		
7.1	Area Between Curves	p. 452	1 – 55 odd, 65, 69, 75, 77, 87, 93
7.2	Volume: The Disk Method	p. 463	1 – 41 odd, 45, 47, 57, 67 – 74
7.3	Volume: The Shell Method	p. 472	1 – 29 odd, 35, 37, 41, 43, 47, 49
7.4	Arc Length and Surfaces of Revolution	p. 483	1 – 35 odd, 39 – 45 odd, 63
7.5	Work	p. 493	1 – 41 odd
7.6	Centroids	p. 506	13 – 29 odd, 45 – 48
7.7	Fluid Pressure and Fluid Force	p. 511	1 – 27 odd

	EXAM 2 MATERIAL		
8.1	Basic Integration Rules	p. 522	1 – 49 odd, 59 – 85 odd
8.2	Integration by Parts	p. 533	1 – 35 odd, 47 – 69 odd (skip 53, 59), 73 – 78 all, 79 – 85 odd, 103
8.3	Trigonometric Integration	p. 542	5 – 17 odd, 25 – 41 odd, 51 – 71 odd, 91
8.4	Trigonometric Substitution	p. 551	5 – 15 odd, 21 – 51 odd, 73, 75 81
8.5	Partial Fractions	p. 561	1 – 45 odd, 62
8.6	Integration by Tables and Other Techniques	p. 565	1 – 49 odd, 63 – 69 odd, 83
8.7	Indeterminate Forms and L'Hopital's Rule	p. 576	1 – 65 odd, 67 – 70 all, 73, 75, 77
8.8	Improper Integrals	p. 587	1 – 53 odd, 55, 56, 58, 59, 60, 61, 63, 64, 65, 66
	EXAM 3 MATERIAL		
9.1	Sequences	p. 604	1 – 111 odd, 119 – 125 odd
9.2	Series	p. 612	1 – 87 odd, 95, 99, 109, 117, 121, 125, 129
9.3	Integral Test and *p*-series	p. 620	1 – 47 odd, 61 – 71 odd, 75, 79 – 89 odd
9.4	Comparisons of Series	p. 628	1 – 35 odd, 45, 47, 53 – 59 odd
9.5	Alternating Series	p. 636	1 – 29 odd, 33 – 71 odd, 79 – 87 odd
9.6	Ratio and Root Tests	p. 645	1 – 85 odd, 87, 91, 97, 101
9.7	Taylor Polynomials and Approximations	p. 657	1 – 4 all, 5 – 39 odd
9.8	Power Series	p. 666	1 – 47 odd, 49 – 52 all, 63, 65, 69, 71, 79, 81
9.9	Representation of Functions by Power Series	p. 674	1 – 25 odd
9.10	Taylor and MacLaurin Series	p. 685	1 – 9 odd, 15 – 29 odd, 47, 48
	EXAM 4 MATERIAL		
10.1	Conics and Calculus	p. 704	1 – 8 all, 9 – 63 every other odd, 65 – 75 odd
10.2	Plane Curves and Parametric Equations	p. 716	1 – 35 odd, 39 – 42 all, 43 – 49 odd, 51, 55, 59, 66, 69, 71
10.3	Parametric Equations and Calculus	p. 725	1 – 51 odd, 57
10.4	Polar Coordinates and Polar Graphs	p. 736	1 – 21 odd, 23 – 26 all, 27 – 51 odd, 59, 65, 73, 77
10.5	Area and Arc Length in Polar Coordinates	p. 745	1 – 25 odd, 29 – 39 odd