LAKE SUPERIOR STATE UNIVERSITY

College of Natural and Mathematical Sciences **Fall 2011**
MATH 151 Calculus I (4,0) **4 Credits**

Prerequisites: High school mathematics that includes two years of algebra, one year of plane geometry and one-half year of trigonometry and equivalent/satisfactory score on ACT or Placement Exam, or MATH 140 with a grade of C or better or MATH 111 and MATH 131 with grades of C or better.

Instructor: George Voutsadakis
CASET Hall, Room 206J
906-635-2667
gvoutsad@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
9:00-10:00	9:00-10:00	1:00-2:00	9:00-10:00	9:00-10:00

Required Texts: Essential Calculus: Early Transcendentals; Stewart. (ISBN: 0495109576)

Course Description: Limits, continuity and inverse functions. Logarithmic and exponential functions. Differentiation and applications of the derivative. L'Hopital's rule. Inverse trigonometric functions. Integration and the definite integral.

Course Goals: Provide students with an introduction to differential and integral calculus and prepare students to go on to Calculus II.

Course Objectives: At the conclusion of MATH151 students will be able to:

1. Describe the concept of limit intuitively; find limits graphically, algebraically, analytically, and using L'Hôpital's rule; apply limits to the concepts of continuity, derivative, and definite integrals and then interpret the results.
2. Describe intuitively the concept of continuity and state rigorously the definition using limits; identify intervals of continuity and points of discontinuity in particular functions; and state, interpret, and apply the Intermediate Value Theorem.
3. Describe intuitively the concept of derivative and state rigorously the definition using limits; find and interpret derivatives using the definition, the various rules available, implicit differentiation and related rates; apply to the analysis of functions (increasing, decreasing, optima); and state, interpret, and apply the Mean Value Theorem.
4. Use area and average value to describe intuitively the concept of integration; define integration rigorously using limits; find anti-derivatives using integration rules and substitution; state and interpret the Fundamental Theorem of Calculus and use this theorem to evaluate definite integrals; and apply integration techniques to problems involving rates.
5. Solve application problems by drawing sketches, where applicable, and using English statements to name variables, find equations, define parameters, and create models; then apply algebra, trigonometry, and calculus methods to solve for the unknown values, and report the solution.

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Grading Scale and Policies:
Point Values:

Quizzes	100 points
Exams (4 worth 100 points each)	200 points
Final Exam	100 points
	Total 400 points

You will be graded on correct methodology. This means that if you provide an answer but show no work or your work is incorrect, you will not receive credit. You must follow directions. Your solutions must be written in a connected, step-by-step logical fashion and all variables should be clearly defined. If your solution is not written clearly, you will not receive full credit. In many cases, setting up the correct mathematical formula and using proper mathematical procedures and notation while solving a problem will be just as important as computing a numeric answer.

Grading Scale:

94-100	A	70-74	C
90-93	A-	65-69	C-
87-89	B+	60-64	D+
84-86	B	55-59	D
80-83	B-	50-54	D-
75-79	C+	0-49	F

***Ground Rules*:**

1. Calculator: You will need a graphing calculator. The TI-83/84 Plus is the recommended calculator for this course. This is the one your instructor will be using, and your instructor may not be able to provide assistance with other models. All other electronic devices, including computers, PDAs and cell phones, must be turned off for all class lecture sessions.
2. Purpose of Lecture: Lectures are an opportunity for students to ask questions and seek clarification on material. This implies student preparation has been accomplished prior to class. Lecture is also the opportunity for the instructor to coordinate coverage of the material and present material that is historically or potentially difficult. It does not negate student preparation or study.
3. Attendance Policy: Attendance is encouraged. Experience shows that students who attend regularly and participate by asking questions and thinking about answers tend to do better.
4. Make-up Policy: Each exam should be taken at the designated time. Make up exams will only be allowed in case of University sanctioned absences (such as athletic travel). Every other request should be backed by a written proof of emergency. Traveling to see family, friends or for vacation does not constitute valid reasons for requesting a make-up exam.
5. Academic Integrity: Students are expected to perform all assigned work themselves. Any

form of cheating or plagiarism will be handled in accordance with the Academic Integrity Procedures. Violations of the *University Academic Integrity Policy* may result in an F for the course grade.

6. **Testing:** Use of head phones, cell phones and hats during exams is prohibited.

***University Policies and Statements*:**

The Americans with Disabilities Act & Accommodations
In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)
If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

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Tentative Course Outline

Week	Dates	Monday	Tuesday	Thursday	Friday
1	08/29/11	1.1	1.1, 1.2	1.2	1.3
2	09/05/11	BREAK	BREAK	1.4	1.4
3	09/12/11	1.5	1.5	1.6	Exam 1
4	09/19/11	2.1	2.2	2.3	2.3
5	09/26/11	2.4	2.5	2.5	2.6
6	10/03/11	2.7	2.7	2.8	Exam 2
7	10/10/11	3.1	3.2	3.2	3.3
8	10/17/11	3.4	3.4	3.5	3.6
9	10/24/11	3.7	3.7	4.1	4.2
10	10/31/11	4.2	4.3	4.4	Exam 3
11	11/07/11	4.4	4.5	4.6	4.6
12	11/14/11	4.7	4.7	5.1	5.2
13	11/21/11	5.2	5.3	BREAK	BREAK
14	11/28/11	5.4	5.4	5.5	Exam 4
15	12/05/11	5.5	6.1	6.1	6.2

Homework:
The homework exercises for each section are below. You should spend a lot of your math study time doing homework. If you are struggling with your homework seek help from your instructor or the tutors in the Learning Center.

Section 1.1: 1, 3, 5, 17, 19, 33, 37, 39
Section 1.2: 11, 17, 35, 37, 39, 45, 47
Section 1.3: 1, 3, 5, 7, 9, 13, 15, 17, 21
Section 1.4: 1, 10, 11, 15, 17, 21, 23, 27, 29, 33, 35, 37, 43, 45
Section 1.5: 3, 5, 11, 13, 15, 17, 19, 21, 27, 33, 35, 37, 41
Section 1.6: 1, 7, 9, 13, 15, 19, 21, 23, 25, 29, 31, 32, 33

Section 2.1: 1, 5, 7, 9, 11, 15, 17, 19, 39
Section 2.2: 1, 3, 5, 9, 17, 21, 27, 29, 33
Section 2.3: 1-31 odd, 35, 41, 43, 45, 51
Section 2.4: 1-13 odd, 17, 21, 23, 29, 33, 37
Section 2.5: 3, 5, 9, 13, 15, 21, 25, 29, 31, 35, 39, 43, 57
Section 2.6: 1, 3, 7, 11, 17, 19, 23
Section 2.7: 1, 3, 7, 9, 11, 13, 23, 29, 35
Section 2.8: 1, 3, 17, 19, 21, 23

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Section 3.1: 5, 7, 9, 13, 15, 21, 23, 25, 27, 29
Section 3.2: 1, 3, 5, 7, 15, 17, 21, 25, 31, 33, 43, 45, 47, 49, 51, 53, 61, 63, 69, 73
Section 3.3: 1-13 odd, 17-25 odd, 29-33 odd, 37, 41, 45, 49, 53
Section 3.4: 1, 3, 9, 11, 13, 17
Section 3.5: 1, 3, 5, 9, 17, 19, 21, 23, 25, 27
Section 3.6: 1, 3, 5, 17, 27-39 odd
Section 3.7: 1, 5, 9, 13, 17, 21, 25, 29, 31, 33

Section 4.1: 1, 3, 5, 9, 11, 15-37 odd, 41, 47
Section 4.2: 1-17 odd
Section 4.3: 1-9 odd, 13, 17, 23, 25, 29, 33, 35
Section 4.4: 1, 4, 9, 13, 23, 27, 37, 39
Section 4.5: 1, 7, 13, 15, 19, 21, 45
Section 4.6: 1, 5, 7, 11
Section 4.7: 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45

Section 5.1: 1, 3, 5, 7, 9, 13
Section 5.2: 1, 5, 9, 13, 17, 25, 31, 33
Section 5.3: 1-27 odd
Section 5.4: 3, 5, 7, 8, 9, 11, 15, 17, 19
Section 5.5: 1-13 odd, 17, 23, 27, 31, 35, 39, 43, 49