



LAKE SUPERIOR STATE UNIVERSITY

College of Natural, Mathematical and Health Sciences
MATH251.001 Calculus III (4,0)

Spring 2013
4 Credits

Prerequisites: A grade of C or better in MA 152 Calculus II, or the equivalent.

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

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
9-9:50 a.m.	9-9:50 a.m.	2-2:50 p.m.	9-9:50 a.m.	9-9:50 a.m.

Required Texts: Essential Calculus: Early Transcendentals, by James Stewart, Brooks Cole, 1st edition, ISBN: 0495109576, 2006.

Course Description: In this course we cover analytical geometry, three-dimensional space, vectors, calculus of vector-valued functions, partial derivatives, and multiple integrals.

Course Goals: Provide students with an introduction to multi-dimensional calculus.

Course Objectives: At the conclusion of MATH251 students will be able to:

1. Recognize standard equations of three dimensional surfaces in rectangular, cylindrical, and spherical coordinates; describe and sketch their graphs and traces; and find the equations of spheres, lines and planes.
2. Apply 2- and 3-dimensional vector arithmetic including dot and cross products and projections; compute vector length; analyze vector-valued functions to find tangents, normals, and binormals; and determine arc length and curvature.
3. Compute partial derivatives of functions of two or more variables; and apply partial derivatives to gradients, directional derivatives, and approximation and optimization problems.
4. Compute double and triple integrals in rectangular, cylindrical, and polar coordinates; identify when to use each coordinate system; and translate from one system to the other.
5. Create and solve mathematical models involving area, volume, mass, moments, work, and optimal design, using dimensional analysis, vectors, partial derivatives or multiple integrals.



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Grading Scale and Policies:

Point Values: *On Mondays and Fridays you will be asked to present problems on the board. Your participation and performance will amount to 40% of your final grade. Another 40% will be based on the 4 50-minute Tests and the remaining 20% will be attributed according to your score in the Final Exam.*

Problem Solving Presentations	200 points
Tests (4 worth 50 points each)	200 points
Final Exam	100 points
Total	500 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. 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. Your instructor reserves the right to ask you to solve some/all problems in some/all assignments/exams etc. without using calculators depending on the nature of the work assigned. All other electronic devices, including computers, PDAs and cell phones, must be turned off for all class lecture sessions.
- 2. Purpose of Lecture:** Class sessions are an opportunity for you to ask questions and seek clarification on material and for the instructor to present new material. To get the most out of meetings, you should prepare by doing the assigned homework from the previous meeting and reading the next section.
- 3. Attendance Policy:** Attendance is strongly encouraged, since participation constitutes 40% of your final grade. If you miss a class, or are late, you are still responsible for class notes and assignments. Attendance and class activities will affect your final grade.



4. Make-up Policy: Each exam should be taken at the designated time. In the event of a schedule conflict with a university function, dental/physician's appointment, or an emergency, you must notify me in advance and arrange to take a make-up test as early as possible. **NO make-up exams will be allowed for unexcused or insufficiently documented absences. I WILL BE STRICTLY ENFORCING THIS POLICY FOR ALL.**

5. Academic Integrity: Students are expected to perform all assigned work themselves. Working on homework assignments with one or more classmates is a great way to learn. However, you should always write up your own solution, without the aid of another person or another person's solution unless explicitly authorized to the contrary. 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 and/or further disciplinary action as required by university policies and procedures.

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

University Policies and Statements:

Online and Blended Course Attendance Policy

Students in online or blended classes are required to log in to the Course Management System (Blackboard, Wimba, TaskStream, etc.) and complete at least one "Academic Related Activity" within the Add/Drop period.

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	Week of	Mon	Tue	Thu	Fri
1	7-Jan	9.1	9.3	9.5	9.5
2	14-Jan	10.1	10.2	10.3	10.3
3	21-Jan	10.4	10.4	10.5	10.5
4	28-Jan	10.6	10.6	Review	Test 1
5	4-Feb	10.7	10.7	10.8	10.8
6	11-Feb	10.9	10.9	11.1	11.1
7	18-Feb	11.2	11.2	11.3	Test 2
8	25-Feb	Spring Break			
9	4-Mar	11.3	11.4	11.5	11.5
10	11-Mar	11.6	11.6	11.7	11.7
11	18-Mar	11.8	11.8	12.1	Test 3
12	25-Mar	12.2	12.2	12.3	12.3
13	1-Apr	12.4	12.4	12.5	12.5
14	8-Apr	12.6	12.6	Review	Test 4
15	15-Apr	12.7	12.7	12.8	12.8
Finals	22-Apr	Final Exam 7:30-9:30 Monday, April 22			

Assignments (Subject to possible change): *Please do these assigned exercises as soon as you possibly can after lecture, because this is your best way to reinforce your learning. If you cannot complete all the problems, do at least one from each group (one of each type). Please compare your work with a classmate and also the published solution.*

Section	Exercises	Section	Exercises
9.1	1-17 odd, 31	11.3	1, 7-23 every other odd, 29, 31, 37, 39, 43, 47, 51
9.3	1, 3, 5, 13, 17, 23, 29, 33	11.4	1, 3, 5, 11, 13, 19, 21, 25, 27, 29
Handout	Rev. of Conics: problems 5, 7, 11, 16, 19, 24	11.5	1-7 odd, 17-25 odd, 33, 34
9.5	1, 3, 5, 9, 11, 13, 15		
10.1	1, 3, 5, 9, 11, 13, 15, 19, 21-29 odd	11.6	1-17 odd, 21, 25, 31, 33, 37, 45
10.2	1-25 odd	11.7	1-11 odd, 23, 25, 31, 33, 39
10.3	1-9 odd, 13, 15, 17, 21, 23, 25, 29, 31, 33	11.8	1-15 odd, 25, 27, 33
10.4	1-15 odd, 23, 25, 27, 29, 31, 33, 39	12.1	11-25 odd, 37
10.5	1-37 odd, 45, 47	12.2	1-25 every other odd, 27, 31, 35, 37, 39, 41
10.6	1-31 odd	12.3	1-13 odd, 17, 21, 23, 25
10.7	1-15 odd, 17-22, 33-51 odd, 59-61 odd	12.4	1-17 odd
10.8	1, 3, 7, 8, 11, 13, 15, 17, 19, 21, 23, 25, 27, 35, 37	12.5	3-15 odd, 31, 35, 37, 39
10.9	1-11 odd, 15, 17, 19, 21, 23, 29, 31	12.6	1-23 odd
11.1	1-19 odd, 25-33 odd, 41-46, 47, 49	12.7	1-25 odd
11.2	3-17 odd, 21, 23, 25, 29	12.8	1-15 odd