

**Calculus and Analytic Geometry III, Math 2415**  
<http://www.math.lamar.edu/faculty/maesumi/list.html>

All information is subject to change. Attend all classes, check your email, and course web site regularly.

**Contact Information:** Instructor: Mohsen Maesumi, Room: Lucas 206, Phone: 409-880-8766, preferred E-mail: maesumi@gmail.com (other addresses may delay response).

**Coordinates:** MATH 2415-02 fall 2009 MWF 10:10-11:00 R 11:00-11:50 Lucas 117. Note that Thursday classes may be extended to 11:00-12:15.

**Prerequisites:** Satisfactory completion of calculus I and II, preferably in the last two long semesters with a real grade of B or better. Knowledge of differentiation and integration formulas and concepts, as well as Chapter 12.

**Class Format:** This is a hybrid course. Lectures will be delivered on-line, as hand-written in digital ink with narration. Class time will be used for problem presentations by students.

The advantages of using a hybrid course format are:

You can replay the video to understand the lecture better or to review it with a classmate.

You can pause the video, work a problem yourself, and compare with the presented solution.

You can view the video at your own place, time, and speed.

You get access to animation, graphing and useful links.

You get the most complete lecture notes.

Most importantly, by putting the lectures on-line, instructor's time in class will be freed for extensive interaction with students. Errors can be spotted in real time and corrected.

Hands-on training can become a reality.

**Exams:** Four sectional tests on Thursdays September 10, October 1, 22, November 12.

Cumulative Final, counts as two tests, on Monday December 14, 11-1:30.

You may be allowed to use a formula sheet for a portion of certain exams. In that case you put your name on the formula sheet and put it on instructor's table before test starts.

Take the first portion of test without the formula sheet. Once you are done with the first part pick up the second part and the formula sheet. The formula sheet and all other papers should be given to instructor upon completion of test.

Some self-test quizzes may be given, especially on Thursdays, for review purposes. These quizzes will give you a chance to see where you stand. They will be marked by your neighboring classmates.

**Office Hours:** MWF 11:15-12:00, 1:15-2:15.

If you are coming to office consider bringing exams, notebooks and supporting material.

If you want to leave a message on phone make it brief and speak clearly. If you send email keep a copy and e-mail it again if you do not get a reply within one business day. Write Calculus III, or MATH 2415 in the Subject line and make sure to sign the e-mail by writing your full name (otherwise I may not be able to tell who the email is from.)

**Grading:** In-class presentations and lecture notes each have a grade that can help your final grade as follows.

Average Score	Presentation	Lecture Notes	Final Grade
90-100	-	-	A
80-89	A	A	A
80-89	-	-	B
70-79	B	A	B
70-79	-	-	C
60-69	B	A	C
60-69	-	-	D
50-59	-	B	D

**Style:** Handwriting, presentation, and accuracy count toward your grade for tests, lecture notes, and class presentations. It is very important that you write properly and master efficient ways of explaining technical information. More extensive requirements will be detailed on the web site of the course and on other handouts.

**Class Participation:** Your class participation grade depends on the following factors

- Student views the videos and studies the text.
- Student can be engaged in a discussion related to the home work problems.
- Student presents solutions to exercises on board.
- Presented solution is correct.
- Presented solution is well-explained.
- Presented solution is done from scratch (not copied from homework notebook).
- Presented solution uses correct mathematical grammar and notation.
- Student can expand on the problem and its solution.
- Student gives his/her exercise note book to instructor before starting presentation.

Copying solution from solution manual or other sources is not acceptable.

**Lecture Note:** Your lecture note grade depends on the following factors

- Note is handwritten clearly (not printed) on binder paper.
- Note is complete and shows the full content of videos (title, section, verbal description, formulas, graphs, examples, problems).
- Note is handed in a thin folder for daily check ( hand in the latest assignment even if it has been checked already, otherwise you will be counted absent). Thick binders, notebooks, etc are not acceptable.
- Note is handed in a regular binder for cumulative check towards the end of semester.

**Minimal Requirement:** To receive the extra points student

- must submit his/her test e-mail at the beginning of the semester with the required and complete information.
- must submit his/her course evaluation at the end of the semester.

**Text and Syllabus:** Calculus, Early Transcendentals, sixth edition, by James Stewart. We will do Chapters 13-16. If you use an earlier edition please cross check page and problem numbers with a classmate. students are to review Chapter 12 before course starts.

**Audience:** This course is for students in math, engineering ( especially EE, Civil, ME), physics, chemistry, and bio-chemistry.

**Course Objectives:** Successful completion of this course means the students will

(a) Understand and visualize vector functions and space curves, their derivative, integral, length, curvature.

(b) Understand velocity and acceleration associated with motion on space curves.

(c) Understand partial derivatives, tangent planes to surfaces, gradient vector, directional derivatives.

(d) Understand optimization methods and Lagrange multipliers.

(e) Understand iterated integrals in cartesian and polar coordinate systems and their applications in calculation of surface areas, center of mass, and moments of inertia.

(f) Understand triple integrals in cartesian, polar and spherical coordinate systems.

(g) Appreciate the major theorems of multi-variable calculus: Green's Theorem, Stokes' Theorem, Divergence Theorem,

**Hardware and Software Requirements:** You are advised to make sure you have all the necessary parts in place early on. You will need access to an on-line Windows personal computer, Windows Media Player (or a compatible software), Adobe Acrobat Reader, and speakers or a headset. To view optional demos several free software will be needed as listed on the web site. There are many computer labs on campus for your use: Math Computer Lab Lucas 209, Gray library Media Room on 1st and 7th floor, and Computer Science Labs on 2nd floor of Maes Building. In Gray Library you can check out a headset, but in other places you need to bring your own. Most likely you already have a headset, if not, you can purchase an inexpensive one for school use.

**Grade Change Requests:** In case of error in your grade let me know within one week of the end of semester.

**Absence and Exam Make Up Policy:** If you are absent from an exam let me know as soon as possible and be prepared to show written proof of emergency. An individual decision will be made in each case.

**Important dates:**

Drop day 1, automatic Q, September 28. Contact instructor by September 21.

Drop day 2, Academic Penalty, November 2. Contact instructor by October 26.

Note: There is "a maximum of 6 dropped courses" rule.

**Email:** I will contact you using the email you have on file at my.lamar.edu. If you want to receive your email at a different address then you should fill “the forward form”. Go to my.lamar and look for the second item in the last column.

All students are REQUIRED to have a working e-mail address and MUST send a test e-mail within 10 days. Send the test email as:

To: maesumi@gmail.com

Subject: Calculus III or MATH 2415

For text write your information as follows

First name:

Last name:

Particular circumstances (add any pertinent information I need to know about)

A list of the last four math courses: course title/date/location/grade

Every email must contain first and last name as well as course title.

**Calculator Policy:** You are allowed to use a basic scientific calculator on all tests. Basic calculators cost about \$10, have few lines of display, are not capable of drawing graphs, solving equations, differentiating, or integrating. Use of an advanced or graphing calculator will reduce your grade by 50 points. You need to purchase your calculator early and get used to its functions. Do keep the manual or find its web site. Some calculators have the so-called natural language display (e.g. they can show  $\frac{\sqrt{2}}{3}$  just as in text). Casio FX-115ES and Sharp EL-W516 are two calculators below \$20 with this ability.

**Solution Manual Policy:** Do not bring it to class. Solutions copied from solution manual are not acceptable. You should be able to reproduce your solutions from scratch.

### **How to Prepare for Tests:**

- 1- View video lectures regularly.
- 2- Rewrite the lecture in your own words.
- 3- Pause the video and try the presented problem yourself.
- 4- Identify problems for which there is a complete solution in video, text, or class lecture notes. Write the full statement of the problem on an index card, indicate where the solution is to be found, and note the allotted time for its solution. Put the cards in a box. To review before the test pull ten questions randomly from the box and give yourself a timed test. Compare your solution with the correct solution. Identify your incorrect answers and review the relevant sections. Try to test a second time.

**No:** Food, drinks, ice, gum, candy, chips, texting, ipod, etc.

**Academic Integrity:** University rules apply. Have ID with you at all times. Caps, hair, hand, sunglasses, paper, slouching, etc, should not cover your face during tests. Look at your own papers at all times, do not display your papers to others. Copying from solution manual or end of book is not acceptable. One student per table during exams.