Analytic Geometry and Calculus - MTH 32, Sec. E01 (43514)

Professor: Dr. Luis Fernández
Class times and room: Tu, Th, 6:00pm to 8:45pm, NL-131.
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Overview of the course.

This course will provide some basic tools that you will need in your studies in maths and sciences. **It is important that you master these tools as you will need them in your next courses.**

Some resources:
- **Classes:** One purpose of attending classes is to learn faster than if you study on your own with a book. In addition, classes have the advantage of being interactive: you can ask if you need a clarification. To take full advantage of classes you need to do a lot of work on your own before each class (by reviewing the previous class and looking ahead) and after each class (by making sure that you understood everything and working on the exercises). Otherwise classes are quickly forgotten.
- **Math Tutorial Lab:** The Math Tutorial Lab is a room where you will find permanent tutors for all maths courses. If you want to have the opportunity to ask questions as they arise while you do your homework, this is the place to go. It is located at CP 303 and opens 10–8 Monday to Thursday, 10–5 Friday, 10–3 Saturday and Sunday.
- **Meetings with the instructor:** If you have not understood something well and need help, or for any other matters concerning the course, you can also talk to the instructor. Please write an e-mail to the address above to arrange a time, or go to office hours.

Textbook:
- *Calculus*, by J. Stewart. Brooks/Cole, 8th Edition. (NOTE: ANY edition after 5th IS FINE TOO, AND MUCH CHEAPER).
- Students who do not need Math 33 may use *Single Variable Calculus*, by James Stewart. Brooks/Cole, 8th Edition (again, ANY after 5th is fine too).
- **A scientific calculator (with trigonometric functions sin, cos, etc), is also required.**

Student's responsibilities
- To use the **resources** available (some are above) to attain the main goal: <u>to learn</u>.
- To **prepare** each class by studying the material in the previous class, solving the recommended exercises and reading ahead in the text (or in internet) the material that will be presented.
- To work on many **exercises**, as it is impossible to learn mathematics without doing so. The main purpose of the exercises is not quite to find the answer, but to learn from them. Therefore, if you work in an exercise for a long time without finding a correct answer, do not feel frustrated, instead consider how much you have learned in the process.
- To **ask** questions during classs or tutorials about anything that has not been understood. EVEN IF YOU THINK THAT YOUR QUESTION IS TOO TRIVIAL, I GUARANTEE THAT MANY OTHER STUDENTS WILL BENEFIT FROM THE ANSWER. So when in doubt do your classmates a favor and ASK!
- To **be in class on time** and do all the in-class exams. Attendance will be taken 5 minutes after the hour. Students arriving after this time will be marked as 'late'. **Students with more than 6 absences will not be allowed to take the in-class tests.** Their grade will only be based on the final exam.

Instructor's responsibilities
- To act as *facilitator* of the learning process of the students, and to assist with any question that students may have about the material.
- To give tests and exams of appropriate difficulty. To grade tests and exams promptly and explain the students the meaning of their grades.

Classroom Rules
- Cell phones, music devices and laptops are not allowed during class time.
- In-class tests and quizzes will not be repeated. The only exception is if the instructor receives notice of the absence (via e-mail, telephone message, friend, etc.) **on the day of the test or quiz at the latest**.

Exams and homeworks:
- There will be three **in-class tests** during the term, **each worth 30%** of the final grade. Only the best 2 grades will be considered, **totaling 60%**.
- Some weeks there may be a short quiz based on the homework assigned for that week. The grade for **quizzes and class participation will count as extra credit**.
- The **final exam** will count **40%** of the final grade.

Class plan and assigned exercises. MTH 32. Professor Luis Fernández

Use this to prepare each class in advance. Note that dates may change depending on how fast we advance.

DATE		SECTION	EXERCISES
Tu	1/30	5.1 Areas between Curves	**p. 362:** 1–29 odd
Th	2/1	5.2 Volumes	**p. 374:** 1–33 odd, 54–60
Tu	2/6	5.3 Volumes by Cylindrical Shells	**p. 381:** 1–25 odd
Th	2/8	6.1 Inverse Functions	**p. 406:** odd 1–15, 23–27, 35–43
Tu	2/13	6.2 Exponential Functions and Their Derivatives	**p. 418:** 1, 7–13 odd, 23–49 odd, 79-89 odd
Th	2/15	6.3 Logarithmic Functions	**p. 426:** 1–17 odd, 27–35 odd, 47, 49, 51
Tu	2/20	NO CLASS: MONDAY SCHEDULE	
Th	2/22	6.4 Derivatives of Logarithmic Functions	**p. 436:** 1–29 odd, 43–53 odd, 71–81 odd
		REVIEW FOR TEST 1	**p. 393:** 1, 7, 9, 15, 23, 25. **p. 505:** 5–47 odd, 63–77 odd, 93–105 odd
Tu	2/27	**FIRST IN-CLASS TEST**	
Th	3/1	6.6 Inverse Trigonometric Functions	**p. 481:** 5–13 odd, 23–35 odd, 43,45,59–69 odd
Tu	3/6	6.7 Hyperbolic Functions	**p. 489:** 7–23 odd, 31–45 odd, 59–67 odd
Th	3/8	6.8 Indeterminate Forms and L'Hospital's Rule	**p. 499:** 1–4, 5–65 odd, 71–74
Tu	3/13	7.1 Integration by Parts	**p. 516:** 1–41 odd, 47–54.
Th	3/15	7.2 Trigonometric Integrals	**p. 524:** 1–31 odd
Tu	3/20	7.3 Trigonometric Substitution	**p. 531:** 1–29 odd
Th	3/22	7.4 Integration of Rational Functions	**p. 541:** 1–29 odd, 39–49 odd by Partial Fractions
		7.5 Strategy for Integration	**p. 547:** 1–59 odd
Tu	3/27	REVIEW FOR TEST 2	**p. 577:** 1–25 odd, 41–49 odd
Th	3/29	**SECOND IN-CLASS TEST**	
Tu	4/3	NO CLASS: SPRING RECESS (3/30 to 4/8)	
Th	4/5	NO CLASS: SPRING RECESS (3/30 to 4/8)	
Tu	4/10	7.8 Improper Integrals	**p. 574:** 1, 5–31 odd, optional 49–54
Th	4/12	8.1 Arc Length	**p. 588:** 1–17 odd
Tu	4/17	8.2 Area of a Surface of Revolution	**p. 595:** 1–15 odd, 27
Th	4/19	10.3 Polar Coordinates	**p. 706:** 1–11 odd, 15–25 odd 29–45 odd
Tu	4/24	10.4 Areas and lengths in Polar Coordinates	**p. 712:** 1–31 odd, optional 45–48
Th	4/26	REVIEW FOR TEST 3	**p. 730:** 9–15 odd, 31–39 odd, 45–55 odd
Tu	5/1	**THIRD IN-CLASS TEST**	
Th	5/3	10.5 Conic Sections	**p. 720:** 1–47, odd
Tu	5/8	10.6 Conic Sections in Polar Coordinates	**p. 728:** 1–15 odd
Th	5/10	REVIEW FOR THE FINAL	
Tu	5/15	REVIEW FOR THE FINAL	

REMEMBER: The exercises listed correspond to the material that will be covered on the date they are listed.

Before each class, read the section that corresponds to that class and attempt some of the exercises. This way when you hear the explanations in the class you will understand the material much better.