MATH 181 – SPRING 2012
CALCULUS AND ANALYTIC GEOMETRY

Instructor: Alina Birca
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Office: Building 61 – Room 1658
Office hours: **TTh: 12:45 – 1:30 ; W: 11:00 – 12:00 ; F: 11:00 – 12:00 & 2:05 – 2:35**
Text: *Thomas' Calculus Early Transcendentals* (12th Edition) by Thomas, Weir, Hass
Section   # 40114 1:30 – 4:00 pm   Bldg 61 – Room 2319

Course Objectives
Upon completion of this course, the student will be able to:
- Use definite integrals to calculate areas between curves, volumes – including solids of revolution, work, the mean value of functions, arc lengths, areas of surfaces of revolution and other physics applications.
- Evaluate indefinite and definite integrals (proper and improper) using integration by parts, trigonometric identities and substitutions, partial fractions, tables, computer algebra systems and numerical techniques.
- Solve separable differential equations with applications.
- Plot curves parametrically and in polar coordinates, using calculus to compute areas, arc lengths, and slopes associated with these. Students will plot conic sections in Cartesian and polar coordinates.
- Test for convergence for sequences and series. Series convergence or absolute convergence will be determined using integral, comparison, alternating series, ration, and root tests. Determine representations of functions as power series including Taylor and Mclaurin series. Use power series in applications.
- Plot points, graph cylinders and quadratic surfaces, compute distances and give equations of lines and planes in three dimensional rectangular, cylindrical, and spherical coordinate systems. Perform vector operations, including linear combinations, dot and cross products and projections.
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Methods of Instruction
This course will combine lecture, teamwork, Maple projects and class discussion. Students will be required to do homework, group problems, quizzes, examinations, and Maple projects.

Attendance and Participation
Understanding math requires more than just reading a textbook. Listening and participating in the class activities are as important as solving problems. College policy requires that you attend every class meeting. Moreover, I do notice when you do not show up. If your grade is on a borderline, those with regular attendance are more likely to be on the higher side of the line. In addition, you miss the material from that day and that day's quiz. Do not be late to class. The homework is due at the beginning of the class. You may also miss the quiz if you are late. NOTE: You the student are responsible for dropping the course should you decide not to continue in it. If you stop attending and doing the work and you fail to drop, you will receive a failing grade in this course. **If you miss class, are late more than 15 minutes, or leave early during the add period, you will be dropped and someone on the wait list will be added. If you are absent three times or more, you may be dropped from class. Being late or leaving early counts as half a day.**

Prerequisites
There is an official prerequisite for this course (Math 180 – Calculus and analytic geometry I), and I expect that you demonstrate the calculus skills taught in Math 180, as well as college algebra and trigonometry skills. It is your responsibility to know the prerequisite material.

Study time & Extra help
You are expected to study two hours outside class for every hour in class. This means at least 10 hours per week on homework for this class. If you have trouble completing assignments or understanding the mathematics, get help as soon as you need it. My office hours and email are listed above. Free tutorial services are available at T-MARC in building 61, room 1314 (Monday - Thursday 9:00 am - 7:00 pm, Friday 9:00 am - 2:00 pm). On Saturdays, you may use the Learning Assistance Center, Building 6, room 101.

Late Work
Be prepared with all assignments on the day they are due. As a rule, I do not accept late written work nor are there any make up tests or quizzes.

Academic Honesty
Plagiarism or cheating will not be tolerated. There will be a zero on the assignment and risk failing the course.

Calculators
A graphing calculator will be necessary for some of the problems. You could rent a graphing calculator from T-MARC. No graphing calculators are allowed during the tests. No cell phones are allowed during the tests. If you have a phone or pager, please turn it to vibrate and sit close to the door in case you need to use it in an emergency. Thank you.

Organization, Grading and Requirements
You will need a 3-hole binder with 3 separators, labeled as follows:
LECTURES   **HOMEWORK**   **TESTS & QUIZZES**

- **LECTURES** – Pay attention in class to what I say and do, and make careful notes. In particular, note the problems I work on the board, and copy the complete solutions as well as the theory presented in each section. Work as neatly as you can. Write your symbols clearly, and make sure the exercises are clearly separated from each other. Do not hesitate to ask questions in class. It is not a sign of weakness, but of strength. There are always other students with the same question who are too shy to ask.

- **HOMEWORK** – Before you start on homework assignments, rework the problems I worked in class as well as all examples from the textbook. This will reinforce what you have learned. Make sure you check your previous work against the solution sections posted on my website. Print out the solutions from my website for your reference.

- Keep all quizzes and tests that are returned to you in your binder. Use them when you study for future tests and for the final exam.

Assignments in the course are divided into five areas and are worth a total of 1000 points. Those earning 900 points or more will be awarded an A, 800 to 899 points a B, 700 to 799 points a C, 600 to 699 points a D and less than 599 points an F.

Homework 100 points

Homework and reading will be assigned each day. You are encouraged to discuss assignments with your classmates; however, you are required to write up your work independently. Copied homework will not be tolerated and identical, or nearly identical, assignments will *share* a single homework score. Follow all directions in order to get full credit. Staple each section separately, as I might collect and grade only some of the assigned sections. I will also give you a 5 or 10-minute homework quiz. The homework quiz might be given every day. The homework quiz is given from the examples done in class and from the textbook examples. I will make every effort to address homework questions in class as time permits. Notes must be complete and neatly written. Read all the homework instructions on the homework sheet. Please feel free to come to my office hours or contact me by email if you need additional help.

Quizzes 200 points

Two quizzes will be given (see Tentative Class Schedule). They may be given at the beginning or at the end of the class. These quizzes will be similar to the exercises and examples done in class as well as homework problems assigned from the topics covered up to that point. For an exercise to be complete there needs to be a detailed solution to the problem. Do not just write down an answer. **No proof, no credit given!** Each quiz is worth 100 points.

Tests 400 points

Two tests will be given over the major areas addressed in the course. Each test is worth 200 points. For an exercise to be complete there needs to be a detailed solution to the problem. Do not just write down an answer. **No proof, no credit given!**

Activity Labs +20/-40 points

Two computer projects will be assigned during the semester. Information and due dates about them will follow.

Comprehensive final 280 points

The final is a 2 ½ hour exam and it is held on Tuesday, June 12th. The final is a cumulative exam. If you qualify (homework & mini quizzes score must be at least 70%) , you may use the final exam percent score to replace your lowest test/quiz score. However, a test/quiz with a score of zero cannot be replaced by the final score. You must take the final and have a minimum of 60% on the final exam to pass this class.

Tentative Class Schedule

Tuesday	February 28	6.1	
Thursday	March 1	6.2, 6.3	
Tuesday	March 6	6.3, 6.4	
Thursday	March 8	6.5, 6.6	
Tuesday	March 13	7.3	
Thursday	March 15	**Quiz 1** 8.1	Homework #1
Tuesday	March 20	8.2, 8.3	
Thursday	March 22	8.4	
Tuesday	March 27	8.5	
Thursday	March 29	8.6	
Tuesday	April 3	8.7	
Thursday	April 5	Review test 1	
Tuesday	April 10	**Test #1**	Homework #2
Thursday	April 12	9.1, 11.1	
Tuesday	April 17	11.2, 11.3	
Thursday	April 19	11.3, 11.4	
Tuesday	April 24	11.5, 11.7	
Thursday	April 26	More practice 10.1	
Tuesday	May 1	**Quiz 2** 10.2	Homework #3
Thursday	May 3	10.3, 10.4	
Tuesday	May 8	10.5, 10.6	
Thursday	May 10	10.7	
Tuesday	May 15	10.8, 10.9	
Thursday	May 17	10.10	
Tuesday	May 22	Review	
Thursday	May 24	**Test #2**	Homework #4
Tuesday	May 29	12.1, 12.2, 12.3	
Thursday	May 31	12.4, 12.5	
Tuesday	June 5	12.6	
Thursday	June 7	Review	Homework #5
		FINAL – Tuesday, June 12 **1:30 – 4:00 pm**	

Grade Sheet

Homework	+	
Homework	+	
Homework	+	
Homework	+	
Homework	+	
Homework quizzes	+	
Homework quizzes	+	
Homework quizzes	+	
Homework quizzes	+	
Homework quizzes	+	
Homework quizzes	+	
HOMEWORK	=	**/ 100**
Quiz 1		/100
Quiz 2	+	/100
QUIZZES	=	**/200**
Activity Lab 1		/15
Activity Lab 2	+	/5
ACTIVITY LABS	=	**/20**
Test 1		/200
Test 2	+	/200
TESTS	=	**/400**
FINAL EXAM	=	**/280**
TOTAL	=	**/1000**