

Math 181
Spring, 2010

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Office Hours: Th 4:00 - 4:45
TTh 9:30 - 10:00 p.m.
T 10:00 - 10:30 a.m.

Text: *Thomas' Calculus Early Transcendentals*, 11th edition by Weir, Hass, Giordano
Student Solution Manual Optional

Calculator: Highly recommended TI-84, TI - 86 or TI-NSpire

Attendance: Regular attendance is required. If you are absent during the add period (first two weeks of school), you will be dropped and someone on the waiting list will be added. If you are absent more than three times, you could be dropped. You are responsible for any material covered during your absence.

Homework: Homework is assigned daily. Homework from the text will be collected on exam days and graded for completeness. Other homework is due as stated on the problem. No late homework accepted! The lowest homework grade will be dropped.

Quizzes: Quizzes will be given as scheduled on the timetable. No make-ups on the quizzes. The lowest quiz grade will be dropped.

Exams: Exams will be given as scheduled on the timetable. No make-ups on the exams. If the final exam percentage is higher than the lowest exam grade, it will replace the lowest exam percentage.

Final Exam: The final exam is comprehensive and will be given as schedule in the schedule of classes. Failure to take the final will result in an "F" for the course.

Computer Labs: There will be at least 3 labs using MAPLE during the semester.

Excuses include but are not limited to:

Yes – I missed because I was ill is an excuse!

Yes – I missed because I had a flat tire is an excuse!

Yes – I missed because I had a doctor (dentist) appointment is an excuse!

Grading:	3 exams @ 15% each	45%
	Quizzes	15%
	Labs	6%
	Homework	9%
	Final Exam	25%

90% and above	A
80 – 89%	B
70 – 79%	C
60 – 69%	D
Below 60%	F

Cheating Policy:

Acts of cheating and plagiarism are considered serious violations of the Mt. San Antonio College Student Discipline Policy, AR & P Section 609. All incidents of cheating and plagiarism will be reported to the Student Life Center. Cheating or plagiarism is the act of misrepresenting the work of someone else as your own or assisting another student by providing them with answers to exams or written work that is not their own. This includes copying from another, use of stolen exams, instructor's notes or test key, and failure to use quotation marks and citing the source when using the written work of another, including internet sources.

If a student is caught cheating on an exam or a quiz, that student **will receive an "F" for that exam or quiz that cannot be replaced or dropped** and could result in disciplinary action such as suspension or expulsion. Students are encouraged to review both the Academic Honesty Policy and the Student Discipline Policy which are printed in the College catalog for further clarification.

Measurable Outcomes for Math 181

A student will be able to:

1. 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.
2. 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.
3. Solve separable differential equations with applications.
4. 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.
5. Test for convergence for sequences and series. Series convergence or absolute convergence will be determined using the integral, comparison, alternating series, ratio, and root tests. Determine representations of functions as power series including Taylor and Maclaurin series. Use power series in applications.
6. Plot points, graph cylinders and quadric surfaces, compute distances and give equations of lines and plane in three dimensional rectangular, cylindrical and spherical coordinate systems. Perform vector operations, including linear combinations, dot and cross products and projections.

The Student Learning Outcomes (SLOs) for this course can be found on the Mathematics Department webpage http://math.mtsac.edu/slo_math.html#math181.

SLOs are used to assess the course--how well or if students are learning a particular topic.

Measurable objectives are instructional expectations for a given course that establish curricular elements and standards.

Measurable Objectives for Math 181

1. Integrate functions using integration by parts, partial fraction decomposition, and trigonometric substitution. 2. Integrate functions via Computer Algebra System, and integral tables. 3. Apply L'Hopital's Rule to indeterminate limits; determine the convergence or divergence of improper integrals, and evaluate those that converge. 4. Solve separable first order differential equations, with applications. 5. Calculate limits of sequences using the continuous function theorem, the "squeeze theorem", and the algebraic properties of limits of sequences. 6. Calculate the sum of geometric and telescoping series. 7. Determine the convergence and divergence of series using the n th term, integral, direct comparison, limit comparison, ratio, root, absolute convergence, and alternating series tests. 8. Calculate the interval of convergence of a power series using the ratio or root test. 9. Derive the Taylor Series expansion of a given function with intervals of convergence and maximum error; apply power series solutions to various applications. 10. Graph and find the foci and eccentricity of a conic section. Find and graph parametrically defined curves in the plane, and find tangent lines, arc lengths, centroids, and areas of surfaces of revolution for those curves. 11. Locate points in polar coordinates, graph curves defined in terms of polar coordinates, convert a curve from polar to rectangular coordinates and vice versa, and find tangent lines, areas, and arc lengths involving curves defined in terms of polar coordinates. 12. Apply operations of vector algebra algebraically and geometrically, including dot product and cross product; calculate the angle between two vectors and the projections of one vector onto another using the dot product; calculate the area of a parallelogram using the cross product. 13. Locate points and graph lines, planes, cylinders, spheres, ellipsoids, paraboloids, and hyperboloids in the xyz -coordinate axis system. 14. Define a line in three-space parametrically and in vector form; define a plane in three-space as an equation in x , y , and z , and in vector form; find the distance from a point to a line, find the distance from a point to a plane, find the angle between two planes. 15. Express the location of a point in space in terms of cylindrical, spherical, and rectangular coordinates; express a given equation in terms of cylindrical, spherical, and rectangular coordinates. 16. Identify and graph various cylinders and quadric surfaces. 17. Use technology to assist in solving application problems involving some of the topics listed above.