Catalog Description: 139-02 Applied Calculus (Spring 2012)
For students in business, social or life sciences. Functions, limits, differentiation and integration of elementary functions. Emphasizes applications. Prerequisites: MA 134 with a grade of 'C' or higher. (3)


Office Location and Hours: Johnson Hall 307 – MWF 9:55am-10:55am and whenever I’m around (I want you to always feel free to stop by and see if I’m in. If I’m not, see if the Mathematics Learning Center can help with your question. If none of these times or situations work for you, you can make an appointment that is an appropriate time for the both of us.)

Contact Information: office phone: (573) 651-5065 e-mail: aschwartz@semo.edu
my homepage: http://cstl-csm.semo.edu/aschwartz

Classroom Location and Hours: JH101 –MWF 9:00am-9:50am
Class Webpage: http://cstl-csm.semo.edu/aschwartz/ma139sp12-02
Homework Webpage: http://www.mathzone.com

Student Section Code: 7C8-C4-EB6

Course Objectives: The purpose of this course is to give students a working knowledge of Applied Calculus, particularly the derivative, the integral, their applications and their analysis. Overall, however, the course emphasizes techniques rather than theory. Polynomial, rational, radical, exponential, and logarithmic functions are covered.

Upon completion of this course in particular, you should be able to (among others):

- Find one or two-sided limits of a function \( f(x) \) as \( x \) approaches a real number, \( a \), evaluate limits at infinity and infinite limits.
- Interpret continuity and limits in a graphical context.
- Interpret the derivative both as the slope of a tangent line and as instantaneous rate of change; find average and instantaneous rates of change.
- Find derivatives of algebraic, logarithmic, exponential, and trigonometric functions. Demonstrate knowledge of the sum, difference, product, quotient, and chain rules for derivatives.
- Find an equation of the tangent line to the graph of a function at a given point.
- Find higher order derivatives for a given function.
- Apply derivatives to solve ‘real life’ problems.
- Recognize and interpret the relationships among \( f \), \( f' \), and \( f'' \), in a graphical context. Be able to sketch the graph of the function.
- Find integrals of polynomial, rational, logarithmic, and exponential functions.
- Evaluate definite integrals. Be able to apply definite integrals especially in a business context.

Tentative Schedule:

(1) Intro, Syllabus, 1.1 Functions
(2) ARQ
(3) 1.2 The Graph of a Function/1.3 Linear Functions
(4) 1.4 Functional Models
(5) 1.5 Limits
(6) 1.6 One-Sided Limits and Continuity
(7) 2.1 The Derivative
(8) 2.1
(9) 2.2 Techniques of Differentiation

Date: Fall 2011.
Grading Scale:  Grading Scheme:
• A 90-100  Homework and Participation - 20%
• B 80-89.9  Tests 1, 2, & 3 - 16 2/3% each
• C 70-79.9  Final - 25%
• D 60-69.9  Algebra Readiness Quiz - 5%
• F 0-59.9

Tutoring: Tutoring sessions are also available to you in the Mathematics Learning Center (this is free). The hours are 8:00am-5:00pm M-R, 8:00am-2:00pm on Friday, and 6:00pm-9:00pm on Sunday. The MLC is in Johnson Hall room #104. Furthermore, Jamie Birkman (the Administrative Assistant in the Mathematics Department) has a list of personal (paid) tutors that are available.

Disability Support Services: “Any student who believes that they may need an academic accommodation based on the impact of a disability should contact me to arrange an appointment to discuss their individual needs. We instructors rely on Disability Support Services to verify the need for academic accommodations and developing accommodation strategies. Students that have not already registered with Disability Support Services as a student with a disability will be encouraged to do so.” The official information about disabilities from Learning Assistance and Disability Support Services is located at http://www.semo.edu/cs/services/lec.htm

Classroom and Final Exam Policy: The use of a scientific or graphing calculator is encouraged for use on the class and final examinations for this course; however, computers with graphic, word-processing,
symbolic manipulation or programming capabilities will not be allowed for these exams (unless specifically allowed by Disability Support Services). If you cannot afford to purchase a calculator, these may be rented from Textbook Rental Services for a nominal fee. The use of books, notes, or other resources materials will not be permitted on the final examination. All cell phones prohibited during the final exam (THIS POLICY APPLIES TO THE EVERYDAY CLASSROOM AS WELL). You may NOT use the calculator on your cell phone for quizzes, tests, and the final exam. Furthermore, you are expected to be prepared for every quiz, test, or exam in this class. There will be no sharing of calculators, pencils, or erasers during any quiz, test, or the final exam. The final is at 8:00am on Wednesday, May 9 in JH101 (the same room this class is in).

**Absences on Exam Days:** If the absence is known ahead of time and you find that you will be unable to take an exam at the regularly scheduled time, you need to let me know as soon as possible in advance of the regularly scheduled time for said exam (no exceptions) so that a make-up time can be arranged before the rest of the class is scheduled to take the exam. If it is an emergency absence (you are hospitalized or arrested, etc.), you must take it the first or second day you are physically able to be in my office or at Testing Services. Documentation is required for credit in the case of any absence on an exam day.

**Homework Policy:** Homework, quizzes, and class participation cannot be made up regardless of whether the absence is known ahead of time or it is of the emergency variety. Homework is always due the next class day after being assigned unless otherwise noted. Homework can be turned in early however. The homework in this particular class is to be completed online using the above information. Moreover, it is due by the time the class begins and not a minute later.

**Algebra Readiness Quiz:** The prerequisite for this course is MA 134 - College Algebra. In order to succeed in this course you should have a sound, working knowledge of basic algebra skills. Every student in this class is expected to take and pass an Algebra Readiness Quiz. The first opportunity to take this quiz will be given during the second class period on Thursday, January 19. The quiz consists of 25 multiple choice questions involving various skills learned in MA 134 and MA 101/102 which are necessary for this course. A passing grade on this quiz is 20 out of 25. If you fail the quiz, a score of 100% will be recorded for the portion of your grade marked Algebra Readiness Quiz. If you do not pass the quiz, then you will need to come to one of several retake sessions to retake it. Details will be given in class. The deadline for passing the quiz is Friday, February 10 (the end of the fourth week of classes). If you pass it before the deadline a score of 100% will be recorded under Algebra Readiness Quiz. If after February 10 you have not passed the Algebra Readiness Quiz, a score of 0 will be recorded under Algebra Readiness Quiz. Note, good algebra skills are essential to your success in Calculus!! (thanks to Dr. Daniel Daly for this subsection of the syllabus)

**General Student Behavior:** “Every student at Southeast is obligated at all times to assume responsibility for his/her actions, to respect constituted authority, to be truthful, and to respect the rights of others, as well as to respect private and public property. In their academic activities, students are expected to maintain high standards of honesty and integrity and abide by the University’s Policy on Academic Honesty. Alleged violations of the Code of Student Conduct are adjudicated in accordance with the established procedures of the judicial system.” Dishonorable actions, such as cheating will result in an immediate zero for the correlating classroom activity. Additional unethical actions will result in a referral to the Department Chair, Dean of the College of Science and Math, and/or the University Judicial Affairs Committee. The official statement about academic honesty, including plagiarism, may be accessed at http://www.semo.edu/bulletin/

**Class Disruptions:** These are absolutely not tolerated. Your classmates (their parents, legal guardians, or their scholarship sources) pay entirely too much money on tuition to have their classroom experience subjugated by rude individuals. I understand that emergencies can and do arise, however blatant refusal to cooperate, unnecessary (as deemed by myself) cell phone usage (including texting), using Ipods or mp3 players, talking in class (about non-subject related matter), frequently leaving the room (during the middle of class or walking out early) are all prohibited. If you transgress this once, it will be a verbal warning. Second offenses are cause for removal from that day’s class. Offenses past that will start to directly affect the student’s grade (1 whole percentage point off of the final grade for each and every offense including the third offense and every offense thereafter). Detailed information concerning civility and harassment is available at http://www6.semo.edu/judaffairs/