University of South Florida Sarasota-Manatee
MAC 2233, Section 13, 3 Hours
Business Calculus
Spring 2015, IMG Academies, Room 134

Instructor: Amanda Granstad
E-Mail: amanda4136@yahoo.com or agranstad@usf.edu
Office Hours: 6:00 – 7:00 Tuesdays & Thursdays

Office: IMG Academies, Room 134
Office Telephone: (941) 224-5300

PREREQUISITES: C (2.0) or better in MAC 1105, or C (2.0) or better in MAC 1140, or C (2.0) or better in MAC 1147, or SAT Math score of 590 or better, or ACT Math score of 26 or better, or College-Level Math CPT score of 78 or better.

COURSE DESCRIPTION: MAC 2233 is a course treating standard one-variable calculus and its applications for business students, as well as selected other business applications, and an introduction to multivariable calculus. Calculus topics include the derivative, methods of finding derivatives, applications of derivatives, the integral, methods of integration, applications of integration, and the calculus of the exponential and logarithmic functions. Multivariable calculus topics include partial derivatives and finding local extrema. This course is required for business majors. This course is part of the University of South Florida’s Foundations of Knowledge and Learning (FKL) Core Curriculum. It is certified for Mathematics and Quantitative Reasoning and will meet the following four dimensions: Critical Thinking, Inquiry-based Learning, Scientific Processes, and Quantitative Literacy. Students enrolled in this course will be expected to participate in the USF General Education assessment effort. This might involve answering questions that measure quantitative reasoning skills (but are not directly related to the course), responding to surveys, or participating in other measurements designed to assess the FKL Core Curriculum learning outcomes.

COURSE OBJECTIVES: Use analytical reasoning skills to demonstrate the ability to represent and evaluate mathematical information numerically, graphically, and symbolically.

COURSE STUDENT LEARNING OUTCOMES:
Upon completion of this course each student will be able to:

1. Evaluate limits of functions from their graphs and/or equations.
2. Analyze and apply the notions of continuity and differentiability to algebraic functions.
3. Determine derivatives for functions involving powers, exponentials, logarithms and combinations of these functions and solve business and economic applications using these derivatives.
4. Use derivatives to construct graphs of selected functions.
5. Use basic integration techniques to solve simple differential equations.
6. Demonstrate the connection between area and the definite integral.
7. Integrate selected functions and solve business and economic applications using these results.
8. Apply the Fundamental Theorem of Calculus to evaluate definite integrals.
9. Apply the concepts of limits, derivatives and integrals to solve problems involving functions unique to business applications and interpret the results.
10. Evaluate multivariable functions, determine the first-order and second-order partial derivatives, and use the second derivative test to find the local extrema for multivariable functions.

TEXT AND MATERIALS:

WebAssign software – Class Key: usf 5207 9194
- After purchasing WebAssign you will have a purchase code.
  Using the purchase code and the class key you will be able to log into WebAssign at https://www.webassign.net/login.html
COURSE TOPICS: Linear equations and functions, mathematics of finance, differentiation and integration of algebraic, exponential and logarithmic functions with applications to business, finance and economics. Chapters 1, 2, 3, 4, 5 and part of 6 will be covered. Topics are as follows:

Chapter 1: Functions, Graphs, and Limits
1.1 The Cartesian Plane and the Distance Formula
1.2 Graphs of Equations
1.3 Lines in the Plane and Slope
1.4 Functions
1.5 Limits
1.6 Continuity

Chapter 2: Differentiation
2.1 The Derivative and the Slope of a Graph
2.2 Some Rules for Differentiation
2.3 Rates of Change: Velocity and Marginals
2.4 The Product and Quotient Rules
2.5 The Chain Rule
2.6 Higher-Order Derivatives
2.7 Implicit Differentiation
2.8 Related Rates

Chapter 3: Applications of the Derivative
3.1 Increasing and Decreasing Functions
3.2 Extrema and the First-Derivative Test
3.3 Concavity and the Second-Derivative Test
3.4 Optimization Problems
3.5 Business and Economics Applications
3.6 Asymptotes
3.7 Curve Sketching: A Summary
3.8 Differentials and Marginal Analysis

Chapter 4: Exponential and Logarithmic Functions
4.1 Exponential Functions
4.2 Natural Exponential Functions
4.3 Derivatives of Exponential Functions
4.4 Logarithmic Functions
4.5 Derivatives of Logarithmic Functions
4.6 Exponential Growth and Decay

Chapter 5: Integration and Its Applications
5.1 Antiderivatives and Indefinite Integrals
5.2 Integration by Substitution and The General Power Rule
5.3 Exponential and Logarithmic Integrals
5.4 Area and the Fundamental Theorem of Calculus
5.5 The Area of a Region Bounded by Two Graphs

Chapter 6: Techniques of Integration
6.1 Integration by Parts and Present Value
CANVAS USE:
The class syllabus is posted in Canvas, an online course management system. In this class Canvas will be used for announcements, final grades, and emails. Information on how to use Canvas is available at:
http://usfsm.edu/information-commons/faculty-resources/

COMPUTER LAPTOP USE: Laptops will be permitted on specific days for specific purposes and may always be used before and after class for questions on homework on WebAssign.

GRADING, EVALUATION AND ATTENDANCE POLICIES:
Homework Requirement: All students will be required to complete and submit homework via the WebAssign feature that accompanies the text. As such, each student will need to obtain his/her own access to WebAssign by registering at www.WebAssign.net. Homework must be completed by assigned deadline in order to earn credit.

Grading Policy: Your grade in the course is determined by the percentage of categories earned during the SEMESTER. You will have classwork, homework, quizzes, and tests. If you take all three scheduled exams, the best two scores from the three scores earned will be each worth 30% of your grade. The best six out of eight quizzes will determine 20% of your grade. Your class work will be 10% and your homework will be 15% of your grade. Your score on the Business Calculus common final determines the remaining 25%. If you miss an exam for a valid reason, see the make-up policy. Grades, and the averages corresponding to them, are found on the supplemental material provided via WebAssign & Canvas, and are part of the syllabus for this course. The last day to drop class with a “W” is March 21, 2015.

Records: You should keep all returned tests until you receive your final grade. You will need your tests to demonstrate that a grade was incorrectly recorded, should that happen.

Make-Up Exams: Make-up exams may be requested if an exam is missed for a valid reason. The request for a make-up exam must be made the next time you attend class, and confirmed via e-mail. Make-up exams will be given on the last day of final exam week, at a time to be announced later in the semester. If you schedule a make-up and fail to take it, you earn a zero on that exam and that zero will be used in computing your exam average. NO makeup quizzes will be given under any circumstances.

Final Exam: The date and time for this exam are Tuesday, April 28, 7:00 p.m. to 9:00 p.m. The final counts as 25% of your grade. The remaining 75% of your grade will be determined as specified by your instructor.

Final Grades: The University’s +/- grading policy will be used in assigning final grades. If your overall percentage of total points falls into the following range, you will receive the corresponding grade:
97-100 (A+), 93-96 (A), 90-92 (A-),
87-89 (B+), 83-86 (B), 80-82 (B-),
77-79 (C+), 73-76 (C), 70-72 (C-),
67-69 (D+), 63-66 (D), 60-62 (D-),
0-59 (F)

USFSM AND USF SYSTEM POLICIES
A. Academic Dishonesty: The University considers any form of plagiarism or cheating on exams, projects, or papers to be unacceptable behavior. Please be sure to review the university’s policy in the USFSM Catalog, the USF System Academic Integrity of Students, and the USF System Student Code of Conduct.

B. Academic Disruption: The University does not tolerate behavior that disrupts the learning process. The policy for addressing academic disruption is included with Academic Dishonesty in the USFSM Catalog, USF System Academic Integrity of Students, and the USF System Student Code of Conduct.
C. Contingency Plans: In the event of an emergency, it may be necessary for USFSM to suspend normal operations. During this time, USFSM may opt to continue delivery of instruction through methods that include but are not limited to: Canvas, Elluminate, Skype, and email messaging and/or an alternate schedule. It’s the responsibility of the student to monitor Canvas site for each class for course specific communication, and the main USFSM and College websites, emails, and MoBull messages for important general information. The USF hotline at 1 (800) 992-4231 is updated with pre-recorded information during an emergency. See the Campus Police Website for further information.

D. Disabilities Accommodation: Students are responsible for registering with the Office of Students with Disabilities Services (SDS) in order to receive academic accommodations. Reasonable notice must be given to the SDS office (typically 5 working days) for accommodations to be arranged. It is the responsibility of the student to provide each instructor with a copy of the official Memo of Accommodation. Contact Information: Disability Coordinator, 941-359-4714, disabilityservices@sar.usf.edu, http://usfsm.edu/disability-services/

E. Fire Alarm Instructions: At the beginning of each semester please note the emergency exit maps posted in each classroom. These signs are marked with the primary evacuation route (red) and secondary evacuation route (orange) in case the building needs to be evacuated. See Emergency Evacuation Procedures.

F. Religious Observances: USFSM recognizes the right of students and faculty to observe major religious holidays. Students who anticipate the necessity of being absent from class for a major religious observance must provide notice of the date(s) to the instructor, in writing, by the second week of classes. Instructors canceling class for a religious observance should have this stated in the syllabus with an appropriate alternative assignment.

G. Sexual Misconduct/Sexual Harassment Reporting: USFSM is committed to providing an environment free from sex discrimination, including sexual harassment and sexual violence (USF System Policy 0-004). The Counseling and Wellness Center is a confidential resource where you can talk about incidents of sexual harassment and gender-based crimes including sexual assault, stalking, and domestic/relationship violence. This confidential resource can help you without having to report your situation to either the Office of Student Rights and Responsibilities (OSSR) or the Office of Diversity, Inclusion, and Equal Opportunity (DIEO), unless you request that they make a report. Please be aware that in compliance with Title IX and under the USF System Policy, educators must report incidents of sexual harassment and gender-based crimes including sexual assault, stalking, and domestic/relationship violence. If you disclose any of these situations in class, in papers, or to me personally, I am required to report it to OSSR or DIEO for investigation. The Deputy Coordinator for USFSM is Mary Beth Wallace, AVP for Student Enrollment, Engagement and Success, 941-359-4330 or marybeth@sar.usf.edu.

Campus Resources:
Counseling Center and Wellness Center 941-487-4254
Victim Advocate (24/7) 941-504-8599
List of off-campus resources:
Hope of Manatee: 941-755-6805
Safe Place & Rape Crisis Center (SPARCC) – Sarasota: 941-365-1976
First Call for Help- Manatee: 941-708-6488
Sarasota & North Port 941-366-5025
Manatee Glens: 941-782-4800

H. Web Portal Information: Every newly enrolled USF student receives an official USF e-mail account. Students receive official USF correspondence and Canvas course information via that address.
Weekly Schedule for MAC 2233
Spring 2015

Below is a tentative weekly schedule:

**Chapter 1: Functions, Graphs, and Limits**
Week 1: Syllabus, 1.1, 1.2
Week 2: 1.3, 1.4, 1.5

**Chapter 2: Differentiation**
Week 3: Quiz 1.1 - 1.4, 1.6, 2.1
Week 4: Quiz 1.5, 2.2, 2.3
Week 5: 2.4, Review, Test 1.1 - 2.3
Week 6: Quiz Derivatives, 2.5, 2.6

**Chapter 3: Applications of the Derivative**
Week 7: 2.7, 2.8, 3.1
Week 8: Quiz Implicit Differentiation, 3.2, 3.3
Week 9: 3.4, Review, Test 2.4 - 3.3
Week 10: 3.5, 3.6, 3.8

**Chapter 4: Exponential and Logarithmic Functions**
Week 11: Quiz 3.4 - 3.5, 4.1, 4.2,
Week 12: 4.3, 4.4, Quiz 4.1 - 4.2, 4.5

**Chapter 5: Integration and Its Applications**
Week 13: Quiz 4.3 - 4.5, 4.6, 5.1, 5.2
Week 14: 5.3, Review, Test 3.4 - 5.2

**Chapter 6: Techniques of Integration**
Week 15: Quiz, 5.4, 5.5, 6.1, Review
Week 16: Exam

*All due dates for Homework can be found in the gradebook on WebAssign.*