MAC 2311 Calculus I
Fall 2018
CRN 82116

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Meeting time/Location: MWF - 12:00 pm - 1:15 pm - Library 445

I. Course Number and Title:

MAC 2311 – Calculus I (4 credits)

II. Prerequisites for the Course:

Prerequisite(s) (08/15/17): MAC 1147 for level Undergraduate with minimum grade of C or MAC 2157 for level Undergraduate with minimum grade of C or Accuplacer Coll. Math Subscore 087 or ACT Math 29 or SAT Math Score 650 or MATH SECTION score 670.

III. General Course Information:

Course Description: Introduction to the primary concepts and techniques of differential and integral calculus. Topics include limits and continuity, the derivative, differentiation and integration of algebraic and trigonometric functions, linearization of functions and differentials, Mean Value theorem, antidifferentiation, extrema and curve sketching, area and the definite integral, and Fundamental Theorem of Calculus. *Fulfills the Computation Skills requirement for General Education, (formerly Gordon Rule Computation).

IV. Course Objectives

The student will:
In Chapter 2

- Understand what calculus is and how it compares with precalculus.
- Understand that the tangent line problem is basic to calculus.
- Understand that the area problem is also basic to calculus.
- Estimate a limit using a numerical or graphical approach.
- Learn different ways that a limit can fail to exist.
- Study and use a formal definition of a limit.
- Evaluate a limit using properties of limits.
- Develop and use a strategy for finding limits.
- Evaluate a limit using dividing out and rationalizing techniques.
- Evaluate a limit using the Squeeze Theorem.
- Determine continuity at a point and continuity on an open interval.
- Determine one-sided limits and continuity on a closed interval.
- Use properties of continuity.
- Understand and use the Intermediate Value Theorem.
- Determine infinite limits from the left and from the right.
- Find and sketch the vertical asymptotes of the graph of a function.

In Chapter 3

- Find the slope of the tangent line to a curve at a point.
- Use the limit definition to find the derivative of a function.
- Understand the relationship between differentiability and continuity.

- Find the derivative of a function using the Constant Rule, Power Rule, Constant Multiple Rule, Sum and Difference Rule.
- Find the derivative of the sine, cosine, and exponential functions.
- Use derivatives to find rates of change.
- Find the derivative of a function using the Product Rule, and the Quotient Rule.
- Find the derivative of a trigonometric function.
- Find a higher-order derivative of a function.
- Find the derivative of a composite function using the Chain Rule.
- Find the derivative of a function using the General Power Rule.
- Simplify the derivative of a function using algebra.
- Find the derivative of a transcendental function using the Chain Rule.
- Find the derivative of a function involving the natural logarithmic function.
- Define and differentiate exponential functions that have bases other than e.
- Distinguish between functions written in implicit form and explicit form.
- Use implicit differentiation to find the derivative of a function.
- Find derivatives of functions using logarithmic differentiation.
- Find the derivative of an inverse function.
- Differentiate an inverse trigonometric function.
- Find a related rate.
- Use related rates to solve real-life problems.

In Chapter 4

- Understand the definition of extrema of a function on an interval.
- Understand the definition of relative extrema of a function on an open interval.
- Find extrema on a closed interval.
- Understand and use Rolle's Theorem.
- Understand and use the Mean Value Theorem.
- Determine intervals on which a function is increasing or decreasing.
- Apply the First Derivative Test to find relative extrema of a function.
- Determine intervals on which a function is concave upward or concave downward.
- Find any points of inflection of the graph of a function.
- Apply the Second Derivative Test to find relative extrema of a function.
- Determine (finite) limits at infinity.
- Determine the horizontal asymptotes, if any, of the graph of a function.
- Determine infinite limits at infinity.
- Analyze and sketch the graph of a function.
- Solve applied minimum and maximum problems.
- Understand the concept of a tangent line approximation.
- Compare the value of the differential, dy, with the actual change in y, Δy.
- Estimate a propagated error using a differential.
- Find the differential of a function using differentiation formulas.

In Chapter 5

- Write the general solution of a differential equation.
- Use indefinite integral notation for antiderivatives.
- Use basic integration rules to find antiderivatives.
- Find a particular solution of a differential equation.
- Use sigma notation to write and evaluate a sum.
- Understand the concept of area.
- Approximate the area of a plane region.
- Find the area of a plane region using limits.
- Understand the definition of a Riemann sum.
- Evaluate a definite integral using limits.
- Evaluate a definite integral using properties of definite integrals.
- Evaluate a definite integral using the Fundamental Theorem of Calculus.

- Understand and use the Mean Value Theorem for Integrals.
- Find the average value of a function over a closed interval.
- Understand and use the Second Fundamental Theorem of Calculus.

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V. Requirements for the Students:

The student should read all new topics before they are discussed in class and complete the homework assignments on time. The student is expected to spend between 8 to 12 hours per week reading the text, reviewing and/or rewriting notes, solving problems - in general, STUDYING! Calculators and computers may be used to solve problems, but may be prohibited on some exams.

VI. Assistance:

Check the **Math Tutoring Lab** in LIB 103: http://www.fgcu.edu/CAA/tutoring.html
The Math Department offers tutoring in SH 126. Please check
http://www.fgcu.edu/CAS/Math/tutoring.html.
The **online companion site** is: www.stewartcalculus.com

VII. Absence Policy:

Students are expected to attend all class periods. There are no "allowable cuts". Students should recognize the very important sequential nature of this course, and that each absence tends to create a learning gap which can be very difficult to bridge. An absence in a four-hour course that meets three times a week can have a disastrous effect on the student's progress and understanding in the course. The last day to withdraw/drop without academic penalty in the Fall 2017 semester is Friday, October 19 at 5:00 p.m. (**Students are only allowed to makeup an assignment during the event of an authorized absence and excused absence (refer "Class Attendance" section in University Catalog 2018-2019).

VIII. Grading Procedure:

A. *Grading Criteria*:

Worksheets and Quizzes (drop two lowest)	100
WebAssign Homework (drop two lowest)	100
Chapter Exams* (4@ 100 pts)	400
Final Exam – cumulative (may be used to replace lowest exam score)	100
	700

*Note: You must pass the "derivative exam" with a score of 75% or better in order to pass the course. This is part of the third exam, and will be given periodically thereafter for those who need to pass or raise their current derivative test grade. No calculators or notes will be allowed on this test.

B. Percentage Ranges for Letter Grades

93	-	100	=	A
90	-	92	=	A-
87	-	89	=	B+
83	-	86	=	B
80	-	82	=	B-
77	-	79	=	C+
70	-	76	=	C
60	-	69	=	D
0	-	59	=	F

C. Homework will be done on WebAssign and worksheets.

E. Incompletes (I):
Incompletes will be given only for extreme emergency conditions and must be approved by the professor before the final examination begins. The student must be doing passing work at the time the request is made, and must reasonably expect to complete the work within three weeks after the close of the semester.

F. Make-Up Exams: Make-up exams will ***only*** be given for legitimate absences. Missing class is not one of them!
Make-Up Worksheets and Quizzes: There will be no make-up worksheets or quizzes since the lowest two are dropped.

G. Special Needs:
Students with special needs must make them known to the professor at the beginning of the semester.

H. Late Work: No work will be accepted late without a doctor's excuse.

IX. Textbook Requirements:

X. ***Enhanced WebAssign*.** Always enter WebAssign through Canvas.
Calculus: Early Transcendental Functions, James Stewart, 8th edition (included electronically in WebAssign, or available in hardback, softback or loose-leaf)
TI-83 or **TI-84** graphing calculator. (NOTE: The TI-89 or similar calculators may not be used on tests.)

XI. University Policies:

Approved 3-27-09 by Faculty Senate; Approved 4-30-09 by VPAA; Revised & Approved by Faculty Affairs Team 4-11-16, Faculty Senate Approved 4/15/16

Academic Behavior Standards and Academic Dishonesty (08/02/18)
All students are expected to demonstrate honesty in their academic pursuits. The university policies regarding issues of honesty can be found in the FGCU Student Guidebook under the Student Code of Conduct and Policies and Procedures sections. All students are expected to study this document which outlines their responsibilities and consequences for violations of the policy. The FGCU Student Guidebook is available online at http://studentservices.fgcu.edu/judicialaffairs/new.html .

University Nondiscrimination Statement (08/02/18)
Florida Gulf Coast University is committed to ensuring equity and fairness for all University employees, students, visitors, vendors, contractors and other third parties. As such, the University prohibits discrimination on the bases of race, color, national origin, ethnicity, religion, age, disability, sex (including sexual harassment/assault), gender identity/expression, marital status, sexual orientation, veteran status or genetic predisposition with regard to admissions, employment, programs or other activities operated by the University. This prohibition extends to enforcement of Title IX of the Education Amendments of 1972. Questions or complaints should be directed To the Office of Institutional Equity and Compliance (OIEC). The OIEC's phone number is (239)745 - 4366; the OIEC email address is OIEC@fgcu.edu.

Disability Accommodations Services (08/02/18)
Florida Gulf Coast University, in accordance with the Americans with Disabilities Act and the university's guiding principles, will provide classroom and academic accommodations to students with documented disabilities. If you need to request an accommodation in this class due to a disability, or you suspect that your academic performance is affected by a disability, please see me or contact the Office of Adaptive Services. The Office of Adaptive Services is located in the

Wellness Building. The phone number is 239-590-7956 or Video Phone (VP) 239-243-9453. In addition to classroom and campus accommodations, individuals with disabilities are encouraged to create their personal emergency evacuation plan and FGCU is committed to providing information on emergency notification procedures. You can find information on the emergency exits and Areas of Rescue Assistance for each building, as well as other emergency preparedness materials on the Environmental Health and Safety and University Police Department websites. If you will need assistance in the event of an emergency due to a disability, please contact Adaptive Services for available services and information.

Student Observance of Religious Holidays (08/02/18)
All students at Florida Gulf Coast University have a right to expect that the University will reasonably accommodate their religious observances, practices, and beliefs. Students, upon prior notification to their instructors, shall be excused from class or other scheduled academic activity to observe a religious holy day of their faith. Students shall be permitted a reasonable amount of time to make up the material or activities covered in their absence. Students shall not be penalized due to absence from class or other scheduled academic activity because of religious observances. Where practicable, major examinations, major assignments, and University ceremonies will not be scheduled on a major religious holy day. A student who is to be excused from class for a religious observance is not required to provide a second party certification of the reason for the absence.

General Counsel Policies can be found at: http://www.fgcu.edu/generalcounsel/policies-view.asp

Counseling and Psychological Services (CAPS) provides free counseling and therapy services (including psychiatry) to all FGCU students. Please walk in to the second floor Howard Hall office any week day between 8:30 and 4:30 to schedule an initial contact appointment. Visit the CAPS website at www.fgcu.edu/caps for more information. CAPS offers a 24/7 Helpline at (239) 745-3277 (EARS).

SCHEDULE[1]

		Section(s)	Worksheet – Due Date	Section Title(s)
1	**8/20**	Algebra & Trig Review		
2	**8/22**	1.1, 1.2	1 – 8/27	Four Ways to Represent a Function; Mathematical Models: A Catalog of Essential Functions
3	**8/24** Last day to Add/Drop	1.3, 1.4	2 – 8/29	New Functions from Old Functions; Exponential Functions
4	**8/27**	1.5	3 – 8/31	Inverse Functions and Logarithms
5	**8/29**	Review and Quiz		
6	**8/31**	**TEST 1**		
	9/03	*Labor Day*		**NO CLASS**
7	**9/05**	2.1	4 – 9/12	The Tangent and Velocity Problems
8	**9/07**	2.2		The Limit of a Function
9	**9/10**	2.3		Calculating Limits Using the Limit Laws
10	**9/12**	2.4	5 – 9/17	The Precise Definition of a Limit
11	**9/14**	2.5		Continuity
12	**9/17**	2.6	6 – 9/21	Limits at Infinity; Horizontal Asymptotes
13	**9/19**	2.7		Derivatives and Rates of Change
14	**9/21**	2.8	7 – 9/26	The Derivative as a Function
15	**9/24**	Review and Quiz		
16	**9/26**	**TEST 2**		
17	**9/28**	3.1		Derivatives of Polynomials and Exponential Functions
18	**10/1**	3.2	8 – 10/5	The Product and Quotient Rules
19	**10/3**	3.3		Derivatives of Trigonometric Functions
20	**10/5**	3.4	9 – 10/10	The Chain Rule
21	**10/8**	3.5		Implicit Differentiation
22	**10/10**	3.6	10 – 10/15	Derivatives of Logarithmic Functions
23	**10/12**	3.8		Exponential Growth and Decay
24	**10/15**	3.9	11 – 10/19	Related Rates
25	**10/17**	3.10		Linear Approximations and Differentials
26	**10/19** Last day to drop	3.11	12 – 10/24	Hyperbolic Functions
27	**10/22**	Review and Quiz		
28	**10/24**	**TEST 3**		
29	**10/26**	4.1		Maximum and Minimum Values
30	**10/29**	4.2	13 – 11/2	The Mean Value Theorem
31	**10/31**	4.3		How Derivatives Affect the Shape of a Graph
32	**11/2**	4.4	14 – 11/7	Indeterminate Forms and l'Hôpital's Rule
33	**11/5**	4.5		Summary of Curve Sketching
34	**11/7**	4.6	15 – 11/14	Graphing with Calculus and Calculators
	11/9	*Veteran's Day Observed*		**NO CLASS**
35	**11/12**	4.7		Optimization Problems
36	**11/14**	4.9	16 – 11/19	Antiderivatives
37	**11/16**	Review and Quiz		

[1] Subject to change

38	**11/19**	**TEST 4**		
	11/21-25	*Thanksgiving*		**NO CLASS**
39	**11/26**	5.1 5.2	17 – 11/30	Areas and Distances The Definite Integral
40	**11/28**	5.3	18 – 12/3	**The Fundamental Theorem of Calculus**
41	**11/30**	5.4		Indefinite Integrals and the Net Change Theorem
42	**12/3**	5.5	19 – 12/12	The Substitution Rule
43	**12/5**	Review and Quiz		
44	**12/6**	Study Day	No Classes	
45	**12/12**	**Final Exam**		8:15 pm – 10:30 pm

Student Quick Start Guide
WebAssign in Canvas™

WEBASSIGN [canvas]

If enabled, you can access WebAssign from Canvas™ to complete coursework.

ACCESS WEBASSIGN FROM CANVAS

If enabled, you can sign in to WebAssign directly from your Canvas class.

NOTE:
- You can't sign in to Canvas from WebAssign.
- Ask your instructor if you are not sure whether your course uses Canvas and WebAssign.

1. Sign in to Canvas and navigate to your class.
2. To access WebAssign from your Canvas course, either:
   - If you see a list of assignments, click an assignment to open it in WebAssign.
   - If no assignments are listed, click the WebAssign tool.

PURCHASE ACCESS

WebAssign gives you free access for two weeks after the start of class. To continue using WebAssign after that, either enter an access code or purchase access online.

NOTE: An access code included with some textbooks verifies that you have already purchased WebAssign access.

I have an access code

1. Verify your access code at webassign.net/user_support/student/cards.html.
2. Sign in to WebAssign.
3. Click **Verify Payment**.
4. Enter your access code and click **Redeem**.

I do not have an access code

1. Sign in to WebAssign.
2. Click **Verify Payment**.
3. Select the items you want to purchase and click **Continue**.
4. Review the items in your cart and click **Start Secure Checkout**.
5. Enter your billing contact information and click **Continue**.
6. Select your payment method and enter your payment information.

NOTE:
- If you need to contact Customer Support regarding this transaction, provide the transaction ID from your receipt.
- If you drop a class, you can request a refund within 14 days of the purchase date.

LEARN

Your current assignments are listed on the **Home** page for each class.

1. Click the assignment name.
2. Answer the assignment questions.
   WebAssign supports many different question types. Some questions display a tools palette or open in a new window.
3. Submit your answers.
4. Review your marks and feedback.
   Usually you will see ✓ or ✗ for each answer.
5. Change your incorrect answers and submit again.
6. When you are done, always click **sign out**.

TROUBLESHOOTING

`To access this assignment, open it first from your learning management system`

RESOLUTION

Open the assignment first from Canvas.

If doing so shows the same message again, notify your instructor.

A specific error in setting up the integration between WebAssign and Canvas can cause this problem. Your instructor can fix this by following instructions in the instructor help.

Scores Synced to Canvas Are Incorrect

When using an advanced LMS integration, WebAssign assignment scores greater than 100% or less than 0% are synced to Canvas as 100% or 0%, respectively.

The Learning Tools Interoperability (LTI) specification requires this behavior.

SYSTEM REQUIREMENTS

WebAssign is tested and supported for the following web browsers:

Mozilla® Firefox® (38+)
Windows®, macOS™, Linux®
Internet Explorer® / Microsoft® Edge (11+)
Windows
Google® Chrome™ (44+)
Windows, macOS
Apple® Safari® (8+)
macOS, iOS 8 or later on iPad®

BROWSER SETTINGS

Configure the following settings in your Web browser.

- Allow cookies and pop-up windows from webassign.net.
- Accept third-party cookies when accessing WebAssign from Blackboard®.
- Do not allow your browser to store your password.
- Enable Adobe® Flash® Player.

CUSTOMER SUPPORT

ONLINE: webassign.com/support/student-support
CALL: 800.354.9706

The Customer Support staff can ***NOT***:

- change your username or password
- give extensions
- change your score
- give you extra submissions
- help you with the content of assignments

Contact your instructor for help with your grade or coursework.

MORE INFORMATION

Search the online help for answers to most questions: webassign.net/manual/student_guide/