

**Fort Valley State University**  
*College of Arts and Sciences*  
*Department of Mathematics and Computer Science*  
*Course Syllabus*

**I. General Information**

<b>Course :</b> Calculus I (MATH 1154 )	<b>Section:</b> 01
<b>Credit Hours:</b> 4	<b>Semester:</b> Fall 2017
<b>Schedule:</b> MTWR => 9:00 a.m. – 9:50 a.m.	<b>Location:</b> CTM 202
<b>Instructor:</b> Dr. Patcharin T. Marion	<b>Telephone:</b> 478-825-6199
<b>Office Location:</b> CTM 216	<b>E-mail:</b> tragoonsirisakp@fvsu.edu
<b>Office Hours:</b> MTWR => 8:30 a.m.-9:00 a.m.; 11:00 a.m.-1:00 p.m.	

**II. Course Description**

This first course in the 3-semester calculus sequence emphasizes techniques, applications and problem solving using derivatives and integrals. Differential and integral calculus are applied to exponential and logarithmic functions. Students will study functions, limits, continuity, derivatives, the definite and indefinite integral and the fundamental theorem of calculus.

**III. Prerequisites:** MATH 1111 and MATH 1112 or MATH 1113, or demonstrate proficiency.

**IV. Textbook:** Calculus Volume I (OpenStax Textbook), Gilbert Strang & Edwin “Jed” Herman, OpenStax, Rice University 2016. (the textbook can be downloaded at <https://openstax.org/details/calculus-volume-1>)  
**Calculator:** A graphing calculator (TI-83 or TI-84 is highly recommended.)  
**Additional requirement:** D2L or “<https://fvsu.view.usg.edu>”

**V. Department of Mathematics Learning Outcomes and Course Objectives**

This course addresses the following Learning Outcomes adopted by the Department of Mathematics. The course objectives are identified as listed:

- A2.1 *The student identifies the appropriate mathematical model.*
- A2.2 *The student determines the solution or non solution of a given mathematical model.*
- A2.3 *The student interprets results demonstrating content mastery.*

**Specific Objectives:**

**I. Limits**

- Estimate a limit using a numerical or graphical approach
- Compute limits of functions analytically using properties of limits
- Compute the limits of trigonometric functions
- Determine the infinite limits from the left and the right
- Determine the continuity and one-sided limits.

- Understand and use the Intermediate Value theorem
- Write simple proofs on limits using the  $\varepsilon - \delta$  definition

## 2. Derivatives

- Find the slope of the tangent line to a curve at a point.
- Use the limit definition to find derivative of a function
- Use basic differentiation rules to find the derivative of a function
- Use derivatives to find rates of change
- Compute the derivatives of trigonometric functions
- Find a higher- order derivative of a function
- Find the derivative of a composite function using the Chain rule
- Use implicit differentiation to find derivatives
- Differentiate natural exponential functions
- Find the derivatives of functions involving the natural logarithmic function

## 3. Applications of Derivatives

- Solve related rates problems
- Find the differential of a function using differentiation formulas
- Find extrema of a function on an interval
- Apply Rolle's theorem and 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 up or concave down
- Find the inflection points on the graph of functions
- Apply Second derivative test to find the relative extrema of a function.
- Determine limits of a function at infinity
- Analyze and sketch the graph of functions
- Apply L'Hopital's Rule to find a limit
- Compute antiderivatives

## 4. Integration

- Use sigma notation to write and evaluate a sum
- Find the area of a plane region using limits
- Use the notion of area to evaluate integrals
- Use Riemann sums to approximate definite integrals
- Use substitution method to evaluate integrals
- Integrate trigonometric functions
- Integrate natural exponential functions
- Differentiate and integrate exponential functions that have bases other than e

## VI. Required Content

<i>Chapter</i>	<i>Section</i>
2	1, 2, 3, 4, 5
3	1, 2, 3, 4, 5, 6, 8, 9

4	1, 2, 3, 4, 5, 6, 7, 8, 10
5	1, 2, 3, 5

## VII. Grading Standards and Criteria

**Final Exam:** A common comprehensive final exam will be administered at the end of the semester. The final exam day will be announced by the University. The final exam is worth 20% toward the final grade. Absolutely no make-up exam will be given.

**Midterm Exam:** The midterm exam will be administered at the middle of the semester (Sep. 25-28). The midterm date will be announced in class at least two days prior to the date of the exam. The midterm is worth 20% toward the final grade. No make-up exam will be given.

**Tests:** There will be three tests. Each test/exam is worth 15% toward the final grade. The total contribution of all tests is 45% toward the final grade. No make-up test or exam will be given. With serious and compelling reason(s), or serious illness or accident, the percentage score (based on 20% toward the final grade) for the final exam score will be the percentage score for the excused missing test. Proofs are needed for the excuse given. Test dates will be announced in class at least two days prior to the date of the test.

**Quizzes:** There will be quizzes in the D2L. These quizzes must be completed and submitted online. The quiz should be done within one week after it has been taught. The total contribution of all quizzes is 15% toward the final grade.

The grades will be assigned as follows:

A: 90% -- 100%; B: 80% -- 89%; C: 70% -- 79%; D: 60% -- 69%; F: 0% -- 59%

## VIII. Institutional and Course Policies for students

- You are expected to bring the textbook and a calculator to class, and to be attentive and quiet. During class, I encourage you to ask me questions about the lecture, but not your classmate.
- Students are expected to attend punctually all classes. According to University policy, you are allowed 3 unexcused absences. **After the three absences, 1% of your final grade will be deducted for each class you miss.** Without a good reason, leaving a class before dismissal will be counted as a late arrival. Every two late arrivals will be counted as one absence. If an absence is necessary, you are responsible for the material covered on that day.
- Any proof for an excuse (including any missing assignments) should be submitted as soon as possible. Definitely, no excuse or late assignments will be accepted after the final examination.
- During the test or exam, do not wear a cap/sunglass, and do not use any electronic device (except that being approved). Without any medical reason, you can leave the classroom only after having turned in the test or exam paper; otherwise, one point will be deducted for each minute being away.
- Cell phones, beepers, and anything that makes noise should be turned off during class.
- Anyone caught cheating will be given an F for the course, and will be dealt with to the full extent of Fort Valley State University regulations.

## **DISABILITY**

FVSU is committed to the full inclusion of individuals with disabilities. To that end, the policies and procedures of FVSU ensure that a person with a documented disability is not, on the basis of that disability, denied full and equal access to academic programs, nor excluded from participation in co-curricular activities, or otherwise subjected to discrimination in such programs and activities. The policies for individuals with disabilities at FVSU are designed to ensure full compliance with all pertinent federal and state legislation, specifically to include Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990. If a student requires disability accommodations, he/she must register with the Office of Disability Services. To register online please visit : <http://www.fvsu.edu/disability-services/>. You may also call (478) 822-1072, or visit the Royal C. Peabody Bldg. Room 125.

## **INVOLUNTARY WITHDRAWAL POLICY**

If after the mid-semester period, the instructor verifies that a student has accumulated the following number of unexcused absences from the class, the student is subject to involuntary withdrawal from the class and will receive a final course grade of "WF."

- The student is absent 20 or more days for a class (including labs) that meet 4 days per week.
- The student is absent 15 or more days for a class that meets 3 days per week.
- The student is absent 10 or more days for a class meets 2 days per week.
- The student is absent 6 or more days for a class meets 1 day per week.

## **FVSU's current policies and practices regarding plagiarism and academic dishonesty:**

Student Academic Dishonesty. Expulsion or suspension from the University or any lesser sanction may be imposed for the commission of offenses involving cheating or fraud on examinations. Examples of such offenses include giving assistance not authorized by the instructor in the preparation of an essay, laboratory report, examination or other assignment included in an academic course; taking or attempting to take, steal, or otherwise procure in an unauthorized manner, any material pertaining to the conduct of a class, including but not limited to examinations, laboratory experiments, and roll books; and plagiarizing.

Plagiarism. The appropriation of someone else's ideas, passages arguments, interpretation of events or factual information, in either hard copy or electronically, demonstrates a lack of integrity and is unacceptable at Fort Valley State University. Other examples of plagiarism include submitting someone else's work/assignment as one's own, submitting purchased papers as one's own, and submitting papers from the Internet as one's own. Students who are guilty of plagiarism are subject to disciplinary action. Acts of plagiarism must be reported to the Department Head, Dean, Vice President for Academic Affairs, and the Vice President for Student Affairs for appropriate action. (2006 – 2008 Fort Valley State University Undergraduate Catalog, 71-72.)

**THE ABOVE SCHEDULE AND PROCEDURES ARE SUBJECT TO CHANGE IN THE EVENT OF EXTENUATING CIRCUMSTANCES.**



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Updates

- 106 New Assignment Submissions
- 1 New Emails
- 1 Ungraded Quiz Attempts

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Wednesday, December 13, 2017 >

Upcoming events >

Announcements

Contact info

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Dr. Patcharin Tragoonsrisak Marion (Dr. Pat)

Fort Valley State University  
Fort Valley, GA 31030

Office Phone Number: (478) 825-6199  
E-mail address: tragoonsrisakp@fvsu.edu

Office hours: Monday-Thursday => 8:30 am - 9:00 am, 11:00 am - 1:00 pm

During office hours, you can reach me on my office phone number or through e-mail

During non-office hours, we can communicate through e-mail, or you can e-mail me requesting me to call you

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