

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

**General Information**

<b>Course :</b> Calculus II (MATH 2164 )	<b>Section:</b> 01
<b>Credit Hours:</b> 4	<b>Semester:</b> Fall 2017
<b>Schedule:</b> MTWR => 10:00 a.m. – 10:50 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.	

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**Course Description:** Students use integration techniques to evaluate definite and indefinite integrals. Differential and integral calculus are applied to inverse trigonometric, and hyperbolic functions. Students will use integration to solve application problems. They will explore properties of sequences and series. They will apply convergence tests to investigate convergence/divergence of power series.

**Prerequisite:** MATH 1154 – Calculus I

**Textbook:** Calculus Volume I and II (OpenStax Textbook), Gilbert Strang & Edwin “Jed” Herman, OpenStax, Rice University 2016.

(the textbooks can be downloaded at <https://openstax.org/details/calculus-volume-1> and <https://openstax.org/details/calculus-volume-2>)

**Calculator:** A graphing calculator (TI-83 or TI-84 is highly recommended.)

**Additional requirement:** D2L or <https://fvsu.view.usg.edu>

**Departmental Major Area Learning Outcomes:**

This course addresses the following mathematics program learning outcomes:

I. Students will apply the concept of function together with the traditional computational techniques to solve real world problems (Course Learning Outcome II, Objectives 1 – 10)

V. Students will use graphing calculators and computers to perform numerical and symbolic computations, visualize data and mathematical objects, and solve mathematics problems. (Course Learning Outcome IV, Objectives 9, 10)

Part I of the sophomore junior diagnostic assessment for the mathematics program will be administered in this class.

**Course Learning Outcomes:**

I. **Students will differentiate and integrate functions involving exponential, logarithmic, inverse trigonometric, and hyperbolic functions**

**Objectives:**

1. Apply properties of hyperbolic functions
2. Differentiate and integrate hyperbolic functions
3. Develop and apply properties of inverse hyperbolic functions
4. Differentiate and integrate functions involving inverse hyperbolic functions

II. **Students will apply integration to real life problems**

**Objectives:**

1. Use definite integral to find the area of a plane region
2. Find the volume of a solid region in space with known cross sections
3. Apply the Disk Method

4. Apply the Washer Method
5. Apply the Shell Method
6. Find the arc length of a smooth curve
7. Find the area of a surface of revolution

**III. Students will apply techniques of integration, and evaluate limits of indeterminate forms**

**Objectives:**

1. Use the technique of integration by parts to evaluate integrals
2. Integrate powers of sine, cosine, secant and tangent
3. Use trigonometric substitution to evaluate integrals
4. Use partial fractions to integrate rational functions
5. Determine whether a given improper integral converges, and evaluate the value of a convergent improper integral

**IV. Students will explore the properties of sequences and series. They will apply convergence tests to investigate convergence/divergence of power series.**

**Objectives:**

1. Examine a sequence and write its general (or  $n^{\text{th}}$ ) term
2. Determine if a sequence converges, and find the limit of a given convergent sequence
3. Determine whether a given series converges, and find the sum of a given convergent series
4. Determine whether a given convergent series is absolutely convergent
5. Apply the Integral Test and p-Series Test
6. Apply the Direct Comparison and the Limit Comparison Tests
7. Apply the Ratio and Root Tests
8. Determine whether a given alternating series is convergent
9. Find a Maclaurin polynomial approximation of a given function
10. Find a Taylor polynomial approximation of a given function about a given point
11. Find the radius and interval of convergence of a power series
12. Differentiate and integrate power series
13. Find a geometric power series that represents a function
14. Find a Taylor or Maclaurin series for a function
15. Find a binomial series

**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%

### **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 defraud 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.)

**References:**

1. *Calculus*, 3<sup>rd</sup> Edition, by Robert Smith and Roland Minton, McGraw Hill, 2008
2. *Calculus, Early Transcendentals*, 5<sup>th</sup> edition, by James Stewart, Brooks/Cole, 2003
3. *Thomas' Calculus*, 12<sup>th</sup> edition, by Finney, Weir, Giordano, Addison Wesley Longman, 2010
4. *Calculus*, 9<sup>th</sup> Edition, Larson & Edwards, Houghton Mifflin Publishing Company, Boston 2010.

**The above schedule and procedures are subject to change in the event of extenuating circumstances.**



Content Browser

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Updates

1 New Emails

Calendar

Wednesday, December 13, 2017  
Upcoming events  
There are no events to display. Create an event.

Announcements

Contact info

Posted Aug 14, 2017 12:29 PM  
Dr. Patcharin Tragoonsitsak Marion (Dr. Pat)  
Fort Valley State University  
Fort Valley, GA 31030  
Office Phone Number: (478) 825-6199  
E-mail address: tragoonsitsakp@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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### Lesson 1: Derivatives of Inverse Functions

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- Unit 1: Transcendental Functions (20)
- Lesson 1: Derivatives of Inverse Functions (7)**
- Lesson 2: Integrals Resulting in

- reading\_1.1 ✓
- VDO: Evaluating derivative of inverse function ✓
- VDO: Derivative of inverse functions ✓
- VDO: Derivative of inverse sine ✓
- VDO: Derivative of inverse cosine ✓
- VDO: Derivative of inverse tangent ✓
- UT1-1\_quiz ✓

Starts Aug 16, 2017 10:00 AM Ends Dec 6, 2017 11:30 PM

**Syllabus**

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- 1 **ClassPolicy II** ✓
- 2 **syllabus\_cals\_FA17** ✓
- 3 **Instructor Contact Information**  Draft ✓
- 4 **Course Information**  Draft ✓
- 5 **Grading Standards & Criteria for CALCULUS II Section 01 Fall 2017 CO**  Draft ✓
- 6 **Topics to be Derived**  Draft ✓
- 7 **Semester Schedule for CALCULUS II Section 01 Fall 2017 CO**  Draft ✓