**MTH 234.003,.004,.700 and MTH 234L.003,.004,.701 Calculus II**

**Department of Mathematics and Statistics**

**Class Policy Sheet and Syllabus—Spring 2019**

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**Professor:** Dr. Sarah T. Stovall  
**Office:** 338 Mathematics building  
**Email:** ssstovall@sfasu.edu  
**Office Phone:** 936.468.1684  
**Office Hours:**

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<th>Monday</th>
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**Professor:** Dr. Roy Joe Harris  
**Office:** 346 Mathematics building  
**Email:** rharris@sfasu.edu  
**Office Phone:** 936.468.1486  
**Office Hours:**

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**Course description:** This is a course in integral calculus including applications of integration, techniques of integration, integration of transcendental functions, and improper integrals. Other topics include infinite series, convergence of series, and power series.

**Text and Materials:** The required textbook is *Calculus (Early Transcendentals), 3rd edition*, by Rogawski and Adams, ISBN 9781464114885. Topics for MTH 234 are included in chapters 6, 7, 8, and 10 of the text. For exams, students may use only a non-programmable, non-graphing calculator. Bring your text, or some representation of it, to class daily!

**Exam Calendar:** Please note that the dates for our in-class exams below are subject to change. The final is university scheduled and cannot be taken at a different time without permission of the Dean of the College of Sciences and Mathematics. Be sure to arrange your end-of-the-semester travel plans accordingly.

- **Exam 1** Wednesday, February 13
- **Exam 2** Wednesday, March 6
- **Exam 3** Wednesday, April 17
- **Final** Tuesday, May 14, 8-10 am in our regular classroom

**Course Requirements:**

- **Three in-class exams**—If a student must miss an exam due to an excused absence, special arrangements should be made in advance. Student ID with photo may be required for exams. **Cell phones and graphing calculators are not allowed out during exams, even if that is all you brought.** Students are responsible for bringing their own scientific calculator to exams. No music (even through headphones) is allowed during exams.

- **Quizzes**—We will have in-class quizzes each non-exam week.

- **Lab assignments**—Labs will be turned in and graded. During the lab meetings, students will investigate various topics in calculus using CoCalc, an open source mathematical software with features useful in many areas of advanced mathematics.

- **A comprehensive final exam**—The final exam is Tuesday, May 14, 8-10 am.

- **Homework**—We will assign exercises from the text but will not take up homework for a grade.

- **Class attendance and participation**—Students are expected to attend all class meetings, arriving on time. If you are absent, you are responsible for determining what you missed and for being prepared for class when you return. Students who have 3 or more unexcused absences may have points deducted from their final average.

- **Preparing for class**—Students should be prepared to invest several hours per day outside of class reading the text, practicing examples, and working homework exercises. **Material to be discussed in class should be read before coming to class.** Check your university email regularly, as I may send reminders, assignments, or announcements.

- There is no extra credit. Do well enough on the items below to earn the grade you seek.

**Grading Policy:**

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<th>Percentage</th>
<th>Component</th>
<th>Grading Scale</th>
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<tbody>
<tr>
<td>55%</td>
<td>First Three Exams (top two 20% each, lowest 15%)</td>
<td>90% - 100%: A</td>
</tr>
<tr>
<td>10%</td>
<td>Quizzes</td>
<td>80% - 90%: B</td>
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<tr>
<td>10%</td>
<td>Labs</td>
<td>70% - 80%: C</td>
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<td>25%</td>
<td>Comprehensive Final Exam</td>
<td>60% - 70%: D</td>
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<td></td>
<td></td>
<td>Below 60%: F</td>
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See [http://www2.sfasu.edu/math/docs/syllabi/MTH234Syllabus.pdf](http://www2.sfasu.edu/math/docs/syllabi/MTH234Syllabus.pdf) for elements common to all sections.

**SFASU Policy 5.4:** The federal definition of a credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates:

1. Not less than one hour of classroom or direct faculty instruction and a minimum of two hours out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or 10 to 12 weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time, or;

2. At least an equivalent amount of work as outlined in item 1 above for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.

To this end, all students in courses offered by the Department of Mathematics and Statistics that wish to be successful should plan to spend at least two hours outside of class for every credit hour associated with this course. Expected activities to be completed in the time outside of class include reviewing notes from previous class meetings, reading assigned course resources, completing all assigned exercises and projects, and performing periodic assessment preparation.
Course description: Applications and techniques of integration, improper integrals, infinite series and power series.

Credit hours: 3

The following is an excerpt from SFA Policy 5.4:

The federal definition of a credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates:

1. Not less than one hour of classroom or direct faculty instruction and a minimum of two hours out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or 10 to 12 weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time, or;

2. At least an equivalent amount of work as outlined in item 1 above for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.

To this end, all students in courses offered by the Department of Mathematics and Statistics that wish to be successful should plan to spend a minimum of two hours outside of class for every credit hour associated with this course. Expected activities to be completed in the time outside of class include reviewing notes from previous class meetings, reading assigned course resources, completing all assigned exercises and projects, and performing periodic assessment preparation.

Course Prerequisites and Corequisites: Math 233

Course outline:

- Applications of the definite integral
  - Volumes of surfaces of revolution
  - Arc length
  - Surface area
  - One or more from the following applications:
    - Work
    - Fluid pressure and forces
    - Moments and centers of mass

- Techniques of Integration
  - Basic integration techniques
  - Integration by parts
  - Integration by partial fractions
  - Trigonometric substitutions
  - Numerical integration
  - Improper integrals

- Infinite Sequences and Series
  - Sequences
  - Infinite series
    - Geometric series
    - Harmonic series
    - General series
  - Integral test
  - Comparison tests
    - Direct comparison test
    - Limit comparison test
  - Ratio and root tests

Approximate time spent

- Applications of the definite integral: 30%
- Techniques of Integration: 30%
- Infinite Sequences and Series: 40%
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Syllabus Continuation

- Alternating series
  - Absolute convergence
  - Conditional convergence
- Power series
- Taylor and Maclaurin series

Academic Integrity
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

The penalty for a student found cheating on any part of an assignment, quiz, or exam in this class will range from a grade of zero on the work to a grade of F in the course, and may result in additional, more severe disciplinary measures. A student who allows another to copy his work and the student copying the work are both guilty of cheating. Do your own work. Do not show your completed work to others. Do not allow others to copy your work.

Definition of Academic Dishonesty (SFA policy 4.1):
Academic dishonesty includes both cheating and plagiarism. Cheating includes, but is not limited to:
- using or attempting to use unauthorized materials on any class assignment or exam;
- falsifying or inventing of any information, including citations, on an assignment;
- helping or attempting to help other student(s) in an act of cheating or plagiarism.

Plagiarism is presenting the words or ideas of another person as if they were one’s own. Examples of plagiarism include, but are not limited to:
- submitting an assignment as one's own work when it is at least partly the work of another person;
- submitting a work that has been purchased or otherwise obtained from the Internet or another source;
- incorporating the words or ideas of an author into one's paper or presentation without giving the author credit.

Withheld Grades Semester Grades (SFA Policy 5.5)
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

Students with Disabilities
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices.

Acceptable Student Behavior
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy 10.4). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.
Program Learning Outcomes: Students graduating from SFA with a B.S. Degree and a major in mathematics will:

1. Demonstrate Lower Order Cognition (LOC). Examples: remembering definitions, understanding how to factor, applying the chain rule.
3. Demonstrate proficiency in communicating mathematics in a format appropriate to expected audiences (written, visual, oral).

Student Learning Outcomes (SLO): At the end of MTH 234, a student who has studied and learned the material should be able to:

1. Extend the definition of the definite integrals to applications, other than area under a curve, including volumes of surfaces of revolution, arc length, and surface area, as well as to examples from other academic fields which might include work, fluid forces, or moments and centers of mass. [PLO: 1, 2, 3]
2. Demonstrate mastery of basic integration techniques. [PLO: 1, 3]
3. Solve more complicated integrals by applying techniques including integration by parts, partial fractions, and trigonometric substitutions. [PLO: 1, 2, 3]
4. Recognize that the Fundamental Theorem of Calculus does not allow for the computation of all definite integrals and be able to apply approximation techniques as an alternative. [PLO: 1, 2, 3]
5. Recognize an improper integral and apply limits to find a solution. [PLO: 1, 3]
6. Define infinite sequences and series and determine convergence and divergence behavior by appropriately applying strategies such as the integral test, comparison tests, and ratio and root tests. [PLO: 1, 2, 3]
7. Recognize alternating series and determine absolute and conditional convergence behavior. [PLO: 1, 2, 3]
8. Determine the radius and interval of convergence of a power series. [PLO: 1, 2, 3]
9. Develop Taylor/Maclaurin Series expansions for basic functions. [PLO: 1, 2, 3]