MATH 2314
Calculus II
Spring 2024

Instructor

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Office Hours: M 12-1 pm, W 1-2pm. Other times available by appointment.

Course Description: Calculus II, a continuation of Calculus I, encompasses the study of integration of transcendental functions, techniques of integration, polar coordinates, improper integrals, sequences, and series.

Prerequisites: MATH 2313 Calculus I with a grade of "C" or higher, or equivalent, or permission by the department.

Main Reference: WebAssign for Stewart's *Essential Calculus: Early Transcendentals, 2nd Edition* (ISBN: 9781337772198)

Calculator

A calculator is **recommended**. The one that I have and will be using is the **TI-84 Plus CE**. Cell phones, graphing calculators, and online math utilities are not allowed on exams.

Important Dates

January 17 First day of classes
March 11-17 Spring Break – No classes
March 29 Study Day - No classes
April 13 Last day to drop with an automatic "W"
April 20 Last day to drop a course or withdraw from the University
April 29 Last Day of Classes
April 30 Study Day – No classes

The complete academic calendar is available online:
https://www.tamusa.edu/academics/academic-calendar/index.html

Homework: Homework will be completed online through **WebAssign.** All due dates are listed in **WebAssign**. No late homework is accepted, nor make-ups allowed. Students are also encouraged to practice writing solutions and will be responsible for knowing how to write clear, justified solutions on quizzes and exams.

Quizzes: Short quizzes will be completed online through **WebAssign**. All due dates are listed in **WebAssign**. There will be no make-up quizzes.

Midterm Exams: There will be two in-class exams during the semester. In case you miss an exam or find out that you will miss an exam, you should contact me either in person or by e-

mail **as soon as possible.**

Final Exam: In order to pass this class, students must take the final exam. The exam will cover topics from throughout the semester. Final exams cannot be rescheduled or missed (for dire and unforeseen medical or family emergencies, students must consult with me).

Grades
Your overall course grade will consist of your performance on homework, quizzes, midterm and the final exam, partitioned as follows:
Homework 20%
Quizzes 40%
Midterms 20%
Final Exam 20%
Grading Scale: 90+ **A**, [80,90) **B**, [70,80) **C**, [60,70) **D**, [0,60) **F**

Student Learner Objectives
The course explores the fundamental concepts and principles of integral calculus with applications, and students who successfully complete the course will:
• Develop solutions by applying the ideas of definite integrals to solve problems involving areas under curves and between curves, volumes of cylindrically symmetric objects, work done by a constant or variable force, and other applications.
• Apply the techniques of substitution, integration by parts, trigonometric substitution, and partial fractions to evaluate definite and indefinite integrals.
• Explain the meaning of an improper integral and apply the concepts of limit, convergence, and divergence to evaluate some classes of improper integrals.
• Define sequences and series and determine convergence or divergence of them.
• Find the Taylor and Maclaurin series to represent elementary functions and apply the Taylor or Maclaurin polynomials to the integration of functions not integrable by conventional methods.
• Apply the ideas of polar coordinates to find areas, lengths of curves, and representations of conic sections.
• Identify, apply and communicate appropriate calculus concepts and techniques to provide mathematical models of real-world situations, and to determine and explain solutions to applied problems.

MATH 2314 helps students develop Critical Thinking, Communication, and Empirical and Quantitative Skills by focusing on student understanding of the calculus concepts to include recognizing, identifying, solving, analyzing and explaining appropriately model applicable real world situations.

University Email Policy and Course Communications
All correspondence between professors and students must occur via University email accounts. You must have your Jaguar email account ready and working.

Academic Accommodations for Persons with Disabilities
The Americans with Disabilities Act Amendments Act (ADAAA) of 2008 and the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights protection for persons with disabilities. Title II of the ADAAA and Section 504 of the Rehabilitation Act require that students with disabilities be guaranteed equal access to the learning environment through the provision of reasonable and appropriate accommodation of their disability. If you have a diagnosed disability that may require an accommodation, please contact Disability Support Services (DSS) for the coordination of services. DSS is located at the Main Campus on the 2nd floor of the Central Academic Building in suite 210. The phone number for DSS is (210) 784-1335 and email is dsupport@tamusa.edu.

Academic Learning Center
All currently enrolled students at Texas A&M University-San Antonio can utilize the Academic Learning Center for subject-area tutoring. The Academic Learning Center is an appointment-based center where appointments are made through the Navigate platform. Students access Navigate through Jagwire in the Student Services tab. The Center is active on campus outreaching to students to highlight services offered. You can contact the Academic Learning Center by emailing tutoring@tamusa.edu or calling (210)-784-1332. Appointments can also be made through JagWire under the services tab, or through the link in our Blackboard course.

Counseling Resources
As a college student, there may be a time when personal stressors interfere with your academic performance and/or negatively impact your daily functioning. If you or someone you know is experiencing life stressors, emotional difficulties, or mental health concerns at A&M-SA, please contact the Office of Student Counseling & Wellness Services (SC & WS) located in Modular C Room 166 (Rear entrance) or call 210-784-1331 between the hours of 8:00 AM and 5:00 PM. All mental health services provided by SC & WS are free, confidential (as the law allows), and are not part of a student's academic or university record. SC&WS provides brief individual, couples, and group therapy, crisis intervention, consultation, case management, and prevention services. For more information, please visit www.tamusa.edu/studentcounseling. In a crisis, please walk-in to the SC & WS services between 8:00 AM and 5:00 PM to be seen by a licensed clinician. After hours, please contact UPD at 911 or text "HOME" to 741-741 24/7/365 to connect with a trained crisis counselor. The National Suicide Prevention hotline also offers a 24/7/365 hotline at 1-800-273-8255

Emergency Preparedness
JagE Alert is Texas A&M University-San Antonio's mass notification. In the event of an emergency, such as inclement weather, students, staff and faculty, who are registered, will have the option to receive a text message, email and/or phone call with instructions and updates. To register or update your information visit: https://tamusa.bbcportal.com/. More information about Emergency Preparedness and the Emergency Response Guide can be found here: http://www.tamusa.edu/riskmanagement/index.html.

Financial Aid and Verification of Attendance

According to the following federal regulation, 34 CFR 668.21: U.S. Department of Education (DoE) Title IV regulation, a student can only receive Title IV funds based on Title IV eligibility criteria which include class attendance. If Title IV funds are disbursed to ineligible students (including students who fail to begin attendance), the institution must return these funds to the U.S. DoE within 30 days of becoming aware that the student will not or has not begun attendance. Faculty will provide the Office of Financial Aid with an electronic notification if a student has not attended the first week of class. Any student receiving federal financial aid who does not attend the first week of class will have their aid terminated and returned to the DoE. Please note that any student who stops attending at any time during the semester may also need to return a portion of their federal aid.

Jaguar Writing Center

The Jaguar Writing Center provides writing support to graduate and undergraduate students in all three colleges. Writing tutors work with students to develop reading skills, prepare oral presentations, and plan, draft, and revise their written assignments. The Writing Center is currently holding all appointments digitally. Students can schedule appointments with the Writing Center in JagWire under the student services tab. Students wanting to work in realtime with a tutor can schedule an "Online Appointment." Students wishing to receive asynchronous, written feedback from a tutor can schedule an "eTutoring" appointment. More information about what services we offer, how to make an appointment, and how to access your appointment can be found on our website at https://www.tamusa.edu/college- of-arts-and-sciences/language-literature-arts/english/writing-center/index.html . The Writing Center can also be reached by emailing writingcenter@tamusa.edu.

Meeting Basic Needs

Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact the Dean of Students (DOS@tamusa.edu) for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable them to provide any resources they may possess.

Military Affairs

Veterans and active-duty military personnel are welcomed and encouraged to communicate, in advance if possible, and special circumstances (e.g., upcoming deployment, drill requirements, disability accommodations). You are also encouraged to visit the Patriots' Casa in-person room 202, or to contact the Office of Military Affairs with any questions at military@tamusa.edu or (210)784-1397.

Religious Observances

Texas A&M University-San Antonio recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an

opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes for regular session classes.

Respect for Diversity
We understand that our students represent diverse backgrounds and perspectives. When we are equity-minded, we are aware of differences and inequalities and are willing to discuss them so we can act to resolve them. The University is committed to building cultural competencies, or the attitudes, skills, and knowledge that enable individuals and organizations to acknowledge cultural differences and incorporate these differences in working with people from diverse cultures. Respecting and accepting people different than you is vital to your success in the class, on campus, and as a future professional in the global community. While working together to build this community we ask all members to:
- Share their unique experiences, values, and beliefs.
- Be open to the views of others.
- Honor the uniqueness of their colleagues.
- Value each other's opinions and communicate respectfully.
- Keep confidential discussions that the community has of a personal (or professional) nature.
- Use this opportunity together to discuss ways in which we can create an inclusive environment in this course and across the A&M-San Antonio community.

The Six-Drop Rule
Students are subject to the requirements of Senate Bill (SB) 1231 passed by the Texas Legislature in 2007. SB 1231 limits students to a maximum of six (6) non-punitive course drops (i.e., courses a student chooses to drop) during their undergraduate careers. A non-punitive drop does not affect the student's GPA. However, course drops that exceed the maximum allowed by SB 1231 will be treated as "F" grades and will impact the student's GPA. Statement of Harassment and Discrimination: Texas A&M University-San Antonio is committed to the fundamental principles of academic freedom, equality of opportunity and human dignity. To fulfill its multiple missions as an institution of higher learning, A&M-San Antonio encourages a climate that values and nurtures collegiality, diversity, pluralism and the uniqueness of the individual within our state, nation, and world. All decisions and actions involving students and employees should be based on applicable law and individual merit. Texas A&M University-San Antonio, in accordance with applicable federal and state law, prohibits discrimination, including harassment, on the basis of race, color, national or ethnic origin, religion, sex, disability, age, sexual orientation, or veteran status. Individuals who believe they have experienced harassment or discrimination prohibited by this statement are encouraged to contact the appropriate offices within their respective units.

Students' Rights and Responsibilities
The following statement of students' rights and responsibilities is intended to reflect the philosophical base upon which University Student Rules are built. This philosophy acknowledges the existence of both rights and responsibilities, which is inherent to an individual not only as a student at Texas A&M University-San Antonio but also as a citizen

of this country.

Students' Rights

1. A student shall have the right to participate in a free exchange of ideas, and there shall be no University rule or administrative rule that in any way abridges the rights of freedom of speech, expression, petition and peaceful assembly as set forth in the U.S. Constitution.
2. Each student shall have the right to participate in all areas and activities of the University, free from any form of discrimination, including harassment, on the basis of race, color, national or ethnic origin, religion, sex, disability, age, sexual orientation, or veteran status in accordance with applicable federal and state laws.
3. A student has the right to personal privacy except as otherwise provided by law, and this will be observed by students and University authorities alike.
4. Each student subject to disciplinary action arising from violations of University Student Rules shall be assured a fundamentally fair process.

Students' Responsibilities

1. A student has the responsibility to respect the rights and property of others, including other students, the faculty and University officials.
2. A student has the responsibility to be fully acquainted with the published University Student Rules and to comply with them, as well as federal, state, and local laws.
3. A student has the responsibility to recognize that student actions reflect upon the individuals involved and upon the entire University community.
4. A student has the responsibility to maintain a level of behavior that is consistent in supporting the learning environment of the institution and to recognize the University's obligation to provide an environment for learning.

No Use of Generative AI Permitted

The instructor assumes that all work submitted by students will be generated by the students themselves, working individually or in groups. Students should not have another person/entity do the writing of any portion of an assignment for them, which includes hiring a person or a company to write assignments and/or using artificial intelligence (AI) tools like ChatGPT. Use of any AI-generated content in this course qualifies as academic dishonesty and violates Texas A&M-San Antonio's standards of academic integrity.

(Tentative) List of Topics

Topics to be covered include but are not limited to the following:

1. Evaluating Definite Integrals and The Fundamental Theorem of Calculus (Sections 5.3 ~ 5.4)
2. The Substitution Rule (Section 5.5)
3. Integration by Parts (Section 6.1)
4. Trigonometric Integrals and Substitutions (Section 6.2)
5. Partial Fractions (Section 6.3)
6. Integration Tables, Computer Algebra Systems, and Approximate Integration (Sections 6.4 ~ 6.5)

7. Improper Integrals (Section 6.6)
8. Areas between Curves (Section 7.1)
9. Volumes (Sections 7.2 ~ 7.3)
10. Arc Length (Section 7.4)
11. Area of A Surface of Revolution (Section 7.5)
12. Applications to Physics and Engineering (Section 7.6)
13. Sequences and Series (Sections 8.1 ~ 8.2)
14. Convergence Tests (Sections 8.3 ~ 8.4)
15. Power Series (Section 8.5)
16. Representing Functions as Power Series (Section 8.6)
17. Taylor and Maclaurin Series, and Their Applications (Sections 8.7 ~ 8.8)
18. Calculus with Parametric Curves (Sections 9.1 ~ 9.2)
19. Areas and Lengths in Polar Coordinates (Sections 9.3 ~ 9.4)
20. Conic Sections in Polar Coordinates (Section 9.5)

The instructor reserves the right to modify/update the topics as appropriate.