Math 3415: Calculus III
Course Syllabus

This syllabus is current and accurate as of its posting date, but it will not be updated. For the most complete and up-to-date course information, contact the instructor.

Contact Information

Instructor: Dr. Dennis Hall
Office: MCS 220J
Office Hours: Monday: 10:50AM – 1:00PM & 1:50PM – 2:20PM
          Tuesday: 9:00AM – 11:00AM
          Wednesday: 10:50AM – 1:00PM
          Thursday: 10:20AM – 11:00AM
          Friday: 10:50AM – 1:00PM & 1:50PM – 2:20PM
E-mail: dennis.hall@angelo.edu
Phone: 325-486-5426

Course Information

Course Description: Calculus of multivariable functions including partial differentiation, multiple integrals, vector functions, line integrals, Green’s Theorem, and Stokes’ Theorem.

Textbook: Calculus, Volume 3, by OpenStax. A free digital version of this textbook is available online at https://openstax.org/details/books/calculus-volume-3. If you prefer a physical copy of this textbook, one may be purchased at the university bookstore.

Prerequisite Courses: Mathematics 2415 (Calculus II) or equivalent.

MyOpenMath: The free electronic resource MyOpenMath will be used in this course. To access MyOpenMath, click the various homework links in Blackboard. You DO NOT need to purchase access.

Technology Requirements: This course will be using the free online homework system MyOpenMath. This homework system requires a somewhat modern computer with reliable internet access. The computer lab in MCS is available to students, if needed.
Communication: Most email will receive a response within 24 hours during working hours Monday through Friday. Please include your course name (Calculus III, Finite Math, etc.) in your messages for the quickest reply.

Course Content: The following chapters and content will be covered.


3. **Vector-Valued Functions**: Vector-Valued Functions and Space Curves, Calculus of Vector-Valued Functions, Arc Length and Curvature, Motion in Space.

4. **Differentiation of Functions of Several Variables**: Functions of Several Variables, Limits and Continuity, Partial Derivatives, Tangent Planes and Linear Approximations, The Chain Rules, Directional Derivatives and the Gradient, Maxima/Minima Problems.

5. **Multiple Integration**: Double Integrals over Rectangular Regions, Double Integrals over General Regions, Double Integrals in Polar Coordinates, Triple Integrals, Triple Integrals in Cylindrical and Spherical Coordinates, Changes of Variables in Multiple Integrals.


Course Evaluation

Your grade for this course will be determined by your performance on exams and homework. Final grades will be based on a standard 10-point grading scale.

Tests: 60%

Final Exam: 20%

Homework: 20%

Tests (60%): There will be four tests during this semester, and each will count 15% of your final grade. The tests will be given in-person on paper. You may not use any notes or outside resources other than a scientific calculator. Your lowest test grade may be replaced by the final exam grade.

Final Exam (20%): In addition to the tests above, there will be a comprehensive final examination. This comprehensive final exam is in-person on paper. In addition to counting 20% of your final grade, it also may replace your lowest test grade.
**Homework (20%)**: Homework will be completed online in Blackboard using MyOpenMath. You are welcome to receive help on homework from any source: me, students, solutions manuals, online, etc. However, it is encouraged that you work the homework on your own first, since this will be the best way to practice for tests.

**Academic Honesty for Tests and Exams**: Tests and exams in this class should be completed entirely on your own without the help of formula sheets (except where allowed by the professor), notes, online resources, books, etc. No phones are allowed to be used during tests and exams.

**Other Information**

All students are required to follow the policies and procedures presented in these documents:

- Angelo State University Student Handbook
- Angelo State University Catalog

**Academic Integrity**

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject to disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the university’s Statement of Academic Integrity.

**Accommodations for Students with Disabilities**

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA) and subsequent legislation.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student’s responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at ADA@angelo.edu. For more information about the application process and requirements, visit the Student Disability Services website. The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dr. Dallas Swafford
Director of Student Disability Services
Office of Student Affairs
325-942-2047
dallas.swafford@angelo.edu

Houston Harte University Center, Room 112
Incomplete Grade Policy

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 Grading Procedures for more information.

Student Absence for Observance of Religious Holy Days

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for Observance of Religious Holy Day for more information.

Title IX at Angelo State University

Angelo State University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex discrimination of any kind. In accordance with Title VII, Title IX, the Violence Against Women Act (VAWA), the Campus Sexual Violence Elimination Act (SaVE), and other federal and state laws, the University prohibits discrimination based on sex, which includes pregnancy, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination and unwelcome behavior of a sexual nature. The term includes sexual harassment, nonconsensual sexual contact, nonconsensual sexual intercourse, sexual assault, sexual exploitation, stalking, public indecency, interpersonal violence (domestic violence or dating violence), sexual violence, and any other misconduct based on sex.

You are encouraged to report any incidents involving sexual misconduct to the Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator, Michelle Miller, J.D. You may submit reports in the following manner:

Online: Incident Reporting Form

Face to Face: Mayer Administration Building, Room 210

Phone: 325-942-2022

Email: michelle.miller@angelo.edu

Note, as a faculty member at Angelo State, I am a mandatory reporter and must report incidents involving sexual misconduct to the Title IX Coordinator. Should you wish to speak to someone in confidence about an issue, you may contact the University Counseling Center (325-942-2371), the 24-Hour Crisis Helpline (325-486-6345), or the University Health Clinic (325-942-2171).

For more information about resources related to sexual misconduct, Title IX, or Angelo State’s policy please visit the Title IX website.

Information About COVID-19

Please refer to ASU’s COVID-19 (Coronavirus) Updates web page for current information about campus guidelines and safety standards as they relate to the COVID-19 pandemic.

Student Learning Outcomes

The student will demonstrate factual knowledge including the mathematical notation and terminology used in this course. Students will read, interpret, and use the vocabulary, symbolism, basic definitions used in numerical analysis including those related to topics learned in calculus and algebra and revisited in this course; limits, continuity, numerical integration, numerical differentiation, ordinary differential equations, and polynomial interpolation.
The students will describe the fundamental principles including the laws and theorems arising from the concepts covered in this course. Students will identify and apply the properties and theorems that result directly from the definitions as well as statements discovered in calculus and extended in this course; for example, Rolle’s Theorem, Mean Value Theorem, Intermediate Value Theorem, Taylor’s Theorem, theorems on convergence and existence and their error terms.

The students will apply course material along with techniques and procedures covered in this course to solve problems. Students will use the facts, formulas, and techniques learned in this course to develop and use algorithms and theorems to find numerical solutions and bounds on their error to various types of problems including root finding, polynomial approximation, numerical differentiation, numerical integration.

The students will develop specific skills, competencies, and thought processes sufficient to support further study or work in this field or related fields. Students will gain the ability to use a software package such as MATLAB to solve numerical problems and acquire a level of proficiency in the fundamental concepts and applications necessary for further study in academic areas requiring numerical analysis as a prerequisite for graduate work or for work in occupational fields. These fields might include further study in mathematics, engineering, computer science, or the physical sciences.

Course Schedule

Important Dates

August 23: First day of class

September 6: Holiday

November 22: Last day to drop this course

November 24 – November 26: Holidays

December 6 – December 10: Final Exam Window

Approximate Test Dates

Test 1: September 13
Covers Sections: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2

Test 2: October 4
Covers Sections: 3.3, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7

Test 3: October 25
Covers Sections: 5.1, 5.2, 5.3, 5.4, 5.5, 5.7

Test 4: November 22
Covers Sections: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7

Final Exam: December 6
Covers all of the above AND Section 6.8

i https://www.angelo.edu/current-students/student-handbook/
ii https://www.angelo.edu/academics/catalog/
iii https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=96
iv https://www.angelo.edu/current-students/disability-services/