

MATH 3415: Calculus III, Spring 2022
10:00 – 10:50 a.m. MWF; 9:30 – 10:20 a.m. Tue

Contact Information

Instructor: Karl Havlak
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Office Hours:

8:45 – 9:45 a.m. MWF; 8:15 – 9:15 a.m. TR; 1:00 – 2:00 p.m. MTWRF
or by appointment

Office hours are in person. If you wish to meet virtually during my office hours (or by appointment), contact me after class or by email or phone to set up the meeting.

Textbook

Calculus: Volume 3 by Gilbert Strang and Edwin “Jed” Herman. This is an Open Educational Resource text offered through [openstax](#)ⁱ

Blackboard

This course has an associated [Blackboard page](#)ⁱⁱ where you will have access to grades, assignments, videos, handouts, and other course-related items.

MyOpenMath

This course requires use of a free online homework system for some of the homework assignments. Please go to [MyOpenMath](#)ⁱⁱⁱ to create/access your account.

1. If you do not have a MyOpenMath account, select “Register as a new student”, create (and remember) your user name and password, then enter **Course ID 130134** and the **Enrollment Key 3415S22**.
2. If you already have a MyOpenMath account, log in, select “Enroll in a New Class”, then enter the Course ID and Enrollment Key from (1) above.

Course Content

Selected sections from Chapters 2, 3, 4, 5, and 6 will be studied.

Grading System

The final course grade will be determined according to the weights in the table that follows.

Activity	Date	Weight
Exam 1	February 8 (Tue)	5-20%
Exam 2	February 22 (Tue)	5-20%
Exam 3	March 8 (Tue)	5-20%
Exam 4	March 29 (Tue)	5-20%
Exam 5	April 12 (Tue)	5-20%
Exam 6	April 26 (Tue)	5-20%
Exam 7	May 9 (Mon)	5-20%
Homework	Most Days	10%
Quizzes	Regularly	5%

Technology Requirements

If a student is unable to take an examination in class due to health concerns or other university approved and documented circumstances, the student must have internet access where the exam will be taken. In addition, the student must have access to a computer equipped with sound and a webcam. A proctor must be present for exams.

In general, internet access is needed to access homework, videos, and the MyOpenMath website.

Grading Policy

To determine the average needed to ensure that you obtain the grade that you want in this course, consult the table that follows.

Average	Grade
89.5 and above	A
79.5 to 89.5	B
69.5 to 79.5	C
59.5 to 69.5	D
below 59.5	F

Homework Policy

Two homework sets will be assigned most days. One homework set will be a short assignment in Blackboard that will be worked out by hand and submitted prior to the next class meeting (except for exam dates). The second homework set will be completed online at MyOpenMath and will typically be due by midnight one week after it is assigned. The lowest 10% of the homework grades will be dropped at the end of the semester when determining the homework average. I will accept up to 3 late assignments during the semester. No other late assignments will be accepted. If you have trouble completing a homework assignment, please see me for assistance.

Exams

There will be 7 exams scheduled as shown above, which will account for 85% of your final grade. The highest of these exams will account for 20% of your final grade, the next two highest will each account for 15% of your final grade, the lowest of these exams will account for 5% of your final grade, and the next three lowest will each account for 10% of your final grade. Each exam will include all sections covered since the previous exam as well as the sections covered from the exam prior to the previous exam. For example, Exam 3 will cover all sections covered since Exam 1 but none from Exam 1. All exams are intended to be in-person exams.

Quizzes

There will be regular short “in-class quizzes” (5 minutes or less) at the beginning of class throughout the semester. The quizzes will be over basic concepts learned in class. The in-class quizzes will be completed in class only. They will be given at the beginning of class and cannot be made up. Quizzes will be announced in advance. There will also be regular “check-in quizzes” that will appear in Blackboard. These are simple checks on how the class is going to help me keep up with class progress and temperament. The lowest 10% of the quiz grades will be dropped at the end of the semester when determining the quiz average.

Attendance

It is vital that you attend all class meetings. In person attendance is recommended, but circumstances may occur that require you attend the class synchronously online. Quizzes taken in any class for which you are absent cannot be made up.

Student Responsibilities

The student is *solely* responsible for:

- Completing each assignment by the specified due date.
- Obtaining assignments and other materials for classes from which they are absent.
- Utilizing, as needed, all available study-aid options (including meeting with the instructor, referring to outside texts, etc.) to resolve any questions that they might have regarding homework, course material, etc.

- Realizing from the beginning of the course the grade that they may need or want to graduate, maintain a scholarship, stay in athletics, etc. ... and give as much effort as it takes to obtain this grade.

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 of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the university's Statement of Academic Integrity found on page 96 of the [Student Handbook](#)^{iv}.

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](#).^v 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](#)^{vi} for more information.

Plagiarism

Plagiarism is a serious topic covered on pages 18, 19, and 137 in ASU's [Student Handbook](#)^{vii}. Plagiarism is the action or practice of taking someone else's work, idea, etc., and passing it off as one's own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality. Resources to help you understand this policy better are available at the [ASU Writing Center](#).^{viii}

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](#)^{ix} 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](#)^x

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](#).^{xi}

Information About COVID-19

Please refer to ASU's [COVID-19 \(Coronavirus\) Updates](#)^{xii} web page for current information about campus guidelines and safety standards as they relate to the COVID-19 pandemic.

General Policies Related to this Course

- All students are required to follow the policies and procedures presented in these documents:
 - [Angelo State University Student Handbook](#)^{xiii}
 - [Angelo State University Catalog](#)^{xiv}
- In the event that the university is closed for a scheduled class time, whatever was scheduled for that day and/or whatever was due that day will be scheduled and/or due on the next scheduled class time.
- All electronic correspondence will be sent to your ASU e-mail account unless other arrangements are made.
- Feel free to come by my office at any time for help. I will definitely be near my office during my office hours (or there will be a note telling you when I will be back). If my office hours are not convenient for you, meet with me to arrange for another time that is more convenient.
- Good luck. I sincerely hope you do well in this course, and I strongly encourage you to use me as a resource outside of class to help you succeed.

All items contained in this syllabus are subject to change as the semester progresses. Students will be notified in advance of any changes.

Mathematics 3415 – Calculus III Student Learning Outcomes

1. **Students will demonstrate factual knowledge of the mathematical notation and terminology used in this course.** Students will demonstrate the ability to read, interpret, and use the vocabulary and symbolism of vectors, infinite series, and, multivariate calculus.
2. **Students will be able to describe the fundamental principles arising from the concepts in this course.** Students will demonstrate familiarity with the concepts that follow from the definitions; for example, convergence and divergence of infinite series, tangent planes and normal lines to surfaces, integral representations of areas and volumes.
3. **Students will be able to apply the course material to solve problems.** Students will use the facts, formulas, and techniques of calculus III to solve problems pertaining to the core concepts of the course, as well as to other areas of mathematics and various applied areas such as physics, chemistry and engineering.
4. **Students will develop specific skills, competencies and reasoning abilities to support further study or work in this or related fields.** Students will acquire a level of proficiency in the fundamental concepts and applications necessary for further study in academic areas requiring calculus III as a prerequisite or for work in fields such as engineering, physics, chemistry and statistics.

Course Content

Content consists of the following topics, listed according to the corresponding chapters in the text. (See textbook “Contents.”)

Chapter 2 – Vectors in Space: Vectors in the Plane, Vectors in Three Dimensions, The Dot Product, The Cross Product, Equations of Lines and Planes in Space, Quadric Surfaces, Cylindrical and Spherical Coordinates.

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

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

Chapter 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, Change of Variables in Multiple Integrals.

Chapter 6 – Vector Calculus: Vector Fields, Line Integrals, Conservative Vector Fields, Green’s Theorem, Divergence and Curl, Surface Integrals, Stokes’ Theorem, and The Divergence Theorem.

Anticipated Daily Schedule

The table that follows lists the expected section that will be discussed on the indicated date. Specific sections along with any handouts for those sections will be updated throughout the semester in Blackboard.

Day	Activity
January 18	Syllabus, Blackboard, etc.

Day	Activity
January 19	2.2
January 21	2.6
January 24	2.7
January 25	2.7
January 26	2.1
January 28	2.1, 2.2
January 31	2.3
February 1	2.3, 2.4
February 2	2.4
February 4	2.5
February 7	2.5
February 8	Exam 1
February 9	3.1
February 11	3.2
February 14	3.3
February 15	3.3
February 16	4.1
February 18	4.1, 4.2
February 21	Review
February 22	Exam 2
February 23	4.2
February 25	4.3
February 28	4.3, 4.4
March 1	4.5
March 2	4.6
March 4	4.6
March 7	4.6, 4.7
March 8	Exam 3
March 9	4.7
March 11	4.7
March 14 – 18	Spring Break
March 21	4.7
March 22	5.1
March 23	5.2
March 25	5.2, 5.3
March 28	5.3
March 29	Exam 4
March 30	5.4
April 1	5.4
April 4	5.5
April 5	5.5
April 6	5.7
April 8	5.7
April 11	6.1
April 12	Exam 5
April 13	6.2
April 15	Holiday?
April 18	6.2
April 19	6.3
April 20	6.3
April 22	6.4
April 25	6.5

Day	Activity
April 26	Exam 6
April 27	6.6
April 29	6.6
May 2	6.6
May 3	6.7
May 4	6.8
May 6	Review
May 9	Exam 7, 10:30 a.m. – 12:30 a.m.

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- ⁱ openstax website: <https://openstax.org/subjects/math>
 - ⁱⁱ Blackboard Link: <http://blackboard.angelo.edu>
 - ⁱⁱⁱ MyOpenMath Website: <https://www.myopenmath.com/>
 - ^{iv} Student Handbook: <https://www.angelo.edu/current-students/student-handbook/>
 - ^v Disability Services: <https://www.angelo.edu/current-students/disability-services/>
 - ^{vi} Grading Procedures: <https://angelo.policystat.com/policy/10659448/latest/>
 - ^{vii} Student Handbook: <https://www.angelo.edu/current-students/student-handbook/>
 - ^{viii} Writing Center: https://www.angelo.edu/current-students/writing-center/academic_honesty.php
 - ^{ix} Religious Holy Day Observance: <https://angelo.policystat.com/policy/10659231/latest/>
 - ^x Incident Reporting Form: <https://www.angelo.edu/incident-form>
 - ^{xi} Title IX: <https://www.angelo.edu/title-ix>
 - ^{xii} COVID-19 Updates: <https://www.angelo.edu/covid-19/>
 - ^{xiii} Student Handbook: <https://www.angelo.edu/current-students/student-handbook/>
 - ^{xiv} University Catalog: <http://www.angelo.edu/catalogs/>