Abilene Approval Chart for Curriculum Changes

A = Approve I = Information Item R = Respond In Writing

Course Number: MATH 278 - Computational Mathematics Lab **or Degree Plan(s):**

	Campus-Level Academic Review[1]	Dept./School	College	Dean	TEC	AUAC/Grad	Provost
	Change to a Course Include signatures from all chairs/program directors for cross-listed courses.[1]						
1.	Title (description unchanged)	A	A	A	I	I	I
2.	Description (not affecting content)	A	A	A	I	I	I
3.	Course term(s)	A	I	A	I	I	I
4.	Content (change of course outcomes)	A	A	A	I	I	A
5.	Number of credit hours	A	A	A	A	A	A
6.	Course number within the hundred	A	A	I	I	I	I
7.	Course number beyond the hundred	A	A	A	A	A	A
8.	Prerequisites	A	A	A	I	I	I
9.	Course restriction (e.g., majors only, junior standing)	A	A	A	A	A	A
10.	Level change (U to G *or* G to U)	A	A	A	A	A	A
11.	Cross list course	A	A	A	A	A	A
12.	Department of record	A	A	A	A	A	A
13.	Open or close a course	A	A	A	A	A	A
	Change to a Degree Plan						
14.	Educational Program — Revise	A	A	A	A	A	A
15.	Educational Program — Adopt/revise admission requirements	A	A	A	A	A	A
16.	GPA — Revise program-required GPA	A	A	A	A	A	A
17.	Minor — Revise	A	A	A	A	A	A

	Full Review	Dept./School	College	Dean	TEC	AUAC/Grad	Provost	Campus Faculty	Senior VPAA	President
	Change to Catalog Information (for Campus)									
18.	General requirements for Bachelor's and Associate Degrees	–	–	–	–	A	A	A	A	I
19.	Policies governing academic probation and suspension	–	–	–	–	A	A	A	A	I
20.	Requirements for graduating with honors	–	–	–	–	A	A	A	A	I
	Change to a Degree Plan									
21.	Educational Program — Add or Discontinue [3]	A	A	A	A	A	A	A	A	I
22.	Educational Program — Discontinue (Provost-proposed)	R	–	R	A	A	A	A	A	I
23.	Minor — Add or Discontinue	A	A	A	A	A	A	–	A	I
24.	Minor — Discontinue (Provost-proposed)	R	–	R	A	A	A	–	A	I
25.	Degree — Add or Discontinue	A	A	A	A	A	A	A	A	I
26.	Degree — Discontinue (Provost-proposed)	R	–	R	A	A	A	A	A	I

	Change to General Education Requirements for Undergraduates (System)	Dept./School	College	Dean	AUAC	Provost	UGEC	University Faculty	Senior VPAA	President
27.	Change course outcomes of an included course	A	A	A	A	A	A	–	A	I
28.	Add or drop a required course from the General Education Requirements	A	–	A	–	A	A	A	A	I
29.	Add or drop a course from a menu within the General Education Requirements	A	–	A	–	A	A	–	A	I
30.	Comprehensive revision of General Education Requirements	–	–	–	–	A	A	A	A	I

Notes

[2] Any change to a cross-listed course requires the signature of both department chairs or program directors overseeing the course to ensure that the courses stay in sync. This includes courses taught at other campuses (e.g. BIBL 101 and BIBO 101).

[3] For undergraduate majors, a minimum of 30 hours is required. These programs must have a minimum of 6 elective hours, unless the requirements of external accrediting bodies make it impossible. Master's programs must include a minimum of 30 hours, and doctoral programs must include a minimum of 30 hours beyond the master's.

[4] When a department/school or dean proposes closing a program, approval routing follows the typical process beginning with the department/school. An administrative proposal by the provost or senior vice president for academic affairs would follow the "provost-proposed" routing on the chart.

Updated 8/1/2023

Department/School(s)

John Ehrke 02/06/2026

Chair Signature Date

Chair/Program Director Signature Date

College Academic Council(s)

Kathleen Lee 03/19/2026

Chair Signature Date

Chair Signature Date

Dean(s)

Charla S Mantooth 3/30/2026

Signature Date

Signature Date

Teacher Education Council

Signature Date

Campus Academic Council:
Abilene Undergraduate or Abilene Graduate

Signature Date

Provost

Signature Date

University General Education Council

Signature Date

University Faculty

Abilene Faculty Senate Chair signature Date

Dallas Faculty Council Chair signature Date

Senior Vice President for Academic Affairs

Signature Date

President

Signature Date

Abilene New Course Application

You may delete the preceding instructional pages before submitting an application.

Course ID (*Subject Code and Number)*	MATH 278

1. Systems and Catalog Information Complete each item.

A	Course Developer	John Ehrke
B	Course Instructor	John Ehrke
C	Course Title	Computational Mathematics Lab
D	Course Abbreviation for Banner if title is more than 30 characters	
E		OSE - Onstead Science and Engineering
F		MATH - Mathematics
G	Credit hours	1
G1	Lecture hours	0
G2	Lab hours	2
H	Is the course for a fixed or variable number of credit hours?	Fixed If variable, explain rationale:
I	Is the course repeatable for additional credit?	No
J	Maximum total number of credit hours a student can earn for this course	1
K	Course Schedule Type	Lab (LAB) See Schedule Type definitions in the Reference section.
L	Number of Faculty Workload Hours	1
M	Grading Mode	Standard
N	Maximum Enrollment	32

O	**Catalog Description** (50 words or less)	An introduction to computing with Python for science and engineering applications. Students explore calculus concepts computationally while learning core programming skills - variables, arrays, iteration, functions,recursion and plotting with SymPy, NumPy, and Matplotlib - to store, manipulate and visualize data, perform calculations, and represent mathematical functions effectively.
P	List any prerequisites (course/s, test scores, class standing, major, etc.)	MATH 186
Q	List any corequisites (these *must* be taken at the same time; note that a single requirement cannot be both a prerequisite *and* a corequisite)	Concurrent enrollment in MATH 286 recommended.
R	If the course is cross-listed, specify the subject code and course number of the other course	
S	Does this course require any additional student course fees?	No If yes, attach a completed course fee form.
T1	Will the course be offered in **fall** terms?	Yes, every year
T2	Will the course be offered in **spring** terms?	Yes, every year
T3	Will the course be offered in **summer** terms?	No
U	First semester this course will be offered under a new Course ID. *May not be earlier than the coming fall semester.*	Fall 2026
V	Is this course required for a program(s)?	Yes If yes, attach a completed curriculum proposal to change the program(s).

W	Should the addition of this course be retroactively applied to the degree plan it supports? *This is rare, and rationale should explain compelling extenuating circumstances.*	No If yes, provide rationale:
X	Has this course been offered as a Special Topics course? *New courses are not required to be taught as Special Topics courses prior to approval.*	No If yes, provide course ID, term, and enrollment:
Y	List any courses in which the content overlaps the proposed course. (Course ID and Name). *Attach a statement from the instructor/dept chair of the existing course justifying the new offering.*	

2. Curriculum

A. Explain any effects of this course on any degree plans. If the addition of the course alters program requirements, submit a separate Approval Chart for Curriculum Change to update the program.

Because this course is replacing MATH 187 which was a requirement in all of our MATH degree plans and MATH Minor, it has significant impact, but it is just a replacement for MATH 187 so the impact is well understood. We have submitted approval charts for the 187 closure / 278 opening related changes.

B. Justify the addition of this course to the current curriculum, explaining the gap it meets.

To better serve our new Data Science program we are redesigning MATH 187. We feel the course is better positioned as a sophomore course with significantly changed course outcomes, so we are proposing to close MATH 187 and replace it with MATH 278. MATH 278 utilizes Python rather than Maple and integrates key program outcomes for Data Science into a course that previously was only for math majors. We expect some level of interest in this course from Physics/Engineering.

3. Course Design

A. Audience and Course Goal
   1. Describe the intended audience, including prerequisite skills.

The intended audience is first or second year undergraduate students who have completed Calculus I and II and are currently enrolled in Calculus III. This course does not presuppose programming skills but it is helpful if students have already taken CS 120 or CS 130 and will be advised to do so prior to this course.

2. State the overarching course goal(s) in performance terms.
    i. Reinforce concepts discussed in Calculus I, II, and III while learning to operate in a modern computational environment like Python.
    ii. Gain proficiency in selecting appropriate data structures to optimize specific mathematical operations.
    iii. Identify and manage computational errors, such as floating point rounding or issues with computer arithmetic when representing true mathematical values.
    iv. Present both symbolic and visual results that connect theoretical mathematical concepts to computational outcomes.

B. Student Learning Outcomes and Measurements

	Student Learning Outcome	**Measurement**
1	Analyze calculus problems from a computing perspective including proposing and evaluating solutions to problems.	Lab Assignments Quizzes Discussion Boards
2	Learn best practices for the consistent use of variables, data and documentation in Python.	Lab Assignments Quizzes Discussion Boards
3	Be able to use packages in Python associated with symbolic manipulation, numerical calculation, and basic visualization.	Lab Assignments Quizzes Discussion Boards
4	Write simple programs in Python to solve computational problems from a variety of areas in calculus.	Lab Assignments Quizzes Discussion Boards

C. **Text and Resources**

Give the full publication information of the textbook/s and other required resources and outside readings. For **combined undergraduate/graduate** courses, make two lists:

A. full publication information; label **Undergraduate**.

None. We will create the lab manual curriculum for the course and offer students multiple open source free-ware guides to working in Python.

B. full publication information; label **Graduate**.

4. Supporting Documentation

Required of all applications

1	**Approval Chart for Curriculum Changes**
2	**Syllabus** — **Attach** the syllabus for the course based upon the anticipated first-semester offering.
4	**Library** — Submit new course application and syllabus to the Library dean's office. **Attach** the Library's memo.
Attach if applicable	
5	**Content Overlap** — Include one document for each course you listed in Section 1Y. **Attach** statement from instructor/dept chair of existing course justifying the new offering.
6	**Departmental Resources** — List the resources that support the course and are available only through the department, if applicable. **Attach** the list of the holdings and the location(s).
7	**Resources** — List resources (other than library or departmental resources) that are needed to support this course (computers, lab equipment, other technology, etc.). **Attach** a complete list of all items and indicate possible sources or estimated cost of each. List the sources of any needed funds.
8	**Expenses** — List additional expenses needed to implement this course (full-time or part-time faculty, graduate or lab assistants, student employees, travel, special student costs, room renovation, storage facility, etc.). **Attach** a complete list of all items, the estimated cost of each and the source of the funds.
9	**Justification** — **Attach** any documents to which you refer in Section 2B.

ABILENE CHRISTIAN UNIVERSITY

Onstead College of Science and Engineering
Department of Mathematics

MATH 278
Computational Mathematics Lab
Section 01
Fall 2026

Syllabus

Contact Information

Instructor: Dr. John Ehrke, Associate Professor of Mathematics
Email: john.ehrke@acu.edu
Phone: 325-513-4242 (cell), 325-674-2162 (office)
Office: Onstead Science Center 173

Instructor Availability

It is my responsibility as the instructor to provide timely responses to all email or personal communications in a respectful and professional manner. In kind, the same applies to student communications with the instructor.

In-Person Office Hours: Monday 3-5 PM, Wednesday 2-4 PM, Tuesday 1:30 - 3 PM
Zoom Office Hours: Subject to availability

Join Zoom Meeting

https://acuonline.zoom.us/j/8095293581

Meeting ID: 809 529 3581

Mission Statements

This course supports ACU's mission statement of preparing students for Christian service and leadership throughout the world by providing students a foundational understanding of the mathematical principles such as problem solving and decision making, as well as exposing students to the role of mathematics in a Christian worldview.

The mission of the Onstead College of Science and Engineering is to explore and understand God's creation in the natural world and apply the acquired knowledge and principles to address its issues and challenges.

The mission of the Department of Mathematics is to educate students to be quantitative and analytical thinkers in preparation for Christian service and leadership throughout the world.

Course Information

Credit Meeting and Hours Information

This is a 1 credit hour course that meets once per week on Wednesday afternoons.

Room: TBD
Time: Wednesday 3:00 - 4:20

Course Description and Purpose

MATH 278 - Computational Mathematics Lab (0-2-1) Fall, spring. An introduction to computing with Python for science and engineering applications. Students explore calculus concepts computationally while learning core programming skills - variables, arrays, iteration, functions,recursion and plotting with SymPy, NumPy, and Matplotlib - to store, manipulate and visualize data, perform calculations, and represent mathematical functions effectively.

Prerequisites: MATH 186. Concurrent enrollment in MATH 286 recommended.

This course is not repeatable for course credit.

Course Goals

This course is a lab on how to think about and solve problems from the calculus sequence using Python and mathematics, not a course on merely how to write programs in the Python language. It serves as an introduction to Python, an essential computing and programming platform in the sciences. You will learn Python as you work to reinforce the concepts discussed in MATH 185, 186 and 286. You will even find that computing in this environment opens us up to discovering new concepts and relationships. At the end of this course, you will have the background to use Python as a tool to help you solve problems in your other math and science courses.

Course Materials

MATH VDI: You will have access to the Mathematics Virtual Lab (VDI) for completing assignments in the course. Go to https://vlab.acu.edu. You can either download an application to install on your computer/device which will allow you to connect to the VDI remotely, or you can connect through the browser.

For more information, go to https://support.acu.edu/TDClient/1963/Portal/KB/ArticleDet?ID=136951 to find out how to access the virtual lab. Alternatively, students can choose to download their own

Python distribution on a laptop and bring that with them to class. Instructions for obtaining your own distribution and installing Jupyter notebooks will be provided in class.

Python: For this class we will use Python 3 for all programming work. Python can be obtained at https://www.python.org/downloads. We will be using Google Colab for all in class work and demonstrations. All work will be submitted as pdf files exported from .ipynb files in Colab.

Learning Management System: This course will make use of the Canvas learning management system (LMS). Canvas can be accessed through the myACU portal and will host assignments, discussions, and a variety of lecture resources including links to slides and videos. Canvas also features a course calendar with due dates for various assignments as well as class prep lists. We will reference Canvas early and often throughout the semester.

Lab TA: The teaching assistant (TA) for the lab is available to help everyone in the lab. No one student can monopolize the TA's time during lab to the exclusion of other students. The TA will attempt to help all students. If one or more students consistently have the same problems, then the TA will stop class and explain an idea or problem to everyone.

Course Competencies

The course objectives below describe the outcomes of the course in terms of specific and measurable actions, capabilities, or skills students will be able to perform as a result of experiences in the course.

Course Competencies	Developing these Competencies
Analyze calculus problems from a computing perspective including proposing and evaluating solutions to problems.	Lab Assignments Quizzes Discussion Boards
Implement best practices for the consistent use of variables, data and documentation in Python.	Lab Assignments Quizzes Discussion Boards
Utilize packages in Python associated with symbolic manipulation, numerical calculation, and basic visualization.	Lab Assignments Quizzes Discussion Boards
Write simple programs in Python to solve computational problems from a variety of areas in calculus.	Lab Assignments Quizzes Discussion Boards

Course Assessments

This course utilizes a standard percentage-based grading system allowing students to earn points from various assessments throughout the semester. Your grade in the course will be based on the following tiers and assignments at semester's end.

Percentage Grade	Letter Grade Received
90-100	A
80-89	B
70-79	C
60-69	D
0-59	F

Assessment	Number	Percent
Lab Assignments	10-12	50%
Quizzes	6	20%
Discussion Board Participation	1	5%
Final Exam	1	25%
Totals	18-20	100%

Description of Assessments

- **Lab Assignments:** There will be between 10 and 12 lab assignments during the semester with each assignment worth 100 points. The lab assignments are meant to provide an introduction to Python and to give you experience in using a computational approach to solve problems from calculus. Several of the lab assignments are exercises to introduce the Python commands and syntax for doing calculations. Other lab assignments are projects which require you to apply previously learned commands to solve problems.
- **Quizzes:** There will be 6 short quizzes during the semester with each quiz worth 20 points. Each quiz will be over material presented in class and will primarily cover questions about Python and its syntax, but may also include mathematical concepts introduced.
- **Discussion Board:** Each unit on Canvas has a corresponding discussion board. Students may earn up to 2 points on each module by:
    - Asking a coherent mathematical or programming question (+1 each) or
    - Answering a fellow student's question (if the answer is correct) (+1 each).

  The purpose of the discussion board is to promote coordination among students in a controlled environment and help provide documentation to the work during the semester. Posts will be monitored by the Lab TA and should refrain from providing full solutions or help outside the scope of their purpose.
- **Final Exam:** The final exam will be administered during class time. Exams are closed book and closed note. The final will focus on Python and its commands and syntax.

Course Policies and Expectations

Classroom and Communication Policies

Make Up Policy

During the semester, many assignments will have due dates posted on Canvas and announced in class. The purpose of a due date is to give you a timeline within which to work and allow for formative assessment of your work. An assignment, once due, will not be accepted under any circumstance if any of the following have occurred:

- The assignment is not submitted before an answer key is posted.
- The assignment is not submitted before being closed. This applies to Canvas discussions and any assignments completed in Learning Catalytics or in an online homework portal. These have rigid closure times and once closed will not be reopened.
- The assignment is not submitted before grading begins.
- In addition, assignments will incur a 10% penalty for each of the following infractions that occur. This includes all assignments in the course - including major assignments - so be careful to follow all given instructions precisely.
- Assignments not turned in on time will receive a 10% penalty for each day it is late.
- Assignments turned in where instructions are not followed will receive a 10% penalty for each infraction.

Penalties are additive, rather than multiplicative, so if an assignment is turned in 2 days late and an instruction was not correctly followed, then there are three infractions for a total penalty of 30%, meaning the highest grade the assignment could receive is a 70%. (Effectively, I will multiply whatever grade you earn by 0.7 to determine the adjusted grade in this case.)

Please note that you are responsible for working with your group on collaborative assignments -- like the modeling projects -- even if you are not in class on the day groups are assigned. Failure to work with your group in a good faith manner will render you ineligible for credit with the rest of your group. Any group wishing to dismiss a member of the group for inaction must inform the instructor at least three days before the due date. You may opt to complete the assignment on your own for credit if you are dismissed from a group.

In the case of extenuating circumstances, such as illness, injury or other personal emergency you can request an extension for assignments. Any such requests must be made in advance of the due date or class date; requests made after the due date or the start of class where a quiz is taken will not be honored. This means that if you have a conflict that prevents you from attending class to complete an assignment you must notify the instructor before class begins and arrange a time/date to make up the assignment. This policy applies to all assignments including exams/projects. Please note that some assignments cannot have extended due dates and will require you to complete the assignment early if there is a conflict.

Finally, you are ultimately responsible for ensuring that your grade in the course is being calculated correctly according to this syllabus and that there are no missing or incomplete grades in the Canvas

gradebook. The instructor will make every effort to keep the gradebook up-to-date and accurate but mistakes can sometimes be made. Please be diligent in taking ownership of your grade and performance in this course.

Attendance and Drop Policy

Your regular attendance is both necessary and expected. You are responsible for all material covered while absent and will be expected to take regularly scheduled exams and are responsible for turning in work on the assigned dates. Attendance will be recorded at the beginning of each class. If you come in after attendance is taken you will be counted absent. So make every effort to arrive in class on time, prepared for class. Only university approved absences can exempt you from being counted absent.

Per university policy, university approved absences must be cleared with the instructor one week in advance. Make your sponsors aware that failure to comply with this policy will affect your attendance record in this class.

If you need to drop this class, please discuss it with your instructor first. The **instructor will never initiate a drop** so it is your responsibility to make an informed decision when it comes to dropping or not dropping this course.

Academic Integrity Policy

The most powerful motive for integrity and truthfulness comes from one's desire to imitate God's nature in our lives. As a community of Christian students and scholars, we are each responsible to expect behaviors from each other consistent with the nature of God, to respect the community, and to respect ourselves.

Expectations of academic honesty and integrity extend to both university employees and students. Every member of the community is responsible for protecting the integrity of learning, scholarship, and research. Being responsible requires action against violations in spite of peer pressure, loyalty, or compassion. Individuals must take responsibility for their own conduct and discourage misconduct by others.

Definition of Academic Integrity

Academic integrity is defined as academic work completed as assigned for each class by the individual or group responsible for the work. Academic work includes but is not limited to reading assignments, homework assignments, assessments, examinations and tests, attendance at required out-of-class activities, written or oral presentations, and laboratory experiments and research.

Violations of academic integrity and other forms of cheating involve the intention to deceive or mislead or misrepresent and therefore, are a form of lying. Specific examples of violations of academic integrity in this course include, but are not limited to, the following:

- Submitting for credit, in whole or in part, the work of others.

- Receiving, giving, or using unauthorized aid on an examination, test, quiz, or assignment (e.g., texting).
- Viewing the answers of a nearby classmate during an examination, test, quiz, or assignment.
- Having inappropriate notes/practice work available during an examination, test, quiz, or assignment.
- Obtaining examination, test, or quiz questions before the examination, test, or quiz is given.
- Accessing printed copies or electronic copies of formulas and/or notes during an examination, test, quiz, or assignment without instructor approval.
- Failure to give credit to sources used in a work in an attempt to present the work as one's own.
- Submission of paper(s), project(s), or assignment(s), in whole or in part, obtained from any source, such as a friend, research service, or club paper file, as one's own.
- Allowing other members of a group to provide a disproportionate fraction of a required group project or activity.
- Claiming credit for an attendance or service activity without attending or performing the activity.
- Written or oral presentation of falsified materials and facts, including but not limited to the results of interviews, laboratory experiments, and field-based research.

Consequences of Breach

Violations of academic integrity may result in, but are not limited to, the following consequences:

- A first offense will result in a grade of 0 on the assignment in which the violation of academic integrity occurred.
- You will be permitted to remain in the class after the first offense of being found in violation of the academic integrity policy.
- A second violation in a class will result in an automatic grade of F in the course.
- All violations of academic integrity will be reported to the Dean of the College of Arts and Sciences and the Dean of Students in the Student Life Office.

Appeal Process

If you would like to appeal a decision, then please follow this link to file an appeal: https://acu.edu/office-of-the-provost/academic-policies/

Generative AI: As generative AI technology continues to advance and transform various industries and aspects of society, its application in academic settings presents significant challenges. In particular, the role of AI in this mathematics course must be approached with caution.

This course is designed to build your computational, reasoning, and problem-solving skills through rigorous, step-by-step practice. Relying on AI for these tasks can undermine the learning process by bypassing essential problem-solving experiences and limiting opportunities for personal growth and authentic intellectual development. At ACU, our focus is on fostering deep learning and developing future leaders, which AI cannot replace.

Therefore, the use of generative AI to solve mathematics problems and present them as your own work is strictly prohibited. Additionally, AI-generated content is not permitted for writing or reflection assignments. While you may use AI tools for editing or providing feedback, they

should not be used to produce the core content of your submissions.

For any other uses of AI, please consult with your instructor beforehand, as unauthorized use may be considered a violation of academic integrity.

Student Opportunities, Advocacy, and Resources (SOAR): SOAR partners with faculty, staff, parents and students to assist ACU students and connect them to resources available to support their path to success. For more information about SOAR or to make a SOAR recommendation, see https://acu.edu/soar-program.

Disability Accommodations

Abilene Christian University is dedicated to removing barriers and opening access for students with disabilities in compliance with ADA and Section 504 of the Rehabilitation Act. The Alpha Scholars Program facilitates disability accommodations in cooperation with instructors. In order to receive accommodation, you must be registered with the Alpha Scholars Program, and you must complete a specific request for each class in which you need accommodations. If you have a documented disability and wish to discuss academic accommodations, please call our office directly at 325-674-2667.

The ACU website provides more information at https://acu.edu/about/uap/overview.

Medical and Mental Care

As a student, you may experience a range of issues that can cause barriers to learning: strained relationships, increased anxiety, alcohol/drug dependence, depression, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance if not addressed. ACU is committed to supporting students addressing these concerns.

You can contact the Medical Care and Counseling Center at counseling@acu.edu, or by calling 325-674-2626. In addition, you can access free confidential counseling services through the Timely Care app (search *timely.md acu*) or calling (833) 484-6359.

Anti-Harassment Policy

As a professor, one of my responsibilities is to help create a safe learning environment on our campus. I also have a mandatory reporting responsibility related to my role as a professor. It is my goal that you feel able to share information related to life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep the information you share private to the greatest extent possible. When I am not able to keep your information confidential, I will only share it with responsible administrators on campus who can provide you with services and resources. I am required to share with the Title IX Coordinator information regarding sexual misconduct or harassment, dating or domestic violence or stalking that you report to me. If you would prefer to share information in a confidential setting, I encourage you to speak with someone in the ACU Counseling Center. All of your options are available for review by clicking on the link to ACU's policy.

Title IX Policy: At ACU, we strive to comply with all applicable legal requirements prohibiting, preventing and responding to sexual misconduct against any member of the ACU community. The full Title IX policy and process can be found at https://acu.edu/human-resources/title-ix-and-sexual-misconduct-information/.

Course Schedule

Week	Topic	Assignments
Week 1	- Installing Python - Numpy, sympy - Data and variables in Python - Symbols and functions in Python - Solving equations in Python	
Week 2	- Matplotlib - Plotting functions of one variable - Plotting functions of several variables - Level curves and contour plots - Parametric and polar plots	Lab Assignment #1 Due Quiz 1
Week 3	- Lists and arrays - Matrix arithmetic - Solutions of linear systems of equations - Iterations and recursions	Lab Assignment #2 Due
Week 4	- Numerical, graphical and symbolic limits - Finding derivatives - Tangent lines and normal lines - Implicit differentiation	Lab Assignment #3 Due Quiz 2
Week 5	- Definite and indefinite integrals - Numerical integration - Arclength	Lab Assignment #4 Due
Week 6	- Single variable optimization - Newton-raphson method	Lab Assignment #5 Due Quiz 3
Week 7	- Generating and plotting partial sums - Geometric sums - Power series - Taylor series	Lab Assignment #6 Due
Week 8	- Vectors - Dot product, cross product - Projections	Lab Assignment #7
Week 9	- Partial derivatives and chain rule - Tangent plane approximations - Gradients and directional derivatives	Quiz 4
Week 10	- Multivariable optimization - Least Squares regression	Lab Assignment #8
Week 11	- Constrained optimization - Gradient-descent algorithm	Lab Assignment #9 Quiz 5

Week 12	- Double integration - Triple integration	
Week 13	- Vector fields - Line Integrals	Lab Assignment #10 Quiz 6
Week 14	- Parametric surfaces - Curl and divergence - Theorems of Vector Calculus	Lab Assignment #11
Week 15	- Final Exam	Lab Assignment #12

ABILENE CHRISTIAN UNIVERSITY

LIBRARY

M E M O R A N D U M

DATE: FEBRUARY 10, 2026

TO: Dr. John Ehrke

FROM: Mark McCallon, Associate Dean for Library Services

RE: New Course Application – MATH 278 – Computational Mathematics Lab

---

After reviewing the course syllabus, the Library is able to support the proposed course. Please contact Mark McCallon (mccallonm@acu.edu), if additional library resources are needed for the course. Thank you for the opportunity to evaluate the course syllabus.

February 11, 2026

Dr. John Ehrke
Associate Professor of Mathematics, Department Chair
Department of Mathematics
Onstead Science Center 173
(325) 674-2162

Re: Computational Mathematics Lab (MATH 278)

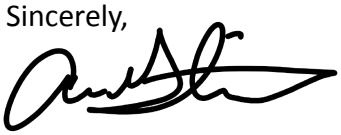
Dear Dr. Ehrke,

Thank you for the submission of MATH 278: Computational Mathematics Lab for review. I have reviewed it based on the ACU Syllabus Guidelines. I found the syllabus to meet all aspects of the checklist.

Please note that this letter is intended as a reference, which will be read by the department chair and council members, who may also have questions or comments of their own. If you have any questions, please feel free to let me know.

Please also let me know if we can help in the design and facilitation of this course.

Sincerely,



Dr. Amos Gutierrez
Director of Instructional Design, Adams Center