

Course Title: MATH 1124 Calculus with Analytic Geometry I

Course Prefix: MATH Course No.: 1124 CRN: XXXXX Section No.: XXX

Department of Mathematics

College of Arts and Sciences

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Office Hours: |

Virtual Office Hours:

Course Location: BNKS 340

Class Meeting Days & Times: TR 08:00 – 09:50

Course Abbreviation and Number: MATH 1124 - Pxx

Catalog Description: Credit 4 semester hours. Functions and graphs, limits and continuity, derivatives of functions, Mean Value Theorem, applications of derivatives. Fundamental Theorem of Calculus and applications of integrals

Prerequisites: Math 1115 OR Math 1113 and Math 1123 with min grade of "C" or better.
PREREQUISITES BY TOPIC: College Algebra and Trigonometry

Co-requisites: NA

Required Text: Calculus, 6th edition, by James Stewart, Brooks Cole Publishing Company ISBN-13: 978-0-495-01160-6; ISBN-10: 0-495-01160-6

Recommended Text: | NA

Access to Learning Resources: PVAMU Library:
phone: (936) 261-1500;
web: <http://www.tamu.edu/pvamu/library/>
University Bookstore:
phone: (936) 261-1990;
web: <https://www.bkstr.com/Home/10001-10734-1?demoKey=d>

Course Goals or Overview:

COURSE GOALS:

Goal Number	Goal	Alignment with Core Curriculum
1	Give the ϵ - δ meaning the expression $\lim_{x \rightarrow a} f(x)$ Evaluate and solve confidently. Apply to other mathematical expressions.	CT and CS
2	Compute the limit of the sum, product, and quotient of functions. Communication these class in classroom board work.	CT and CS
3	Explain / evaluate / interpret limits at infinity.	CT, CS and EQ
4	Define, explain and identify continuous functions.	CT, CS and EQ
5	State the definition of the derivative of a function at a point 'a'	CT, CS and EQ
6	Solve problems involving velocity, acceleration, and speed.	CT, CS and EQ
7	Apply the chain, product, quotient, and power rule for the derivatives.	CT, CS and EQ
8	Compute derivatives of trigonometric and transcendental functions.	CT, CS and EQ
9	Solve and write problems involving higher order implicit differentiation.	CT, CS and EQ
10	Determine the extreme values of a function. Deliver prediction to class.	CT, CS and EQ
11	Discuss / explain concavity and use the first and second derivative test.	CT, CS and EQ
12	Solve optimization and projectile motion problems.	CT, CS and EQ
13	Compute and interpret the anti-derivative of polynomials, trigonometric, and transcendental functions.	CT, CS and EQ
14	State the fundamental Theorem of Calculus.	CT, CS and EQ
15	Use the properties of integrals to evaluate integrals.	CT, CS and EQ
16	Discuss the criteria for the existence of limits and why certain limits fail to exist.	CT, CS and EQ

Alignment with Core Curriculum - Core Objectives and Component Areas

CT = Critical Thinking
 CS – Communication Skills
 EQ = Empirical and Quantitative

At the end of this course,

Student successfully completing this course will be ready for Math 2024.

Course Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

Exams – written tests designed to measure knowledge of presented course material

Exercises – written assignments designed to supplement and reinforce course material

Projects – assignments designed to measure ability to apply and communicate presented course material

Class Participation – daily attendance and participation in class discussions

Grading Matrix

Weights for the percentage course mark

Class attendance and participation	10%
Homework & Projects	15%
Quizzes	15%
Tests and Midterm Exam	35%
Final Exam (<i>comprehensive</i>)	25%

The grade and the final percentage course mark are related:

90% - 100% **A**, 80% - 89% **B**, 70% - 79% **C**, 60% - 69% **D**, 0% - 59% **F**

Course Procedures

Weeks	Topic	Note
1	I. Introduction and two-dimensional vectors	
2	A. Review the range and domain of Polynomials, Radical, Rational, and Trigonometric Functions B. Parameterized Curves C. Presentation of ability to solve and deliver functions.	QUIZ
3	II. Limits and Continuity A. Definitions B. Techniques for finding limits C. Limits an Infinity D. Continuous Functions 1. Definition 2. Properties of continuous functions 3. Types of discontinuities The Intermediate Value Theorem Presentation of evaluated functions.	QUIZ
4		
5		Test 1
6	III. Derivatives A. Definition and Notations 1. Limit Definition 2. Continuous and Differentiable Functions B. Techniques of Differentiation 1. Power Rule 2. Product Rule 3. Quotient Rule 4. Chain Rule 5. Student presentation on applying learned rules. C. Derivatives of Trigonometric Functions D. Derivatives of vector-value functions E. Students organize and deliver presentation on derivatives. F. Implicit Derivatives and Higher Order Derivatives G. Related Rates, Differentials and Approximations 1. Newton's Method 2. Linear Approximations G-H. Applications of Differentiation H-I. Students express applications of differentiation with presentation. J. Transcendental Functions 1. Exponential, Inverse, and Logarithmic Functions 2. Derivative Formulas of Transcendental Functions 3. Derivative of Inverse Trigonometric Functions	MIDTERM
7		
8		
9		
10		
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12		
13		
14/15	IV. Integrals A. Anti-derivatives B. The Definite Integral C. The Substitution rule. D. Students present and write evaluated review problems.	TEST 3

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Submission of Assignments:

Current homework assignments and computer lab projects will be collected. No late homework or project will be accepted.

Study Hints:

1. Attend class regularly.
2. You should read the material from the textbook before coming to class. The accompanying

assignment sheet shows the class schedule and the corresponding text material for each class meeting. If you miss a class, you are expected to find out which material was covered and to familiarize yourself with it. Please ask questions if you have any.

3. Form study groups with classmates.
4. Make use of office hours.
5. Make use of the Math Tutorial Lab in WR Banks, Room 303.
6. Study regularly instead of cramming for test.

Formatting Documents:

Microsoft Word is the standard word processing tool used at PVAMU. If you're using other word processors, be sure to use the "save as" tool and save the document in either the Microsoft Word, Rich-Text, or plain text format.

Exam Policy

Exams should be taken as scheduled. No makeup examinations will be allowed except under documented emergencies (See Student Handbook).

Professional Organizations and Journals

NA

References

Swokowski, E.W., PWS – Kent Publishing Company, Boston

University Rules and Procedures

Disability statement (See Student Handbook):

Students with disabilities, including learning disabilities, who wish to request accommodations in class should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

Academic misconduct (See Student Handbook):

You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

Forms of academic dishonesty:

1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.
2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.
3. Fabrication: use of invented information or falsified research.
4. Plagiarism: unacknowledged quotation and/or paraphrase of someone else's words, ideas, or data as one's own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one's own work also constitutes plagiarism.

Nonacademic misconduct (See Student Handbook)

The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

Sexual misconduct (See Student Handbook):

Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

Attendance Policy:

Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class.

Student Academic Appeals Process

Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

Technical Considerations for Online and Web-Assist Courses

Minimum Hardware and Software Requirements:

- Pentium with Windows XP or PowerMac with OS 9
- 56K modem or network access
- Internet provider with SLIP or PPP
- 8X or greater CD-ROM
- 64MB RAM
- Hard drive with 40MB available space
- 15" monitor, 800x600, color or 16 bit
- Sound card w/speakers
- Microphone and recording software
- Keyboard & mouse
- Netscape Communicator ver. 4.61 or Microsoft Internet Explorer ver. 5.0 /plug-ins
- Participants should have a basic proficiency of the following computer skills:
 - Sending and receiving email
 - A working knowledge of the Internet
 - Proficiency in Microsoft Word
 - Proficiency in the Acrobat PDF Reader
 - Basic knowledge of Windows or Mac O.S.

Netiquette (online etiquette): students are expected to participate in all discussions and virtual classroom chats when directed to do so. Students are to be respectful and courteous to others in the discussions. Foul or abusive language will not be tolerated. When referring to information from books, websites or articles, please use APA standards to reference sources.

Technical Support: Students should call the Prairie View A&M University Helpdesk at 936-261-2525 for technical issues with accessing your online course. The helpdesk is available 24 hours a day/7 days a week. For other technical questions regarding your online course, call the Office of Distance Learning at 936-261-3290 or 936-261-3282

Communication Expectations and Standards:

All emails or discussion postings will receive a response from the instructor within 48 hours. You can send email anytime that is convenient to you, but I check my email messages continuously during the day throughout the work-week (Monday through Friday). I will respond to email messages during the work-week by the close of business (5:00 pm) on the day following my receipt of them. Emails that I receive on Friday will be responded to by the close of business on the following Monday.

Submission of Assignments:

Assignments, Papers, Exercises, and Projects will distributed and submitted through your online course. Directions for accessing your online course will be provided. Additional assistance can be obtained from the Office of Distance Learning.

Discussion Requirement:

Because this is an online course, there will be no required face to face meetings on campus. However, we will participate in conversations about the readings, lectures, materials, and other aspects of the course in a true seminar fashion. We will accomplish this by use of the discussion board. Students are required to log-on to the course website often to participate in discussion. It is strongly advised that you check the discussion area daily to keep abreast of discussions. When a topic is posted, everyone is required to participate. The exact use of discussion will be determined by the instructor.

It is strongly suggested that students type their discussion postings in a word processing application and save it to their PC or a removable drive before posting to the discussion board. This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical

errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, it should be copied and pasted to the discussion board.

College of Arts and Sciences Student & Staff Aspiration Statement

The faculty and staff of the College of Arts and Sciences at PVAMU are committed to providing the best possible quality education to its students. To that end, we will work hard to prepare the students for success by setting the proper academic environment and background necessary to facilitate learning. In order for us to be successful, there are some basic expectations our students must demonstrate. These expectations are a simple ingredient to foster camaraderie and '*esprit de corps*' in every class and classroom on campus. Additionally, these are lifelong fundamental learning skills to better prepare students for success in America's job market.

CAS student expectations:

- You are expected to come to class prepared and on time.
- Higher education is an investment in your future, to that end; you must endeavor to be properly equipped for class. (i.e. School supplies, text, and other supporting materials).
- Resolution of any classroom issues (i.e. Grades, course materials, etc) should begin with the instructor.
- If you must leave early, notify the instructor before the class begins, sit by the door, and exit quietly
- Be considerate of your fellow classmates; please turn off all phones, pagers and other electronic devices.
- Do not talk to other students during lecture. If you have a question or a comment on the subject being discussed, address it to the instructor directly.
- Walk quietly through the hallways, classes in other rooms may still be in session.
- Please refrain from eating, drinking, sleeping in class, using profanity, and engaging in any form of horseplay in the classroom it is disruptive to your fellow classmates.
- Be respectful, civil, polite and considerate when dealing with your professors as well as your fellow classmates.
- Student attire is based on personal preference and taste. The rule of thumb is simple, if it projects a statement which is offensive to others, then maturity should dictate that it is probably not a good idea to wear to class.
- Enthusiasm is infectious, a smile and positive attitude will go far to motivate and charge your professors and fellow classmates