TEXAS COLLEGE
Division of Natural and Computational Sciences
Course Syllabus Spring 2021

MATH 2414.01 Calculus and Analytical Geometry II

College is a Historically Black College founded in 1894, by the Colored Methodist Episcopal Church, now the Christian Methodist Episcopal Church (CME). Our mission continues to embody the principles of the Christian Methodist Episcopal Church. The College shall prepare students with competencies in critical and creative thinking related to the knowledge, skills, and abilities as defined in areas of study. Additionally, the College shall provide an environment to inspire intellectual, spiritual, ethical, moral, and social development, which empowers graduates to engage in life-long learning, leadership, and service.

PREREQUISITE COURSES:

TEXTBOOK: Good news: your textbook for this class is available for free online! If you prefer, you can also get a print version at a very low cost.

Your book is available in web view and PDF for free. You can also choose to purchase on iBooks or get a print version from OpenStax on Amazon.com.

You can use whichever formats you want. Web view is recommended -- the responsive design works seamlessly on any device. If you buy on Amazon, make sure you use the link on your book page on openstax.org so you get the official OpenStax print version. (Simple printouts sold by third parties on Amazon are not verifiable and not as high-quality.)

Introductory Statistics from OpenStax, Print ISBN 1938168208, Digital ISBN 1947172050,
www.openstax.org/details/introductory-statistics

METHODS OF INSTRUCTIONAL DELIVERY: Online with synchronous technical support sessions as needed. Collaboration, technology, reading, and individual problem-solving practice assignments.

COURSE DESCRIPTION

MATH 2414 – Calculus and Analytical Geometry II - Studies applications of definite integrals to areas between curves, volumes, approximations, length of arc; areas of surfaces of revolution, moments, centroids, Pappus theorem; pressure, work; various techniques of integration, and special topics. Prerequisite: MATH 2413.

COURSE OBJECTIVES

Upon successful completion of MATH 2414, the student will be able to:

1. Apply definite integrals to find areas under curves, areas between curves, volumes, arc lengths, areas of surfaces of revolution.
2. Apply various techniques of integration including substitution, integration by parts, trigonometric substitution, and partial fractions.
3. Use integrals to find moments, centroids, pressure, and work.
4. Understand and apply sequences and series.

TEXAS COLLEGE OUTCOMES FOR GENERAL EDUCATION

MATH 2414 is aligned with the Texas College mission and ensures the following institutional objectives:
1. Enhance communicative skills (oral and written)
2. Enhance critical thinking and technology skills
3. Enhance leadership abilities and spiritual awareness
4. Create opportunities for professional and post-graduate pathways

MARKETABLE SKILLS FOR CAREER PATHWAYS

Literacy (Reading)	Reinforced and Assessed
Active Listening	Reinforced
Literacy (Writing)	Reinforced and Assessed
Critical Thinking	Reinforced and Assessed
Time Management	Reinforced
Relationship Management	Reinforced
Service Orientation	Reinforced
Problem Solving	Reinforced and Assessed
Technology	Reinforced and Assessed

SOFTWARE AND SUPPLIES

Software and Programs:
1. Access to websites as referenced in class. Students attempting to gain access through cell phones, Mac books, or outdated equipment may experience difficulties with certain websites or videos. It is the student's responsibility to locate a computer lab with viable equipment.
2. Access to JICS online classroom. It is the student's responsibility to become familiar with the online classroom and related components.
3. Most documents in this course will be HTML or Word format. However, you will need the additional software (which can be downloaded free from the Internet): Adobe Reader, SKYPE, Windows Media Player, and Quicktime.
4. Web 2.0 tools will be available online without additional costs to students. Students should be prepared to back up files on their own Flash Drive. Work should be saved more than once, as it is not the instructor's responsibility if technology issues suddenly occur and information is lost.

COURSE POLICIES AND PROCEDURES

MATH 2414.01 is an online course delivered through the JICS/E-Racer learning platform. Students should possess a working knowledge of computers and basic software applications. Email and internet skills are essential. Microsoft Office programs and tutorials are provided for free in JICS in the "Technology Help" tab.

SUBMISSION OF ASSIGNMENTS

All assignments must be submitted in JICS. Please do not submit work through email.

Please include your calculations with your answers to obtain full credit. No credit will be given if the final answer is given without the necessary intermediate steps.

No late assignment will be accepted!

There are several methods for uploading your work to the course space.

- If you have an all-in-one printer/scanner/copier, then simply scan each page into your computer and upload the resulting .pdf file(s) as an attachment to this assignment.
- You can take a picture of your work with your mobile phone or tablet, and upload the jpeg(s).
- You can use an app such as Adobe Scan to take a picture with your phone and convert it into a .pdf file.
  *This does not constitute an endorsement of this app. It is simply provided as an example.

ATTENDANCE POLICY

Online participation is a requirement for a passing grade in this course.

ACADEMIC INTEGRITY

Texas College believes that strength of character is as important as academic achievement; therefore, the College expects everyone in the academic community to maintain personal integrity in academic matters and not to contribute or condone the dishonesty of others. Scholastic dishonesty (which includes any form of plagiarism, cheating, falsification of records, and collusion with others to defraud) is improper and will not be tolerated. Texas College reserves the right to apply disciplinary actions to a student who has committed scholastic dishonesty.

REMEDIATION PLAN

Students who have difficulty with the course will have the opportunity to:

- Meet with the professor for one-on-one support through fact-to-face meetings, telephone sessions, or web conferencing.
- Revise unsatisfactory work until it is satisfactory within a 7- day time limit.

GRADING RUBRIC

90-100	A	Transformative (and submitted on time)
80-89	B	Proficient
70-79	C	Developing

60-69	D	Beginning
Below 60	F	Not Submitted

Assignment Type	Percentage of Grade
Homework	30%
Quizzes	20%
3 Tests	30%
Final Exam	20%
Total	100%

DISABILITIES AND SPECIAL NEEDS

Texas College provides equal opportunity to qualified disabled persons in accordance with the requirements of the American with Disabilities Act (ADA). This Act ensures that individuals with current disabling conditions are provided reasonable accommodations to enable them to enjoy the programs, activities, services and employment opportunities offered by the College. Texas College adheres to this provision once a student/employee self identifies. Students may contact the Office of Academic Affairs for information/assistance at: adasupport@texascollege.edu .

NOTICE OF NON-DISCRIMINATION

Texas College does not discriminate in any employment practice, education program, or educational activity on the basis of race, color, religion, national origin, sex, age, disability, sexual orientation, or veteran status. The Vice President for Academic Affairs has been designated to handle student inquiries regarding nondiscrimination policies. Contact information is: Texas College, Attn: Vice President for Academic Affairs, Office of Academic Affairs/Martin Hall 1st floor, 2404 North Grand Avenue, Tyler, Texas 75702.

COURSE VIDEOS
Videos covering aspects of probability and statistics may be found at

WEEKLY COURSE SCHEDULE

Week	Topics and Readings	Assignments and Activities	Due Date	SLOs
Week 1	Basic Differentiation: A Refresher – Part 1	Basic Differentiation: A Refresher - HW #1	2/14/21	
Week 2	Basic Differentiation: A Refresher – Part 2	Basic Differentiation: A Refresher - HW #2	2/21/21	

Week				
Week 3	Basic Differentiation: A Refresher – Part 3	Basic Differentiation: A Refresher - HW #3	2/21/21	
Week 4	Basic Differentiation: A Refresher – Part 4	Basic Differentiati n: A Refresher - HW #4 Quiz #1	2/28/21	
Week 5	**Chapter 1: Integration** . . . . 1.1 Approximating Areas . . . . 1.2 *The Definite Integral* . . . . 1.3 The Fundamental Theorem of Calculus	HW#5 Checkpoin 1.1-1.20	3/7/21	1
Week 6	1.4 Integration Formulas and the Net Change Theorem . . . . 1.5 Substitution . . . . 1.6 Integrals Involving Exponential and Logarithmic Functions	HW#6 Checkpoin 1.21-1.39 Test #1	3/14/21	1
Week 7	1.7 Integrals Resulting in Inverse Trigonometric Functions . **Chapter 2: Applications of Integration** . . . . 2.1 Areas between Curves . . . . 2.2 Determining Volumes by Slicing	HW#7 Checkpoin 1.40-1.44 HW#8 Checkpoin 2.1-2.11 Quiz #2	3/21/21 3/21/21	2
Week 8	2.3 Volumes of Revolution: Cylindrical Shells 2.4 Arc Length of a Curve and Surface Area 2.5 Physical Applications . . . . 2.6 Moments and Centers of Mass	HW#9 Checkpoin 2.12-2.34 Quiz #3	3/28/21 3/28/21 3/28/21	2, 3
Week 9	2.7 Integrals, Exponential Functions, and Logarithms 2.8 Exponential Growth and Decay . . . . 2.9 Calculus of the Hyperbolic Functions	HW #10 Checkpo nt 2.35m 2.51 Exam Test #2 – Mid-Ter	4/4/21 4/4/21 4/4/21	2, 3
Week 10	**Chapter 3: Techniques of Integration** . . 3.1 Integration by Parts . . . . 3.2 Trigonometric Integrals . . . . . . 3.3 Trigonometric Substitution . . . . 3.4 Partial Fractions	HW#11 Checkpoi t 3.1-3.20 Quiz #4	4/11/21 4/11/21 4/11/21	3
Week 11	3.5 Other Strategies for Integration . 3.6 Numerical Integration . . . . . . 3.7 Improper Integrals . . . . Quiz #5	HW#12 Checkpoi t 3.21-3.29	4/18/21 4/18/21 4/18/21	3
Week 12	**Chapter 5: Sequences and Series** . . . . . 5.1 Sequences . . . . 5.2 Infinite Series . . . . 5.3 The Divergence and Integral Tests .	HW#13 Checkpoi t 5.1-5.15 Quiz #6	4/25/21 4/25/21 4/25/21	4
Week 13	5.4 Comparison Tests 5.5 Alternating Series Test #3	HW#14 Checkpoi t 5.16-5.20	5/2/21 5/9/21	4
Week 14	Review	Quiz #7	5/9/21	

	Final Exam		5/14/21	