



WACO, TEXAS

**COURSE SYLLABUS
AND
INSTRUCTOR PLAN**

**Calculus II
MATH 2414.40**

Matt Shelton

NOTE: This is a 16-week course.

COVID 19 Notice:

McLennan Community College is committed to providing you with every resource you need to reach your academic goals. We are also concerned for your safety. We are working through COVID-19 guidelines to make sure we offer a safe environment for you and our faculty. This will include smaller class sizes to manage social distancing and proper cleaning techniques. You will have the advantage of a physical classroom experience but may also need to work part of the time online as we adjust to limited classroom capacity. This will also allow us the flexibility to move online if so directed by federal, state and/or local COVID 19 guidelines. Faculty and staff are preparing now to ensure that you have the best experience in the midst of these uncertain times.

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Course Description:

Develops additional integration techniques and more advanced applications of the definite integral, and introduces and applies topics which may include derivatives and integrals of transcendental functions, indeterminate forms, improper integrals, and infinite series.

Prerequisites and/or Corequisites:

Prerequisite: MATH 2413 with a minimum grade of C or consent of division chair.

Instructor Information:

Instructor Name: Matt Shelton

MCC E-mail: mshelton@mclennan.edu

Office Phone Number: (254)299-8834

Office Location: MATH 209

Office/Teacher Conference Hours: Monday, Wednesday 2:00p – 3:00p (Online via Zoom)

Tuesday, Thursday 9:00a – 10:00a (Online via Zoom)

1:00p – 2:00p (In person)

Required Text & Materials:

All textbook materials provided to students through IA. Students will need a graphing calculator. We recommend the TI-83 or 84 graphing calculator.

MCC Bookstore Website: <http://www.mclennan.edu/bookstore/>

Methods of Teaching and Learning:

In class lecture and problem solving will occur. MyMathLab is the online component that will house the course information. Homework will be done online in this environment. Lecture notes, reference materials and videos are available there as well.

- Communications: Students participate in assignments involving topics related to finite math or other mathematics with an emphasis on business and social science application problems. They then share their results with their instructor and/or colleagues in class via written, oral, and visual methods.

- **Critical Thinking:** Critical thinking is the essence of all mathematical studies. Through inductive and deductive reasoning, students explore problems using the logical process of inquiry, analysis, evaluation, and synthesis.
- **Empirical and Quantitative Skills:** Students work on various mathematical problem solving skills throughout the course. The course focuses on the manipulation and analysis of numerical data or observable facts as presented in application problems and /or problem skill sets in which students demonstrate their ability to reach informed conclusions using mathematical processes.

Course Objectives and/or Competencies:

Upon successful completion of this course, students will:

1. Use the concepts of definite integrals to solve problems involving area, volume, work, and other physical applications.
2. Use substitution, integration by parts, trigonometric substitution, partial fractions, and tables of anti-derivatives to evaluate definite and indefinite integrals.
3. Define an improper integral.
4. Apply the concepts of limits, convergence, and divergence to evaluate some classes of improper integrals.
5. Determine convergence or divergence of sequences and series.
6. Use Taylor and Maclaurin series to represent functions.
7. Use Taylor or Maclaurin series to integrate functions not integrable by conventional methods.
8. Use the concept of polar coordinates to find areas, lengths of curves, and representations of conic sections.

Course Outline or Schedule:

Dates	Lecture/Work	Tests/Objectives
Week 1	6.1 Volumes Using Cross-Sections	
Week 2	6.2 Volumes Using Cylindrical Shells 6.3 Arc Length	
Week 3	6.4 Areas of Surfaces of Revolution 6.5 Work and Fluid Forces	
Week 4		Ch. 6 Test (OBJ 1,2)
Week 5	7.1 The Logarithm Defined as an Integral 7.2 Exponential Change and Separable Differential Equations 7.3 Hyperbolic Functions	

Week 6	7.4 Relative Rates of Growth	Ch. 7 Test (OBJ 2)
Week 7	8.1 Using Basic Integration Formulas 8.2 Integration by Parts 8.3 Trigonometric Integrals	
Week 8	8.4 Trigonometric Substitutions 8.5 Integration of Rational Functions by Partial Fractions 8.6 Integral Tables and Computer Algebra Systems	
Week 9	SPRING BREAK	
Week 10	8.8 Improper Integrals	Ch. 8 Test (OBJ 2-4)
Week 11	10.1 Sequences 10.2 Infinite Series 10.3 The Integral Test	
Week 12	10.4 Comparison Tests 10.5 The Ratio and Root Tests 10.6 Alternating Series, Absolute and Conditional Convergence	
Week 13	10.7 Power Series 10.8 Taylor and Maclaurin Series 10.9 Convergence of Taylor Series	
Week 14	10.10 Application of Taylor Series	Ch. 10 Test (OBJ 5-7)
Week 15	11.2 Calculus with Parametric Curves 11.3 Polar Coordinates 11.5 Areas and Lengths in Polar Coordinates	
Week 16	11.6 Conic Sections 11.7 Conics in Polar Coordinates	
Week 17		Final Exam (OBJ 1 – 8)

Course Grading Information:

Homework: There is a homework assignment for each section that is covered during the semester. Since the test questions will be similar to the homework problems they will be a good source of practice for the tests. You can work on homework assignments as many times as you want to improve your grade before the due date. Homework is due the day of the next test. So for example all Chapter 6 homework is due the day we take the Chapter 6 test while all Chapter 11 homework is due the day we take the final exam. Once the due date passes, your score is frozen. You can still access problems to practice, but you can't improve your score. Your homework average will count as 20% of your final average.

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Tests: There are four tests during the semester. There are no makeup tests or retests. If your final exam grade is higher than your lowest test score, I will drop your lowest test score and replace it with your final exam grade. Each test will count 15% of your final average.

Final Exam: A cumulative final exam will be given at the end of the semester. It will count 20% of your final average.

You can check your grades using the “Gradebook” button on the left side of the MathLab component. The standard grading scale applies:

90 – 100 = A 80 – 89 = B 70 – 79 = C 60 – 69 = D 59 and lower = F

Late Work, Attendance, and Make Up Work Policies:

Due dates will be set for all homework and test dates are scheduled. If students do not make the deadlines, those grades become zero. If a test is missed, the grade is zero, but that can be the test that is replaced by the final exam.

Attendance will be taken each class day. If a student reaches 8 absences before the last day for student-initiated withdrawals (March 23rd) they will be automatically dropped from the course unless they already have 6 drops on their record. In that case they will have to stay in the course and earn a grade at the end of the semester.

Student Behavioral Expectations or Conduct Policy:

Cheating will not be tolerated in class. Having someone else do your online homework assignments and tests are both violations of the academic integrity policy and either may result in failing grades and/or being dropped from the class. Infractions such as these will be reported to the administration for tracking and possible college action.

* [Click Here for the MCC Attendance/Absences Policy](https://www.mclennan.edu/highlander-guide/policies.html)

(<https://www.mclennan.edu/highlander-guide/policies.html>)

Click on the link above for the college policies on attendance and absences. Your instructor may have guidelines specific to this course.

Updated 11/04/2022

McLennan
C O M M U N I T Y
COLLEGE

ACADEMIC RESOURCES/POLICIES

Accommodations/ADA Statement:

Any student who is a qualified individual with a disability may request reasonable accommodations to assist with providing equal access to educational opportunities. Students should contact the Accommodations Coordinator as soon as possible to provide documentation and make necessary arrangements. Once that process is completed, appropriate verification will be provided to the student and instructor. Please note that instructors are not required to provide classroom accommodations to students until appropriate verification has been provided by the Accommodations Coordinator. For additional information, please visit www.mclennan.edu/disability.

Students with questions or who require assistance with disabilities involving physical, classroom, or testing accommodations should contact:

disabilities@mclennan.edu 254-299-
8122
Room 319, Student Services Center

Title IX:

We care about your safety, and value an environment where students and instructors can successfully teach and learn together. If you or someone you know experiences unwelcomed behavior, we are here to help. Individuals who would like to report an incident of sexual misconduct are encouraged to immediately contact the acting Title IX Coordinator at titleix@mclennan.edu or by calling, Dr. Claudette Jackson, (Diversity, Equity & Inclusion/Title IX) at (254) 299-8465. MCC employees are mandatory reporters and must report incidents immediately to the Title IX Coordinator. Individuals may also contact the MCC Police Department at (254) 299-8911 or the MCC Student Counseling Center at (254) 299-8210. The MCC Student Counseling Center is a confidential resource for students. Any student or employee may report sexual harassment anonymously by visiting <http://www.lighthouse-services.com/mclennan/>.

Go to McLennan's Title IX webpage at www.mclennan.edu/titleix/. It contains more information about definitions, reporting, confidentiality, resources, and what to do if you or someone you know is a victim of sexual misconduct, gender-based violence or the

crimes of rape, acquaintance rape, sexual assault, sexual harassment, stalking, dating violence, or domestic violence.

Student Support/Resources:

MCC provides a variety of services to support student success in the classroom and in your academic pursuits to include counseling, tutors, technology help desk, advising, financial aid, etc. A listing of these and the many other services available to our students is available at <http://www.mclennan.edu/campus-resource-guide/>

Academic Support and Tutoring is here to help students with all their course-related needs. Specializing in one-on-one tutoring, developing study skills, and effectively writing essays. Academic Support and Tutoring can be found in the Library and main floor of the Learning Commons. This service is available to students in person or through Zoom from 7:30 am - 6:00 pm Monday through Thursday and 7:30 am - 5:00 pm on Friday. You can contact the Academic Support and Tutoring team via Zoom (<https://mclennan.zoom.us/j/2542998500>) or email (ast@mclennan.edu) during the above mentioned times.

College personnel recognize that food, housing, and transportation are essential for student success. If you are having trouble securing these resources or want to explore strategies for balancing life and school, we encourage you to contact either MCC CREW – Campus Resources Education Web by calling (254) 299-8561 or by emailing crew@mclennan.edu or a Success Coach by calling (254) 299-8226 or emailing SuccessCoach@mclennan.edu. Both are located in the Completion Center located on the second floor of the Student Services Center (SSC) which is open Monday-Friday from 8 a.m.-5 p.m.

Paulanne's Pantry (MCC's food pantry) provides free food by appointment to students, faculty and staff. To schedule an appointment, go to https://mclennan.co1.qualtrics.com/jfe/form/SV_07byXd7eB8iTqJg. Both the Completion Center and Paulanne's Pantry are located on the second floor of the Student Services Center (SSC).

MCC Foundation Emergency Grant Fund:

Unanticipated expenses, such as car repairs, medical bills, housing, or job loss can affect us all. Should an unexpected expense arise, the MCC Foundation has an emergency grant fund that may be able to assist you. Please go to <https://www.mclennan.edu/foundation/scholarships-and-resources/emergencygrant.html> to find out more about the emergency grant. The application can be found at https://www.mclennan.edu/foundation/docs/Emergency_Grant_Application.pdf.

MCC Academic Integrity Statement:

Go to www.mclennan.edu/academic-integrity for information about academic integrity, dishonesty, and cheating.

Minimum System Requirements to Utilize MCC's D2L|Brightspace:

Go to <https://www.mclennan.edu/center-for-teaching-and-learning/Faculty-andStaffCommons/requirements.html> for information on the minimum system requirements needed to reliably access your courses in MCC's D2L|Brightspace learning management system.

Minimum Technical Skills:

Students should have basic computer skills, knowledge of word processing software, and a basic understanding of how to use search engines and common web browsers.

Backup Plan for Technology:

In the event MCC's technology systems are down, you will be notified via your MCC student email address. Please note that all assignments and activities will be due on the date specified in the Instructor Plan, unless otherwise noted by the instructor.

Email Policy:

McLennan Community College would like to remind you of the policy (<http://www.mclennan.edu/employees/policy-manual/docs/E-XXXI-B.pdf>) regarding college email. All students, faculty, and staff are encouraged to use their McLennan email addresses when conducting college business.

A student's McLennan email address is the preferred email address that college employees should use for official college information or business. Students are expected to read and, if needed, respond in a timely manner to college emails. For more information about your student email account, go to www.mclennan.edu/studentemail.

Instructional Uses of Email:

Faculty members can determine classroom use of email or electronic communications. Faculty should expect and encourage students to check the college email on a regular basis. Faculty should inform students in the course syllabus if another communication method is to be used and of any special or unusual expectations for electronic communications.

If a faculty member prefers not to communicate by email with their students, it should be reflected in the course syllabus and information should be provided for the preferred form of communication.

Email on Mobile Devices:

The College recommends that you set up your mobile device to receive McLennan emails. If you need assistance with set-up, you may email Helpdesk@mclennan.edu for help.

You can find help on the McLennan website about connecting your McLennan email account to your mobile device:

- [Email Setup for iPhones and iPads](#)
- [Email Setup for Androids](#)

Forwarding Emails:

You may forward emails that come to your McLennan address to alternate email addresses; however, the College will not be held responsible for emails forwarded to an alternate address that may be lost or placed in junk or spam filters.

For more helpful information about technology at MCC, go to [MCC's Tech Support Cheat Sheet](#) or email helpdesk@mclennan.edu.

Disclaimer:

The resources and policies listed above are merely for informational purposes and are subject to change without notice or obligation. The College reserves the right to change policies and other requirements in compliance with State and Federal laws. The provisions of this document do not constitute a contract.