MATH 2414 INET 16-Week Syllabus
Cedar Valley College

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Institutional Policies

Student Learning Outcomes
Texas Higher Education Coordinating Board (THECB) Student Learning Outcomes
Cedar Valley Student Learning Outcomes
Texas Core Objectives

Instructor Information
Instructor Information will be available on the first day of class.
Name: TBA
DCCCD Email: TBA
Office Phone: TBA
Office Location: TBA
Office Hours: TBA
Division Office and Phone: STEM Division, M217, 972-860-5211

Course Information
Course Title: Calculus 2
Course Number: MATH 2 4 1 4
Section Number: TBA
Semester/Year: Spring 20 20
Credit Hours: 4
Class Meeting Time/Location: This course can be completed entirely online; no campus visits are required.
Certification Date: February 3, 2020
Last Day to Withdraw: April 16, 2020

Course Prerequisites
MATH 2 4 1 3 or equivalent
Course Description
This course is a study of differentiation and integration of transcendental functions; parametric equations and polar coordinates; techniques of integration; sequences and series; improper integrals.

Required Course Materials

MyMathLab Access Code
All work for the course is completed in MyMathLab (MML). The MyMathLab Access Code will provide access to MyMathLab, which includes an electronic copy of the text, video instruction, and many other helpful features.
ISBN: 9780134856926

Temporary Access to MyMathLab
MyMathLab provides a Temporary Access Code. This code gives students temporary access to MyMathLab for a two-week period. Once the code expires, students will be locked out of their MyMathLab account until a regular Student Access Code is purchased. It is highly recommended that students purchase the regular Student Access Code BEFORE the two weeks expire to prevent interruptions in their MyMathLab account. Pearson developed the Temporary Access Code to help students receiving financial aid. The availability of this service will depend on its ethical use by instructors and students, and may be discontinued at the discretion of Pearson at any time. Students completing the entire course using the Temporary Access Code will receive a grade of F regardless of course performance. A regular MyMathLab Student Access Code must be purchased in order for students to receive a grade based on course performance.

Note: A student of this institution is not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

Technology Requirements
Students must have an active e-mail account and regular access to a computer, other than a Chromebook, with a reliable internet connection. Students with a Chromebook will need to make arrangements to take Quizzes and Exams on campus in the Math Resource Center or Collaborative Learning Center during their hours of operation, or use another computer with a reliable internet connection.
Students should perform the Browser Check on the MML Home Screen upon logging in and download any needed items. Failure to download the necessary items may result in errors viewing problems as well as the eText.

Optional Course Materials

Calculator

Graphing calculators (TI-83/84) are recommended in MATH 2 4 1 4.

Textbook

An eText is included with the MyMathLab Access Code. Students also have the option of purchasing a loose leaf copy of the text through the Menu in MyMathLab. Students wishing to purchase a hard copy of the text should refer to the following information:

Author: Briggs, Cochran, Gillett.
Title: Calculus Early Transcendentals 3rd Ed
Edition: 3rd Ed.
Publication Year: 2018
Publisher: Pearson
ISBN: 9780134763644

Course Outline

There are 40 Homework assignments in the course. Each homework assignment corresponds with a section of the text.

Chapter 6 – Application of Integration
  6.1 Velocity and Net Change
  6.2 Regions Between Curves
  6.3 Volumes by Slicing
  6.4 Volumes by Shells
  6.5 Lengths of Curves
  6.6 Surface Area
  6.7 Physical Applications

Chapter 7 – Logarithmic, Exponential and Hyperbolic Functions
  7.1 Logarithmic and Exponential Functions
  7.2 Exponential Models
  7.3 Hyperbolic Functions
Chapter 8 – Integration Techniques
8.1 Basic Approaches in Integration
8.2 Integration by Parts
8.3 Trigonometric Integrals
8.4 Trigonometric Substitution
8.5 Partial Fractions
8.6 Integration Strategies
8.7 Other Methods of Integration
8.8 Numerical Integration
8.9 Improper Integrals

Chapter 9 – Differential Equations
9.1 Basic Ideas
9.2 Direction Fields and Euler’s Method
9.3 Separable Differential Equations
9.4 Special First-Order Linear Differentials
9.5 Modeling with Differential Equations

Chapter 10 – Sequences and Infinite Series
10.1 An Overview of Sequences and Series
10.2 Sequences
10.3 Infinite Series
10.4 The Divergence and Integral Tests
10.5 Comparison Tests
10.6 Alternating Series
10.7 The Ratio and Root Tests
10.8 Choosing a Convergence Test

Chapter 11 – Power Series
11.1 Approximating Functions
11.2 Properties of Power Series
11.3 Taylor Series
11.4 Working with Taylor Series

Chapter 12 – Parametric and Polar Curves
12.1 Parametric Equations
12.2 Polar Coordinates
12.3 Calculus in Polar Coordinates
12.4 Conic Sections

Graded Work
The tables below provide a summary of the graded work in this course and an explanation of how your final course grade will be calculated. The student enrolled in the course must be the person completing course work.
Students should expect to spend a minimum of 8 hours each week working in the course.

**Summary of Graded Work**

<table>
<thead>
<tr>
<th>Course Requirement</th>
<th>Percentage of Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>30%</td>
</tr>
<tr>
<td>Chapter Quizzes</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
</tbody>
</table>

**TOTAL: 100%**

Throughout the course, your current grade can be found in your MML Gradebook.

**Final Grade**

<table>
<thead>
<tr>
<th>Percentages</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100%</td>
<td>A</td>
</tr>
<tr>
<td>80-89.9%</td>
<td>B</td>
</tr>
<tr>
<td>70-79.9%</td>
<td>C</td>
</tr>
<tr>
<td>60-69.9%</td>
<td>D</td>
</tr>
<tr>
<td>0-59.9%</td>
<td>F</td>
</tr>
</tbody>
</table>

**Description of Graded Work**

**Homework Assignments**

There are 41 homework assignments in this course. Students must correctly complete at least half of the problems in a homework section to move on to the next assignment.

Homework has both a Due Date and a Final Submission Date. Students may work on homework after the Due Date. Homework completed after the Due Date is subject to a 5% per day per question late penalty. The late penalty for homework does not affect a student’s ability to move on to the next assignment. After the Final Submission Date, Homework will no longer be available. Homework not completed by the Final Submission Date will receive a score of zero.

Due Dates and Final Submission Dates for homework can be found in the Course Calendar.
Quizzes
There are seven quizzes in this course, each covering a Chapter of work. Students must correctly complete at least half of the problems in each section of work in a Chapter in order to take the Quiz over the Chapter.

Students are allowed two attempts on quizzes. In order to access the second attempt, students must complete the “What did I miss on Chapter # Quiz” assignment with a score of at least 70%. If a student uses both attempts on a quiz, the higher attempt is used in grade calculations. The second attempt is optional, and the “What did I miss on Chapter # Quiz” assignment will not be used in grade calculations.

Quizzes have both a Due Date and a Final Submission Date. Students may work on Quizzes after the Due Date. Quizzes completed after the Due Date are subject to a 5% per day per question late penalty. After the Final Submission Date, quizzes will no longer be available. Quizzes not completed by the Final Submission Date will receive a score of zero.

Due Dates and Final Submission Dates for quizzes can be found in the Course Calendar.

Midterm and Final Exam
There are two Exams in this course. The Midterm Exam covers Chapters 6-8. Students must have completed all work in Chapters 6-8, including quizzes, in order to take the Midterm. The Final Exam covers Chapters 9-12. Students must have completed all work in Chapters 9-12, including quizzes, in order to take the Final. Students are allowed only one attempt on the Midterm and Final Exam.

Practice Problems for both the Midterm and Final are available in MML and are optional. Performance on the Practice Problems will not be used in grade calculations.

The Midterm and Final Exams must be taken by the due date. Any Exam not taken by its due date will receive a score of zero. Students will not be allowed to take Exams late.

Chapter Quizzes and Exams use the Pearson Lockdown Browser. Students will be prompted to download the Pearson Lockdown Browser before taking a Quiz or Exam if it is not already installed.

Chapter Quizzes and Exams may be taken on campus in the Math Resource Center or Collaborative Learning Center during their hours of operation if you do not have access to a computer with the necessary Technology Requirements.

All Chapter Quizzes and Exams should be completed without outside assistance – this includes apps, websites, or other people. Students committing/guilty of academic dishonesty – having others complete course work or using apps, online sites, or help from others – will receive a failing grade in the course.
The instructor reserves the right to require on-site testing at any time during the course.

**Pearson Lockdown Browser Information**

Please download the Pearson Lockdown Browser (LDB) prior to beginning a Quiz or Exam.

For technical issues, contact Pearson Customer Support.

## Course Calendar

All students are expected to adhere to course deadlines and due dates; extensions will not be granted.

<table>
<thead>
<tr>
<th>Week</th>
<th>Description of Graded Work</th>
<th>Due Date</th>
<th>Final Submission Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Section 6.1 Velocity and Net Change</td>
<td>Jan. 26th</td>
<td>Mar. 22nd</td>
</tr>
<tr>
<td></td>
<td>Section 6.2 Regions Between Curves</td>
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<td></td>
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<tr>
<td>Week 2</td>
<td>Section 6.3 Volumes by Slicing</td>
<td>Feb. 2nd</td>
<td>Mar. 22nd</td>
</tr>
<tr>
<td></td>
<td>Section 6.4 Volumes by Shells</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Section 6.5 Lengths of Curves</td>
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<tr>
<td>Week 3</td>
<td>Section 6.6 Surface Area</td>
<td>Feb. 9th</td>
<td>Mar. 22nd</td>
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<tr>
<td></td>
<td>Section 6.7 Physical Applications</td>
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<tr>
<td></td>
<td>Chapter 6 Quiz</td>
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<tr>
<td>Week 4</td>
<td>Section 7.1 Logarithmic and Exponential Functions</td>
<td>Feb. 16th</td>
<td>Mar. 22nd</td>
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<tr>
<td></td>
<td>Section 7.2 Exponential Models</td>
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<td></td>
<td>Section 7.3 Hyperbolic Functions</td>
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<td>Chapter 7 Quiz</td>
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<tr>
<td>Week 5</td>
<td>Section 8.1 Basic Approaches in Integration</td>
<td>Feb 23rd</td>
<td>Mar. 22nd</td>
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<tr>
<td></td>
<td>Section 8.2 Integration by Parts</td>
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<td></td>
<td>Section 8.3 Trigonometric Integrals</td>
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<td></td>
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<tr>
<td>Week 6</td>
<td>Section 8.4 Trigonometric Substitution</td>
<td>Mar. 1st</td>
<td>Mar. 22nd</td>
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<td></td>
<td>Section 8.5 Partial Fractions</td>
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<tr>
<td></td>
<td>Section 8.6 Integration Strategies</td>
<td></td>
<td></td>
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<tr>
<td>Week 7</td>
<td>Section 8.7 Other Methods of Integration</td>
<td>Mar. 8th</td>
<td>Mar. 22nd</td>
</tr>
<tr>
<td></td>
<td>Section 8.8 Numerical Integration</td>
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<tr>
<td></td>
<td>Section 8.9 Improper Integrals</td>
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<td></td>
<td>Chapter 8 Quiz</td>
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<tr>
<td>Week 8</td>
<td>Practice Problems for the Midterm (optional)</td>
<td>Mar. 22nd</td>
<td>Mar. 22nd</td>
</tr>
<tr>
<td>Description of Graded Work</td>
<td>Due Date</td>
<td>Final Submission Date</td>
<td></td>
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<tr>
<td>----------------------------</td>
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<td></td>
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<tr>
<td>MIDTERM EXAM (Covers chapters 6-8, 38 Questions, 6 hour time limit, one attempt only)</td>
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</tbody>
</table>
| Week 9 | Section 9.1 Basic Ideas  
Section 9.2 Direction Fields and Euler’s Method  
Section 9.3 Separable Differential Equations | Mar. 29<sup>th</sup> | May 12<sup>th</sup> |
| | Week 10 | Section 9.4 Special First-Order Linear Differentials  
Section 9.5 Modeling with Differential Equation  
Chapter 9 Quiz | Apr. 5<sup>th</sup> | May 12<sup>th</sup> |
| | Week 11 | Section 10.1 An Overview of Sequences and Series  
Section 10.2 Sequences  
Section 10.3 Infinite Series  
Section 10.4 The Divergence and Integral Tests | Apr. 12<sup>th</sup> | May 12<sup>th</sup> |
| | Week 12 | Section 10.5 Comparison Tests  
Section 10.6 Alternating Series  
Section 10.7 The Ratio and Root Tests  
Section 10.8 Choosing a Convergence Test  
Chapter 10 Quiz | Apr. 19<sup>th</sup> | May 12<sup>th</sup> |
| | Week 13 | Section 11.1 Approximating Functions  
Section 11.2 Properties of Power Series | Apr. 26<sup>th</sup> | May 12<sup>th</sup> |
| | Week 14 | Section 11.3 Taylor Series  
Section 11.4 Working with Taylor Series  
Chapter 11 Quiz | May 3<sup>rd</sup> | May 12<sup>th</sup> |
| | Week 15 | Section 12.1 Parametric Equations  
Section 12.2 Polar Coordinates  
Section 12.3 Calculus in Polar Coordinates  
Section 12.4 Conic Sections  
Chapter 12 Quiz | May 10<sup>th</sup> | May 12<sup>th</sup> |
| | Week 16 | FINAL EXAM (Covers chapters 9-12, 32 Questions, 6-hour time limit, One attempt only) | May 12<sup>th</sup> | May 12<sup>th</sup> |

Note: Working ahead is encouraged.

**Attendance and Your Final Grade**
This course can be completed entirely online; no campus visits are required.
Your grade in the course can be found in your MyMathLab Gradebook.
Late Work Policy
All students are expected to adhere to course deadlines and due dates.

Homework and Quizzes have both a Due Date, and a Final Submission Date. Students may work on both Homework and Quizzes after the Due Date. Homework and Quizzes are subject to a 5% per day per question late penalty. After the Final Submission Date, Homework and Quizzes will no longer be available. Homework and Quizzes not completed by their Final Submission Date will receive a score of zero.

Certification Policy
Students must attend and participate in their on-campus or online course(s) in order to receive federal financial aid. Instructors are required by law to validate attendance in order for students to receive financial aid.

To be certified as attending an online mathematics courses, students must correctly complete at least 50% of the first homework assignment in MyMathLab prior to the Certification Date.

Failure to show proof of attendance in the course prior to the Certification Date can affect Financial Aid.

Withdrawal Policy
Please consult your instructor before withdrawing from this course, visit the Dropping or Withdrawing From Classes webpage.

Instructor Policies
If a student experiences a situation during the course which prevents the student from working or negatively affects the student's performance, it is the responsibility of the student to contact the instructor immediately for guidance. Notifying the instructor of such a situation at the end of the semester is not sufficient and will not result in an extension.
Institutional Policies

Institutional Policies relating to this course can be accessed using the link below. These policies include information about tutoring, Disabilities Services, class drop and repeat options, Title IX, and more.

[Link to Cedar Valley Institutional Policies]

Student Learning Outcomes

Texas Higher Education Coordinating Board (THECB) Student Learning Outcomes

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.

Cedar Valley Student Learning Outcomes

1. Use various integration techniques to find definite and indefinite integrals, both algebraically and numerically.
2. Use definite integrals to find volumes, curve lengths, centers of mass, surfaces of revolution, work, and fluid force. (THECB #1)
3. Use differential and integral calculus with parametric equations, polar and hyperbolic functions. (THECB #8)
4. Evaluate improper integrals and prove the divergence or convergence of infinite series. (THECB #s 3,4&5)
5. Use various power series such as Taylor, Maclaurin, or Binomial to approximate functions. (THECB #6)
6. Solve differential equations by separation of variables, integrating factors, or numerical techniques with applications. (THECB #s 6&7)
Texas Core Objectives

The College defines essential knowledge and skills that students need to develop during their college experience. These general education competencies parallel the Texas Core Objectives for Student Learning. In this course, the activities you engage in will give you the opportunity to practice two or more of the following core competencies:

1. **Critical Thinking Skills** - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. **Communication Skills** - to include effective development, interpretation, and expression of ideas through written, oral, and visual communication
3. **Empirical and Quantitative Skills** - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
4. **Teamwork** - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
5. **Personal Responsibility** - to include the ability to connect choices, actions, and consequences to ethical decision-making
6. **Social Responsibility** - to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities

MATH 2414 develops Critical Thinking, Communication, and Empirical and Quantitative Skills by requiring students to collect, analyze, and define characteristics of velocity functions from their graphs.