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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 1
Course Number: MATH 2413
Section Number: TBA
Semester/Year: Spring 2020
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 1 3 4 8, MATH 2 4 1 2 or equivalent

Course Description
This course is a study of limits and continuity; the Fundamental Theorem of Calculus; definition of the derivative of a function and techniques of differentiation; applications of the derivative to maximizing or minimizing a function; the chain rule, mean value theorem, and rate of change problems; curve sketching; definite and indefinite integration of algebraic, trigonometric, and transcendental functions, with an application to calculation of areas.

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 3.

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 31 Homework assignments in the course. Each homework assignment corresponds with a section of the text.

Chapter 2 – Limits

2.1 Idea of a Limit
2.2 Definitions of a Limit
2.3 Techniques for Computing Limits
2.4 Infinite Limits
2.5 Limits at Infinity
2.6 Continuity
2.7 Precise Definitions of Limits

Chapter 3 – Logarithmic, Exponential and Hyperbolic Functions

3.1 Introducing the Derivative
3.2 The Derivative as a Function
3.3 Rules of Differentiation
3.4 The Product and Quotient Rule
3.5 Derivatives of Trig Functions
3.6 Derivatives as Rates of Change
3.7 The Chain Rule
3.8 Implicit Differentiation
3.9 Derivatives of Logarithmic and Exponential Functions
3.10 Derivatives of Inverse Trig Functions
3.11 Related Rates

Chapter 4 – Integration Techniques

4.1 Maxima and Minima
4.2 Mean Value Theorem
4.3 What Derivatives Tell Us
4.4 Mean Value Theorem
4.5 Optimization Problems
4.6 Linear Approximation and Differentiation
4.7 L'Hopital's Rule
4.8 Newton’s Method
4.9 Antiderivatives

Chapter 5 – Differential Equations

5.1 Approximating Area Under Curves
5.2 Definite Integrals
5.3 The Fundamental Theorem of Calculus
5.4 Working with Integrals
5.5 Substitution Rule

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
### Course Requirement
<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 31 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 four 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 Chapter 2 and Chapter 3. Students must have completed all work in Chapters 2 and 3, including quizzes, in order to take the Midterm. The Final Exam covers Chapter 4 and Chapter 5. Students must have completed all work in Chapters 4 and 5, 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.
Course Calendar

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

<table>
<thead>
<tr>
<th>Graded Work</th>
<th>Description of Graded Work</th>
<th>Due Date</th>
<th>Final Submission Date</th>
</tr>
</thead>
</table>
| Week 1      | 2.1 Idea of a Limit  
               2.2 Definitions of a Limit  
               2.3 Techniques for Computing Limits | Jan. 26<sup>th</sup> | Mar. 22<sup>nd</sup> |
| Week 2      | 2.4 Infinite Limits  
               2.5 Limits at Infinity  
               2.6 Continuity | Feb. 2<sup>nd</sup> | Mar. 22<sup>nd</sup> |
| Week 3      | 2.7 Precise Definitions of Limits  
               Chapter 2 Quiz (14 questions, 2hr time limit, 2 attempts)  
               3.1 Introducing the Derivative | Feb. 9<sup>th</sup> | Mar. 22<sup>nd</sup> |
| Week 4      | 3.2 The Derivative as a Function  
               3.3 Rules of Differentiation  
               3.4 The Product and Quotient Rule | Feb. 16<sup>th</sup> | Mar. 22<sup>nd</sup> |
| Week 5      | 3.5 Derivatives of Trig Functions  
               3.6 Derivatives as Rates of Change | Feb 23<sup>rd</sup> | Mar. 22<sup>nd</sup> |
| Week 6      | 3.7 The Chain Rule  
               3.8 Implicit Differentiation | Mar. 1<sup>st</sup> | Mar. 22<sup>nd</sup> |
| Week 7      | 3.9 Derivatives of Logarithmic and Exponential Functions  
               3.10 Derivatives of Inverse Trig Functions  
               3.11 Related Rates | Mar. 8<sup>th</sup> | Mar. 22<sup>nd</sup> |
| Week 8      | Chapter 3 Quiz (22 questions, 3hr time limit, 2 attempts)  
               Practice Problems for the Midterm (optional)  
               MIDTERM EXAM (Covers Chapter 2 and Chapter 3, 25 Questions, 4 hour time limit, one attempt only) | Mar. 22<sup>nd</sup> | Mar. 22<sup>nd</sup> |
| Week 9      | 4.1 Maxima and Minima  
               4.2 Mean Value Theorem  
               4.3 What Derivatives Tell Us | Mar. 29<sup>th</sup> | May 12<sup>th</sup> |
| Week 10     | 4.4 Mean Value Theorem  
               4.5 Optimization Problems  
               4.6 Linear Approximation and Differentiation | Apr. 5<sup>th</sup> | May 12<sup>th</sup> |
### Graded Work

<table>
<thead>
<tr>
<th>Work</th>
<th>Description of Graded Work</th>
<th>Due Date</th>
<th>Final Submission Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 11</td>
<td>4.7 L'Hopital’s Rule &lt;br&gt; 4.8 Newton’s Method &lt;br&gt; 4.9 Antiderivatives</td>
<td>Apr. 12&lt;sup&gt;th&lt;/sup&gt;</td>
<td>May 12&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Week 12</td>
<td>Chapter 4 Quiz (20 questions, 3hr time limit, 2 attempts) &lt;br&gt; 5.1 Approximating Area Under Curves</td>
<td>Apr. 19&lt;sup&gt;th&lt;/sup&gt;</td>
<td>May 12&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Week 13</td>
<td>5.2 Definite Integrals &lt;br&gt; 5.3 The Fundamental Theorem of Calculus</td>
<td>Apr. 26&lt;sup&gt;th&lt;/sup&gt;</td>
<td>May 12&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Week 14</td>
<td>5.4 Working with Integrals &lt;br&gt; 5.5 Substitution Rule</td>
<td>May 3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>May 12&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Week 15</td>
<td>Chapters 5 Quiz &lt;br&gt; Practice Problems for the Final (optional)</td>
<td>May 10&lt;sup&gt;th&lt;/sup&gt;</td>
<td>May 12&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Week 16</td>
<td>FINAL EXAM (Covers Chapter 4 and Chapter 5, 32 questions, 4 hour time limit, one attempt only)</td>
<td>May 12&lt;sup&gt;th&lt;/sup&gt;</td>
<td>May 12&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

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.

Cedar Valley Institutional Policies

Student Learning Outcomes
Texas Higher Education Coordinating Board (THECB) Student Learning Outcomes

1. Develop solutions for tangent and area problems using the concepts of limits, derivatives, and integrals.
2. Draw graphs of algebraic and transcendental functions considering limits, continuity, and differentiability at a point.
3. Determine whether a function is continuous and/or differentiable at a point using limits.
4. Use differentiation rules to differentiate algebraic and transcendental functions.
5. Identify appropriate calculus concepts and techniques to provide mathematical models of real-world situations and determine solutions to applied problems.
6. Evaluate definite integrals using the Fundamental Theorem of Calculus.
7. Articulate the relationship between derivatives and integrals using the Fundamental Theorem of Calculus.

Cedar Valley Student Learning Outcomes

1. Prove limits using the formal definition and calculate various problems using properties of limits. (THECB #s 1&2)
2. Find instantaneous rate of change, continuities, and tangent lines. (THECB #s 1, 2, & 3)
3. Compute the derivative as a limit and differentiate transcendental and algebraic functions using rules of differentiation. (THECB #s 3 & 4)
4. Solve related rates, linearization and differential problems. (THECB #5)
5. Use first and second derivatives to find absolute and local extrema, to sketch graphs of functions, to solve optimization problems, and to find roots of functions using Newton’s method. (THECB #2)
6. Derive the definite integral as a limit and use the Fundamental Theorem of Calculus, properties of definite and indefinite integrals, and the substitution method to evaluate integrals 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 2 4 1 3 develops Critical Thinking, Communication, and Empirical and Quantitative Skills by requiring students to collect, analyze, and define characteristics of velocity functions from their graphs.