# MATH 2415 INET 5-Week Syllabus

Cedar Valley College

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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 3
Course Number: MATH 2415
Section Number: TBA
Semester/Year: Summer 22 20
Credit Hours: 4
Class Meeting Time/Location: This course can be completed entirely online; no campus visits are required.

Certification Date: Thursday, July 9, 2020

Last Day to Withdraw: Wednesday, July 29, 2020

**Course Prerequisites**

MATH 2414 or equivalent

**Course Description**

This course is a study of advanced topics in calculus, including vectors and vector-valued functions, partial differentiation, Lagrange multipliers, multiple integrals, and Jacobians; application of the line integral including Green's Theorem, the Divergence Theorem, and Stokes' Theorem.

**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 with a reliable internet connection and an integrated or USB connected webcam. Students with a Chromebook must have access to a tablet or different computer with a reliable internet connection and a webcam in order to take assessments. The dates of these assessments can be found in the Course Calendar.

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.

Email
Since email is the primary form of communication for online courses, it is imperative the email address in eConnect is checked daily. If this email is not checked daily, students may miss important course information.

When contacting your instructor, please include your name, course, and section number. Emails without this information may not be answered.

Optional Course Materials

Calculator
Graphing calculators (TI-83/84) are recommended in MATH 2415.

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 13—Applications of Integration
13.1 Vectors in the Plane (22 Questions)
13.2 Vectors in Three Dimensions (25 Questions)
13.3 Dot Products (20 Questions)
13.4 Cross Products (20 Questions)
13.5 Lines and Planes in Space (24 Questions)
13.6 Cylinders and Quadric Surfaces (21 Questions)

Chapter 14—Logarithmic, Exponential and Hyperbolic Functions

14.1 Vector-Values Functions (22 Questions)
14.2 Calculus of Vector-Valued Functions (22 Questions)
14.3 Motion in Space (22 Questions)
14.4 Length of Curves (19 Questions)
14.5 Curvature of Normal Vectors (22 Questions)

Chapter 15—Integration Techniques

15.1 Graphs and Level Curves (21 Questions)
15.2 Limits and Continuity (23 Questions)
15.3 Partial Derivatives (23 Questions)
15.4 The Chain Rule (23 Questions)
15.5 Directional Derivatives and the Gradient (22 Questions)
15.6 Tangent Planes and Linear Approximation (22 Questions)
15.7 Maximum and Minimum Problems (25 Questions)
15.8 Lagrange Multipliers (22 Questions)

Chapter 16—Differential Equations

16.1 Double Integrals over Rectangular Regions (23 Questions)
16.2 Double Integrals over General Regions (24 Questions)
16.3 Double Integrals in Polar Coordinates (24 Questions)
16.4 Triple Integrals (22 Questions)
16.5 Triple Integrals in Cylindrical and Spherical Coordinates (27 Questions)
16.6 Integrals for Mass Calculation (21 Questions)
16.7 Change of Variables in Multiple Integrals (22 Questions)

Chapter 17—Sequences and Infinite Series

17.1 Vector Fields (22 Questions)
17.2 Line Integrals (25 Questions)
17.3 Conservative Vector Fields (20 Questions)
17.4 Green’s Theorem (22 Questions)
17.5 Divergence and Curl (16 Questions)
17.6 Surface Integrals (25 Questions)
17.7 Stokes’ Theorem (20 Questions)
17.8 Divergence Theorem (16 Questions)

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 20 hours each week working in the course.

Summary of Graded Work

<table>
<thead>
<tr>
<th>Course Requirement</th>
<th>Percentage of Final Grade</th>
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</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>
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</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>

Your Final Grade is submitted to eConnect for your official transcript. Therefore, your name in eConnect must match your name in MML. If your name in eConnect is not the same as your name in MML, you may not receive the correct grade in the course.

Description of Graded Work

Homework Assignments
There are 33 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](#).

Please note: Reading the textbook and the lecture video are both part of each Section’s assignment. You must at least click on both the textbook and lecture video to receive full credit for the assignment, as each count toward your grade for the assignment.

**Quizzes**

There are five 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. If a student correctly completes at least 70% of each homework assignment in a chapter, the 2nd attempt will open immediately following the 1st attempt. (Note: 70% is the amount of each assignment completed correctly, not the grade on the assignment, thus the 70% is not impacted by late penalties.) If a student does not correctly complete at least 70% of each homework assignment in a chapter, the “What did I miss on Chapter # Quiz” assignment must be completed after the 1st attempt with a score of 70% or better in order to open the 2nd attempt.

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.

Quiz results are only available immediately after completing the quiz.

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 13-15. Students must have completed all work in Chapters 13-15, including quizzes, in order to
take the Midterm. The Final Exam covers Chapters 16-17. Students must have completed all work in Chapters 16-17, 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 is it is not already installed.

Chapter Quizzes and Exams can only be taken 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>Graded Work</th>
<th>Description of Graded Work</th>
<th>Due Date</th>
<th>Final Submission Date</th>
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</thead>
</table>
| Week 1      | 13.1 Vectors in the Plane
              13.2 Vectors in Three Dimensions
              13.3 Dot Products
              13.4 Cross Products
              13.5 Lines and Planes in Space
              13.6 Cylinders and Quadric Surfaces
              Chapter 13 Quiz
              14.1 Vector-Values Functions
              14.2 Calculus of Vector-Valued Functions | Sunday July 12th | Sunday July 19th    |
<table>
<thead>
<tr>
<th>Graded Work</th>
<th>Description of Graded Work</th>
<th>Due Date</th>
<th>Final Submission Date</th>
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<tbody>
<tr>
<td>Week 2</td>
<td>14.3 Motion in Space</td>
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<td></td>
<td>14.4 Length of Curves</td>
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<td></td>
<td>14.5 Curvature of Normal Vectors</td>
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<td></td>
<td>Chapter 14 Quiz</td>
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<td></td>
<td>15.1 Graphs and Level Curves</td>
<td>Sunday</td>
<td>Sunday July 19th</td>
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<td></td>
<td>15.2 Limits and Continuity</td>
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<td>15.3 Partial Derivatives</td>
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<td>15.4 The Chain Rule</td>
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<td>15.5 Directional Derivatives and the Gradient</td>
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<td>15.6 Tangent Planes and Linear Approximation</td>
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<td>15.7 Maximum and Minimum Problems</td>
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<td>15.8 Lagrange Multipliers</td>
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<td>Chapter 15 Quiz</td>
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<td></td>
<td>Practice Problems for the Midterm (optional)</td>
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<td>MIDTERM EXAM (Covers chapters 13-15, 27 Questions, 5-hour time limit, one attempt only)</td>
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<td>Week 3</td>
<td>16.1 Double Integrals over Rectangular Regions</td>
<td>Sunday</td>
<td>Wednesday August 6th</td>
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<td>16.2 Double Integrals over General Regions</td>
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<td>16.3 Double Integrals in Polar Coordinates</td>
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<td>16.4 Triple Integrals</td>
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<td>16.5 Triple Integrals in Cylindrical and Spherical Coordinates</td>
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<td>16.6 Integrals for Mass Calculation</td>
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<td>16.7 Change of Variables in Multiple Integrals</td>
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<td></td>
<td>Chapter 16 Quiz</td>
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<td>Week 4</td>
<td>17.1 Vector Fields</td>
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<td></td>
<td>17.2 Line Integrals</td>
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<td>17.3 Conservative Vector Fields</td>
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<td>17.4 Green’s Theorem</td>
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<td>17.5 Divergence and Curl</td>
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<td>17.6 Surface Integrals</td>
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<td>17.7 Stokes’ Theorem</td>
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<td></td>
<td>17.8 Divergence Theorem</td>
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<td></td>
<td>Chapter 17 Quiz</td>
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<td></td>
<td>Review for Final Exam (Optional, Not for a grade)</td>
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<td></td>
<td>FINAL EXAM (Covers chapters 16-17, 30 Questions, 5-hour time limit, One attempt only)</td>
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Note: Working ahead is encouraged.
Attendance

This course can be completed entirely online; no campus visits are required. However, students should expect to spend a minimum of 20 hours each week working in the course.

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 70% 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 Rights and Responsibilities

The Commitment to Cedar Valley College Community charges students to maintain high standards of academic and personal integrity. All students should read and be familiar with the Student Rights and Responsibilities Office (SRRO).

It is your responsibility as a Cedar Valley College Student to know and understand the academic standards for our community.

The following are the guidelines for Academic Concerns:

Important: It is your responsibility to provide your full name, student id #, course name, and section number EXAMPLE: MATH 1314-31001

- Meet with the instructor
- If not resolved with the instructor, contact the department coordinator (the instructor will provide this information)
- If not resolved with the department coordinator, request a meeting with the Executive Dean
- If the outcome does not meet resolution, contact the SRRO.

Non-Academic concerns such as: Title IX or a CARE issue, contact the SRRO directly.

As a student, you are expected to comply with the general law, campus policies and regulations. The College’s Student Code of Conduct expects students "to be good citizens and to engage in responsible behaviors that reflect well upon the college, to be civil to one another and to others in the campus community, and contribute positively to student and college life." See the Code of Student Conduct and select Purpose for more information. Contact the Student Rights and Responsibilities Office by email or call 972-860-5295 for questions and concerns.
Student Learning Outcomes

Texas Higher Education Coordinating Board (THECB) Student Learning Outcomes

1. Perform calculus operations on vector-valued functions, including derivatives, integrals, curvature, displacement, velocity, acceleration, and torsion.
2. Perform calculus operations on functions of several variables, including partial derivatives, directional derivatives, and multiple integrals.
3. Find extrema and tangent planes.
4. Solve problems using the Fundamental Theorem of Line Integrals, Green's Theorem, the Divergence Theorem, and Stokes' Theorem.
5. Apply the computational and conceptual principles of calculus to the solutions of real-world problems.

Cedar Valley Student Learning Outcomes

1. Sketch the graph of curves in two and three dimensions; in addition, sketch surfaces in three dimensions in the rectangular, cylindrical, and spherical coordinate systems.
2. Solve problems of arc length, curvature, projectile motion, and planetary motion using the properties of multi-dimensional vector-functions.
3. Solve multivariable calculus-related problems of contour mapping, rates of change, function estimation, extrema, and optimization.
4. Solve multiple integration application problems; specifically, find the volume and mass of a general solid, the inertia and centroid of a lamina and a solid, and the average value and area of a surface.
5. Use the calculus of vector fields to solve line and surface integral problems, stressing their respective relation to energy and flux problems in physics.

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 2415 develops Critical Thinking, Communication, and Empirical and Quantitative Skills by requiring students to collect, analyze, and define characteristics of velocity functions from their graphs.