Instructor Information

Instructor: ____________________  Phone: _______________
Office: ____________________  Email: ____________________
Office hours: ____________________

Course Information

COURSE TITLE:  CALCULUS III
COURSE NUMBER:  MATH 2415
CREDIT HOURS:  Four credit hours

COURSE PREREQUISITE:  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 (4 Lec.)

TEXTBOOK AND SOFTWARE:

Calculus Multivariable, 10th Edition,
Anton, Bivens, and Davis
ISBN: 978-0470647691

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.
OTHER REQUIRED MATERIALS:

- Valid and monitored e-mail address, access to eCampus, access to computers.
- Binder or spiral notebook, paper, graph paper, ruler, pencils

Learning outcomes:
Upon successful completion of this course, students will:
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.

DCCCD/State of Texas LEARNING OUTCOMES related to the book above:

<table>
<thead>
<tr>
<th>Learning Outcome (a listed in ACGM)</th>
<th>Chapter(s) from textbook – Calculus Multivariable, 10th Edition, Anton, Bivens, and Davis</th>
</tr>
</thead>
</table>
| 1. Perform calculus operations on vector-valued functions, including derivatives, integrals, curvature, displacement, velocity, acceleration, and torsion. | 11.1 Rectangular Coordinates in 3-Space; Spheres; Cylindrical Surfaces, 767  
11.2 Vectors, 773  
11.3 Dot Product; Projections, 785  
11.4 Cross Product, 795  
11.6 Planes in 3-Space, 813  
12.5 Curvature, 873 |
| 2. Perform calculus operations on functions of several variables, including partial derivatives, directional derivatives, and multiple integrals. | 12.1 Introduction to Vector-Valued Functions, 841  
12.2 Calculus of Vector-Valued Functions, 848  
12.3 Change of Parameter; Arc Length, 858  
12.4 Unit Tangent, Normal, and Binormal Vectors, 868  
12.5 Curvature, 873  
12.6 Motion Along a Curve, 882 |
| 3. Find extrema and tangent planes. | 13.8 Maxima and Minima of Functions of Two Variables, 977  
13.9 Lagrange Multipliers, 989 |
| 4. Solve problems using the Fundamental Theorem of Line Integrals, Green's Theorem, the Divergence Theorem, and Stokes' Theorem. | 15.4 Green’s Theorem, 1122  
15.2 Line Integrals, 1094  
15.8 Stokes’ Theorem, 1158 |
| 5. Apply the computational and conceptual principles of calculus to the solutions of real-world problems. | 11.4 Cross Product, 795  
12.6 Motion Along a Curve, 882  
13.7 Tangent Planes and Normal Vectors, 971, Lagrange Multipliers |
Course Activities and Evaluation Procedures:

I. **Exams**: There will be Three Exams worth 100 points each. Exams may have to be taken outside of classroom time in the ECC Assessment Center located in the basement. Make-up exams will not be given. Therefore, if a unit exam is missed for any reason, you will receive a score of zero (0) for that exam.

II. **Online homework**: assignments, quizzes and/or homework will be assigned regularly using online software. You may use the temporary access code provided by the software but you must purchase the permanent code by the third week of class.

III. **Final Exam**: A comprehensive departmental exam will be worth 200 points. The final exam will be administered during Finals Week in the classroom.

IV. **Handwritten Homework**: weekly assignments will be posted on eCampus.

V. **Core Signature Assignment – CT3 “Critically Thinking Things Through”**

El Centro College’s Quality Enhancement Plan is “**CT3: Critically Thinking Things Through**”. The Mathematics Department has designed a project to introduce students in your math class to critical thinking strategies, as well as help students document their thinking when tackling difficult, complex scenarios. You will work an assignment to fulfill the QEP-CT3 requirements of this course. The “Signature” QEP-CT3 assignment will be available on your eCampus site and will count for 20 points on one of your exams (your instructor will provide you with more details). You must complete and upload a pdf for the Signature assignment no later the date and time indicated by your instructor.

**Grading Policy:**

<table>
<thead>
<tr>
<th>Grade Calculation (in points)</th>
<th>Final grades will be recorded using the following scale:</th>
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</thead>
<tbody>
<tr>
<td>Test 1 .......................... 100</td>
<td><strong>Course average</strong> = Sum of all points, divided by the</td>
</tr>
<tr>
<td>Test 2 .......................... 100</td>
<td><strong>Total Number of Points. Points will be rounded to the</strong></td>
</tr>
<tr>
<td>Test 3 .......................... 100</td>
<td><strong>nearest whole number.</strong></td>
</tr>
<tr>
<td>Final Exam ...................... 200</td>
<td>A: 90-100 average</td>
</tr>
<tr>
<td>Online Grade .................. 200</td>
<td>B: 80-89 average</td>
</tr>
<tr>
<td>Handwritten HWK ............. 100</td>
<td>C: 70-79 average</td>
</tr>
<tr>
<td>Total Points: ................. 800</td>
<td>D: 60-69 average</td>
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<td>E: below 60 averages</td>
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**Attendance Policy:** Attendance on time and for the whole class period is required. You are expected to attend every class meeting. Problems will be assigned on a regular basis. Answers to most of these problems are given at the back of the textbook. Complete solutions for many of these problems may be found in the solution manual, which may be available in the bookstore. You should work several problems of each type, and working more than the class assignments is strongly encouraged. Do not use the solutions until you have exhausted all possibilities (including asking the math lab tutors and your instructor). You are responsible for all the materials you missed when absent. Regular, punctual attendance is expected and Tardiness is strongly discouraged. It is, however, to come late than not at all, as long as it is not a habit.

**Cell Phone Use in the classroom:** Cell phone use in the classroom is not permitted. Please place your phone away and out of sight. If you anticipate a particular problem, please discuss it with me before or after the class. To minimize the disruptions during the class make sure that your pagers and cellular phones are turned off.

**Withdrawing from this class:**

STOP **BEFORE YOU DROP:** For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop.

* Drop date for Spring 2020 is 4/16/2020 (R).

You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges. For more information, you may access: [https://www.dcccd.edu/apply-reg/reg/pages/dropwithdraw.aspx](https://www.dcccd.edu/apply-reg/reg/pages/dropwithdraw.aspx)

**Institutional Links**

**Click for Learning Center Tutoring and Resources**
URL: [https://www.elcentrocollege.edu/services/academic-support/tutoring/pages/default.aspx](https://www.elcentrocollege.edu/services/academic-support/tutoring/pages/default.aspx)

**Click for DownTown Testing Center**
URL: [https://www.elcentrocollege.edu/services/academic-support/testing-centers/pages/default.aspx](https://www.elcentrocollege.edu/services/academic-support/testing-centers/pages/default.aspx)

**Click for West Campus Testing Center**
URL: [https://www.elcentrocollege.edu/abouteccampus-information/locations/west-campus/pages/testing-center.aspx](https://www.elcentrocollege.edu/abouteccampus-information/locations/west-campus/pages/testing-center.aspx)

**Click for Course Related Institutional Policies**
URL: [http://alt.elcentrocollege.edu/admissions/schedule/syllabus/Course-Related-Policies.pdf](http://alt.elcentrocollege.edu/admissions/schedule/syllabus/Course-Related-Policies.pdf)

**Click for El Centro College Institutional Policies**
URL: [http://alt.elcentrocollege.edu/admissions/schedule/syllabus/Institutional-Policies.pdf](http://alt.elcentrocollege.edu/admissions/schedule/syllabus/Institutional-Policies.pdf)

**Click for the Title IX and Sexual Misconduct Policy**
URL: [http://alt.elcentrocollege.edu/students/title-ix-and-sexual-misconduct](http://alt.elcentrocollege.edu/students/title-ix-and-sexual-misconduct)
Disclaimer:

The provisions contained in this syllabus do not constitute a contract between the student and El Centro College. These provisions may be changed at the discretion of the Coordinator/Instructor. When necessary, appropriate notice of such changes will be given to the student.