## Basic Course Information

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|---|---|---|---|
| Semester | **FALL 2023** | Instructor Name | **Eric Lehtonen** |
| Course Title & # | **MATH 170 APPLIED CALC** | Email | **Eric.lehtonen@imperial.edu** |
| CRN # | **11061** | Webpage (optional) | |
| Room | **206** | Office | **2763** |
| Class Dates | **8/14/2023-12/09/2023** | Office Hours | **MW 3:15-4:15 PM** |
| Class Days | **MW** | Office Phone # | **(619)517-3742** |
| Class Times | **10:15-12:50** | Office contact if student will be out or emergency | **(760)355-6155** **(619)517-3742** |
| Units | **4** | | |

## Course Description

**COURSE/CATALOG DESCRIPTION:**

This course presents a study of the techniques of calculus with emphasis placed on the application of these concepts to business and management related problems. Students take this course to prepare for courses for which calculus is recommended and/or required, as well as to study the ideas and concepts of advanced mathematics as applied to a modern computerized society. Topics covered include pre-calculus concepts, applications of derivatives and integrals of functions including polynomials, rational, exponential and logarithmic functions, differential equations, and functions of several variables. (C-ID: MATH 140) (CSU, UC credit limited. See a counselor.)

## Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Demonstrate problem solving strategies by identifying an appropriate method to solve a given problem, correctly set up the problem, perform the appropriate analysis and computation, and share their interpretation of the conclusion or the outcome, using correct grammar or in an oral presentation. This outcome will be assessed through selected exercises on exams throughout the semester. Course Objectives.

## Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. Find the derivatives of polynomial, rational, exponential, and logarithmic functions. 2. Find the derivatives of functions involving constants, sums, differences, products, quotients, and the chain rule. 3. Sketch the graph of functions using horizontal and vertical asymptotes, intercepts, and first and second derivatives to determine intervals where the function is increasing and decreasing, maximum and minimum values, intervals of concavity and points of inflection. 4. Analyze the marginal cost, profit and revenue when given the appropriate function. 5. Determine maxima and minima in optimization problems using the derivative. 6. Use derivatives to find rates of change and tangent lines. 7. Use calculus to analyze revenue, cost, and profit. 8. Analyze functions of several variables. 9. Find definite and indefinite integrals by using the general integral formulas, integration by substitution, and other integration techniques. 10. Use integration in business and economics applications. Simplify trigonometric expressions.
2. Solve trigonometric equations, triangles and applied problems that can be modeled by trigonometric functions.
3. Identify special triangle and their related angle and side measures.

4. Graph trigonometric functions and their inverse functions and apply changes in period, phase and amplitude to generate new graphs
5. Prove trigonometric identities and use the identities to solve for exact values, simplify expressions and solve trigonometric equations.
6. Classify and graph conic sections.
7. Analyze parametric and polar equations, functions and graphs.
8. Evaluate sequences and series.

## Textbooks & Other Resources or Links

Text: Lial, Greenwell, Ritchey. 2015. Calculus with Applications. 11th Pearson. ISBN: 978-0133886832.

## Course Requirements and Instructional Methods

**Calculator:** The TI-30 or equivalent scientific Calculator. **Graphing Calculators are not permitted.**

Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

## Course Grading Based on Course Objectives

| Final Exam | 30% | There will be a comprehensive final |
|---|---|---|
| Tests | 60% | There will be 4 tests. |
| Other stuff | 10% | Stuff |

## Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class.  Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class.  It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students.  A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped.  For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

## Classroom Etiquette

- Food and Drink are prohibited in all classrooms.   Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed.
- Disruptive Students:  Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework.  Disciplinary procedures will be followed as outlined in the General Catalog.

- Children in the classroom: Due to college rules and state laws, no one who is not enrolled in the class may attend, including children.

## Academic Honesty

- Plagiarism is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to 'cite a source' correctly, you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

  Anyone caught cheating or will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General School Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

## Additional Help – Discretionary Section and Language

- Blackboard support center: http://bbcrm.edusupportcenter.com/ics/support/default.asp?deptID=8543
- Learning Labs: There are several 'labs' on campus to assist you through the use of computers, tutors, or a combination. Please consult your college map for the Math Lab, Reading & Writing Lab, and Study Skills Center (library). Please speak to the instructor about labs unique to your specific program.
- Library Services: There is more to our library than just books. You have access to tutors in the Study Skills Center, study rooms for small groups, and online access to a wealth of resources.

## Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313, if you feel you need to be evaluated for educational accommodations.

## Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see http://www.imperial.edu/students/student-health-center/. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

## Student Rights and Responsibilities

Students have the right to experience a positive learning environment and due process. For further information regarding student rights and responsibilities, please refer to the IVC General Catalog available online at http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762

## Information Literacy

**Required Language:** Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources.  Students can access tutorials at http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/

## Anticipated Class Schedule / Calendar

### CLASS AND TEST SCHEDULE

| WEEK 1 | | WEEK 10 | |
|---|---|---|---|
| AUG 14 | **INTRO, 3.1** | OCT 16 | 6.3 |
| AUG 16 | 3.2 | 0CT18 | 6.4 |
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| WEEK 2 | | WEEK 11 | |
| AUG 21 | 3.3 | OCT 23 | 6.5 |
| AUG 23 | 3.4 | 0CT 25 | **REVIEW** |
| | | | |
| WEEK 3 | 4.1 | WEEK 12 | |
| AUG 28 | 4.2 | OCT 30 | **TEST 3** |
| AUG 30 | 4.3 | NOV 1 | 7.1 |
| | | | |
| WEEK 4 | | WEEK 13 | |
| SEP 4 | **HOLIDAY** | NOV 6 | 7.2 |
| SEP 6 | 4.4,4.5 | NOV 8 | 7.3 |
| | | | |
| WEEK 5 | | WEEK 14 | |
| SEP 11 | **REVIEW** | NOV 13 | 7.4 |
| SEP 13 | **TEST 1** | NOV 15 | 7.5 |
| | | | |
| WEEK 6 | | WEEK 15 | |
| SEP 18 | 5.1, | NOV 20 | **HOLIDAY** |
| SEP20 | 5.2 | NOV 22 | **HOLIDAY** |
| | | | |
| WEEK 7 | | WEEK 16 | |
| SEP 25 | 5.3 | NOV 27 | **REVIEW** |
| SEP 27 | 5.4 | NOV 29 | **TEST 4** |
| | | | |
| WEEK 8 | | WEEK 17 | |
| OCT 2 | **REVIEW** | DEC 4 | **REVIEW** |
| OCT 4 | **TEST 2** | DEC 6 | **FINAL EXAM** |
| | | | |
| WEEK 9 | | | |
| OCT 9 | 6.1 | | |
| OCT 11 | 6.2 | | |