

Basic Course Information				
Semester:	Fall 2025	Instructor Name:	Leobardo Rosales Jr	
	Math 170: Introductory			
Course Title & #:	Calculus with Applications	Email:	leobardo.rosales@imperial.edu	
CRN #:	11448	Webpage (optional):	Canvas	
Classroom:	2700-2722	Office #:	3900	
			Thursdays 4:55-5:55pm	
Class Dates:	8/12-12/4	Office Hours:	in 2722	
Class Days:	TR	Office Phone #:		
Class Times:	6:00pm-8:35pm	Emergency Contact:	Silvia Murray 760-355-6201	
		Class		
Units:	4	Format/Modality:	face-to-face	

#### **Course 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.

### Course Prerequisite(s) and/or Corequisite(s)

Successful completion of College Algebra or appropriate placement as defined by AB 705.

#### **Student Learning Outcomes**

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

 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**

- 1. Pre-calculus Review, including the real number line and order, absolute value and distance on the real number line, exponents and radicals, factoring polynomials, and fractions and rationalization.
- 2. Functions and their graphs, including exponential and logarithmic functions.
- 3. Limits and intuitive limit definition of derivative.
- 4. Increments, tangent lines, and rate of change.
- 5. Rules of differentiation including sum, product, quotient, and the chain rule.
- 6. Implicit differentiation.



- 7. Applications of differentiation such as marginal analysis, optimization, and curve sketching.
- 8. Antiderivatives, indefinite and definite integrals.
- 9. Multiple techniques of integration including substitution.
- 10. Area between curves.
- 11. Approximating definite integral as a sum.
- 12. Applications of integration in business and economics.
- 13. Functions of several variables, including partial derivatives and extrema of functions of two variables.

# Textbooks & Other Resources or Links

Recommended textbook:

- Lial, Greenwell, Ritchey. 2022. *Calculus with Applications*. 12th Pearson. ISBN: 9780137342402.
- I will provide more information on the first day of class.

## **Course Requirements and Instructional Methods**

This course will consist of lectures, quizzes, assignments, three tests, and a final.

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 16-week class. For this class that means approximately 12 hours of class and out-of-class time per week.

# **Course Grading Based on Course Objectives**

There will usually be two quizzes every week and weekly assignments. Every fourth week there will be a test. In particular, Test 1 will be at the end of the fourth week. At the end of the class there will be a comprehensive Final. Your grade will be computed as follows:

- Assignments 30%
- Quizzes 10%
- 3 Tests 30%
- Final 30%

The following grading scale will be used: 90% and above is an A, 80% and above is a B, 70% and above is a C, and 60% and above is a D. Below 59% is an F.

### Academic Honesty (Artificial Intelligence -AI)

IVC values critical thinking and communication skills and considers academic integrity essential to learning. Using AI tools as a replacement for your own thinking, writing, or quantitative reasoning goes against both our mission and academic honesty policy and will be considered academic dishonesty, or plagiarism unless you have been instructed to do so by your instructor. In case of any uncertainty regarding the ethical use of AI tools, students are encouraged to reach out to their instructors for clarification.

### **Accessibility Statement**

Imperial Valley College is committed to providing an accessible learning experience for all students, regardless of course modality. Every effort has been made to ensure that this course complies with all state and federal accessibility regulations, including Section 508 of the Rehabilitation Act, the Americans with Disabilities Act (ADA), and Title 5 of the California Code of Regulations. However, if you encounter any content that is not

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accessible, please contact your instructor or the area dean for assistance. If you have specific accommodations through **DSPS**, contact them for additional assistance.

We are here to support you and ensure that you have equal access to all course materials.

## **Course Policies**

- 1. The definition of an excused absence is one which is out of your immediate control. This can include but is not limited to illness, accident, and appointments set by official agencies. It does not include sleeping-in or forgetting about class.
- 2. If you do not attend any of the first **four** class meeting without an excused absence, then you will be dropped from the class. Send me an email if you must or have missed any of the first four class meetings before 8am of the following day.
- 3. Assignments will be due through Canvas. Send me an email if you cannot or did not submit an assignment due to an excused absence.
- 4. Quizzes will be due through Canvas. Send me an email if you cannot or did not take a quiz due to an excused absence.
- 5. If you miss a test due to an excused absence, then your score for that test will be replaced by your score for the next test, or in case of Test 3 by the score on your Final. Send me an email if you cannot or did not take a test due to an excused absence.
- 6. Attending the Final is absolutely mandatory. There is no make-up or replacement for the Final.
- 7. All general rules, including rules of etiquette, of Imperial Valley College apply.

The following are Academic Honesty policies.

- 1. You are encouraged to work closely on Assignments with other students.
- 2. You are encouraged to work closely on the Quizzes with other students.
- 3. Tests are closed notes, closed friends and enemies. Electronic devices may not be used without prior approval.
- 4. The Final is closed notes, closed friends and enemies. Electronic devices may not be used without prior approval.

The first violation of these rules shall result in zero points for the assessment in question. The second violation shall result in an automatic fail for the course. Particularly egregious violations may result in further disciplinary measures.

### **Other Course Information**

#### To be updated

### Financial Aid

Your Grades Matter! In order to continue to receive financial aid, you must meet the Satisfactory Academic Progress (SAP) requirement. Makings SAP means that you are maintaining a 2.0 GPA, you have successfully completed 67% of your coursework, and you will graduate on time. If you do not maintain SAP, you may lose your financial aid. If you have questions, please contact financial aid at <u>finaid@imperial.edu</u>.

#### **IVC Student Resources**

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visit <u>http://www.imperial.edu/studentresources</u> or click the heart icon in Canvas.



# Anticipated Class Schedule/Calendar

Week	Lecture 1	Lecture 2
1	Introduction	The Basic Functions
Aug 12,13	Lines	
2	Algebra Review	Limits
Aug 19,21	Test 0	
3	Rates of Change and Derivatives	Derivative as a Function
Aug 26,28		Simplification and Addition Rules
4	Exponential and Logarithm Functions	Test 1
Sep 2,4	Test 1 Practice Problems	
5	The Product and Quotient Rules	The Chain Rule
Sep 9,11	Economics Functions	Exponential Growth and Decay
6	Implicit Differentiation	Maximum and Minimums
Sep 16,18	Limits Involving Infinity	Determining Signs Through Factoring
7	Shapes of Graphs	Curve Sketching
Sep 23,26		
8	Related Rates	Test 2
Sep 30,Oct 2	Test 2 Practice Problems	
9	Applications of Derivatives	Antiderivatives
Oct 7,9		
10	Definite Integrals	The Fundamental Theorem of Calculus
Oct 14,16		
11	The Substitution Rule	Integration by Parts
Oct 21,23		
12	Riemann Sums	Test 3
Oct 28,30	Test 3 Practice Problems	
13	Areas Between Curves	Applications of Integration
Nov 4,6	Improper Integrals	
14	Functions of Several Variables	Partial Derivatives
Nov 11,13		
15	Maximum and Minimum Functions of Several	Lagrange Multipliers
Nov 18,21	Variables	
Thanksgiving		
Nov 25,28		
16	Final Practice Problems	Final
Dec 2,4		

\*\*\*Subject to change without prior notice\*\*\*