



IMPERIAL VALLEY COLLEGE

## Basic Course Information

Semester:	<b>Spring 2024</b>	Instructor Name:	<b>Jeffrey Burt</b>
Course Title & #:	<b>Math 220 Elementary Differential Equations</b>	Email:	<b>jeff.burt@imperial.edu</b>
CRN #:	<b>20411</b>	Webpage (optional):	<b>N/A</b>
Classroom:	<b>2726</b>	Office #:	<b>2765</b>
Class Dates:	<b>2/12-6/7</b>	Office Hours:	<b>M/W 12-1 T/TH 9 - 10</b>
Class Days:	<b>T/TH</b>	Office Phone #:	<b>7603556489</b>
Class Times:	<b>1-2:25pm</b>	Emergency Contact:	<b>email</b>
Units:	<b>3</b>	Class Format/Modality:	<b>In Person</b>

## Course Description

The course is an introduction to ordinary differential equations including both quantitative and qualitative methods as well as applications from a variety of disciplines. Introduces the theoretical aspects of differential equations, including first, second, and higher order differential equations and their applications, establishing when solution(s) exist, and techniques for obtaining solutions, including, series solutions, and singular points, Laplace transforms and linear systems.(C-ID: MATH 240) (CSU/UC)

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

MATH 194 - with a grade of "C" or better.

## 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 the ability to solve a first order differential equation.
2. Demonstrate the ability to use a differential equation to model a real world phenomena.
3. Demonstrate the ability to find a series solution to a differential equation.

## Course Objectives

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

1. Create and analyze mathematical models using ordinary differential equations.
2. Identify the type of a given differential equation and select and apply the appropriate analytical technique for finding the solution of first order and selected higher order ordinary differential equations.
3. Apply the existence and uniqueness theorems for ordinary differential equations.
4. Find power series solutions to ordinary differential equations.
5. Determine the Laplace Transform and inverse Laplace Transform of functions.
6. Solve Linear Systems of ordinary differential equations..

## Textbooks & Other Resources or Links

Nagle, R., Saff, E. and Snider, A.. 2017. *Fundamentals of Differential Equations*. 9th Addison Wesley. ISBN: 978-0321977069.

Updated 6/2023



## Course Requirements and Instructional Methods

*[Describe course activities, assignments, tests, homework, etc.]*

## Course Grading Based on Course Objectives

There will be 3 in class exams, worth 100 points each. The final is comprehensive and is worth 150 points. There are no make-ups for the exams or final. Plan to be here for the exam dates in the schedule, but also note that those dates can change, so make sure you are paying attention and staying up to date. Any missed exam will result in the grade of a '0'.

The combined total of your quizzes is worth 10% of your grade. Your lowest two quizzes will be dropped. There are no make ups.

Grading: You need at least a total of 70% for a 'C' grade. It is broken down as follows

Quizzes 10%

Homework 10%

Exams 60%

Final 20%

The grade categories are as follows: A 100%-90%, B 89.9%-80%, C 79.9%-70%, D 69.9%-60%, F 59.9%-0% Attendance, class participation and a subjective instructor's interpretation of work may be used in assigning a final grade to borderline cases

## 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.

## Course Policies

**Homework:** Homework will be assigned at each class meeting. It is due on Tuesdays and must be turned in as a pdf on Canvas. The pdf must be in the correct order to count for credit.

**Quiz:** A quiz may be given at any time during any class period. It may not be announced. The number of quizzes or group work in the semester will be instructor's discretion. The purpose is to provide a feedback on your learning. The lowest 2 scores will be dropped.

**Tests:** There will be three tests. The purpose of these tests is to check your understanding of the concepts covered in the course. Most of the questions on these tests will require showing a significant amount of work. A correct answer with insufficient work will receive partial credit or no credit.

**Final Exam:** At the end of the semester, a COMPREHENSIVE/CUMULATIVE Final Exam will be given. If you miss the final, it will be recorded as a zero.



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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

## Other Course Information

## 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 <http://www.imperial.edu/studentresources> or click the heart icon in Canvas.



## Anticipated Class Schedule/Calendar

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

Week 1 2/12-2/16	Chater 1
Week 2 2/19-2/23	Chapter 2
Week 3 2/26-3/1	Chapter 2
Week 4 3/4-3/8	Chapter 3, Exam 1
Week 5 3/11-3/15	Chapter 3
Week 6 3/18-3/22	Chapter 4
Week 7 3/25-3/29	Chapter 4
Week 8 4/1-4/5	Spring Break
Week 9 4/8-4/12	Review, Exam 2
Week 10 4/15-4/19	Chapter 5
Week 11 4/22-4/26	Chapter 5,6
Week 12 4/29-5/3	Chapter 6
Week 13 5/6-5/10	Review, Exam 3
Week 14 5/13-5/17	Chapter 7
Week 15 5/20-5/24	Chapters 7,8
Week 16 5/27-5/31	Chapter 8
Week 17 6/3-6/7	<b>Review, Final Exam</b>