



MATH 032: Differential Equation

Term: Summer, 2019

Time: Monday – Friday, 5 Weeks

Class Sessions per Week: 5

Class Session Length (minutes) : 150

Total Contact Hours: 60

Credit Hours: 4

Course Description

This is an advanced calculus course for students of greater aptitude and motivation .

Topics include: Ordinary differential equations first order; Second order ordinary differential equation; Systems of ordinary differential equations; Laplace transforms; Introduction to higher order linear differential equations.

Prerequisite: Calculus II, Multi-variable Calculus.

Textbook(s)

Differential Equations, by Blanchard ISBN: 978-1133109037

Course Requirement(s)

Homework

Homework problems will be assigned daily. Homework will be collected at the beginning of the class. You are required to solve all the homework problems in order to prepare for the mid term exams and final exam.

Quiz and Exam

There will be quizzes, one midterm exam and one comprehensive final exam. If a student must miss an exam because of a university- approved conflict, please contact me as soon as possible, and no later than one week before the exam. Apart from these conflicts missing an exam or arriving late for an exam may result in the immediate failure (zero) of that exam.

Grading

Quiz, Homework, Attendance	30%
Midterm exam	35%
Final Exam	35%



西華大學

Total	100%
-------	------

A: 90-100 A-: 85-89 B+: 82-84 B: 78-81 B-: 75-77 C+: 72-74 C: 68-71 C-: 64-67 D: 60-63
F: <60

Schedule

Week 1:

Introduction of differential equations

Chapter 1: First order Differential Equation

Modeling

Analytic, Qualitative, Numerical Technique

Linear equation and Integrating Factors.

Week 2:

Chapter 2: First order systems.

Modeling via system

The geometry of System

Analytic Methods for special Systems

Euler's Method for systems

Midterm Exam

Week 3:

Chapter 3: Linear systems

Phase planes

Eigenvalues of different cases

Second-order Linear Equations

Linear system in three dimensions

Chapter 4: Forcing and Resonance

Forced Harmonic Oscillations

Week 4 :

Sinusoidal forcing

Undamped forcing and Resonance

Amplitude and phase of the steady state

Chapter 6: Laplace Transforms

Laplace Transforms

Discontinuous Functions

Week 5:

Solving system by using Laplace Transform

Higher-orders differential equations

Review

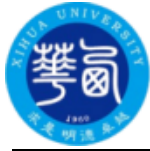
Final Exam

Policies

Exam and Attendance

No make-ups for missed exams. If legitimate absence, midterm exam can be excused.

Attending all class meetings is required. Students are responsible for missing class by



西華大學

any reason. We will be covering a lot of material quickly so it is detrimental to miss even a day.

Academic Honesty

Xihua expects all students to do their own work. Instructors will fail assignments that show evidence of plagiarism or other forms of cheating, and will also report the student's name to the University administration. A student reported to the University for cheating is placed on disciplinary probation; a student reported twice is suspended or expelled.

Special needs

Students with disabilities and special needs should consult with the professor early in the semester. Recording of lectures is permitted.