

King Fahd University of Petroleum & Minerals  
 Department of Mathematics & Statistics  
**Syllabus MATH 202**  
 2019-2020 (193)  
 Instructor: Dr. Laradji

Course: Math 202 (Elements of Differential Equations)

Textbook: A First Course in Differential Equations by D.G. Zill, 10th Edition

Course Contents: First-order and first-degree differential equations. Linear Models. Homogeneous differential equations with constant coefficients. Undetermined Coefficients: annihilator approach, reduction of order, variation of parameters, and Cauchy-Euler equation. Series solutions. Systems of linear first-order differential equations

Week	Date	Section	Topic
1	May 31-Jun 4	1.1 1.2 2.2 2.3	Definitions and Terminology Initial Value Problems Separable Variables Linear Equations
2	Jun 7-11	2.4 2.5 3.1	Exact Equations Solutions by Substitutions Linear Models: Growth & Decay, Half-Life, Newton's Law of Cooling
3	Jun 14-18	4.1.1 4.1.2 4.1.3 4.2	Initial and Boundary Value Problems Homogeneous Equations Nonhomogeneous Equations Reduction of Order
4	Jun 21-25	4.3 4.5 4.6	Homogeneous Linear Equations with Constant Coefficients Undetermined Coefficients: Annihilator Approach Variation of Parameters
5	Jun 28-Jul 2	4.7 6.1 6.2	Cauchy-Euler Equation (Both Methods) Review of Power Series Solutions about Ordinary Points
6	Jul 4-9	6.3 App II.1 & II.2 App II.3 8.1 8.2	Solutions about Singular Points Matrices and Linear Systems (Review) Eigenvalue Problem Preliminary Theory: Linear Systems Homogeneous Linear Systems
7	Jul 12-16	8.2.1 8.2.2 8.2.3 8.3.2 8.4	Distinct Real Eigenvalues Repeated Eigenvalues Complex Eigenvalues Variation of Parameters Matrix Exponential (No Laplace Transform)
8	Jul 19		Catch -Up & Review

**Assessments and Distribution of Marks (out of 300pts)**

- 6 Assessments: 40pts each
- Final Assessment: 60pts (July 20, 2019, at 7:00 PM)

**Assessments will be held each Saturday at 6:00 PM.**

**Attendance:** A DN grade will be awarded to any student who accumulates **6** unexcused absences.

**Academic Integrity:** All KFUPM policies regarding ethics apply to this course.