University of North Texas at Dallas
Spring 2011
SYLLABUS

MATH 3410D:090	Differential Equations	3 Hrs

Department of	Mathematics and Information Sciences	Division of	Liberal Arts and Life Sciences

Instructor Name:	*Vinod Arya*
Office Location:	**DAL2-226**
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Office Hours:	**TWR 1:00 pm – 2:00 pm. Other hours by appointment.**
Virtual Office Hours:	*None*

Classroom Location:	*DAL2 304*
Class Meeting Days & Times:	**TR – 11:30 am – 12:50 pm**

Course Catalog Description:	**Differential Equations I.** 3 hours. First-order equations, existence-uniqueness theorem, linear equations, separation of variables, higher-order linear equations, systems of linear equations, series solutions and numerical solutions. Only one of MATH 3310 and MATH 3410 may be used to satisfy requirements for Mathematics major or minor.

Prerequisites:	Prerequisite(s): MATH 1720 and MATH 2700.
Co-requisites:	**None**

Required Text:	***A First Course in Differential Equations with Modeling Applications*, 9th edition, by D. Zill. Graphing calculator (TI 83) and CAS (Maple).** ISBN-10: 0495108243; ISBN-13: 9780495108245.

Recommended Text and References:	*Elementary differential equations and boundary value problems*, 9th edition, by William E. Boyce and Richard C. DiPrima.

Access to Learning Resources:	UNT Dallas Library: phone: (972) 780-3625; web: http://www.unt.edu/unt-dallas/library.htm UNT Dallas Bookstore: phone: (972) 780-3652; e-mail: 1012mgr@fheg.follett.com

Course Goals or Overview:

The goal of this course is to prepare students for solving differential equations.

Learning Objectives/Outcomes: :

Course Learning Outcomes: At the end of this course, the student will be able to

1	Solve first order linear and nonlinear differential equations
2	Perform basic mathematical modeling using differential equations
3	Solve differential equations by using the series solution method
4	Solve second and higher order differential equations with constant coefficients
5	Solve system of differential equations using the matrices
6	Solve differential equations using numerical techniques

Program Learning Outcomes:

1	Students will be able to demonstrate knowledge of problem-formulation, problem solving, and modeling techniques central to applications of mathematics.
2	Students will be able to competently use appropriate technology for solving mathematical problems.

Tentative Course Outline

This schedule is subject to change by the instructor. Any changes to this schedule will be communicated by announcement in class and/or email.

SECTION #	TITLE	WEEK
1.1	Definitions and Terminology	I
1.2	Initial-Value Problems	
2.2	Separable Variables	II
2.3	Linear Equations	
2.4	Exact Equations	III
2.5	Solutions by Substitutions	
	I TEST	IV
2.6	A Numerical Method	
3.1, 3.2	Linear and Nonlinear Models	V
4.1	Preliminary Theory – Linear Equations	VI
4.2	Reduction of Order	
4.3	Homogeneous Linear Equations with Constant Coefficients	VII
4.4	Undetermined Coefficients	
4.6	Variation of Parameters	VIII
	II TEST	
4.7	Cauchy-Euler Equation	IX
4.8	Solving System of Linear DEs by Elimination	
6.1	Solution About Ordinary Points	X, XI
6.2	Solution About Singular Points	
	TEST III	
APP II	Matrices	XII, XIII
8.1	Preliminary Theory – Linear Systems	
8.2	Homogeneous Linear Systems	
8.3	Nonhomogeneous Linear Systems	XIV
9.2	Runge-Kutta Method	
	REVIEW and Comprehensive Final Exam	XV

Course Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

Grading Matrix:

Instrument	Value (points or percentages)	Total
Homework Assignments and	20%	25%

Quizzes		
3 tests	3 at 15% each	45%
Class Participation/ Discussion	5%	5%
Final Exam	25%	25%
Total:		**100%**

Grade Determination:
A = 90% or better
B = 80 – 89 %
C = 70 – 79 %
D = 60 – 69 %
F = less than 60%

University Policies and Procedures

Students with Disabilities (ADA Compliance):
The University of North Texas Dallas faculty is committed to complying with the Americans with Disabilities Act (ADA). Students' with documented disabilities are responsible for informing faculty of their needs for reasonable accommodations and providing written authorized documentation. For more information, you may visit the Office of Disability Accommodation/Student Development Office, Suite 115 or call Laura Smith at 972-780-3632.

Student Evaluation of Teaching Effectiveness Policy:
The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider the SETE to be an important part of your participation in this class.

Assignment Policy:
No late homework assignments will be accepted. A missed home-assignment is worth zero. No makeup tests and quizzes will be given, except for documented emergencies.

Exam Policy:
Exams should be taken as scheduled. No makeup examinations will be allowed except for documented emergencies (See Student Handbook).

Academic Integrity:
Academic integrity is a hallmark of higher education. You are expected to abide by the University's code of conduct and Academic Dishonesty policy. Any person suspected of academic dishonesty (i.e., cheating or plagiarism) will be handled in accordance with the University's policies and procedures. Refer to the Student Code of Conduct at http://www.unt.edu/csrr/student_conduct/index.html for complete provisions of this code.

Bad Weather Policy:
On those days that present severe weather and driving conditions, a decision may be made to close the campus. In case of inclement weather, call UNT Dallas Campuses main voicemail number (972) 780-3600 or search postings on the campus website www.unt.edu/dallas. Students are encouraged to update their Eagle Alert contact information, so they will receive this information automatically.

Attendance and Participation Policy:
The University attendance policy is in effect for this course. Class attendance and participation is expected because the class is designed as a shared learning experience and because essential information not in the textbook will be discussed in class. The dynamic and intensive nature of this course makes it impossible for students to make-up or to receive credit for missed classes. Attendance and participation in all class meetings is essential to the integration of course material and your ability to demonstrate proficiency. Students are responsible to notify the instructor if they are missing class and for what reason. Students are also responsible to make up any work covered in class. It is recommended that each student coordinate with a student colleague to obtain a copy of the class notes, if they are absent.

Diversity/Tolerance Policy:

Students are encouraged to contribute their perspectives and insights to class discussions. However, offensive & inappropriate language (swearing) and remarks offensive to others of particular nationalities, ethnic groups, sexual preferences, religious groups, genders, or other ascribed statuses will not be tolerated. Disruptions which violate the Code of Student Conduct will be referred to the Center for Student Rights and Responsibilities as the instructor deems appropriate.

Other Policies:

Use of cell Phones in the class is prohibited. No Food and Drink is allowed in the class. An Incomplete Grade "I" will be awarded only in exceptional circumstances and per university rules (see catalog). Students are responsible for meeting all university deadlines (registration, fee payment, prerequisite verification, drop deadlines etc.). See university catalog and/or schedule of classes for policies and dates.