Syllabus – Summer 2024

Excluding materials for purchase, syllabus information may be subject to change. The most up-to-date syllabus is located within the course in HuskyCT.

Course and Instructor Information

Course Title: Elementary Differential Equations

Format: Online instruction on WEBEX asynchronously. Video lectures will be posted on HuskyCT.

Prerequisites: MATH 1132, 1152, or 2142. Recommended preparation: A grade of C- or better in MATH 1132; MATH 2110 or 2130. Cannot be taken after MATH 2144, 2420, 2720, 3146, 3150, 3410, 3412, 3510, 3170. Repeat restrictions apply; see advising.uconn.edu/repeat-policy.

Professor: Ovidiu Munteanu

Email: ovidiu.munteanu@uconn.edu

Office Hours: TBD on WebEx, link provided on HuskyCT.

Course Materials

Required course materials should be obtained before the first day of class.

The textbook for the course is "**A First Course in Differential Equations with Modeling Applications**" by Dennis G. Zill (11th edition). The textbook comes bundled with an access code for WebAssign, which we will use to complete online homework.

Helpful additional resources:
Paul's Online Notes for Differential Equations: http://tutorial.math.lamar.edu/Classes/DE/DE.aspx
Khan Academy Videos for Differential Equations: https://www.khanacademy.org/math/differential-equations
PatrickJMT Videos for Differential Equations: http://patrickjmt.com/#differential-equations

Course Description

Qualitative, analytical, and numerical methods for first and second order single ordinary equations as well as first-order constant coefficient linear systems and some special nonlinear systems. Laplace transform and its application to differential equations.

Course Requirements and Grading

Summary of Course Grading:

Course Components	Weight
WebAssign Homework	20%
Practice Worksheets	20%
Exam 1	30%
Exam2	30%

WebAssign Homework

Homework will be completed online via WebAssign, which you should access via our course in HuskyCT. Every section that we cover will be tested in an assignment. Assignments will be due on Mondays and on Thursdays of each week. Extensions will not be granted.

Practice Worksheets

We will also do worksheets to review key ideas. The worksheets will be graded for correctness.

Chapter Exams

Exam 1 covers chapters 1,2,3,4 and is tentatively set on June 14.

Exam 2 covers chapters 7 and 8 and is set on June 28.

The exams will be administered online, using the Lockdown Browser with monitor. The problems will be solved on paper, scanned and uploaded, as a PDF file, on HuskyCT.

Grading Scale:

Grade	Letter Grade	GPA
93-100	A	4.0
90-92	A-	3.7
87-89	B+	3.3
83-86	B	3.0
80-82	B-	2.7
77-79	C+	2.3
73-76	C	2.0
70-72	C-	1.7
67-69	D+	1.3
63-66	D	1.0
60-62	D-	0.7
<60	F	0.0

Due Dates and Late Policy

All course due dates are identified on WebAssign and on HuskyCT. Deadlines are based on Eastern Time unless otherwise specified. The instructor reserves the right to change dates accordingly as the semester progresses. All changes will be communicated in an appropriate manner.

Feedback and Grades

I will make every effort to provide feedback and grades within a week after due date. To keep track of your performance in the course, refer to My Grades in HuskyCT.

Student Authentication and Verification

The University of Connecticut is required to verify the identity of students who participate in online courses and to establish that students who register in an online course are the same students who participate in and complete the course activities and assessments and receive academic credit. Verification and authentication of student identity in this course will include:

1. Secure access to the learning management system using your unique UConn NetID and password.
2. Exams proctored with Lockdown Browser.

Course Outline

Week	Topics
1	1.1 Definitions and terminology 1.2 Initial value problems 1.3 Differential equations as mathematical models 2.1 Solution curves without a solution 2.2 Separable equations 2.3 Linear Equations 2.4 Exact equations
2	2.5 Solutions by substitutions 2.6 A numerical method (Euler's method) 3.1 Linear models 3.2 Nonlinear models 3.3 Modeling with systems of first-order equations 4.1 Preliminary theory-linear equations
3	4.2 Reduction of order (no WebAssign) 4.3 Homogeneous linear equations with constant coefficients 4.4 Undetermined coefficients-superposition approach 4.6 Variation of parameters **Exam 1 covers chapters 1,2,3,4**
4	7.1 Definition of the Laplace Transform 7.2 Inverse transforms and transforms of derivatives 7.3 Operational properties I (translation on t- or s- axes) 7.4 Operational properties II (derivatives, convolution, periodic functions)
5	B.1 Basic definitions and theory B.2 Gaussian and Gauss-Jordan Elimination B.3 The eigenvalue Problem 8.1 Preliminary Theory – Linear systems 8.2 Homogeneous linear systems **Exam 2 covers chapters 7 and 8**