MATH 336, FALL 2006

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Office Hours: M 3.30 – 5.00 pm, R 2.00 – 3.00 pm.
FINAL EXAM: DU 448/452, Tuesday, December 12, 8.00 AM.
Course web-page: http://www.math.niu.edu/~krishtal/MA336.pdf
Solutions: Quiz 0, Quiz 1, Quiz 2, Quiz 3, Exam 1, Quiz 4, Quiz 5, Exam 2, Quiz 6, Quiz 7, Quiz 8, Exam 3, Quiz 9, Quiz 10

EXAMS: Three in-semester in-class exams will be given. These will be held on September 28, October 26, and November 20. The date and location of the final exam will be posted later. Note that attendance at these exams is mandatory, and no alternate dates are available. Except in cases of (verifiable) emergencies you must notify me in advance if an exam is going to be missed. NO CALCULATORS are permitted on an exam.

HOMEWORK: Homework will be assigned on Thursday and will be due the following Tuesday (unless stated otherwise). No late homework will be accepted. You must submit all the assigned homework, but only selected problems will be graded. The assignment and some of the solutions will also be available from the course web-page (follow the link). The problems currently assigned will be highlighted.

QUIZZES: Quizzes will be given on Thursdays except for those coinciding with a holiday or a scheduled exam. All quizzes will be based DIRECTLY on the assigned homework.

ATTENDANCE: Attendance matters. I will not take it in class; HOWEVER, if I see it falling to levels which would harm the overall performance of the class, I reserve the right to administer (additional) SURPRISE quizzes during the semester.

GRADING: Quizzes will count as 1/6 towards the final numerical grade, midterm exams as 1/2 (combined), and the final exam as 1/3. The final quiz grade will be the average of your 10 best quizzes. The average homework grade will replace one of the midterm exam grades if it is to your benefit. Numerical grades will be converted to letter grades according to the overall performance of the class. There will be no negative curves.

RULES: I urge you to exercise respect towards your peers and instructor and refrain from any activities in class which would impede the learning process. Those include (but are not limited to) using cell phones and similar electronic devices, eating, drinking, bringing kids and pets in class, etc.

Syllabus MA 336, Fall 2006

8/28	1.1	Introduction
	1.2	Direct Integration
9/4	1.3	Existence /Uniqueness
	1.5	Linear First Order Eqns.
9/11	1.4	Separable Eqns.
	1.6	Homogeneous ($y' = F(y/x)$) eqns.
		& Bernoulli eqns., substitution methods
9/18	1.6	Exact equations
	1.7	Population Models
	1.8	Acceleration – Velocity Models
9/25	6.1	Euler's Method
	6.2	Improved Euler
	E1 (9/28)	
10/2	2.1	Intro to Linear Eqns. (order $n \geq 2$)
	2.2	General Solns. (the Wronskian)
10/9	2.2	cont'd
	2.3	Homogeneous Eqns. (Constant Coefficients)
10/16	2.5	Nonhomogeneous Eqns. (Undetermined Coefficients)
	2.5	cont'd
10/23	2.5	Nonhomogeneous Eqns. (Variation of Parameters)
	2.5	cont'd
	E2 (10/26)	
10/30	2.4	Vibrations (no external forcing)
	2.6	Forced Vibrations and Resonance
11/6	4.1	Laplace Transforms/Inverse Transforms
	4.2	Laplace Transform Solns. of IVP
11/13	4.3	Laplace Transform and Partial Fractions
	4.4	Differentiation and Integration of Transforms; the Convolution Theorem
	4.5	Transforms of Periodic and PC Functions
11/20	E3 (11/21)	cont'd
	(Thanksgiving Break)	
11/27	4.5	Solution of Systems (Laplace Transform)
	5.1	Solution of Systems: Elimination
	5.2	
12/4	5.3	
	Review	

Remarks: If time permits the following (optional) topics may be addressed: Reduction of Order and Cauchy-Euler Equations.

MATH 336 **ORDINARY DIFFERENTIAL EQUATIONS**

OVERVIEW

- Introduction: definitions, classification, solutions.
- First order equations: existence and uniqueness, linear equations, Bernoulli equations, separable equations, exact equations, integrating factors, homogeneous equations, applications
- Numerical methods: Euler's method, and Improved Euler.
- Higher order equations: solution by substitution, second order equations, linear independence, the Wronskian, operator notation, reduction of order, constant coefficient equations, Euler's equation, undetermined coefficients, variation of parameters, applications.
- The Laplace transform: definition, basic properties, initial value problems, discontinuous forcing functions, periodic functions, convolution.
- Linear systems: introduction, solution by elimination, solution by Laplace transforms

TEXT BOOK: Elementary Differential Equations with Applications by Edwards and Penny (5th ed.), Prentice-Hall.