MTH 204: Elementary Differential Equations
Spring 2009

Section	Time	Room	CRN
C	**MWF 10:00 - 10:50**	**CSF G5D**	**70936**
F	**MWF 1:00 - 1:50**	**TMH 251**	**70939**

Instructor: Nick Wintz
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Website: http://www.mst.edu/~njwn7d
Office Hours: TR 12:00 - 2:00 **(306 Rolla Building)**
Tutoring Hours: TR 11:00 - 12:00 **(116 Rolla Building)**
LEAD: R 5:00 - 7:00 **(CSF G5D)**

Prerequisite: MTH 22 (Calculus with Analytic Geometry III) with a grade of C or better.

Text: A First Course in Differential Equations with Modeling Applications (8th edition) by Dennis Zill; Brooks/Cole, Belmont, CA, 2005.

Topics:

Chapter 1 Introduction to Differential Equations
Chapter 2 First-Order Differential Equations
Chapter 3 Modeling with First-Order Differential Equations
Chapter 4 Higher-Order Differential Equations
Chapter 5 Modeling with Higher-Order Differential Equations
Chapter 7 The Laplace Transform
Appendix II Introduction to Matrices
Chapter 8 Systems of Linear First-Order Differential Equations

Note: Since Calculus III is a prerequisite to this course, you are expected to remember the skills you learned throughout your calculus sequence. In particular, you will need to stay fresh on your integration techniques (integration by parts, partial fraction decomposition, etc).
Also, as a rule of thumb, you are expected to spend about 3 hours per credit hour studying math and science classes per week.

Grading Policy: There will be approximately twelve (the lowest two dropped) weekly quizzes, each counting 10 points. There will be three one hour exams, each worth 100 points. You will also have a **common and comprehensive final**, worth 200 points. Altogether, there are 600 points possible. Your grade will be based on the total number of points you have accumulated over the semester. The guaranteed grade cutoffs are as follows:

F	D	C	B	A
$0 \le p \le 354$	$355 \le p \le 414$	$415 \le p \le 474$	$475 \le p \le 534$	$535 \le p \le 600$

Note that it is your responsibility to stay current on your performance in the class. In order to receive full credit for any quiz or exam question, **you must show all your work**, especially on anything involving the integration techniques you learned in calculus. You will be graded much more heavily on your ability to go through **all the steps** needed to solve a problem than you will for finding the right answer. Bear in mind that most of the mistakes people make in MTH 204 are a direct result of skipping steps in their work. With that in mind, it is extremely difficult to assign partial credit for work that does not end up on your paper.

Attendance Policy: You are expected to attend every class period. If you know in advance that you will not be able to attend, please check with me ahead of time to determine what work you will miss. If you miss a class, it is your responsibility to find out what you missed, pick up any handouts, returned exams, or quizzes, etc. Absences will be excused if your doctor or the Student Health Center can verify that you were seen for a medical condition, or if your faculty advisor communicates to me an academic reason for your absence.
Note: After two unexcused absences you will receive an academic alert. Each unexcused absence after the second will result in a 10 point reduction in your cumulative course total. If you accumulate six or more unexcused absences during the semester, you can expect to be dropped from the course.

Homework: There will be homework questions assigned from each section that we cover in class. These questions will not be collected, they are for your practice. However, you are expected to try each problem. It is to your benefit to do so, as your quizzes and exams will look surprisingly similar to the homework assigned.

Quizzes: There will be a 10-15 minute quiz each Friday that we are not having an exam. Each quiz will be worth 10 points. These quizzes will also be closed book, closed notes. However, you may use your homework solutions. The lowest two quizzes will be dropped. Your quiz grade will be the percentage of your remaining scores.
Note: If you miss a quiz you are allowed to make it up, provided that you do so during my office hours on Tuesday.

Exams: We will have three hour exams worth 100 points each. The exams will cover material from the textbook, homework problems, quizzes, and lectures.
Tentative test dates: February 13
March 20
April 24

Final Exam: The **200 point common and comprehensive** final exam will be given on Wednesday, May 13 from 1:30 until 3:30 PM. I will announce our room assignment for the final exam later in the semester. If you have any conflicts with this time, you need to inform Dr Clark, course coordinator, and the Registrar's Office at least one week before the final.

Academic Dishonesty: Academic honesty is vital to the intellectual life of the University. Students have a special obligation to be aware of and adhere to the standards of conduct as described on page 30 of the Missouri S&T Student Academic Regulations handbook:

http://registrar.mst.edu/academicregs/index.html.
In particular, this page offers descriptions of what constitutes cheating, plagiarism, and sabotage.

Disability Support Services: If you have a documented disability and anticipate needing accommodations in this course, please meet with me early in the semester. Before I can arrange for your accommodations, you will need to request that the Disabilities Services staff in 204 Norwood Hall (dss@mst.edu, 341-4211) send me a letter verifying your disability and specifying the accommodation you will require.

Emergency Egress Route: In case of an emergency, the egress route for evacuation for our classroom is given by

CSF G5D: http://registrar.mst.edu/documents/egress/egress_csf_g5d.pdf
TMH 251: http://registrar.mst.edu/documents/egress/egress_tmh_251.pdf.

Question/Concern Resolution: If you ever have a question or concern about anything, please come see me. However, if you are not satisfied, you can talk to the MTH 204 Coordinator, Dr Clark, in 101 Rolla Building. If you still have questions that are unresolved, you should speak with our Department Undergraduate Coordinator, Dr. Morgan in 212 Rolla Building. If they cannot help you, then please see Department Chair, Dr. Leon Hall, in 202 Rolla Building.

Changes to the Syllabus: Any changes will be made known by the next available class period. An updated syllabus will also be put up online.

Tentative Spring 2009 Math 204 Course Outline

Date			Section and Topic / Homework Assignment
Jan.	12	M	1.1 Definitions and Terminology p. 10: #3,5,9,13,17,19,23,27,29,33
	14	W	1.2 Initial Value Problems p. 16: #3,7,15,21,25,26,31
	16	F	2.1 Solution Curves without a Solution p. 46: #1,7,9,19,21,25,29,40
	19	M	**Martin Luther King Day - No Missouri S&T classes.**
	21	W	2.2 Separable Variables p. 54: #5,7,9,12,17,19,21,23,25,31,39
	23	F	2.3 Linear Equations p. 65: #3,7,13,17,21,29,33,37,46
	26	M	3.1 Linear Models p. 98: #5,9,11,17,19,20,23,29,31,36
	28	W	3.1 Linear Models (cont.) 3.2 Nonlinear Models p. 108: #3,9,11,24.
	30	F	3.2 Nonlinear Models (cont.)
Feb.	2	M	4.1 Linear Differential Equations: Basic Theory p. 137: #3,5,6,9,11,13,17,21,24,27,31,36,39

4 W 4.1 Linear Differential Equations: Basic Theory (cont.)
6 F 4.2 Reduction of Order
p. 141: #3,7,9,13,17,20
9 M 4.3 Homogeneous Linear Equations with Constant Coefficients
p. 147: #1,5,9,13,17,27,31,23,38,45,50
11 W 4.3 Homogeneous Linear Equations with Constant Coefficients (cont.)
13 F **Exam I**
16 M 4.5 Undetermined Coefficients – Annihilator Approach
p. 158: #3,8,13,15,19,23,25,29,37,45,55,61,63,66,71
18 W 4.5 Undetermined Coefficients – Annihilator Approach (cont.)
20 F 4.6 Variation of Parameters
p. 172: #2,5,11,17,23,26,30
23 M 4.6 Variation of Parameters (cont.)
5.1 Linear Models: Initial Value Problems
p. 207: #3,6,7,18,21,25,31,35,41,45,49,57,58
Last day to drop without a "WD" showing on your transcript.
25 W 5.1 Linear Models: Initial Value Problems (cont.)
27 F 5.1 Linear Models: Initial Value Problems (cont.)
Mar. 2 M 4.7 Cauchy-Euler Equation
p. 178: #1,3,11,13,17,23,29,31,39,40
4 W 7.1 Definition of the Laplace Transform
Appendix I: Gamma Function (Solve #1 and 3, APP-2.)
p. 283: #3,7,11,13,19,25,31,33,41,42,46,48
6 F 7.2 Inverse Transforms and Transforms of Derivatives
p.292: (Day One) #1,7,15,19,25
9 M 7.2 Inverse Transforms and Transforms of Derivatives (cont.)
p.292: (Day Two) #33,36,37,39
11 W 7.3 Operational Properties I
p. 301: #3,7,11,15,21,29,33,37,39,43,45,50,55, 58,63,69,72
13 F **Spring Recess – No Missouri S&T classes.**
16 M 7.3 Operational Properties I (cont.)
18 W 7.5 The Dirac Delta
p. 318: #1,3,5,9,13 7.4
20 F **Exam II**
23 M **Spring Break**
25 W **Spring Break**
27 F **Spring Break**
30 M 7.4 Operational Properties II
p. 312: #3,6,7,9,13,15,19,25,28,29,31,37,47,49,55,59
Apr. 1 W 7.4 Operational Properties II (cont.)
3 F Appendix II: Introduction to Matrices
APP-18: #1,3,7,13,15,16,23,29
6 M Appendix II: Introduction to Matrices (cont.)
APP-19: #31,39,43,47,53,55,61
8 W 8.1 Preliminary Theory

p. 336: #1,6,7,11,16,17,23,25

10 F 8.1 Preliminary Theory (cont.)

13 M 8.2 Homogeneous Linear Systems: Distinct Real Eigenvalues
p. 351: #1,4,7,12,13,18

15 W 8.2 Homogeneous Linear Systems: Repeated Eigenvalues
p. 351: #21,23,27,29,32

17 F 8.2 Homogeneous Linear Systems: Complex Eigenvalues
p. 351: #36,37,41,46,47
Last day to drop a course.

20 M 8.3 Nonhomogeneous Linear Systems
p. 358: #3,9,13,21,25,28,32

22 W 8.3 Nonhomogeneous Linear Systems (cont.)

24 F **Exam III**

27 M Special Topic

39 W Special Topic

May 1 F Special Topic

4 M Review

6 W Review

8 F Review

13 W Final Exam (from 1:30-3:30 PM in a room to be announced)