

Math 3120 syllabus

Dr. Zachariah Sinkala
Office number KOM 203D
Office Telephone 898-2679
Office hours 10.00am-11.00am. MTWR
zsinkala@mtsu.edu

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OBJECTIVES:

- Learn to recognize and classify various types of ordinary differential equations.
- Get used to thinking about and working with functions as variables.
- Understand the qualitative nature of solutions to certain classes of differential equations, with emphasis on exponential growth, oscillations, and equilibrium solutions.
- Learn to solve certain types of elementary differential equations analytically, with an emphasis on first order differential equations and higher order linear differential equations.
- Develop skill in formulating differential equation models to address problems arising in engineering, physics, and other applied areas.
- Gain exposure to a few numerical and graphical tools for studying and solving differential equations
- To serve as an introduction to differential equations.
- To utilize a student's background in Calculus in solving differential equations.
- To illustrate several of the many applications of differential equations.

LEARNING OUTCOMES: I

1. Solve different forms of first order differential equations.
2. Solve some linear higher order differential equations.
3. Solve some linear second order initial value problems using Laplace transform.
4. Solve some linear second order differential equations using series methods.
5. Solve a linear system of differential equations in normal form.

REQUIREMENTS: In general, you are expected to

1. attend class lectures;
2. read and study class assignments and solve assigned problems;
3. ask questions in class when you are unsure of any concept or unclear on any assigned problem;
4. come to my office for additional assistance as necessary;
5. take all exams (including the final) on the day they are scheduled
6. come to class prepared (this includes completing homework in a timely manner, and bringing your textbook).

1 Corequisite

Math 3110

2 Textbook

Differential Equations, 7th Edition by Nagle, Saff and Snider.

3 Schedule of classes

3.1 June: Week one

- 6 Housekeeping, Software: Maple, Section 1.1
- 7 Section 1.2, Section 1.3
- 8 section 1.4, Section 2.2
- 9 Test one

3.2 June: Week two

- 13 Section 2.3, Section 2.4
- 14 Section 3.2 , Section 3.4, Section 3.5
- 15 Section 3.6, Section 3.7
- 16 Section 4.1, Test two

3.3 June: Week three

- 20 Section 4.2, Section 4.3
- 21 Section 4.4, 4.5
- 21 Section 4.6, Section 4.7, Section 4.8
- 22 Section 4.9, Section 4.10
- 23 Test 3

3.4 June Week four

- 27 Section 5.1, Section 5.2
- 28 Section 5.3, Section 5.4, Section 5.5
- 29 Section 5.6, Section 5.7
- 30 Section 7.3, Test four

3.5 July: Week one

- 5 Section 7.4, Section 7.5, Section 7.6
- 6 Project day 7 (Thursday) Final comprehensive examination
10.00-noon.

4 Grading policy

Four tests will be given which will count 60 percent towards the Final grade. Project will count 20 percent and the final exam will count 20 percent.

90-100 A, 80-89 B, 70-79 C, 60- 69 D Below 60 F.

The Grade I indicates that the student has not completed all course requirements because of illness or other uncontrollable circumstances especially which may occur toward the close of the term. Mere failure to makeup work or turn in required work on time does not provide a basis for the grade I .

Please note the following dates and information: Last day to drop the course without a grade-see current academic calendar Last day to drop with a "W"-see current academic calendar.

ADA Statement: If you have a disability that may require assistance of accommodations, or if you have any questions related to any accommodation for testing, note taking, reading, etc., please speak with me as soon as possible. You may also contact the Office of Disabled Student Services (898-2783) with any questions about such services.

Financial Aid Statement: To retain Tennessee Education Lottery Scholarship eligibility, you must earn a cumulative TELS GPA of 2.75 after 24 attempted hours and a cumulative TELS GPA of 3.0 thereafter. A grade of C, D, F, or I in this class may negatively impact TELS eligibility. If you withdraw from this class and it results in an enrollment status of less than full time, you may lose eligibility for your lottery scholarship.