

**Dr. Donald Adongo, FH 6A-2**

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**Office Hours: MWF 11:30 am – 12:20 pm; or by appointment**

**Section 1 CRN 81752**

**Meeting: 12:30 am – 1:20 pm MWF FH 301**

**<http://campus.murraystate.edu/faculty/dadongo>**

**DEPARTMENT: Mathematics and Statistics**

**COURSE PREFIX: MAT**

**COURSE NUMBER: 338**

**CREDIT HOURS: 3**

**I. TITLE:**

**Ordinary Differential Equations**

**II. COURSE DESCRIPTION AND PREREQUISITE(S):**

Initial value problems, solutions and existence of solutions for first order differential equations, applications of first order differential equations, solutions and applications of second order differential equations, introduction to higher order differential equations, numerical studies of first and second order differential equations, and Laplace Transforms.

Prerequisite(s): MAT 308.

**III. COURSE OBJECTIVES:**

At the end of this course students should:

- A. Solve initial value problems;
- B. Find solutions and discuss the existence of solutions for first order differential equations;
- C. Solve applications of first order differential equations;
- D. Solve second order differential equations;
- E. Solve applications of second order differential equations;
- F. Solve certain higher order differential equations;
- G. Use the Laplace transform to solve differential equations;

**IV. CONTENT OUTLINE:**

- A. Initial value problems;
- B. Existence of solutions of first order differential equations;
- C. Solutions of second order differential equations;
- D. Higher order differential equations;
- E. Laplace transforms;

**V. INSTRUCTIONAL ACTIVITIES:**

Lecture, daily assignments, group work, projects, reading assignments, oral presentations, and quizzes on the material.

**VI. FIELD, CLINICAL, AND/OR LABORATORY EXPERIENCES:**

None.

**VII. TEXT(S) AND RESOURCES:**

*Elementary Differential Equations and Boundary Value Problems*, by William Boyce and Richard DiPrima.

**Other Resources:** Matlab, Mathematica & SAGE Softwares.

### VIII. EVALUATION AND GRADING PROCEDURES:

The course grade is based on Exams, Homework, Projects, and the Final Exam. The distribution is four exams (40%), homework assignments (30%), projects (10%) and final exam (20%)

Grading Scale:

90 - 100 %	A
80 - 89 %	B
70 - 79 %	C
60 - 69 %	D
Below 60%	E

**Exams:** The Exams will test your comprehension of concepts and skills not covered on a previous exam. Exams may contain both problem-solving questions and essay questions. Exams occur for everyone (to be fair to everyone) on the scheduled date. Sometimes, however, extenuating circumstances do exist. If you absolutely must miss an exam, you are to stop by or call me (or leave a message with the office if I am not in when you call) before the exam to tell me why you cannot be at the exam. In addition, you must complete the "missed exam form" (see the course website) within one day. If you do not, you will get a zero on that exam with no opportunity to make it up. An excused missed exam will be made up in my office within two days (an extension may be granted in rare cases), with the grade to be determined as explained at that time. Our four exams will be **September 6, October 4, October 30, and November 13.**

**Final:** The Final will be a comprehensive exam covering any material addressed that semester. The Final exam will be on **Wednesday, December 6<sup>th</sup> at 10:30 a.m.** in **FH 301.**

**Homework:** Homework will be assigned at the beginning of each section and will also be listed on the course web site. Homework will be collected once a week (Monday unless it is a holiday). **(No Late Homework).** Homework must be completed in pencil, separate from your notes, and on loose-leaf paper or paper without rough edges. **Staple** your papers together if you have used more than one sheet other wise your homework **will not be graded.** Your name and class meeting time should be written on the top right part of the first page.

**Projects:** You will have at least one week to complete the projects.

**Computer Software:** Matlab and Mathematica are available in the Mathematics Lab FH104. SAGE is free online.

### IX. ATTENDANCE POLICY:

*Students are expected to adhere to the MSU Attendance Policy outlined in the current MSU Bulletins.*

Class attendance will be taken daily. If you miss class you are responsible for obtaining the day's notes and assignments. While you are not graded on class attendance, you are expected to attend every class period or your grade will suffer (indirectly) if you do not attend. If you have two or less absences (or do not miss at all) this semester, I will drop your two lowest homework scores and lowest exam. Excused absences fall into two broad categories: 1. Absence due to personal illness or death in the immediate family or other extraordinary personal circumstance. Faculty may require appropriate authentication or documentation. 2. Absence due to student participation in a University Sanctioned Event in which the student serves as a representative of the institution.

Note the following provisions on arriving late to class or leaving early:

Every two tardies (arriving late) will count as an absence.

Leaving class early will count as an absence unless you provide me with a reason in advance.

### X. ACADEMIC HONESTY POLICY:

Murray State University takes seriously its moral and educational obligation to maintain high standards of academic honesty and ethical behavior. Instructors are expected to evaluate students' academic achievements accurately, as well as ascertain that work submitted by students is authentic and the result of their own efforts, and consistent with established academic standards. Students are obligated to respect and abide by the basic standards of personal and professional integrity.

**Violations of Academic Honesty include:**

**Cheating** - Intentionally using or attempting to use unauthorized information such as books, notes, study aids, or other electronic, online, or digital devices in any academic exercise; as well as unauthorized communication of information by any means to or from others during any academic exercise.

**Fabrication and Falsification** - Intentional alteration or invention of any information or citation in an academic exercise. Falsification involves changing information whereas fabrication involves inventing or counterfeiting information.

**Multiple Submission** - The submission of substantial portions of the same academic work, including oral reports, for credit more than once without authorization from the instructor.

**Plagiarism** - Intentionally or knowingly representing the words, ideas, creative work, or data of someone else as one's own in any academic exercise, without due and proper acknowledgement.

Instructors should outline their expectations that may go beyond the scope of this policy at the beginning of each course and identify such expectations and restrictions in the course syllabus. When an instructor receives evidence, either directly or indirectly, of academic dishonesty, he or she should investigate the instance. The faculty member should then take appropriate disciplinary action.

Disciplinary action may include, but is not limited to the following:

- 1) Requiring the student(s) to repeat the exercise or do additional related exercise(s).
- 2) Lowering the grade or failing the student(s) on the particular exercise(s) involved.
- 3) Lowering the grade or failing the student(s) in the course.

**If the disciplinary action results in the awarding of a grade of E in the course, the student(s) may not drop the course.**

Faculty reserve the right to invalidate any exercise or other evaluative measures if substantial evidence exists that the integrity of the exercise has been compromised. Faculty also reserve the right to document in the course syllabi further academic honesty policy elements related to the individual disciplines.

A student may appeal the decision of the faculty member with the department chair in writing within five working days. Note: If, at any point in this process, the student alleges that actions have taken place that may be in violation of the Murray State University Non-Discrimination Statement, this process must be suspended and the matter be directed to the Office of Equal Opportunity. Any appeal will be forwarded to the appropriate university committee as determined by the Provost.

**Note:** Faculty reserve the right to invalidate any examination or other evaluative measures if substantial evidence exists that the integrity of the examination has been compromised.

**In this Course, violations of Academic Honesty will result in a failing grade awarded on the particular exercise involved.**

## **XI. NON-DISCRIMINATION POLICY STATEMENT:**

Murray State University endorses the intent of all federal and state laws created to prohibit discrimination. Murray State University does not discriminate on the basis of race, color, national origin, gender, sexual orientation, religion, age, veteran status, or disability in employment, admissions, or the provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities equal access to participate in all programs and activities. In particular and without limiting the preceding and pursuant to and consistent with the requirements of Title VI of the Civil Rights Act of 1964 and its regulations 34 CFR 100 et seq.; Section 504 of the Rehabilitation Act of 1973 and its regulations 34 CFR 104; Title IX of the Education Amendments of 1972, 20 USC 1681 et seq., and its regulations 34 CFR 106 et seq; and the Age Discrimination Act of 1975 and its regulations 34 CFR 110, Murray State University does not discriminate on the basis of race, color, national origin, sex, handicap, or age in its educational programs and activities. This non-discrimination in education programs and activities extends to employment and admissions and to recruitment, financial aid, academic programs, student services, athletics, and housing. Murray State is required by Title IX and 34 CFR part 106 not to discriminate on the basis of sex and the prohibition against sex discrimination specifically includes a prohibition of sexual harassment and sexual violence. For more information contact the Executive Director of Institutional Diversity, Equity, and Access/ Murray State University Title IX Coordinator, Murray State University, 103 Wells Hall, Murray, KY 42071 Telephone: (270) 809-3155 Fax: (270) 809-6887; TDD: (270) 809-3361; Email: [msu.titleix@murraystate.edu](mailto:msu.titleix@murraystate.edu)

### Students with Disabilities

Students requiring special assistance due to a disability should visit the Office of Student Disability Services immediately for assistance with accommodations. For more information, students should contact the Office of Student Disability Services, 423 Wells Hall, Murray, KY 42071. 270-809-2018 (voice) 270-809-5889(TDD).

**XII. Other required departmental or collegiate committee information**

**Electronic Communication Policy:** It is the default policy of the Department of Mathematics and Statistics that, without the prior consent of the course instructor, no device may be used for electronic communication in class. This shall include cell phones, smart-phones, computers, laptops, and tablets. In addition, this includes verbal calling, incoming calls, email, text messaging, the use of cell phone calculators on tests and quizzes, and the use of the wireless capabilities of calculators or other electronic devices. Unless given special permission in advance from the course instructor for potential cases of emergency or critical family situations, cell phones must be kept on silent and out of sight (i.e. secured to a person's belt or kept in a bag or purse away from desks). Should a student's cell phone be visible, ring, or should the student be engaged in some other form of unauthorized usage that the course instructor finds to be disruptive to the class, the student may be asked to leave class and not return for that class period, and be counted absent for that day. Similar restrictions and penalties apply to use of other electronic devices, unless permitted by the instructor for that class period.

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Please fill out this portion, detach and return to the instructor by **Friday August 18, 2017**.

By my signature below, I certify that I have received a copy of the course syllabus for MAT 308-(01) taught by Dr. Donald Adongo during the Fall 2017 Semester. Furthermore, I certify that I have read and understand the contents of the course syllabus.

**Printed Name:** .....

**Signature:** .....

**Date:** .....