Syllabus for Math 2306 sec. 52 (CRN: 12234) Spring 2023

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Office Hours: Mon. & Wed. 10:00–11:00 am in D 122; other days/times (including virtual) by appointment

Course Home Page https://facultyweb.kennesaw.edu/lritter/Ritter2306_Sp2023.php

Course Description This is a three hour first course in Ordinary Differential Equations. Topics include an introduction to ordinary differential equations, methods of solving first order equations with applications, second and higher order linear equations and applications, solutions using the Laplace transform; and (time permitting) an introduction to Fourier series. Mechanical and electrical engineering applications are included. We will meet for class on Mondays, Wednesdays, and Fridays from 9:05 am to 9:55 am in D 116.

Prerequisites Math 2202 (Calculus II) w/ a grade of C or better

There is no textbook purchase required for this course. The lecture notes and homework are open access.

Required Materials:

- **Course Text**: *Ordinary Differential Equations: Math 2306* by L.R. Ritter (open access)
- **Course Workbook**: *A Workbook to Accompany MATH 2306* by L.R. Ritter (open access)
- **Calculator**: No calculator is necessary for this course. Calculators will not be used during exams.

Learning Outcomes: Upon completing this course, students will be able to

1. solve first-order separable, linear, and some special differential equations, and use these methods to solve applied problems;

2. solve higher-order constant-coefficient linear differential equations, and use these methods to solve applied problems;

3. find Laplace transforms and inverse transforms, and apply these to solve differential equations;

4. if time allows, find the Fourier series of a function.

My Goals: In coordination with the above learning outcomes, my goal is to introduce you (the student) to the developed mathematical concepts surrounding differential equations and their solutions; to help you attain a sense of understanding and ownership of these concepts, and to aid in your mastery of the processes and operations that are used to solve applied problems. Upon successful completion of this course, I want you to have

the basic foundation needed to engage in further study (e.g. other math and science courses) and to engage in implementation (such as in engineering, science, business, or other applications).

Grading and Evaluation: Your course grade will be the weighted average of your score on 4 midterm exams, one final exam, and a quiz & in-class worksheet average. The grades will be weighted as follows:

Table 1: Grade Weights

Exam I (F 2/3)	Exam II (F 3/3)	Exam III (M 4/3)	Exam IV (F 4/28)	Quiz (weekly)	Classwork (weekly)	Final (W 5/3)
15%	15%	15%	15%	10%	10%	20%

A = 90%–100%,   B = 80%–89%,   C = 70%–79%,   D = 60%–69%,   F = 0%–59%

Quizzes, Homework & In-Class work : All of the homework for the course is contained within the complete workbook that is linked in D2L. Unless stated otherwise in class, all of the problems within this workbook are assigned. **I will not collect your homework.** Most weeks we will have a brief quiz (10–15 minutes with 1–2 questions). The quiz questions will come from the assigned homework. We will have 9–12 regular quizzes during the semester. The two lowest quiz grades will be dropped, and the remainder will be averaged to obtain your semester quiz grade. Some time during class days will be devoted to problems that you will work on collaboratively. You will be credited with your attendance and participation in this classwork (however you will not be graded for accuracy or completion). Complete solutions to worksheet problems will be posted in D2L after class. In addition to regular exercises, I strongly recommend that you create your own glossary as we progress through the term. This glossary construction is included in the workbook. Doing the homework and participating in classwork is essential for mastering the course content. It will also prepare you for the quizzes and exams which are graded. I strongly advise you to

- complete each homework assignment immediately following coverage of the material;

- dedicate a folder to homework for this class, and keep your assignments neat and well organized;

- work at each problem until you can solve it correctly; get help if you need it, don't give up;

- practice using complete and proper notation while writing your homework.

Exams: We will have four semester exams each worth 15% of your semester grade and one comprehensive final exam worth 20%. The exam dates are shown in the grade table 1 as well as the important dates table 2 at the end of this syllabus. **Exams will be closed-book, and no use of a calculaor will be allowed.** You may, at my discretion, be allowed to use one page of notes/formulas of your own creation during exams. All exams are mandatory. Except in the case of an excused absence (see attendance and make-up policy), a missed exam will be assigned a grade of zero. The following two policies relate to exam grade replacement or exemption:

- If your course average prior to the final exam is at least 90%, you will be exempted from the final exam and will receive a course grade of A.

- The numerical grade on the final exam will replace the lowest <u>nonzero</u> semester exam grade if it is to your advantage.

Attendance and Make-up Policy: Regular class attendance is critical to academic success. Hence I strongly encourage you to attend all classes and keep up with assignments and course events. An unexcused absence will result in a grade of zero for any graded item missed that day. That said, I will excuse an absence if (1) I am informed as soon as possible (via email or voicemail), and (2) there is a good reason. Good reasons include (but are not limited to) your illness or the illness of someone who depends on you, an academic or University sports commitment, a legal obligation, or an unforeseen travel issue. Reasons that are not excusable include (but are not limited to) over sleeping, or working on a project for another class. **Attending class late or leaving class early for the sole purpose of participating in a graded item (quiz/worksheet) will not be permitted.**

Missing an Exam: All exams are mandatory. In order to be excused from an exam, you must notify me in advance (or as soon as circumstances allow), and provide documentation (e.g. doctor's note, order to appear, notification from a faculty adviser) of your reason for missing the exam if I ask for it. If you meet both of these criteria, I will allow your grade on the final exam to substitute for the missed exam. **A grade of zero for an unexcused, missed exam is not subject to being replaced by the final exam grade. In other words, all exams should be taken if not excused.** Using the grade from the final exam to replace an excused, missed exam is independent of having the final exam score replace your lowest test score. (That is, given appropriate circumstances, it may be that the grade on the final exam is counted more than twice.)

Missing a Quiz: A quiz missed due to an excused absence will be excused. A quiz missed due to an unexcused absence will receive a grade of zero. No make-up quizzes will be given. The two lowest quiz grades will be dropped. **Attending class late for the sole purpose of taking a quiz will not be permitted.**

Notice on Course Withdrawal: Students are solely responsible for managing their enrollment status in a class; nonattendance (non-participation) does not constitute a withdrawal. The last day to withdraw without academic penalty is Tuesday March 14, 2023. Per university policy, I will assign a grade of WF to all students who do not complete the semester, where not completing the semester is defined as ceasing to participate in graded items during or prior to the last two weeks of the semester. I am required to report the last date of attendance when assigning a grade of WF. **My compliance with this policy may affect your financial aid.**

Midterm Grades: A midterm grade will be assigned by the midterm grade due date identified on the Spring 2023 academic calendar (Tuesday March 7, 2023). This midterm grade is for assessing mid-semester performance prior to the last day to withdraw without academic penalty. You may view your midterm grade in Owl Express. Note that only your final grade will be officially recorded on your academic transcript.

Students with Disabilities I will attempt to accommodate all students with special needs to the best of my ability, but it is the responsibility of the student to make their needs known to me. Students with disabilities who believe they may need accommodations in this class are encouraged to contact the counselor working with disabilities at 470-578-7361 (Marietta) or 470-578-2666 (Kennesaw) as soon as possible to better assure that such accommodations are implemented in a timely fashion. (Additional contact information email: sds@kennesaw.edu and webpage: http://studentsuccess.kennesaw.edu/sds/index.php).

On Diversity and Inclusion: Kennesaw State University prides itself on offering a premiere, personalized educational experience for leadership and engagement within a diverse nation and world. This educational experience is achieved through recognition and appreciation of the differing backgrounds and experiences reflected within the University community. It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit.

Academic Integrity Every KSU student is responsible for upholding the provisions of the Statement of Student Rights and Responsibilities, as published in the Undergraduate and Graduate Catalogs. Section II of the Statement of Student Rights and Responsibilities addresses the University's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established

procedures of the Department of Student Conduct and Academic Integrity (SCAI), which includes either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimal one semester suspension requirement.

Copyright Notice: Items distributed in this class whether physical or electronic are the intellectual property of the creator and/or copyright holder. No such items are to be used for commercial purposes without the express consent of the creator or copyright holder.

Institutional Policies: For a complete list of KSU's institutional policies, please visit the Federal, BOR, & KSU Policies page.

Table 2: Important Dates

January 9	First Day of Classes Fall 2021	January 16	Martin L. King Jr. Memorial
February 3	Exam 1	March 3	Exam 2
March 6–10	Spring Break	March 14	Last Day to Drop w/ W
April 3	Exam 3	April 28	Exam 4
May 1	Last day of classes	May 3 (Wednesday)	Final Exam (8:00–10:00 am)

Policy Changes: While I intend to adhere to the policies outlined in this syllabus, I reserve the right to make changes if it is deemed necessary. Any such changes will be announced in advance (to the extent possible). Such communication will be made via email, through the announcement tool in D2L, and in class (if possible).