Syllabus for Math 2306 sec. 51 (CRN: 82789) Fall 2021

Instructor: L. R. Ritter **Office:** D 122

email: lritter@kennesaw.edu **Tel:** 470-578-3951

Office Hours: M & W 12:30–2:00 pm and by appointment (virtual office hours available upon request)

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 an introduction to Fourier series. Mechanical and electrical engineering applications are included. We will meet for lecture three times weekly on MWF from 8:00 am to 8:50 am in D 116. Students are expected to attend all lectures and to keep up with course assignments. Course materials will be posted in D2L and the course page http://facultyweb.kennesaw.edu/lritter/Ritter2306_F2021.php You should plan on visiting these venues often.

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. find the Fourier series of a function.

Grading and Evaluation Your course grade will be the weighted average of your score on 4 semester exams, one comprehensive final exam, and your grade on the glossary project. The grades will be weighted as follows:

Table 1: Grade Weights

Exam 1	Exam 2	Exam 3	Exam 4	Participation	Glossary	Final
F 9/10	F 10/8	F 11/5	F 12/3	Daily	See below	M 12/13
15%	15%	15%	15%	5%	15%	20%

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

Homework: All of the homework for the course is contained within the complete workbook that is linked in D2L. All of the problems within this workbook are assigned. 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. **I will not collect your homework.** Doing the homework will help you to master the course content and to prepare for the exams.

Participation: On most class days we will set aside time for you to work (individually or more likely in small groups) doing math. Full credit for participation will be given for attending class and participating in this work. An unexcused absence will result in a partipation grade of zero. Excused absenses will not count against your participation grade. Two participation grades will be dropped. The remaining will be averaged to give the 5% participation grade.

Glossary Project: Throughout the semester, you will create a glossary of terms and phrases that arise in the study of differential equations. The goal of this project is to help you develop your fluency so that you can read and write the mathematics confidently. When you see key terms and phrases in class, you can add these to your glossary, and I will occassionally suggest glossary entries in class. Your project grade will include your grades on three drafts and a final project. You will submit each draft and the final project through an assignment in D2L.

- Draft 1: Due Friday Sept. 3 at noon (10 %)
- Draft 2: Due Friday Oct. 1 at noon (20 %)

- Draft 3: Due Friday Oct. 29 at noon (20 %)
- Final Product: Due Monday Dec. 6 at 5:00 pm (50 %)

A detailed description of the project is posted on our class webpage and in D2L.

Exams: We will have four semester exams each worth 15% of the semester grade. The exam dates are shown in the grade table 1 as well as the important dates table 2 at the end of this syllabus. We will have one comprehensive final during the time designated by the University. The final is 20% of the semester grade. If your course average prior to the final exam is at least 90%, you will be exempted from the final and will receive a course grade of A. If you are not exempted from the final under the above policy, **the final exam is mandatory**. All four semester 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 grade on the final exam will replace the lowest **nonzero** semester exam score, if it is to your advantage. That is, the final exam score will replace one of the semester exams that you actually took if your final exam score is higher. **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.

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.

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 you meet both of these criteria, I will allow your grade on the final exam to substitute for the missed exam. If more than one exam is missed due to covid-19 illness, I may allow a make up exam to be taken during the week of final exams. Such an arrangement will be based on individual student circumstances in order to provide the best chance for success in the course. Using the final exam to replace a missing exam score that is excused is independent of the policy that allows your final exam score to replace the lowest nonzero exam score.

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.

The Use of Math Apps or Math Websites

There are several apps and websites that will not only solve differential equations, they will often provide step by step solution details. Some are free, others charge a fee. Probably the best ones available are Wolfram Alpha and Symbolab. You may find these tools useful as you study the subject. However

Use of such apps or websites while taking an exam is strictly forbidden.

The way that these programs display mathematics is readily distinguished from the way that human beings write mathematics. Use of math apps or websites—or any other resources not explicitly allowed—during an exam is an act of academic misconduct.

Academic misconduct will be reported to SCAI, and will result in a grade of F for the semester.

Notice on Course Withdrawal: The last day to withdraw from the class and choose a grade of W is Thursday October 21, 2021. Students are solely responsible for managing their enrollment status in a class; nonattendance (non-participation) does not constitute a withdrawal. 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.**

Covid-19 Related Policies

Couse Delivery: KSU may shift the method of course delivery at any time during the semester in compliance with University System of Georgia health and safety guidelines. In this case, alternate teaching modalities that may be adopted include hyflex, hybrid, synchronous online, or asynchronous online instruction.

Covid Illness: If you are feeling ill, please stay home and contact your health professional. In addition, please email your instructor to say you are missing class due to illness. Signs of COVID-19 illness include, but are not limited to, the following:

- Cough
- Fever of 100.4 or higher
- Runny nose or new sinus congestion
- Shortness of breath or difficulty breathing
- Chills
- Sore Throat
- New loss of taste and/or smell

COVID-19 vaccines are a critical tool in **Protecting the Nest**. If you have not already, you are strongly encouraged to get vaccinated immediately to advance the health and safety of our campus community. As an enrolled KSU student, you are eligible to receive the vaccine on campus. Please call (470) 578-6644 to schedule your vaccination appointment or you may walk into one of our student health clinics. For more information regarding COVID-19 (including testing, vaccines, extended illness procedures and accommodations), see KSU's official Covid-19 website.

Face Coverings: Based on guidance from the University System of Georgia (USG), all vaccinated and unvaccinated individuals are encouraged to wear a face covering while inside campus facilities. Unvaccinated individuals are also strongly encouraged to continue to socially distance while inside campus facilities, when possible.

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.

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 registration policies, please visit the Academic Policies Registration Policies page. For additional student resources, please visit the Student Syllabus Resources page.

Table 2: Important Dates

August 16	First Day of Classes Fall 2021	Sept. 3	Glossary draft 1 due (at noon)
Sept. 6	Labor day holiday	Sept. 10	Exam 1
Oct. 1	Glossary draft 2 due (at noon)	Oct. 8	Exam 2
Oct. 21	Last day to drop w/ W	Oct. 29	Glossary draft 3 due (at noon)
Nov. 5	Exam 3	Nov. 22–26	Fall Break
Dec. 3	Exam 4	Dec. 6	Glossary project due (at 5:00 pm)
Dec. 6	Last day of classes	Dec. 13	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).