

The University of Texas Rio Grande Valley
MATH 3341-02R (DIFFERENTIAL EQUATIONS)
Syllabus for SUMMER II 2023

Classroom: EMAGC 1.208

Time: M – F, 1:15pm – 2:45pm, July 13, 2023 – August 18, 2023

Instructor:

Dr. Zhijun (George) Qiao

Office: MAGC 3.722, *Phone:* 665-3406 (W), *Email:* zhijun.qiao@utrgv.edu

Webpage: <http://faculty.utrgv.edu/zhijun.qiao> (Online notes are available on Blackboard or at Dr. Qiao's website)

Office hours: M & W 11:30am-12:30pm (In Person at MAGC 3.722 or via Zoom at <https://utrgv.zoom.us/j/2824166420>) or by appointment.

Textbook: *A First Course in Differential Equations, 10th edition* by Dennis G. Zill, Brooks Cole Publisher; ISBN: 0534418783. Lecture Notes will be available online.

Prerequisite: MATH 2414 (Calculus II) with a grade of C or better.

Material: The material to be covered in this course is mostly in the chapters 1–8 of the text. The contents include: First-order Differential Equations, Linear Second-order and Higher-order Differential Equations, Laplace Transform, Series and Numerical Solutions of Differential Equations.

Calculator: A calculator capable of performing basic graphing and numerical integration (a TI-86 or equivalent, Maple, Matlab) is strongly recommended.

Daily supplies: You need to bring Textbook, Notebook, Loose leaf paper, Graph paper, Pen, Pencil etc to the class.

Student Learning Outcomes: After completing this course students will

1. Understand what differential equations are, how they arise, why they are useful, and what they can tell us about the situations they model.
2. Be able to use correct differential equations terminology, such as the terms linear, nonlinear, order, explicit solution, implicit solution, ordinary differential equation, partial differential equation, existence of solutions, uniqueness of solutions, etc.
3. Be able to solve first order differential equations by the standard methods of separation of variables, integrating factors, exact methods, substitutions, and transformations or show that solutions do not exist.

4. Be able to solve certain types of linear differential equations of order greater than one.
5. Be able to model applied problems in terms of differential equations and use the equations to obtain useful information about the problems.
6. Be able to use Laplace transform and series solution methods to obtain solutions and other useful information about the differential equations to which these methods apply.
7. Be able to use technology to solve differential equations or to obtain other useful information about the problems that they model.

Intended Student Learning Outcomes: Students completing the B.S. program in Mathematics will

1. Demonstrate in-depth knowledge of Mathematics, its scope, application, history, problems, methods, and usefulness to mankind both as a science and as an intellectual discipline.
2. Demonstrate a sound conceptual understanding of Mathematics through the construction of mathematically rigorous and logically correct proofs.
3. Identify, formulate, and analyze real world problems with statistical or mathematical techniques.
4. Utilize technology as an effective tool in investigating, understanding, and applying mathematics.
5. Communicate mathematics effectively to mathematical and non-mathematical audiences in oral, written, and multi-media form.
6. Demonstrate an appreciation of and enthusiasm for lifelong scientific inquiry, learning, and creativity.

General Grade Policy

Quizzes and Homework – Homework assignment is assigned daily through the Webwork, and will consist of problems from the textbook and occasional handout. Quizzes and Tests are based on the homework problems. A quiz will be taken every two week. It is strongly recommended that students work all those homework problems since quiz and test score are used to determine your grade. Completing the assignments is the *single most important part* of this course. You will be expected to spend, on average, about 4 hours each week to complete the assignments. The assigned problems will be graded automatically through webwork system. They will form the basis for quizzes and the mid-term and final exams. No late re-quiz will be accepted.

Tests – there will be three one-hour in-class tests. All tests must be taken during their scheduled times. The test time will be announced in advance (basically, a test will be given monthly), and a

short review will be given before each test. All students must show their work on the tests. Score will be provided to you separately. No retest opportunities.

Final Exam – The comprehensive final exam is tentatively scheduled on August 18 (Friday), 2023, 2:00pm – 3:45pm. All students must take the final exam at the scheduled time. A summary review will be given in the class before the final exam.

Grading – The course grade will be based on

HW/Quizzes/Discussion Board	50 pts
Best 2 out of 3 projects at 75 pts each	150 pts
Midterm Test	100 pts
<u>Comprehensive Final Exam</u>	<u>100 pts</u>
Total	400 pts

The course grade will be assigned according to a scale no higher than A(90-100%), B(80-89%), C(70-79%), D(60-69%), F(below 60%).

THERE WILL BE NO MAKE-UP EXAMS GIVEN.

If a student is absent during a scheduled major test and quiz, the student must go by the instructor's office during the scheduled office hours to discuss the validity of the excuse. In the case of a valid excuse, the missed test grade will be replaced by the final exam grade. If a student does not have a valid excuse, the grade for the missed test is a zero and cannot be replaced. If you arrive late to a test you will not be given additional time to complete the exam. Anyone arriving to a test after somebody else who took the exam has left will not be allowed to take the exam. Students missing more than one exam may be dropped from the course. With an unexcused absence, a score of 0 will be recorded for the missed HW/Quiz or exam.

Tutoring: you may use online resources as your own study for the homework problem solving.

Classroom Behavior:

- All beepers and cellular phones must be turned off before you enter the classroom.
- Once in class, a student is expected to remain in class for the duration of the class. If a student needs to leave class early, than the student needs to discuss the situation with the instructor before class begins.
- During class students are expected to be courteous to the instructor and other classmates. Examples of discourteous behavior are unnecessary talking, sleeping, tardiness, leaving class while instructor is lecturing, sharpening pencils during the lecture, etc.

- No Food Allowed In Classroom.
- Chronic tardiness and discourteous behavior will not be tolerated and is cause for a student's dismissal from class for the remainder of the semester.

UTRGV Policy Statements

UTRGV requires all electronic communication between the University and students be conducted through the official University supplied systems UTRGV-Mail. Please use your UTRGV-Mail account for all correspondence with me.

Calculators, Cell Phones, and Other Electronic Equipment

Calculators will be permitted for use on exams. Electronic equipment such as cell phones, pocket organizers, tablet or laptop computers, or electronic writing pads or pen-input devices will not be permitted during exams. Please make sure that cell phones are turned off and stored away during class.

MANDATORY COURSE EVALUATION PERIOD:

Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (<https://my.utrgv.edu/home>); you will be contacted through email with further instructions. Students who complete their evaluations will have priority access to their grades. Online evaluations will be available: July 1 – 8 for summer I semester courses.

ATTENDANCE: Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV's attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

STUDENTS WITH DISABILITIES:

If you have a documented disability (physical, psychological, learning, or other disability which affects your academic performance) and would like to receive academic accommodations, please inform your instructor and contact Student Accessibility Services to schedule an appointment to initiate services. It is recommended that you schedule an appointment with Student Accessibility Services before classes start. However, accommodations can be provided at any time. **Brownsville Campus:** Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at ability@utrgv.edu. **Edinburg Campus:** Student

Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at ability@utrgv.edu.

SCHOLASTIC INTEGRITY:

As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism, and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.

SEXUAL HARASSMENT, DISCRIMINATION, and VIOLENCE:

In accordance with UT System regulations, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and so must report any instance, occurring during a student’s time in college, of sexual assault, stalking, dating violence, domestic violence, or sexual harassment about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect in an environment free from sexual misconduct and discrimination.

COURSE DROPS: According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the “3-peat rule” and the “6-drop” rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.

