ORDINARY & PARTIAL DIFFERENTIAL EQUATIONS
MATH 251
SPRING 2020
COURSE SYLLABUS

PROFESSOR: Dr. Daniel Joseph Galiffa
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OFFICE: Benson 86
OFFICE HOURS: Mon., Wed. & Fri. 12:10-1:10PM
CLASSROOM: NICK 170
CLASS DAYS & TIMES: Mon., Wed., Thurs., & Fri. 11:15Am-12:05PM

Note: It is the student’s responsibility to understand the PSU academic calendar, as well as PSU policies regarding adding, dropping or withdrawing from a course.


COURSE OBJECTIVES: In this course we will study the fundamentals of ordinary linear differential equations (DE’s) and basic solution techniques for solving the three rudimentary partial differential equations (PDE’s) mentioned above. Essentially every aspect of DE’s has been motivated in some form by applications to real-world phenomena. Therefore, upon completing this course students will understand the basic theory, methods and applications of DE’s. Most importantly, students will understand solution methods to a wide variety of DE’s and be able to obtain aesthetically pleasing algebraic solutions. After completing this course, students can analyze and solve more complicated DE’s arising in science, engineering and other disciplines.

STUDENT RESPONSIBILITY: It is a student’s responsibility to insure that all prerequisites for this course have been obtained. Moreover, it is assumed that students are proficient in the skills learned in Calculus I and II, which includes Algebra and Trigonometry (Circular Functions). It is the student’s responsibility to alleviate any and all deficiencies regarding perquisite material.

COURSE TOPICS: Course topics will essentially be selected from the following subject areas:

1. Linear First-Order Differential Equations
2. Mathematical Models (applications)
3. Linear Second-Order Differential Equations & Applications
4. Theory of Higher-Order Linear Differential Equations
5. Introduction to Laplace Transforms

6. Introduction to Series Solutions of Differential Equations

**GRADING:** There will be three areas that will comprise the student’s final grade:

1. **Examinations:** There will be a number of exams and the topics of which will basically be related to the subject areas as described above. More specifically, the exam problems will come from the relevant lecture material, the assignments and the text. Students will be given one class period to finish each exam. Examination dates will typically be announced in class approximately one week before the exams are administered.

2. **Quizzes & Assignments:** There may be several quizzes that will cover the material discussed in lecture, as well as the material from the assignments and the text. There may be various types of quizzes throughout this course including; a ‘standard’ quiz, a pop quiz, a group quiz, an ‘application’ quiz, a take-home quiz or a combination of these. In addition, basically all assigned problems from the text, and possibly some problems from other sources, will be collected and graded - handouts will be distributed in the lectures discussing these details.

3. **Final Examination:** There will be a comprehensive final examination. Students must take the final exam on the scheduled date and time or receive a grade of 0% on the exam. Official documentation from the registrar must be received in order to schedule an alternative date/time to take the final exam.

There will be absolutely no make-up quizzes, assignments or examinations unless students have a legitimate documented emergency or are officially involved with a documented PSU event, or an event that PSU deems excusable.

Note: To attain full credit on any graded problems, sufficient work must be shown. Graphing calculators will not permitted on in-class quizzes or exams, nor will they be used in class. However, the use of such calculators may be beneficial as a study aid (I personally recommend the T1 92+™, the TI-89 Titanium™, the TI-Voyage 200™ or the TI-Nspire CAS™).

**GRADING SCALE:**

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<thead>
<tr>
<th>Grade</th>
<th>Minimum Score</th>
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<tbody>
<tr>
<td>A</td>
<td>≥ 92</td>
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<tr>
<td>A-</td>
<td>90, 92</td>
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<tr>
<td>B+</td>
<td>88, 90</td>
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<td>B</td>
<td>82, 88</td>
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<tr>
<td>D</td>
<td>60, 70</td>
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**FINAL GRADE:** A student’s final grade will be determined as follows:

- Exam Average: 80%
- Quizzes & Assignments Average: 5%
- Comprehensive Final: 15%

**ACADEMIC INTEGRITY:** The Penn State Erie policies on academic integrity will be **strictly enforced**. Academic integrity is a basic guiding principle for all academic activity at the University, and all members of the community are expected to adhere to this principle. Specifically, academic integrity is the pursuit of scholarly activity in an open, honest, and responsible manner. It includes a commitment not to engage in or tolerate acts of falsification, misrepresentation, or deception. Such acts violate the fundamental ethical principles of the University community and undermine the efforts of others.

Violations of academic integrity are not tolerated at Penn State Erie. Violators will receive academic sanctions and may receive disciplinary sanctions, including the awarding of an XF grade. In cases such as these, an XF grade is recorded on the transcript and states that failure of the course was due to an act of academic dishonesty. All acts of academic dishonesty are recorded so those repeat offenders can be sanctioned accordingly.

**Educational Equity Concerns:**
http://equity.psu.edu/reportbias/statement.

**Disabilities and Learning Differences:**

**Counseling and Psychological Services:**
http://psbehrend.psu.edu/student-life/student-services/personal-counseling

**DISCLAIMER:** At anytime in this course the aforementioned statements of the syllabus may be amended at the discretion of the professor Dr. Galiffa. If this is to occur, students will be notified in a timely manner during a regularly scheduled class period only. It is the student’s responsibility to ascertain this information in the case of an absence.