Instructor: Dr. P. Minc.

Office: 332 Parker Hall. Monday, Wednesday, Friday 1-1:50 p.m., or by appointment.

Class website: http://www.auburn.edu/~mincpio/math2650/14/

Course objectives: First and second order linear differential equations including the solution by Laplace transform.

Textbook: Elementary Differential Equations and Boundary Value Problems, 11th edition, by Boyce, DiPrima and Meade. (Optionally, the e-Book text is available in the course page on Canvas under Modules>RedShelf>RedShelf eBooks tab. For further information the e-book access, charges and opt-out, please carefully read the email “All Access information for MATH 2650” you received on Jan. 4.)

Credit distribution:

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<tr>
<td>3 Tests</td>
<td>50%</td>
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<tr>
<td>Short Quizzes</td>
<td>20%</td>
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<td>Final Exam</td>
<td>30%</td>
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Students with good attendance record (no more than four not excused absences) will have the following option:

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<tbody>
<tr>
<td>3 Tests</td>
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<tr>
<td>Short Quizzes</td>
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<tr>
<td>Final Exam</td>
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The best option will be automatically applied.

Final grade assignment is based on the 60–70–80–90 scale. (For students with good attendance record: the semester % average will be rounded up to the nearest greater whole number.)

Short quizzes may be unannounced.

The tests will be announced at least a week in advance.

Final Exam: 4:00 p.m. – 6:30 p.m., Thursday, May 2. A missed final exam will be handled according to the university policy.

Attendance and Quiz/Test Make-up policy:

– Generally, a missed test or a quiz will result in a score of 0. A make-up will be given only in case of a justifiable absence.

– Only written excuses adhering to the university standard will be accepted.

– The make-up for a test or quiz missed due to a one-day-only justifiable absence will be given during the instructor’s office hour on next class day. Please email the instructor at mincpio@auburn.edu as soon as possible if you wish to reschedule the make-up to a different time (on the same day).

– If you miss a test or quiz due to a longer justifiable absence, you must contact the instructor on the first day of your return to class to schedule the make-up.

Accommodations for Disabilities:

If you require such accommodations, please request them in the Office of Accessibility, 1228 Haley Center (334-844-2096), see https://cws.auburn.edu/accessibility.

Also, please make an appointment with the instructor during the first two weeks of classes.

Cellular Phones. Please do not use cellular phones in class. Do not let your phone ring and do not leave the class to answer an incoming call.
- Chapter 1. Introduction
  - 1.1 Some Basic Mathematical Models; Direction Fields
  - 1.2 Solutions to some differential Equations
  - 1.3 Classification of Differential Equations
- Chapter 2. First Order Differential Equations
  - 2.1 Linear Equations; Method of integrating Factors
  - 2.2 Separable Equations
  - 2.3 Modeling with First Order Equations
  - 2.4 Differences between Linear and Nonlinear Equations
  - 2.5 Autonomous Equations and Population Dynamics
  - 2.6 Exact Equations and Integrating Factors (omit integrating factors)
  - 2.7 Numerical Approximations: Euler’s Method
  - 2.8 The Existence and Uniqueness Theorem
- Chapter 3. Second Order Linear Equations
  - 3.1 Homogeneous Equations with Constant Coefficients
  - 3.2 Solutions of Linear Homogeneous Equations; the Wronskian
  - 3.3 Complex Roots of the Characteristic Equation
  - 3.5 Nonhomogeneous Equations; Method of Undetermined Coefficients
  - 3.6 Variation of Parameters
  - 3.7 Mechanical and Electrical Vibrations
  - 3.8 Forced Vibrations
- Chapter 4. Higher Order Linear Equations
  - 4.1 General Theory of nth Order Linear Equations
  - 4.2 Homogeneous Equations with Constant Coefficients
  - 4.3 The Method of Undetermined Coefficients
- Chapter 6. The Laplace Transform
  - 6.1 Definition of the Laplace Transform
  - 6.2 Solution of Initial Value Problems
  - 6.3 Step Functions
  - 6.4 Differential Equations with Discontinuous Forcing Functions
  - 6.5 Impulse Functions