

# Math 401: Differential Equations

## Winter 2008

**Class Meets:** MWF 7:45–8:50

**Instructor:** Neil Martinsen-Burrell (Science Center 363,  
319-352-8420, [nmb@wartburg.edu](mailto:nmb@wartburg.edu))

**Class Web Page:** <http://mcsp.wartburg.edu/nmb/math401>

**Office Hours:** MW 1:15–2:15, T 9:30–10:30, F 10:45–11:45

**Prerequisites:** MA 202

**Text:** Borrelli and Coleman, *Differential Equations: A Modeling Perspective*, 2nd ed.

**Catalog Description:** Differential equations as a mathematical modeling technique and a solution technique for solving applied problems. Methods for solving differential equations, related concepts, theory, application.

**Objectives:** Upon completion of this course, students should

1. be able to reason and solve problems using a system of numeric or symbolic concepts to generate a solution to problems encountered throughout a variety of real world applications.
2. become skilled in analyzing differential equations and their solutions.
3. be able to explicitly solve first- and second-order linear differential equations.
4. be familiar with computer packages for solving differential equations such as Maple.

**Homework:** Homework will be due weekly on Monday and assignments will be given in class and posted to the course web page. You are *strongly encouraged* to try the week's homework before Friday so that you can ask questions in class or in office hours before the weekend. If you would like to see me outside of office hours, I am not always available so *please* make an appointment so that we are able to connect.

Collaboration is an important mathematical skill, so collaboration on homework is allowed and *encouraged*. **But** copying from another person is prohibited in accordance with the Honor Code (see below). Think of your classmates as reference materials for your homework, and remember to cite your references: "I consulted Daffy Duck on the above problem."

**Exams:** There will be two non-cumulative exams, one in the middle of the semester and one at the end of the semester

**Projects:** There will be a group project researching a particular topic in differential equations. Your group will study one topic deeply over the second half of the semester. You will write a report about what you have learned, due on the day of the final exam. Your group will also present a *small* portion of what you have learned in class during the last week of the semester.

**Grading:**

Exams	50%
Homework	30%
Project	20%

Grading will be relative to the performance of the rest of the class, with the exception that a 90% will guarantee you at least an A-, 80% a B-, 70% a C- and 60% a D.

**Academic Honesty:** By attending Wartburg College, students pledge their dedication to the Honor Code.

As a matter of personal commitment, students, faculty, and staff of Wartburg College are expected to demonstrate four simple principles.

1. All submitted work must be your own.
2. When using the work or ideas of others, including fellow students, provide full credit through accurate citations.
3. Ask for clarification if there is uncertainty about citation rules on a particular assignment.
4. Maintain academic honesty on examinations and class assignments.

Academic dishonesty will result in consequences between a failing grade for that assignment and a failing grade for the course.

**Special Needs:** The Americans with Disabilities Act of 1990 (ADA) provides protection from illegal discrimination for qualified individuals with disabilities. Students requesting instructional accommodations due to disabilities must arrange for such accommodations by contacting Pathways Associate for Testing and Advising Carla Coates. She can be reached at the Pathways Center, 314 Vogel Library, Wartburg College, Waverly, IA 50677, 352-8230, [Carla.coates@wartburg.edu](mailto:Carla.coates@wartburg.edu). Presenting documentation of a student's disability early (before the beginning of classes) is helpful and often necessary to secure needed materials in a timely way. Accommodations should be requested *prior* to affected assignment due dates. For more detailed information, please see <http://www.wartburg.edu/pathways/testing/AccommodationProcessStudents.pdf>