

**QUEENSBOROUGH COMMUNITY COLLEGE**  
**THE CITY UNIVERSITY OF NEW YORK**

**COURSE OUTLINE**

**TITLE:** MA 451 DIFFERENTIAL EQUATIONS

**Pre-requisite:** MA-443 with a grade of C or better

**Hours:** 4 Class Hours 1 Recitation Hour      4 Credits

**Course Description:** Methods of solving ordinary differential equations; application to physics, engineering, and computer science. Students will solve application problems using software such as Maple.

**Curricula for which the Course is required/recommended:** A.S. Degree programs in the Liberal Arts and Sciences and Engineering. Secondary Mathematics with transfer to Queens College – *TIMEQCC program*

**General Education Objectives:** Reason quantitatively and mathematically as required in their fields of interest and everyday life.

**Course Objectives/ Expected Student Learning Outcomes:** Students learn how to analyze differential equations qualitatively. The methods for solving equations will include separation of variables, solving homogeneous and nonhomogeneous linear equation of order one and higher, homogeneous and nonhomogeneous linear systems, Laplace transform. Students apply the theory to mathematical models.

- TEXT:**
1. Differential Equations with Computer Lab Experiments, 2<sup>nd</sup> Edition  
by: Dennis G. Zill  
Brooks/Cole Publishing Co.
  2. Student Solution Manual, 2<sup>nd</sup> Edition  
by: W. Scott Wright and Carol D. Wright  
Brooks/Cole Publishing Co.

**Grading:**

4 Exams	60%
Final	20%
Lab Assignments	20%

**Academic Integrity:**

Academic honesty is taken extremely seriously and is expected of all students. All assignments must be the original work of the student (and partners or group, if applicable). All questions or concerns regarding ethical conduct should be brought to the course instructor. "It is the official policy of the College that all acts or attempted acts that are violations of academic integrity be reported to the Office of Student Affairs (OSA). At the faculty member's discretion and with the concurrence of the student or students involved, some cases, though reported to the OSA, may be resolved within the confines of the course and department. The instructor has the authority to adjust the offender's grades as deemed appropriate, including assigning an F to the assignment or exercise or, in more serious cases, an F to the student for the entire course." (Taken from the

Note: Any student who feels that he/she may need an accommodation based upon the impact of a disability should contact me privately to discuss his/her specific needs. Please contact the Office of Student Disabilities, room S-132 (718-631-6257) to coordinate reasonable accommodations for students with documented disabilities.

**OTHER RESOURCES:** Graphing Calculator, Maple CAS, web sites

<b>Chapter</b>	<b>Topic</b>	<b>Hours</b>
<b>1</b>	<b>Getting Started</b>	<b>3</b>
<b>2</b>	<b>First Order Equations</b>	<b>9</b>
<b>3</b>	<b>Higher Order Equations</b>	<b>13</b>
<b>4</b>	<b>Systems of First Order Equations</b>	<b>10</b>
<b>5</b>	<b>The Laplace Transform</b>	<b>10</b>
<b>6</b>	<b>Series Solutions</b>	<b>5</b>
	<b>Weekly Maple Labs</b>	<b>14</b>
	<b>Tests</b>	<b>6</b>
	<b>Total Hours</b>	<b>70</b>

RR:cs

[MATHSYLLABUS2009]