COURSE: Differential Equations (Math 15) - Section 1346, Winter 2002
PREREQ: Completion of Math 8 with a grade of C or better
OFFICE: MC40-V
HOURS: 9:00am – 10am MTWTh
PHONE: Voicemail (310) 434-4722
MAIL: Students may leave written material/messages in the campus mailroom in the Liberal Arts Bldg
email: manion_fran@smc.edu (I try to check my email each evening.)
WEB Sites: http://homepage.smc.edu/math/manion_fran/ The Website contains syllabus, tentative lecture schedule, announcements and links to course-related materials.. http://myclasses.smc.edu/ At this site you can send course-related questions for the instructor to answer. All questions, together with posted answers, may be viewed by all students. The assumption is that students may have many of the same questions.

COURSE DESCRIPTION
This course is a study of differential equations: Topics include the solution of first and second order differential equations, homogeneous and non-homogeneous differential equations, physical applications, initial value problems, systems of linear differential equations, series solutions, numerical methods, LaPlace Transforms and Fourier Series.

COURSE OBJECTIVES
Upon completion of this course, you should be able to:

1. Solve any first order differential equation.
2. Demonstrate variable separable, homogeneous, exact, linear, Bernoulli linear and Ricatti linear differential equations.
3. Set up and solve physical motion problems, orthogonal trajectories and mixture problems.
4. Solve second order differential equations with constant coefficients and complementary and particular solutions.
5. Apply the methods of undetermined coefficients, variation of parameters and reduction of order.
6. Apply second order differential equations to springs and electrical circuits.
7. Solve differential equations using power series, Froebenius series, Bessel functions, Gamma functions, LaPlace transforms and the Heaviside (unit step) function.
8. Set up systems of linear differential equations using characteristic equations.
9. Apply Fourier Series to periodic functions and test convergence.
10. Apply Euler’s Formula
11. Use the Wronskian determinant to test for linear independence or linear dependence.

REGULAR ATTENDANCE at class is required. Attendance will be taken. You may be dropped from the course if you miss four class meetings. Well-prepared students will preview each day’s lecture material by READING the appropriate section(s) in the text (see Tentative Lecture Schedule, p.4).
HOMEWORK assignments will be given at each class meeting. Selected problems may be discussed in class. Practice is critical to your success in this class. Selected homework problems will be collected and graded. Graded problems are due at the next class meeting following the date of assignment. Late assignments will not be accepted. Submitted assignments should be presented on standard 8-1/2" x 11" paper, with multiple sheets stapled together. Be sure to write your name, the text section(s) and problem number(s) on the upper right hand corner of the first page. Each graded homework problem is worth 6 points. For full credit, you should include a statement of the problem and a presentation of the correct solution or proof that demonstrates your thinking process.

Frequent QUizzes based on homework problems and lectures will monitor your understanding of the concepts, notation and terminology. Makeup quizzes will not be given. Homework and quizzes will account for 10% of your grade in the course.

Calculators, in particular the TI-83 Graphing Calculator, may be useful for checking your work and for performing laborious calculations. However, as it is important to master computational techniques, use of calculators will not be allowed on tests.

UNIT TESTS, consisting of both computational and proof questions, will account for 65% of your final grade in this class. There will be no makeup tests! Your lowest unit test score will be replaced by your final exam score if the final exam score is higher than your lowest test score.

| Test #1: Sections 1.1-1.3, 2.1-2.4, 2.6-2.8 |
| Test #2: Sections 3.1-3.8 |
| Test #3: Sections 5.1-5.4; 6.1-6.6 |

A COMPREHENSIVE FINAL EXAM will be given according to the college exam schedule and will count as 25% of the final grade. A student must receive a passing grade (D or better) on the final exam in order to pass the class.

LETTER GRADES will be assigned according to the scale below:

A = 90% - 100%
B = 80% - 89%
C = 70% - 79%
D = 60% - 69%
F = below 60%

Your final grade will be calculated as a weighted average using the following formula:

Final Grade Pct = .10*(Hmwk&Quiz Pct) + .65*(Test Average) + .25 (Final Exam Pct)
Student Responsibilities

Maintaining the appropriate CLASSROOM CLIMATE is the responsibility of each student.
✓ As a matter of courtesy, you should arrive on time for class.
✓ Pagers and cellular phones should be turned off or muted during class time to avoid creating a distraction.
✓ Food and beverages should be consumed before you come into the classroom.
✓ You are expected to be courteous to and respectful of your colleagues as well as the instructor.
✓ Talking during the lecture or announcements is a distraction to other students and the instructor.

Santa Monica College has a STUDENT CONDUCT CODE and may discipline students in accordance with its provisions. The College also has the authority to remove students from a class or program if they are disruptive of the instructional process, do not respect the civil rights of other students, cannot benefit from instruction, or present health and/or safety hazards in a class. Disciplinary sanctions include, but are not limited to, verbal or written reprimand, disciplinary probation, removal from class, ineligibility to participate in extracurricular activities, suspension, and expulsion.

Santa Monica College defines ACADEMIC DISHONESTY as the act of or assistance in deceiving, including fraud or deception, in any academic exercise. This includes, but is not limited to, the following actions not authorized by the instructor:
✓ Using testing aids such as calculators, tape recorders, or notes on any examination.
✓ Allowing another individual to assume one's identity for the purpose of enhancing one's grade in any of the following: testing, field trips, or attendance.
✓ Falsifying or attempting to falsify attendance records and/or grade rosters.
✓ Representing the words, ideas or work of another as one's own in any academic exercise (plagiarism), including the use of commercial term paper companies.
✓ Changing answers on a previously scored test, assignment, or experiment with the intent to defraud.
✓ Copying or allowing another student to copy from one's paper or answer sheet during an examination.
✓ Inventing information for the purpose of completing a laboratory exercise or case study with the intent to defraud.
✓ Giving and/or taking information during an examination by any means including sign language, hand signals, secret codes, or electronic transmission.

When taking a quiz or exam, you should keep your eyes on your own paper. Communicating (talk or body language) with another student during the exam without instructor permission is unacceptable. You are expected to do your own work on all quizzes and examinations. Students are encouraged to work together on the homework and review exercises. A first offense of academic dishonesty will result in a zero grade on that quiz or exam. A zero grade assigned as a result of academic dishonesty will NOT be dropped as the lowest score. In addition, a report will be filed with the Campus Disciplinarian.

For more detailed information, please refer to the College Conduct Code and Academic Conduct Code found posted in the classroom and in the SMC Student Handbook/Guide.