

**Instructor**

Randy Scott  
Office: SC-122  
Phone: (714) 628-4947  
email: [scott\\_randy@sccollege.edu](mailto:scott_randy@sccollege.edu)  
website: [www.sccollege.edu/rscott](http://www.sccollege.edu/rscott)

**Office Hours**

M 1215-1315  
T 1600-1650  
W 1115-1230  
Th 1530-1650

**Attendance**

Be in class, on time, each and every day. Attendance comprises a small part of your course grade and missing class will adversely affect your course grade. From page 21 of the 2009-2010 SCC Catalog: A student may be dropped for excessive absences when the total hours of absence exceed 10% of the total scheduled hours of class. For Spring 2012, this means I will drop you for excessive absence if you miss more than 3 class meetings.

**Withdrawals**

If you decide to drop this class, it is *your responsibility* to follow the correct procedures. The last day to drop this class with no record of participation is February 5, 2012, and the last day to drop this class with a W grade is April 22, 2012. Again, it is *your responsibility* to be aware of and to follow the correct procedures.

**Accomodations for Disabilities**

Students with verifiable disabilities who want to request academic accommodations are responsible for notifying their instructor and Disabled Students Programs and Service (DSPS) as early as possible in the semester. To arrange for accommodations, contact DSPS at (714) 628-4860 or by TDD (714) 639-9742 or stop by the DSPS Center in E-105.

**Academic Honesty**

Students attending Santiago Canyon College are expected to be honest and forthright in their academic endeavors. To falsify the results of research, to steal the words or ideas of another or to cheat on an examination, corrupts the essential process by which knowledge is advanced. Academic dishonesty is seen as an intentional act of fraud, in which a student seeks to claim credit for the work or efforts of another without authorization, or uses unauthorized material or fabricated information in any academic exercise. We, as an institution, also consider academic dishonesty to include forgery of academic documents, intentionally impeding or damaging the academic work of others, assisting other students in acts of dishonesty or coercing students into acts of dishonesty.

In matters relating to academic honesty violations, the primary responsibility for disciplinary proceedings rests with the instructor and the academic division where the violation allegedly occurred.

**Math Study Hall (MaSH) Registration**

The MaSH is a service provided by SCC that gives students a chance to supplement the learning done in the classroom. There will always be a math faculty member, instructional aides, and student workers on duty to assist you when needed. There are also computers in the room on which students can access mathematical software or do work for their on-line math class. The MaSH is located in rooms U-78, 79, and 80 (entrance in U-80). Hours of operation for Spring 2012 are Monday thru Thursday 8:00 am to 7:30 pm, and Saturday 9:00 am to 3:00 pm.

To use the MaSH, you must register for Math 098. This is a 0.2 unit class that will cost \$5.20 (resident) for the entire semester. You can register for the MaSH when you register for classes or just go to admissions on the ground floor of the E building. Once registered, you can enter and exit the MaSH at any time during hours of operation. When you enter, you will slide your student ID card or just type in your student ID

number at the MaSH sign in computer (no SSN). When you leave, you will sign out the same way. Signing out is very important. You may lose the hours you put in if you do not sign in and sign out appropriately.

### Calculator Use

You will need a graphing calculator for this course. I will be using a TI-84 during class. We will discuss appropriate use of the calculator in class, and will also continue to develop and improve our arithmetic and algebra skills.

### Exams

Exams are *tentatively* scheduled for February 23, April 5, and May 10, 2012. I reserve the right to change the date to reflect the progress we make in the class, but I promise to always give you at least a one week notice before an exam.

### Quizzes

A short quiz will be given on the average of once every other day. Some quizzes will be at the beginning of the class time, some in the middle, and some at the end of the class time.

There are no make-up quizzes given for any reason. To compensate for unavoidable absences, I will drop your lowest quiz score at the end of the semester.

### Homework

Doing work outside of class time provides the essential practice needed for success in mathematics. Plan to spend at least two hours outside of class for each hour in class. These two hours may include reviewing your class notes, reading the textbook, working on the assigned problems, reviewing older homework assignments. Homework assigned for each day is to be completed by the following class meeting. Homework will be collected on a random basis and scored. You will receive full credit if you attempt all the assigned problems. Finally, late homework will not be accepted for any reason.

### Final Exam

The final exam will be administered during the last regularly scheduled class meeting: Thursday, May 17, 2012. No early or late finals will be given.

### Grades

Your grade in this class is computed using a weighted average with the following category weights and letter grade assignments with  $p$  being your class percentage and  $l$  being the letter grade:

<b>Exams</b> 50%	If $p \geq 90$ , then	$l = A$
<b>Quizzes</b> 15%	If $80 \leq p < 90$ , then	$l = B$
<b>Homework</b> 10%	If $70 \leq p < 80$ , then	$l = C$
<b>Attendance</b> 5%	If $60 \leq p < 70$ , then	$l = D$
<b>Final Exam</b> 20%	If $\leq p < 60$ , then	$l = F$

For example, to find your exam category score, compute the average (arithmetic mean) of the percentage of each of your exam scores. To find your quizzes category score, compute the average (arithmetic mean) of the percentage of each of your quiz scores. Sum the products of all the category scores and the weight, and the result is your class percentage.

### Some Thoughts

I believe that each and everyone of you can be successful with mathematics. I believe that being able to understand and communicate mathematics is of critical importance for you, your children, and all the future generations of your family. If you work hard and maintain a positive, productive attitude, you will gain an understanding of mathematics that will insure your success for many years to come.

**Math 150, Calculus for Biological, Management, and Social Sciences****Text: Hughes-Hallett, Deborah, et. al.; *Applied Calculus*, 4e****Ch. 1 Functions and Change**

Section	Assignment
1.1 What is a Function?	1, 2-4, 6, 7-11, 12, 14, 15, 17, 24
1.2 Linear Functions	1, 3, 5-8, 11, 13, 15, 17, 18, 21, 25
1.3 Average Rate of Change and Relative Change	1-8, 10, 11, 13, 15, 17, 19, 23, 31, 32, 41, 42-45, 47, 50
1.4 Applications of Functions to Economics	1-3, 4, 7, 9, 11, 15, 21, 23, 31, 32, 33
1.5 Exponential Functions	1, 4, 5, 7, 9, 12, 14, 17, 19, 23, 27, 30
1.6 The Natural Logarithm	1-15 odd, 17-20, 27-30, 33, 36, 37, 38, 39
1.7 Exponential Growth and Decay	1, 3, 5, 9, 10, 11, 15, 20, 24, 29, 31
1.8 New Functions from Old	1, 2, 3-11 odd, 19-21, 29, 32-37
1.9 Proportionality and Power Functions	1-9, 13-16, 21, 23, 25, 29
1.10 Periodic Functions	1, 5, 7, 9, 11, 12, 13, 17-27 odd

**Ch. 2 Rate of Change: The Derivative**

Section	Assignment
2.1 Instantaneous Rate of Change	2, 3, 5, 7, 11, 13, 15, 19, 23
2.2 The Derivative Function	1, 3, 5, 7, 9, 10, 11-17 odd, 25, 27, 28
2.3 Interpretations of the Derivative	Part I: 1-43 odd Part II: 2-44 even
2.4 The Second Derivative	1, 3, 5, 7, 9, 15, 20, 25, 26, 27
2.5 Marginal Cost and Revenue	1, 3, 5, 6, 7, 8, 9, 11, 12, 13

**Ch. 3 Shortcuts to Differentiation**

Section	Assignment
3.1 Derivative Formulas for Powers and Polynomials	Part I: 1-35 odd, 38, 41, 45, 46, 49, 51 Part II: 2-36 even, 56, 57, 58
3.2 Exponential and Logarithmic Functions	Part I: 1-27 odd, 31, 33, 35 Part II: 2-28 even, 39, 43
3.3 The Chain Rule	1-28, 29-37 odd, 39, 40, 43
3.4 The Product and Quotient Rules	Part I: 1, 2, 3-33 odd, 35, 37, 39 Part II: 4-32 even, 42
3.5 Derivatives of Periodic Functions	1-20, 22, 23, 25, 27, 29

**Ch. 4 Using the Derivative**

Section	Assignment
4.1 Local Maxima and Minima	1, 3, 8, 9, 10-15, 16, 17, 20, 21
4.2 Inflection Points	11-20, 23, 25, 27, 32
4.3 Global Maxima and Minima	3, 5, 7, 11, 13, 17, 18-20, 23, 25, 36

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4.4 Profit, Cost, and Revenue	1, 2, 3, 4, 5, 7, 11, 15, 21, 25, 29, 31
4.5 Average Cost	1, 3, 5, 7, 9, 12, 16
4.6 Elasticity of Demand	1, 2, 3, 4, 5-9, 10, 11, 13, 15
4.7 Logistic Growth	1, 3, 4, 6, 7, 8, 11, 15, 16
4.8 The Surge Function and Drug Concentration	1, 3, 5, 7, 10

### Ch. 5 Accumulated Change: The Definite Integral

Section	Assignment
5.1 Distance and Accumulated Change	3, 7, 9, 11, 15, 17, 19
5.2 The Definite Integral	1, 3, 5, 8, 9, 13, 15, 17, 21-29 odd
5.3 The Definite Integral as Area	1-5, 6-9, 13, 16, 19, 21
5.4 Interpretations of the Definite Integral	1, 3-6, 9, 11, 16-18, 23, 24, 33
5.5 The Fundamental Theorem of Calculus	1-4, 7, 8, 9, 11, 13

### Ch. 6 Using the Definite Integral

Section	Assignment
6.1 Average Value	1, 2, 4, 9, 10, 13, 14, 17, 19
6.2 Consumer and Producer Surplus	1-9, 11
6.3 Present and Future Value	1, 3, 5, 7, 9, 12, 13
6.4 Integrating Relative Growth Rates	1, 3, 5, 7, 9, 11, 15, 17

### Ch. 7 Antiderivatives

Section	Assignment
7.1 Constructing Antiderivatives Analytically	1-20, 27-32, 33-50
7.2 Integration by Substitution	1-14, 17, 18, 24, 29-39
7.3 Using the Fundamental Theorem of Calculus to find Definite Integrals	1-16, 19, 20, 22-25, 27, 33, 34, 35
7.4 Integration by Parts	1-12, 17-20
7.5 Analyzing Antiderivatives Graphically and Numerically	1-4, 9-12, 13, 16, 17, 18, 19

### Ch. 8 Probability

Section	Assignment
8.1 Density Functions	1-4, 7, 8, 9, 10
8.2 Cumulative Distribution Functions and Probability	2, 3, 4, 7, 9, 11, 12
8.3 The Median and the Mean	2, 3, 4, 7, 8, 9

### Ch. 9 Functions of Several Variables

Section	Assignment
9.1 Understanding Functions of Several Variables	1, 2, 3-7, 9, 11, 17

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9.2 Contour Diagrams	1-4, 10, 12, 13, 21, 23, 26, 27
9.3 Partial Derivatives	1, 2, 3, 4, 5, 7, 10, 11, 17, 19, 20
9.4 Computing Partial Derivatives Algebraically	1-17, 21-31 odd, 33
9.5 Critical Points and Optimization	1-5, 7-15 odd
9.6 Constrained Optimization	1-9 odd, 11, 17, 21

### Ch. 10 Mathematical Modeling Using Differential Equations

Section	Assignment
10.1 Mathematical Modeling: Setting up a Differential Equation	1, 2, 3, 5, 7, 11, 13
10.2 Solutions of Differential Equations	1, 2, 3, 5-11 odd, 13, 15
10.3 Slope Fields	1-3, 5, 7, 8-13
10.4 Exponential Growth and Decay	1-6, 7, 9, 13, 15
10.5 Applications and Modeling	1-7 odd, 9, 13, 15, 17, 18, 23
10.6 Modeling the Interaction of Two Populations	1-3, 5-7, 8
10.7 Modeling the Spread of a Disease	1, 2, 4, 7, 8-10

### Ch. 11 Geometric Series

Section	Assignment
11.1 Geometric Series	1, 2, 3-13 odd, 15, 17, 18, 19
11.2 Applications to Business and Economics	1, 3, 5, 9, 11, 12-14, 15
11.3 Applications to the Natural Sciences	1, 5, 7, 9, 11, 15-17

Useful Websites:

<http://www.wolframalpha.com/>

<http://www.calculus.org/>

<http://tutorial.math.lamar.edu/Classes/CalcI/CalcI.aspx>

<http://ocw.mit.edu/courses/mathematics/18-01-single-variable-calculus-fall-2006/>