MATH 8 CALCULUS II Course Syllabus
Fall Session, 2017
Instructor: Brian Rodas

Class Room and Time: MC 67 M-Th 9:30am-10:35am
Office Room: MC 38 **Office Phone:** (310)434-8673
Office Hours: M 11:00am-12:00pm, TTh 2-3pm and W 11:00am-12:00am(Math Study Room MC 84B) and by appointment
E-mail: rodas_brian@smc.edu
Class Website: http://homepage.smc.edu/rodas_brian
Text: Stewart, James. *Calculus.* Eighth edition, Cengage Learning Co.,2016.

Course Description: This course is intended for computer science, engineering, mathematics and natural science majors. Topics in this second course include derivatives and integrals of transcendental functions with mathematical and physical applications, indeterminate forms and improper integrals, infinite sequences and series, and curves, including conic sections, described by parametric equations and polar coordinates. The prerequisite is MATH 7 with a grade of C or better.

Format of Course: The first 10 minutes of each class will be devoted to addressing students' questions regarding homework or material from the previous section. The remainder of the class will be spent presenting new material.

Homework: Homework will be assigned daily but not collected. The problems assigned are practice problems in understanding the material covered for the day. It has been known that a genuine understanding and completion of the homework results in quality performance.

Worksheets: Worksheets will be given periodically. They consist of problems designed to understand the material and promote cooperative learning. These problems are to be done in groups. They will be collected and graded.

Quizzes: Quizzes will be given periodically. They will be approximately 10-15 minutes long. It has been my nature to give quiz problems identical to the homework. Therefore it would be in your best interest to do the homework. Each quiz is worth ten points. The three lowest quiz scores will be dropped.

Exams: There will be four exams and a final. Each exam is worth 100 points. The lowest exam will be scaled out of 50 points. So if your test scores are 100, 90, 80, and 70, then your test average is (100+90+80+35)/350. The final is worth 200 points and is cumulative. You must show all necessary work to receive full credit. **Note also that a diagnostic exam will be given on the fourth day of class. This is a mandatory exam that every student must take to stay in the class. It will be graded and factored into the quiz grade.**

Calculators: Although the use of calculators are not permitted for exams or quizzes, they can be useful for doing tedious calculations and graphing. I encourage you to check your answers on the calculator when doing your homework but do not become dependent on the calculator. They will be extremely handy for graphing parametric and polar curves.

Grading:

Top three exams	300 points
Lowest exam	50 points
Quizzes	70 points
Worksheets	30 points
Final exam	200 points
Total	650 points

The expectation is that a letter grade will be given using the following scale for the semester average: 90-100%(A), 80-89%(B), 70-79%(C), 60-69%(D), 0-59%(F).

Academic Conduct: You are expected to abide by Santa Monica College's code of academic conduct on all exams, quizzes and homework. Copying homework solutions or quiz or test answers from someone is considered cheating as is altering a quiz or examination after it has been graded or giving answers to someone during an exam or quiz. If caught cheating or using an electronic device during an exam, the parties involved will receive a zero on the exam and an academic dishonesty report will be filed. Also note that cell phones are to be turned off for the duration of each class.

Since attendance is essential for normal progress in class, a student is expected to be in class regularly and on time. Missing classes puts you in danger of being dropped. **There are no makeup assignments, quizzes or exams. Late assignments will not be accepted. No excuses**. Refer to the school's web page, www.smc.edu, for withdrawal dates. IT IS THE STUDENT'S RESPONSIBILITY TO BE AWARE OF WITHDRAWAL DATES AND TO TAKE THE APPROPRIATE NECESSARY STEPS. If a student does not withdraw and stops coming to class, the student will receive a failing grade.

Entry Skills for Math 8: Prior to enrolling in Math 8 students should be able to:

A. Evaluate limits using basic limit theorems and the epsilon-delta definition.
B. State and apply the definition of continuity to determine a function's points of continuity and discontinuity.
C. Differentiate elementary functions using basic derivative theorems and the definition of the derivative.
D. Integrate elementary functions using basic derivative theorems and the definition of the definite integral.
E. Find the equation of the tangent line to the graph of a function.
F. Solve derivative application problems including optimization, related rates, linearization, curve sketching, and rectilinear motion.
G. State integral application problems including area, volume, arc length and work.
H. State and apply the Mean Value Theorem, Extreme Value Theorem, Intermediate Value Theorem, Fundamental Theorem of Calculus and Newton's Method.

Exit skills for MATH 8: Upon successful completion of this course, the student will be able to:

A. Differentiate and integrate hyperbolic, logarithmic, exponential and inverse trig functions.
B. Evaluate integrals using techniques including integration by parts, partial fractions, trig integrals and trig and other substitutions.
C. Approximate values of definite integrals using numerical integration, including the techniques of the trapezoidal and Simpson's rules.
D. Solve integral application problems including suface area of revolutions, moments and center of mass, and arc length of curves defined by polar or parametric equations.
E. Identify and evaluate indeterminate forms and improper integrals using techniques including L'Hopital's Rule.
F. Using Calculus methods, graph polar curves and curves described by parametric equations.
G. Determine whether an infinite sequence converges or diverges.
H. Analyze the relationship between an infinite series, the sequence of its terms, and the sequence of its partial sums.
I. Determine whether an infinite series converges absolutely, converges conditionally or diverges using techniques including direct comparison, limit comparison, root, ratio, integral, p-series, nth-term and alternating series tests.
J. Determine the radius and interval of convergence of a power series.
K. Differentiate and integrate a convergent power series.
L. Compute the sum of a convergent geometric series and a convergent telescoping series.
M. Determine the Taylor Series of a given function at a given point.

SCHEDULE OF LECTURES, HOMEWORK & EXAMS

Date	Section	Material	Homework
8/28		Calculus Review	Review Section Ch. 1
8/29		Calculus Review	Review Section Ch. 2 & 3
8/30		Calculus Review	Review Section Ch. 4 & 5
8/31		Calculus 1 Review/Exam	
9/4		Labor Day(No class)	
9/5	6.1	Inverse Functions	3-15odd,17-46,50
9/6	6.2*	The Natural Logarithm	11-43odd,49,51,57,61-77,81,86
9/7	6.3*	The Exponential Function	15-61odd,67,71,83-93,109a
9/11	6.4*	General Log. & Exp. Functions	21-51odd,55,70
9/12	6.5	Growth and Decay	3,9,15,17
9/13	9.3	Separable Equations	1-17odd
9/14	6.6	Inverse Trig Functions	1-45odd
9/18	6.6	Inverse Trig Functions	59-69odd
9/19	6.7	Hyperbolic Functions	7-17odd,23,30-39,59-64
9/20	6.8	Indeterminate forms	9-41
9/21	6.8	Indeterminate forms	43-67,73,77
9/25		Worksheet for Exam 1	
9/26		REVIEW	
9/27		**EXAM 1 on Ch.6, Section 9.3**	
9/28	7.1	Integration by Parts	3-41odd,52,57,61
10/2	7.2	Trig Integrals	1-49odd,57
10/3	7.3	Trig Substitution	1-29,33,37
10/4	7.4	Partial Fractions	7-51odd,61
10/5	7.5	Strategy for Integration	1-81odd
10/9	7.7	Approximate Integration	7-18ac,19,29
10/10	7.8	Improper Integrals	5-25odd,49-52
10/11	7.8	Improper Integral	27-41odd,57,71
10/12		Worksheet for Exam 2	
10/16		REVIEW	
10/17		**EXAM 2 on Ch.7**	
10/18	11.1	Sequences	3-17odd,23-55odd
10/19	11.1	Sequences	57,69,73-81,87
10/23	11.2	Series	5-49odd,57,61,67,87
10/24	11.3	Integral Test	3-29odd,34,37,39
10/25	11.4	Comparison Tests	3-31odd,43
10/26	11.5	Alternating Series	3-19odd,23,25,27,32
10/30	11.6	Absolute Convergence Ratio and Root Tests	1-37odd
10/31	11.7	Strategy for Testing Series	1-37odd
11/1	11.8	Power Series	3-29odd
11/2	11.9	Representations of Functions as Power Series	3-19odd,25,29,31,39
11/6	11.10	Taylor and Maclaurin Series	5-25odd,35-43odd,57,61,73,75
11/7	11.11	Application of Taylor Polynomials	3-9odd,13-21ab
11/8		Worksheet for Exam 3	
11/9		REVIEW	

Date	Section	Material	Homework
11/13		**EXAM 3 on Ch. 11**	
11/14	10.1	Curves defined by Parametric Equations	1-21odd,25,33
11/15	8.2	Area of Surface of Revolution	7-17odd
11/16	10.2	Calculus with Parametric Curves	1-17odd
11/20	10.2	Calculus with Parametric Curves	25,29,41,43,48
11/21	10.3	Polar Coordinates	1-33odd
11/22	10.3	Polar Coordinates	35-45odd,55,57,59,61
11/23		Thanksgiving (No class)	
11/27	10.4	Areas and Lengths in Polar Coordinates	1-19odd,45,47
11/28	10.4	Areas and Lengths in Polar Coordinates	23-33odd,37
11/29	10.6	Polar Equations of Conic Sections	9-16
11/30	8.3	Moments and Center of Mass	23-33odd,39
12/4		Worksheet for Exam 4	
12/5		REVIEW	
12/6		**EXAM 4 on Ch. 13, Sections 6.5 & 6.7**	
12/7		REVIEW for final	
12/11		REVIEW for final	
12/14		FINAL EXAM 8:00am-11:00am	

The instructor does reserve the right to add or modify the syllabus at the instructor's discretion.

Course Content:

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Student Learning Outcomes: The knowledge, skills, or abilities that the student will demonstrate by the end of the semester.

- Students will set up and solve application problems involving limits, arclength, indeterminate forms, center of mass and improper integrals using differentiation and integration techniques with transcendental functions.
- Students will determine the divergence or type of convergence of various infinite series, find the domain(interval of convergence) of power series and derive and apply Taylor series.
- Students will graph and anaylze using parametric equations and/or polar coordinates and solve applications involving functions in either polar or parametric form.