Analytic Geometry and Calculus Overview

Math 180 #12966 Name_____

Summer 2022 Santiago Canyon College, Math and Science Division Mon - Thurs 11:00 am –1:10 pm

Instructor: Anne Hauscarriague **E-mail:** hauscarriague_anne@sccollege.edu

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MSC Hours: **T/Th:** 10:30 – 11:00 am (**D-209)** First 4 weeks only.

Course Description, Purpose and Student Learning Outcomes: This course is the first course in the Math/Science/ Engineering calculus sequence. The topics of limits, continuity, derivatives, and integrals of algebraic and transcendental functions, relative and absolute extrema, and curve sketching will be covered, including appropriate applications. As a result of completing Mathematics 180, the student will be able to:

1. Analyze functions analytically and graphically using limits, derivatives, definite and indefinite integrals.
2. Apply basic definitions, properties and theorems of first semester Calculus to formulate elementary proofs and model and solve problems.

Department Student Learning Outcomes:

Students who successfully complete any mathematics course at SCC should be able to perform the following:

1. Create mathematical models of real world phenomena, apply those models to make predictions about the behavior of the phenomena, apply appropriate problem solving techniques, and critically evaluate the veracity of the obtained results.
2. Clearly communicate mathematical reasoning and problem solving skills using a variety of formats, diverse technologies, and appropriate mathematical vocabulary and notation.
3. Integrate into educational and professional conduct a calm, confident, and ethical approach to mathematical reasoning and problem solving while taking personal responsibility for mathematical successes.

Prerequisite: Successful completion of Math 171 (grade of C or better) or equivalent skills as measured by a qualifying profile from the mathematics placement process.

Course Materials: Text: Calculus Early Transcendentals, Stewart, 9th edition; graphing calculator (required): TI-83/84 recommended, (TI–89/92 and cell phones **not** allowed)

Math Success Center: The Math Success Center (a.k.a. **MSC**) is a FREE service provided by SCC that provides students with supplemental learning to the classroom. A math faculty member, Instructional Assistants and student tutors are always on duty to assist students with questions or concerns from their math class. The MSC is located in room D-209. The hours of operation for summer 2022 are:

June 24 – August 9 Mon/Wed: 1:00 to 6:00 pm and Tues/Thur: 10:30 am to 3:30 pm

To utilize the MSC, you must enroll in **MATHCE 100**. You can do this through Self-Service by using the following link:

https://colss-prod.cloud.rsccd.edu/Student/Courses/Search?SectionIDs=176557

This is a Pass/No Pass, Open Entry/Open Exit noncredit lab course. You will need to complete at least 10 hours and one activity in the MSC within the 8-week semester to earn a grade of Pass (P). To earn a Satisfactory Progress (SP) students must complete at least on hour in the MSC. Attendance is tracked through the sign-in computer so when entering the MSC, scan your student ID card or type in your student ID number at the sign-in computer. When leaving, sign out the same way you signed in; signing out is critical in order to avoid losing any completed hours. If you have any questions or concerns, please email the MSC at mathsuccesscenter@sccollege.edu.

Cell Phone Policy: All cell phones and electronic devices must be turned "OFF" (not on "silent," not on "vibrate," not "on") during the entire class period. I truly believe electronic devices are a distraction to the instructor, to other students, and to the user. My goal is to create the most effective environment conducive to learning to ensure your success.

Important Dates: The last day to drop with a fee refund, the last day to drop without receiving a W grade, the last day to submit a Pass/No Pass application, and the last day to drop and receive a W instead of a letter grade are listed on WebAdvisor. **These dates are strictly adhered to**, so check WebAdvisor periodically to make sure you do not miss any of these deadlines.

Accommodations for Disabilities: Students with verifiable disabilities who want to request academic accommodations are responsible for notifying me and DSPS as early as possible in the semester. To arrange for accommodations, contact DSPS at (714) 628-4860, (714) 639-9742 (TTY) or stop by the DSPS Center in E-105.

Basic Needs Statement: Any student who faces challenges securing their food or housing and believes this may affect their performance in this course is urged to contact the Hawk's Nest Food Pantry Coordinator for support. Please visit the website: https://www.sccollege.edu/StudentServices/FoodPantry Furthermore, please notify the professor, if you are comfortable doing so, to discover other resources available for students.

Student Conduct & Academic Honesty: Appropriate conduct is expected in the classroom. Based upon the RSCCD Standards of Student Conduct, students are expected to be honest and forthright in their academic endeavors. Students will be in violation of the code should you become disruptive in any way, such that you disrupt the teaching of this class. This includes (but is not limited to) excessive talking with your peers and cell phone usage, which is inclusive of texting. Students who violate the Standards of Conduct are subject to disciplinary action that includes, but is not limited to, removal from class, suspension and expulsion.

To falsify the results of one's 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 materials 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 the case that you violate the Academic Honesty Policy, you will be given a score of zero for the particular work regardless if it is an exam, quiz, homework assignment, project, etc. The incidence will be reported to the appropriate institutional body. Note that filing an *Academic Honesty Incident Report* may affect your "standing with college-at-large, up to and including suspension or expulsion from the college."

Attendance: If you are ill, please stay home. Otherwise, you are strongly advised to attend every class! If you must miss class, make arrangements to get class notes from another student. Attendance will be taken at each class meeting. Perfect attendance and being on time will bring up your grade 1%. Being absent, late or leaving early more than two times will lower your grade 1%. A student may be dropped due to excessive absences (4 or more). Please let me know if an emergency occurs which affects your attendance.

TITLE IX: Santiago Canyon College (SCC) faculty are committed to supporting our students and upholding gender equity laws as outlined by Title IX. Therefore, if a student chooses to confide in a member of SCCs faculty regarding an issue of sexual misconduct, that faculty member is obligated to tell SCCs Title IX Coordinator. If a student does not wish to formally report an incident to a faculty member but wishes to speak to someone confidentially about an unwelcome sexual encounter, the student can speak to the College Psychologist who is not legally bound to report the conversation. The College Psychologist is in the Student Health & Wellness Center in T-102 or call (714) 628-4773.

Course Modality Statement: Although it is SCC's intent for this course to be completed on campus as scheduled, please realize this course may be switched to a Distance Education course (meet via Zoom, fully online, or some mixture of the two) should an unforeseen circumstance arise.

Homework: In any math course, it is essential to get "hands on" experience with the concepts. Watching me do math is easy; you need to do it yourself in order to really learn the material. One important way to do this is by doing your homework. Plan to spend at least two-three hours per one hour of class on your homework. The assigned problems are the minimum you need to work. SHOW YOUR WORK!!! I already have the answers. Come to class or office hours prepared to ask questions. If you missed the majority of the problems, you need to re-learn the material, get tutoring and try again! Scan your homework as a PDF and upload it into Canvas by the deadline.

Tests and Quizzes:

A) There will be weekly mini quizzes and homework checks. They are only given to students present in class. There are no make-up quizzes for absent or late students.

B) There will be four 100-point tests. Dates are on the attached schedule; however, the dates may change if the instructor finds it necessary and such changes will be announced in advance in class. Tests are comprehensive. You **must pass more tests than you fail to pass the class**.

C) Tests must be taken on designated days; no make-ups will be given! If there are extenuating circumstances, please make an appointment with me to discuss.

D) A comprehensive final exam will be given. A scientific or graphing calculator may be used. The final is worth 15-25% of your grade so take the time to prepare!

Grades:

The **course grade** will be based on:		The **grading scale** will be:			
Tests	30-50%	90-100%	A	60-69%	D
Quizzes	0-15%	80-89%	B	0-59%	F
Homework/Handouts	0-15%	70-79%	C		
Final exam	15-25%				

Student Honesty: There will be several opportunities for collaborative activities in this class; however, collaborating on class tests or quizzes will not be tolerated. Anyone seeking help from or helping another student on a test or quiz will receive a zero. Homework is expected to be individual work.

Test Rules: *No looking at another student's desk or paper. No sharing of supplies including calculators. No talking **or using cell phones to get the answers!***

By remaining enrolled, students hereby agree that they will be held responsible for items described in this overview and in the schedule.

Students who successfully complete any mathematics course at SCC should be able to perform the following:

(1) Create mathematical models of real-world phenomena, apply those models to make predictions about the behavior of the phenomena, apply appropriate problem-solving techniques, and critically evaluate the veracity of the obtained results.

(2) Clearly communicate mathematical reasoning and problem solving skills using a variety of formats, diverse technologies, and appropriate mathematical vocabulary and notation.

(3) Integrate into educational and professional conduct a calm, confident, and ethical approach to mathematical reasoning and problem solving while taking personal responsibility for mathematical successes.

How to survive this course:

A) Keep this overview and notify me of any trouble you are having in this course.

B) You are required to read all sections of the text to supplement the lecture because it is often difficult to cover all the material in class. Class lectures make more sense if you have read the material before the date on the schedule. Plan also to re-read each section after it is discussed in class.

C) Give yourself plenty of time outside of class to review your notes, read the text, work homework problems and study. If possible, set up a study group of 1-5 other students. Studying with others can help you with questions you may find difficult and force you to communicate solutions to other students. The best way to learn a subject is to teach it.

D) Focus on vocabulary!! Don't get behind. Keep a positive attitude. Get help when you need it.

WORDS TO LIVE BY

"Do the one thing you think you cannot do. Fail at it. Try again. Do better the second time. This is your moment. Own it." Oprah Winfrey

"Success is not final, failure is not fatal: it is the courage to continue that counts." Winston Churchill

JUST FOR FUN

The reason that every major university maintains a mathematics department is that it is cheaper to do this than to institutionalize all those people. Also, there are three kinds of people in the world: those who can add and those who can't.

SUCCESSFUL STUDENTING: Characteristics of a successful student by Prof Liberi

1. They ***turn off their cell phone*** and attend class – regularly and on time. If they miss a lecture they make sure they get all assignments and with the help of their classmates, understanding what was covered in class.

2. They demonstrate that they care about their grades and are willing to improve them. They speak out in class and ask questions concerning current assignments.

3. Successful students turn in assignments that are neat. They take pride in their work.

4. They see the instructor before or after class about grades and upcoming tests and other academic problems.

5. They are attentive in class. They do not text, chat, read or eat. All work and assignments are submitted on time.

Hauscarriague ***Tentative*** Math 180 Class Schedule 12966 M-Th 11:00 D-217 Summer 2022

Date		Section	Topic
June	13	1-1/1-2	Intro; Functions
		1-3	New Functions
	14	1-4	Exponential functions
		1-5	Inverse Functions & Logs
	15	2-1	Tangent/Velocity
		2-2	Limit of a Function
	16	2-3	Limit Laws **HW 1 Due**
		2-4	Precise Defn of Limit
	20	Holiday	Juneteenth
	21	2-5	Continuity
		2-6	Limits at Infinity/Horiz Asympt
	22	2-7	Derivative
		Review	1-1 to 2-7
	23	**Test 1**	
			Ch 1 – 2 HW 2 Due
	27	2-8	Rates of change
			Derivative as a function
	28	3-1	Deriv of poly/exponentials
		3-2	Product/Quotient Rule
	29	3-3	Deriv of Trig Functions
		3-4a	The Chain Rule
	30	3-4b	Applications
		3-5	Implicit Differentiation
July	4	Holiday	4th of July
	5	3-6	Derivatives of Log Functions
	6	3-7	Rates of Change in Science
		Review	2.8 to 3.7
	7	**Test 2**	**Ch 1 – 3**
			HW 3 Due

Date		Section	Topic
July	11	3-8	Exponential Growth/Decay
		3-9a	Related Rates
	12	3-9b	Applications
		3-10	Linear Approx and Differentials
	13	3-11	Hyperbolic Functions
		4-1	Max/Min Values
	14	4-2	Rolle's Theorem
			The Mean Value Theorem
	18	4-3	Derivatives with Graphs
			Shapes of Graphs
	19	4-4	Indeterm. Forms/l'Hospital's Rule
		4-5	Curve Sketching
	20	4-7	Optimization Problems
		Rev	3-8 to 4-7
	21	**Test 3**	
			Ch 1 – 4 HW 4 Due
	25	4-9	Antiderivatives
		5-1	Areas and Distances
	26	5-2	Definite Integral
		5.3a	Fundamental Thm of Calculus Part 1
	27	5.3b	Fundamental Thm of Calculus Part 2
		5.4a	Indefinite Integrals
	28	5.4b	Net Change Theorem
		5.5a	The Substitution Rule
Aug	1	5.5b	Integrals with Substitution
		Review	4-9 to 5-5
	2	**Test 4**	**Ch 1 – 5**
			HW 5 Due
	3	Review	Everything
			Final is Cumulative!
	4	***Final***	Thursday at 10:30
		Exam	

Homework Assignments

HW 1	**Note:** some are odd, some are all		**HW3**				
1.1	3, 7,10,15,16, 21,24,35, 37, 41, 42, 49, 57, 65 - 71 odd, 79		2.8	1-23 odd, 41,43,47,49,50		4-2	1,3,5,7,11,13,15,17,19, 25
1.2	Know p 32 graphs, 3,4,5,14,15		3-1	1-33odd,41,47,49,55,57,59,66		4-3	1,5 -17 odd, 23, 24, 26, 27,35, 37, 45, 51, 65
1.3	1,6,10,13,14,19, 21,37,49,52		3-2	3-21odd,27,31,43,45,49,50		4-4	1,3,5,8,9,13,23,25,37,41,51,59,63
1.4	1- 4all, 6,7,8,13,23		3-3	1-17odd, 20,21,31, 37, 39-45 odd		4-5	9,11,13,25,31,45,47
1.5	1,2,11,13,18,22,25,33,37,51,52,63,64,66		3-4	7-51odd,63,65,71,84 (**NOT** #49)		4-7	3,11,12,13,15, 19, 35, 46
2.1	1,3ai,iv,vi,vii, 3b, 3c, 7		3-5	5-19odd,23,25,28,35,49,51,53			
2.2	1,2, 5-17odd, 19, 31, 33, 41		3-6	3-33odd, 37, 39-49 odd, 51			
			3-7	1-9odd, 13a&b, 15, 25, 31		**HW 5**	
			HW 4			4-9	1-21 odd, 25, 29, 33, 41, 43, 45, 48, 51, 53, 59, 61
HW2			3-8	1,3,5a,9,11		5-1	1,3,5,13,17,23
2.3	1,2,5,10,11-29 odd,37,41,50,53		3-9	1,3,4,5,7,9,11,13,17, 22,23,29 *and*		5-2	3,5c, 7,9,17-23 odd,27,33,39,51
2.4	1,2,3,5,11,15,19, 21, 29			pg. 268 #97-100 all		5-3	3,4,5,7-43 odd,53
2.5	2, 3-23odd, 39,41,53,55		3-10	1,5,11,15,16,21		5-4	5-17odd,21,27,29,33,41,51,53,59,60
2.6	1-9 odd,2, 15-35 odd,47,49,62,63		3-11	1,3,7,11,13,21, 23 a,c, 37, 53		5-5a	1-7odd,13-45 odd
2.7	1-7odd,12,13,17,24,29-37odd,53,56,59		4-1	1-13odd,15,19,23,27,29-41 odd, 47, 53, 57, 61, 65		5-5b	22-36 even, 47,53,59,67

Useful Websites: http://wolframalpha.com/; http://www.calculus.org/; http://tutorial.math.lamar.edu/ (Paul's online notes); http://ocw.mit.edu/courses/mathematics/18-01-single-variable-calculus-fall-2006/