

# Mathematics 30, Spring 2020

## Calculus I

### Lectures:

Section 9: MTWF 12-12:50pm, Room 115, Brighton Hall

Section 10: MWRF 1-1:50pm, Room 115, Brighton Hall

Instructor: Michael VanValkenburgh.

Office: Room 140, Brighton Hall

Office Hours: Tuesdays 1-2pm and Thursdays 11am-12:50pm, and by appointment

### The Official Syllabus:

[Math 30, Spring 2020 \(pdf\)](#)

[Drop Policy](#)

### Announcements:

**Textbook.** I highly recommend the classic: Calculus (Early Transcendentals), by James Stewart (you can use as old as the 5th edition)

Another good resource is: [OpenStax Calculus, Volume 1](#).

I strongly recommend that you enroll in one of the following (one-unit) PAL classes for Math 30, to get further help from your peers (working in groups, etc.).

NSM 12E-01 TR 12-12:50pm, SLN 3008

NSM 12E-03 TR 3-3:50pm, ALP 205

NSM 12E-04 MW 10-10:50am, MND 1032

**Basic Needs Support** If you are experiencing challenges in the area of food and/or stable housing, help is just a click, email or phone call away! Sacramento State offers basic needs support for students who are experiencing

challenges in these areas. Please visit our Basic Needs website to learn more about your options and resources available.

[Basic Needs Support webpage.](#)

### **Final Exam Schedule. Please take this into account when registering for classes:**

Section 9 (noon class): Wednesday, May 13, 10:15am-12:15pm.

Section 10 (1pm class): Monday, May 11, 12:45pm-2:45pm.

## **Homework:**

**Homework will not be collected; instead, on the ``due date'' there will be an in-class quiz with problems taken from the homework. This will prepare you for the testing environment and will show you my grading style.**

**(You need to download the book to see the problem numbers.)**

Quiz 1 on Monday, January 27:

The handout from the first lecture, and:

OpenStax Section 2.2 (46-80) (It looks like a lot, but the problems are very short.)

...and read Sections 2.1 and 2.2.

## **Exams:**

Exams and Solutions are posted on Sac CT.

## **Lecture Schedule**

	Date	Topics	Stewart	OpenStax	Notes	Code
Week 1	1.	Introduction.	Ch. 1	Ch. 1		
	2.	Introduction to Limits, I.	§ 2.1	§ 2.1		
	3. F 1/24	Introduction to Limits, II.	§ 2.2	§ 2.2		
Week 2	4. M 1/27	Limit Laws, I.	§ 2.3	§ 2.3		

	5.	Limit Laws, II.	§ 2.3	§ 2.3		
	6.	Left and Right-hand Limits.	§ 2.4	§ 2.5		
	7. F 1/31	Continuity, I.	§ 2.5	§ 2.4		
Week 3	8. M 2/3	Continuity, II.	§ 2.5	§ 2.4		
	9.	The Precise Definition of a Limit.	§ 2.6	§ 2.5		
	10.	Limits Involving Infinity.	§ 2.6	§ 2.2		
	11. F 2/7	Instantaneous Rate of Change, I.	§ 2.7	§ 3.1		
Week 4	12. M 2/10	Instantaneous Rate of Change, II.	§ 2.7	§ 3.1		
	13.	Interpreting the Derivative, I.	§ 2.8	§ 3.2		
	14.	Review.				
	F 2/14	<i>EXAM 1</i>				
Week 5	15. M 2/17	Interpreting the Derivative, II.	§ 2.8	§ 3.2		
	16.	Basic Rules of Differentiation, I.	§ 3.1	§ 3.3		
	17.	Basic Rules of Differentiation, II.	§ 3.1	§ 3.3		
	18. F 2/21	the Product and Quotient Rules, I.	§ 3.2	§ 3.3		
Week 6	19. M 2/24	the Product and Quotient Rules, II.	§ 3.2	§ 3.3		
	20.	the Chain Rule, I.	§ 3.4	§ 3.6		
	21.	the Chain Rule, II.	§ 3.4	§ 3.6		
	22. F 2/28	Implicit Differentiation, I.	§ 3.5	§ 3.8		
Week 7	23. M 3/2	Implicit Differentiation, II.	§ 3.5	§ 3.8		
	24.	Logarithmic Differentiation.	§ 3.6	§ 3.9		
	25.	Review.				
	F 3/6	<i>EXAM 2</i>				
Week 8	26. M 3/9	Derivatives of Inverse Functions, I.	§ 3.5	§ 3.7		
	27.	Derivatives of Inverse Functions, II.	§ 3.5	§ 3.7		
	28.	Related Rates, I.	§ 3.9	§ 4.1		
	29. F 3/13	Related Rates, II.	§ 3.9	§ 4.1		
Week 9	30. M 3/16	Linear Approximation.	§ 3.10	§ 4.2		
	31.	Maxima and Minima, I.	§ 4.1	§ 4.3		
	32.	Maxima and Minima, II.	§ 4.1	§ 4.3		
	33. F 3/20	the Mean Value Theorem.	§ 4.2	§ 4.4		
Week 10	34. M 3/23	Increasing and Decreasing Functions, I.	§ 4.3	§ 4.5		

	35.	Increasing and Decreasing Functions, II.	§ 4.3	§ 4.5		
	36.	Concavity, I.	§ 4.3	§ 4.5		
	37. F 3/27	Concavity, II.	§ 4.3	§ 4.5		
M-F 3/30- 4/3	NO CLASS (Spring Break)					
Week 11	38. M 4/6	l'Hospital's Rule, I.	§ 4.4	§ 4.8		
	39.	l'Hospital's Rule, II.	§ 4.4	§ 4.8		
	40.	Limits at Infinity and Asymptotes.	§ 4.5	§ 4.6		
	41. F 4/10	More Curve Sketching.	§ 4.5	§ 4.6		
Week 12	42. M 4/13	Optimization, I.	§ 4.7	§ 4.7		
	43.	Optimization, II.	§ 4.7	§ 4.7		
	44.	Review.				
	F 4/17	EXAM 3				
Week 13	45. M 4/20	Antiderivatives.	§ 4.9	§ 4.10		
	46.	Definite Integrals and Area.	§ 5.1	§ 5.1		
	47.	Riemann Sums, I.	§ 5.2	§ 5.2		
	48. F 4/24	Riemann Sums, II.	§ 5.2	§ 5.2		
Week 14	49. M 4/27	the Fundamental Theorem of Calculus, I.	§ 5.3	§ 5.3		
	50.	the Fundamental Theorem of Calculus, II.	§ 5.3	§ 5.3		
	51.	the Fundamental Theorem of Calculus, III.	§ 5.3	§ 5.3		
	52. F 5/1	Indefinite Integrals, I.	§ 5.4	§ 5.4		
Week 15	53. M 5/4	Indefinite Integrals, II.	§ 5.4	§ 5.4		
	54.	Substitution, I.	§ 5.5	§ 5.5		
	55.	Substitution, II.	§ 5.5	§ 5.5		
	56. F 5/8	Review.				
		FINAL EXAM: Section 9 (noon class): Wednesday, May 13, 10:15am-12:15pm				
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