Calculus 1

MATH 30 – Spring 2019

👤 Dr. Joshua Wiscons (he/him/his)
📍 Brighton (BRH) 144
💬 **T,Th** 9:30ᴀᴍ–10:30ᴘᴍ; **W** 1:00ᴘᴍ–2:00ᴘᴍ
And also by appointment
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🖥 webpages.csus.edu/wiscons/teaching/

> **Welcome!** Ever wonder what someone means when they say "that car is going 70 miles per hour **right now**"? Perhaps not ☺. . . but, really, what does it mean? How do you figure out how fast something is going **right now**? You could try to capture the moment by taking a picture, but how fast is the car going in the picture? But. . . if in any given instant we aren't moving at all, how do we get anywhere? Confused? I hope so. . . in a good way!! In this course, we will explore several concepts we may have taken for granted (like velocity) and develop important tools for investigating (and defining!) them. The course promises to be fun, counterintuitive (at times), and, well, a bit technical. But definitely fun!

"But without some common baseline of facts; without a willingness to admit new information, and concede that your opponent is making a fair point, and that science and reason matter, we'll keep talking past each other, making common ground and compromise impossible." - **President Barack Obama**

📄 **Catalog Description.** Functions and their graphs; limits; the derivative and some of its applications; trigonometric and hyperbolic functions and their inverses; the integral; fundamental theorem; some applications of the integral.

☑ **Prerequisites.** MATH 29 **or** MATH 29B **or** proof of readiness as determined by a *proctored* ALEKS PPL Placement Assessment. For more information about ALEKS, visit www.csus.edu/math/diagnostics/

📕 **Book.** *Calculus: Early Transcendentals, Eighth Edition* by James Stewart. This book will supplement what we do in class, but as I will not assign problems from the book, it is **not required**. If you choose to buy a new copy, I recommend buying the looseleaf version of the book together with WebAssign access for $110 through this site: services.cengagebrain.com/course/site.html?id=3041734.

⚙ **Learning Outcomes.** In this course, students will (1) increase their capacity for critical thinking and fact-based reasoning, (2) develop the necessary competency with the concepts and mechanics of Calculus 1 for further work in mathematics and other fields, (3) improve their written and oral communication of mathematics, and (4) develop the skills and mindset for solving problems in a team.

📅 **Typical Day.** A typical class meeting will consist of group work, discussion, and mini-lectures.

❗ **Class Etiquette.** Diversity and individual differences are respected, appreciated, and recognized as a source of strength. Students in this class are encouraged and expected to *speak up* and participate during class and to *step back* and include others in the conversation. Every member of this class must show respect for every other member of this class. Attitudes or actions destructive to the sense of community that we strive to create are not welcome and will not be tolerated. Also, please arrive on time; if you can't, please send me an email.

Get Connected
Visit Me [Brighton 144]
Visit the Math Lab [Brighton 118]
Explorer Our Community!   Don't know where to start?   Check out our Multi-Cultural Center

Some Resources
Me! Stop by or email me anytime!
Could benefit from accommodations?   Talk with me or visit the SSWD office [Lassen 1008]
Experiencing challenges with food and/or stable housing?   Visit our Basic Needs website: www.csus.edu/basicneeds/

Course Details

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Course Components

Online Homework. We will have regularly scheduled online homework—the main goal of these is to build comfort and confidence with the core techniques of the course. You are *allowed and encouraged* to work together, but you are expected to **enter your solutions on your own**. We will use the **free** system WeBWorK. More info will be posted on the course webpage: `webpages.csus.edu/wiscons/teaching/math30_s19.html`.

In-Class Worksheets. Most days you will work in a group to complete a series problems. Groups will be responsible for writing up a single, final draft of their solutions, collected at the beginning of the next class. Your team's work must be written clearly, must include all supporting work, and must be professional in appearance. In general, all members of the team will receive the same grade.

Participation. This component measures your level of engagement with your group and in class-wide discussions. As such, regular, on-time attendance is very important, so please let me know if you need to miss class. Repeated absences will impact this portion of your grade.

Exams. There are 3 midterm exams *tentatively* scheduled for Feb. 15, Mar. 15, and Apr. 19. There is also a Final Exam scheduled for Wednesday, May 15 from 10:15:00AM–12:15:00PM.

Grade Composition

Online Homework	12.5%	(the lowest 2 scores will be dropped)
In-Class Worksheets	12.5%	
In-Class Participation	10%	
Midterm Exams	45%	(lowest score: 12%, middle score: 15%, highest score: 18%)
Final Exam	20%	

In general, letter-grade cutoffs will be standard: A 100-90%, B 89–80%, C 79–70%, D 69–60%, F 59–0%.

Accommodations. Any student needing academic adjustments or accommodations should speak with me privately as soon as possible. If you have one, please bring a copy of your accommodation letter from the Services to Students with Disabilities (SSWD) office (`www.csus.edu/sswd/`). All discussions will remain confidential.

Getting Extra Help. Try hard! . . . but don't be surprised if that is not always enough. *Please come talk with me!* Talk with your classmates too. And please, please take advantage of the Math Tutoring Lab in BRH 118.

General Education GE Area: B4 (Mathematical Concepts and Quantitative Reasoning)

Learning Outcomes Solve problems by thinking logically, making conjectures, and construction valid mathematical arguments. Make valid inferences from numerical, graphical, and symbolic information. Apply mathematical reasoning to abstract and applied problems, and to scientific and non-scientific problems.

Writing Component The course will have a writing component, evaluated for clarity and style and aimed at improving the students' ability to write logically precise, well-structured, and well-justified mathematics.

Peer Assisted Learning (PAL) Sessions There are optional, adjunct sections (NSM 12E, Peer-Assisted Learning MATH 30) that students can take concurrently with Math 30. These are offered several times per week (see class schedule.) NSM 12E is a one-unit course, graded Credit/No Credit, which is facilitated by undergraduate students (PAL leaders) who have successfully mastered the material in Math 30. In these PAL sections, Math 30 students will work in small groups on worksheets dealing with the course topics.

Even if you do not enroll in NSM 12E, you may still go to the PAL leader office hours for help, which are held in Sequoia (SQU) 248. Times of office hours will be posted outside the door of SQU 248.

Technology The emphasis of this course is on conceptual understanding. Feel free to use calculators and/or computer software programs on the homework assignments, but they will **not** be allowed on exams. (I'm a big fan of Desmos for graphing and WolframAlpha for other computations.)

Cheating Cheating will result in disciplinary action and will be reported to the Office of Student Conduct. If you are unsure what constitutes cheating, please speak with me and review Sacramento State's *Academic Honesty Policy and Procedures* document here: `www.csus.edu/umanual/student/stu-0100.htm`.

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. Learn more about your options and resources here: www.csus.edu/basicneeds/

Centers for Diversity and Inclusion. We have a family of Centers,

- Women's Resource Center,
- Multi-Cultural Center, and
- PRIDE Center,

that provide students with validation and support, while also engaging the larger Hornet community in coordinated efforts to interrogate and explore identity, promote cultural pluralism, and contribute to social justice. Check them out here: www.csus.edu/cdi/

College Assistance Migrant Program (CAMP). CAMP is designed to help students from migrant and seasonal farm worker backgrounds succeed at Sacramento State. CAMP facilitates transition from high school to college and offers first-year support services to develop the skills necessary to persist and graduate from college. CAMP strives to be "a home away from home" for its students. More here: www.csus.edu/camp/

Counseling Services. Confidential counseling services are available on campus for Sacramento State students. Counselors are located on the second floor of the WELL. Appointments can be made 8:00AM–5:00PM, Monday–Friday. Call 916-278-6461 to make an appointment. **If you are in immediate crisis, please call 9-1-1 or the Suicide Hotline at 1-800-273-TALK (8255).**

Dreamer Resource Center (DRC). The DRC's mission is to make the dream of a college degree a reality for undocumented students and students with mixed-status families at Sacramento State by helping students overcome the unique challenges that get in the way of achieving academic, personal and professional excellence. Learn more here: www.csus.edu/saseep/drc/

Full Circle Project (FCP). The FCP aims to provide a student-centered approach to steadily increase the graduation rates of underrepresented Asian American and Pacific Islander (AAPI) and other high-need students through rigorous coursework, academic support, intentional student organization and leadership opportunities, career planning and meaningful community engagement. Lot's more info here: www.csus.edu/fcp/

MLK Scholars. The MLK Scholar's program is designed to support and ensure the success of African American students or those with an interest in African American heritage in their quest toward a degree at Sacramento State. Learn more here: www.csus.edu/saseep/mlk/

Peer & Academic Resource Center (PARC). PARC provides **free** peer tutoring, advising, and supplemental instruction. For more information or to make an appointment, go here: www.csus.edu/parc/

Serna Center. The Serna Center's mission is to promote, foster, and enhance self-advocacy, empowerment and leadership among Chicanxs/Latinxs students and students from other under-represented backgrounds at Sacramento State. Learn more here: www.csus.edu/sernacenter/

Services to Students with Disabilities (SSWD). SSWD offers a wide range of support services and accommodations for students in order to ensure students with disabilities have equal access and opportunity to pursue their educational goals. More info here: www.csus.edu/sswd/

Sexual Misconduct. We have a confidential support advocate on campus to assist students who have experienced sexual assault, intimate partner violence, sexual harassment, and stalking. To set up an appointment with the advocate, call 916-278-5850 or schedule an appointment online through your patient portal.

If you are in immediate danger or need immediate assistance, please call 9-1-1 or if you are on campus, campus police at 916-278-6000. If it is after hours or the weekend and you need immediate advocacy, please call WEAVE's 24-hour hotline at 916-920-2952.

	Monday	Tuesday	Wednesday	Thursday	Friday
Jan 21		Intro	Intro to limits (2.1)		Intro to limits (2.1,2.2)
Jan 28	Intro to limits (2.1,2.2)	Intro to limits (2.2)	1-sided limits / Limit laws (2.2,2.3)		Limit Laws (2.3)
Feb 04	Limit Laws / Continuity (2.3,2.5)	Continuity (2.5)	Limits at inf (2.6)		Limits at inf / Rate of change (2.6,2.7)
Feb 11	Rate of Change (2.7)	Def. Of derivative (2.8)	Interp. Der. (2.8)		Exam 1
Feb 18	Interp. Der. / Der. Rules (2.8,3.1)	Basic Der. Rules / Prod. Rule (3.1,3.2)	Prod. + Quo. Rules (3.2)		Trig. (3.3)
Feb 25	Chain (3.4)	Chain / Implicit (3.4,3.5)	Implicit (3.5)		Implicit / Inverse Trig. (3.5,1.6)
Mar 04	Inverse Trig. / Logs (3.5,3.6)	Inverse Trig. / Logs (3.5,3.6)	Logarithmic (3.6)		Applications (3.7)
Mar 11	Hyperbolic (3.11)	Related Rates	Related Rates		Exam 2
Mar 18					
Mar 25	Max. and Min. (4.1)	Max. and Min. (4.1)	Max. & Min. / MVT (4.1, 4.2)		MVT (4.2)
Apr 01	Cesar Chavez	Incr. + Decr. (4.3)	Incr. + Decr. (4.3)		Concavity (4.3)
Apr 08	Concavity / l'HR (4.3,4.4)	L'HR (4.4)	L'HR (4.4)		L'HR / Curve Sketching (4.4, 4.5)
Apr 15	Optim. (4.7)	Optim. (4.7)	Catch up		Exam 3
Apr 22	Area / Riemann (5.1,5.2)	Def. Int. + Area / Riemann (5.1,5.2)	Def. Int. + Area / Riemann (5.1,5.2)		Def. Int. / Riemann (5.1,5.2)
Apr 29	Def. Int. / Riemann (5.1,5.2)	Indef. Int. (5.4)	Indef. Int. (5.4)		FTC 1 & 2 (5.3)
May 06	FTC 1 / Net Change (5.3)	Net Change / u-sub. (5.4,5.5)	U-sub. (5.5)		U-sub. (5.5)

draft version (subject to change): January 18, 2019   4