

SOS 211: Calculus and Probability for the Life and Social Sciences

Credit Hours: 3

Prerequisite: AML 100 or SOS 101 with C or better

Instructor Information

Name: Ryan Cornell

Office Hours: By appointment

Canvas Inbox

All student/instructor communication will be directed through the Canvas Inbox. This ensures the security, privacy, and record of the communication. Note: You must have your primary Canvas email address set as your asurite@asu.edu, not firstname.lastname@asu.edu or a personal email account.

Course Communication Policy: Three Before Me

This course uses a "three-before-me" policy regarding student/instructor communications. When course-related questions arise, please check these three sources for an answer before emailing the instructor with your question:

1. Course Syllabus
 2. Canvas Announcements
 3. Community Forum: This is a discussion forum in Canvas used for general questions about the course. You are encouraged to respond to your classmates' questions and comments.
-

Course Textbook and Materials

Required Textbook(s)

Required Textbook and MyMathLab Access

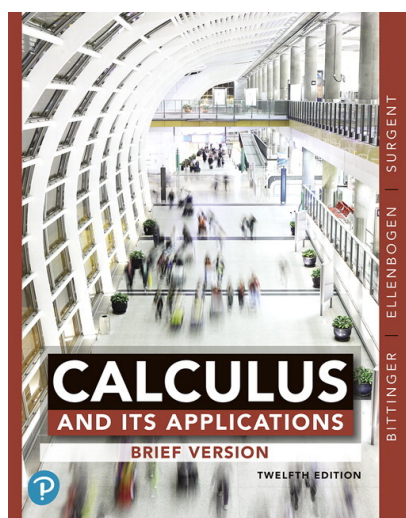
Bittinger, M. L., Ellenbogen, D. J., Surgent, S. A., & Kramer, G. *Calculus and Its Applications plus MyMathLab: Brief Version* (12th Ed.). Pearson.

ISBN: 9780135960387

NOTE: You will need to purchase MyMathLab which includes access to the eBook.

- You will purchase a MyMathLab access code by clicking on the "BryteWave Course Materials" link on the lefthand side of the screen.
- You can also purchase a loose leaf or a hard copy version of the textbook if you prefer, but it is NOT required.
- If you have used MyMathLab before, you can log in using your existing credentials. If you have NOT used MyMathLab before, the first time you log in, you will create a free account. Specific instructions are provided in Canvas.
- Please see the following link that explains how to sign-up for MyMathLab: [MyMathLab Sign-up Information \(Links to an external site.\)](#)

[Pearson Website \(Links to an external site.\)](#)



Additional Course Technology

Yellowdig

This course uses Yellowdig for online discussions.

Computer Requirements

A smartphone, iPad, Chromebook, etc. will not be sufficient for completing your work in online courses. While you will be able to access course content with mobile devices, you must use a computer for some assessments.

This course requires a computer with Internet access and the following:

- Web browsers ([Chrome \(Links to an external site.\)](#), [Microsoft Edge \(Links to an external site.\)](#), [Mozilla Firefox \(Links to an external site.\)](#), or [Safari \(Links to an external site.\)](#))
- [Adobe Acrobat Reader \(Links to an external site.\)](#) (free)
- A webcam, microphone, headset/earbuds, and speaker

- Microsoft Office ([Microsoft 365 \(Links to an external site.\)](#)) is free for all currently-enrolled ASU students)
- Reliable broadband internet connection (DSL or cable) to stream video

See [Technology and time: Important factors for ASU Online students \(Links to an external site.\)](#) for additional information.

Course Information

Course Workload Expectations

This online class is 135 credit hours over 7.5 weeks. You should plan to spend approximately 18 hours per week on reviewing class materials and completing activities and assessments.

Course Description

This course familiarizes students with two main concepts: derivatives and integration. The course spends five weeks on the tools of the derivative such that a student is familiar with the basic mechanics of a derivative and then the final two weeks are spent on the concept of integration and connecting integration with probability. Students gain the basic competence needed for applying probability and calculus when thinking about and research problems in sustainability. Focuses on and discusses applications, the meaning of important concepts, the origins of the rules of derivation and integration, and logic behind why the methods work.

Course Outcomes

CO 1: Take derivatives and integrals of functions.

CO 2: Describe examples of how calculus and integrals are important for solving sustainability problems.

CO 3: Relate the concept of integration to probability.

Module Topics and Objectives

Module 1: Functions, Domain/Range, Slope, Non-Linear Functions, and Curve Fitting

1.1: Identify linear and non-linear functions, and non-functions from graphs.

1.2: Use the slope of a line to solve word problems.

1.3: Solve a system of equations for equilibria, or fitting a function.

1.4: Fit a function to data.

Module 2: Limits

2.1: Take left hand and right hand limits.

2.2: Interpret limit notation.

2.3: Determine when a function is continuous.

2.4: Find average rates of change using difference quotient.

Module 3: Differentiation

3.1: Use the Power, Sum and Difference Rule to take derivatives.

3.2: Use the product and quotient rules to take derivatives.

3.3: Use the chain rule to take derivatives.

3.4: Be able to take higher order derivatives of function.

Module 4: Differentiation Applications

4.1: Identify critical values of a function.

4.2: Identify the concavity of a function.

4.3: Use dimensional analysis to solve sustainability data problems.

4.4: Find max/minimum values.

Module 5: Exponential Function

5.1: Take derivatives of exponential, and logarithmic functions.

5.2: Use derivatives to solve growth/decay problems.

Module 6: Integration

6.1: Take anti-derivatives and explain the conceptual basis of integration.

6.2: Learn basic techniques for integration.

Module 7: Integration Applications

7.1: Use integration to solve supply and demand problems.

7.2: Use integration to solve exponential growth problems.

7.3: Relate integration to probability.

Assignment Information and Policies

Assessment Weights

Assessment weighting

Assignment	% of Final Grade
MyMathLab Homework	30%
Yellowdig	15%
MyMathLab Quizzes	30%
Final Exam	25%
Total	100%

Assessment Descriptions

MyMathLab Homework (30%)

These assignments will cover the weekly concepts and take place using the MyMathLab system. This system includes a variety of built-in resources to help students learn the concepts.

Yellowdig Discussions (15%)

Each Module will include a Yellowdig discussion that will be used to apply the weekly concepts to topics in sustainability.

MyLab Quizzes (30%)

These quizzes will cover the previous Modules and will take place inside MyMathLab.

Final Exam (25%)

The Final Exam is cumulative and will take place using MyMathLab.

Submitting Assignments

All assignments, *unless otherwise announced*, MUST be submitted to the designated area of Canvas. Do not submit an assignment via email (unless asked to do so).

Assignments and assessments will not be due on observed holidays; however, due to the accelerated nature of online courses, students should not count on taking time off from studying and working on coursework due to holidays.

Write all submissions in a word processing program to ensure that you are submitting a high quality written piece, with care to grammar and messaging. Submit the assignment in the requested format per the assignment directions.

Late or Missed Assignments Policy

Notify the instructor BEFORE an assignment is due if an urgent situation arises and the assignment will not be submitted on time. Published assignment due dates (Arizona MST) are firm. Unexcused late assignments will be docked **10% per day.**

Notify the instructor **BEFORE** an assignment is due if an urgent situation arises and the assignment will not be submitted on time. Published assignment due dates (Arizona Mountain Standard time) are firm. Please follow the appropriate University policies to request an [accommodation for religious practices](#) or to accommodate a missed assignment [due to University-sanctioned activities](#).

Grading Scale

This course will be graded on an A-E plus/minus scale.

Grading Scale

%	Grade
98 to 100%	A+
93 to < 98%	A
90 to < 94%	A-
87 to < 90%	B+
83 to < 87%	B
80 to < 83%	B-
77 to < 80%	C+
70 to < 77%	C
60 to < 70%	D
Below 60%	E = Failing, participated in class EN = Failing, never participated EU = Failing, insufficient participation in class and did not complete XE - Academic dishonesty

Arizona State University Policies, Standards, and Expectations

ASU Online Course Policies

Consult [ASU Online Course Policies \(Links to an external site.\)](#) for information on course time commitment, drop/add dates and withdrawals, photo ID, grade appeals, netiquette, prohibition of harassment, student conduct and academic integrity, Title IX, disability accommodations, inclusion, mental health, course evaluation, trigger warning, academic affairs manual and more.

Add/Drop/Withdrawals Deadline

ASU's [Academic Calendar \(Links to an external site.\)](#) contains important dates by which you can add or drop this course without penalty called "Last Day to Drop/Add Without College Approval". After

this date, if you choose to withdraw from the course, you may do so by the “Course Withdrawal Deadline,” but will receive a ‘W’ on your official transcript. Consult with your advisor and notify your instructor if you have questions about [Drop/Add and Withdrawal \(Links to an external site.\)](#).

Grade Appeals

Grade disputes must first be addressed by discussing the situation with the instructor. If the dispute is not resolved with the instructor, the student may appeal to the School of Sustainability per the [University Policy for Student Appeal Procedures on Grades \(Links to an external site.\)](#). Undergraduate students, please see additional instructions for [undergraduate College of Global Futures courses \(Links to an external site.\)](#). Graduate student grade appeals are initiated within the school offering the course (please email CGF@asu.edu for more information about initiating a grade appeal for a graduate course in the College of Global Futures).

Tutoring

ASU offers a variety of support services from the University Academic Success Programs (UASP). If you’re looking for specific support in writing or other academic assistance, please contact UASP via any of the following methods:

- Website: <https://tutoring.asu.edu/> (Links to an external site.)
- Call: 1-480-965-9072

Attendance and Absences

Attendance and participation in class activities is an essential part of the learning process, and students are expected to attend class regularly. Some absences are, however, unavoidable. Excused absences for classes will be given without penalty to the grade in the case of (1) a university-sanctioned event [[ACD 304-02 \(Links to an external site.\)](#)]; (2) religious holidays [[ACD 304-04 \(Links to an external site.\)](#)]; a list can be found here <https://eoss.asu.edu/cora/holidays> (Links to an external site.); (3) work performed in the line-of-duty according [SSM 201-18]; and (4) illness, quarantine or self-isolation related to illness as documented by a health professional.

Anticipated absences for university-sanctioned events, religious holidays, or line-of-duty activity should be communicated to the instructor by [indicate the means of communication] at least 2 days before the expected absence.

Absences for illness, quarantine or self-isolation related to illness should be documented by a health professional and communicated to the instructor as soon as possible through the Canvas Inbox.

Excused absences do not relieve students from responsibility for any part of the course work required during the period of absence. Faculty will provide accommodations that may include participation in classes remotely, access to recordings of class activities, and make-up work.

If there is a disagreement as to whether an absence should be accommodated, the instructor and student should contact the academic unit chair immediately for resolution.

Community of Care

As Sun Devils, we take care of ourselves, each other and our community. For up-to-date information about helping to maintain the health of our community, please visit ASU’s [Live Well @ ASU: Wellness and Community Care During COVID-19 \(Links to an external site.\)](#).

Discrimination, Harassment, and Retaliation

[ACD-401 Prohibition against Discrimination, Harassment, and Retaliation \(Links to an external site.\)](#), prohibits discrimination, harassment or retaliation on the basis of race, sex, gender identity, age, religion, national origin, disability, sexual orientation, and veteran status. Violations of this policy may result in disciplinary action, including termination of employees or expulsion of students. Contact the Office of Student Rights and Responsibilities at (480) 965-6547, if you feel another student is harassing you based on any of the factors above; contact the Office of Equity and Inclusion at (480) 965-5057 if you feel an ASU employee is harassing you based on any of the factors above.

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at <https://sexualviolenceprevention.asu.edu/faqs> (Links to an external site.).

As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. ASU Counseling Services, <https://eoss.asu.edu/counseling> (Links to an external site.) is available if you wish to discuss any concerns confidentially and privately. ASU online students may access 360 Life Services, <https://goto.asuonline.asu.edu/success/online-resources.html> (Links to an external site.).

Disruptive Student Behavior

Students are entitled to receive instruction free from interference by other members of the class. An instructor may withdraw a student from the course when the student's behavior disrupts the educational process per the [SSM 201-10 Instructor Withdrawal of a Student for Disruptive Classroom Behavior \(Links to an external site.\)](#) and [SSM 104-02 Handling Disruptive, Threatening, or Violent Individuals on Campus \(Links to an external site.\)](#) policies.

Appropriate online behavior (also known as netiquette) is defined by the instructor and includes keeping course discussion posts focused on the assigned topics. Students must maintain a cordial atmosphere and use tact in expressing differences of opinion. Inappropriate discussion board posts may be deleted by the instructor.

Prohibition of Commercial Note Taking Services

Course content, including lectures, are copyrighted materials. Students may not share outside the class, upload, sell, or distribute course content or notes taken during the conduct of the course (see [ACD 304-06 Commercial Note Taking Services \(Links to an external site.\)](#) for more information).

Plagiarism Statement

From ASU's Writing Programs: "Plagiarism is stealing. Whenever you borrow a phrase, sentence, paragraph — even an idea stated in your own words — from any outside source (news writing, magazine, TV show, book) without giving credit to that source, you have plagiarized. Plagiarism is cheating yourself and someone else. The consequences are severe including failure for the assignment, probable failure for the course, disciplinary referral to the dean and possible expulsion from the university. Academic integrity is expected of every individual: <https://provost.asu.edu/academicintegrity> (Links to an external site.)."

Student Code of Conduct and Academic Integrity

Students have the responsibility to understand and follow ASU's [Student Code of Conduct \(Links to an external site.\)](#) and [Academic Integrity Policy \(Links to an external site.\)](#). You may face ethical decisions during your time as a student. If you're not sure whether or not something is permitted, it is your responsibility to ask questions or find out by doing more research using the links above. Any violations in this course are subject to sanctions and will be reported to the School of Sustainability and the college or school of your major.

The Office of Student Rights and Responsibilities accepts [incident reports \(Links to an external site.\)](#) from students, faculty, staff, or other persons who believe that a student or a student organization may have violated the Student Code of Conduct.

Academic Integrity (also known as cheating, copying others' work, uploading your work online to encourage cheating by others, or even reusing your own work) falls under the Student Code of Conduct. Possible sanctions for violations include, but are not limited to, appropriate grade penalties, course failure (indicated on the transcript as a grade of E), course failure due to academic dishonesty (indicated on the transcript as a grade of XE), suspension, and expulsion.

Beware that some websites promote themselves as tutoring and educational resource sites, but may actually be sites that put you at risk for an academic integrity violation if you are using the services to submit work that is not your own or gain knowledge of what to expect on a quiz or exam.

Important: Students must refrain from uploading to any course shell, discussion board, or website used by the course instructor or other course forum, material that is not the student's original work, unless the students first comply with all applicable copyright laws; faculty members reserve the right to delete materials on grounds of suspected copyright infringement.

Accessibility

All students should have equal technology opportunities in the classroom. For information about the resources offered by ASU and the technologies commonly used in ASU Online courses, consult the following resource: [ASU Online Student Accessibility \(Links to an external site.\)](#).

Students with Disabilities

All students requesting accommodations for disabilities must work with the [ASU Student Accessibility and Inclusive Learning Services \(Links to an external site.\)](#), the central location for establishing eligibility and obtaining services and accommodations for qualified students with disabilities.

You may contact the ASU Student Accessibility and Inclusive Learning Services at (480) 965-1234 or email directly at student.accessibility@asu.edu.

Inclusion Statement

Arizona State University is deeply committed to positioning itself as one of the great new universities by seeking to build excellence, enhance access and have an impact on our community, state, nation and the world. To do that requires our faculty and staff to reflect the intellectual, ethnic and cultural diversity of our nation and world so that our students learn from the broadest perspectives, and we engage in the advancement of knowledge with the most inclusive understanding possible of the issues we are addressing through our scholarly activities. We recognize that race and gender historically have been markers of diversity in institutions of higher education. However, at ASU, we believe that diversity includes additional categories such as

socioeconomic background, religion, sexual orientation, gender identity, age, disability, veteran status, nationality and intellectual perspective.

We welcome and respect individuals with all kinds of visible and nonvisible differences. We highly value the strengths and benefits of the diversity that students bring with them.

[The topics that we're covering in this class are sometimes socially challenging or politically charged. I challenge you to base the discussions on the disciplinary content in the course instead of your personal political/religious/spiritual beliefs, to ensure the conversations are useful to the instructional goals. I ask that you engage in discussion with respect, care and empathy for the other members in the classroom.]

Additional Information and Resources

- [College of Global Futures \(Links to an external site.\)](#) – this course is offered through the College of Global Futures at Arizona State University. Questions about the course should first be addressed with the instructor.
- [Career Services \(Links to an external site.\)](#) – offers assistance to students in choosing their major, setting career goals, interviewing and job hunting strategies. Students pursuing a degree program through the School of Sustainability also have access to a [sustainability career advisor \(Links to an external site.\)](#).
- [Counseling Services \(Links to an external site.\)](#) – professional counseling and crisis services for students experiencing emotional concerns, problems in adjusting, and other factors that affect their ability to achieve their academic and personal goals. Support is available 24/7 between campus locations and EMPACT's 24-hour ASU-dedicated crisis hotline.
- [Financial Aid and Scholarship Services \(Links to an external site.\)](#) – offers information and applications for student funding such as grants, loans, scholarships and student employment.
- [GPA Calculator \(Links to an external site.\)](#) – students can use this calculator to project their GPA.
- [Libraries \(Links to an external site.\)](#) - offers 24/7 access to librarians through "Ask a Librarian" online chat and help by librarians in person at the Reference Desk during most hours the libraries are open.
- [Tutoring and Writing Centers \(Links to an external site.\)](#) – provides students with academic support services such as tutoring, peer advising, computer assisted instruction, writing support, and supplemental instruction
- [Contact Arizona State University \(Links to an external site.\)](#) – provides frequently asked question resources and contact information for new questions.

Technical Support Contact Information

If you are experiencing technical issues, visit the [My ASU \(Links to an external site.\)](#) "Service Center" tab for immediate support, to review answers to frequently asked questions, or to submit a request for service.

The number for immediate assistance is 1-855-278-5080 with staff available 24 hours/day, 7 days/week to help direct your call. Also see [ASU's Contact Us \(Links to an external site.\)](#) page. Known issues and system outages will be shared on [ASU's System Health \(Links to an external site.\)](#) site.

Students also have access to several [computing sites \(Links to an external site.\)](#).

Syllabus Disclaimer

All syllabi are subject to minor changes to meet the needs of the instructor, school, or class. Every effort will be made to avoid changing the course schedule, but the possibility exists that unforeseen events will make syllabus changes necessary. The instructor reserves the right to make changes to the syllabus as deemed necessary. Students will be notified in a timely manner of any syllabus changes. Please check your ASU email and the Announcements on the course site often.

THIS CONTENT IS PROTECTED AND MAY NOT BE SHARED, UPLOADED, SOLD, OR DISTRIBUTED.

Updated Fall, 2022