

MAT 2311-02 – Calculus I

About Your Professor, Course Policies and Guide to Successful Learning

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- 1) The schedules, policies, procedures, assignments, exam dates explained in this syllabus are subject to change to ensure better student learning.

Course Information

Professor: Jason Elsinger, Ph.D.
Office: Polk Science 137
Email: jelsinger@flsouthern.edu

Classroom: Polk Science 156
Time: TH 2:00 pm – 3:45 pm

Virtual Student Hours:

Sign up ahead of time by choosing an available time using this [Calendly link](#).

Monday	9:30 am – 10:30 am
Tuesday	4:30 pm – 5:50 pm
Wednesday	9:30 am – 10:30 am
Friday	9:30 am – 10:30 am
Other times available by appointment	

These student hours are specifically for you. Joining me virtually is not a bother! You can also email me or send a message in discord if you cannot make these hours to arrange other times. *Please be sure to make the appointments you set, or just let me know if something comes up.*

Come join student hours within the first few weeks so that you can experience the process and we can get to know each other a bit. After all, I cannot really teach you unless I know what your interests are and your past experiences.

Final Exam: The final will be on Tuesday, May 2, from 3:15 am – 5:15pm.

Last Day to Withdraw: Friday, March 24

Text: Calculus: Early Transcendentals, Stewart; Brooks/Cole; 9E.

The hard copy of the text is **not** required but will be available as e-text through WebAssign (which is required). Older editions of the text can be found on amazon for cheaper prices; homework will be online and will have the e-text available (see [Homework](#) section below).

Course Description: Four hours. This course serves as an introduction to the concepts of calculus starting with a thorough treatment of functions, limits, and continuity. These topics are necessary for setting up the definition of derivative and integral, the primary tools in calculus. We will investigate the derivative, its properties, and its applications (describing motion, related rates, curve sketching, optimization). Toward the end of the course, we will define indefinite and definite integrals and its interpretations as area, describing motion, and net change. Some topics that may not be covered: linearization, differentials, Newton's method, limits at infinity, L'Hospital's rule.

From the FSC Catalog: Four hours. The study of differentiation and integration of algebraic and transcendental functions. Theory and applications of differentiation, and The Fundamental Theorem of Calculus. Topics in plane analytic geometry. Use of computer algebra system (CAS) required.

Course Learning Outcomes:

Upon the completion of this course the student should be able to:

- Demonstrate understanding of the theoretical concept of a limit; use algebraic, numeric, and graphical methods to compute the values of limits and identify when they don't exist.
- Demonstrate understanding of the theoretical concept of the derivative; compute derivatives using the standard rules of differentiation.
- Demonstrate understanding of the definition of the integral as a limit of finite sums.
- Evaluate integrals using the Fundamental Theorem of Calculus.
- Use a Computer Algebra System to apply techniques to real world problems.

Florida Southern General Education SLO: Quantitative**II. A. Intellectual and Practical Skills, Systematic and Creative Thinking: Quantitative**

- Interpret quantitative information
- Express quantitative information
- Use quantitative tools
- Recognize and describe limitations

Who is Jason Elsinger?

Quick biography:

I have always enjoyed mathematics from an early age, and I became fascinated at how equations on a piece of paper could predict the reality around us. Sometime in high school I took a liking to physics and I found enjoyment in helping others understand mathematical concepts. That is when I decided to become a high-school teacher. In 2005, I went to Bloomsburg University in Pennsylvania as a dual major in mathematics and physics. Some of the recreational things I did as an undergrad include joining the school's dance ensemble (where I learned east-coast swing, breakdance, line dance, and Irish hard-shoe) and I sang bass with the choir. My desire to teach was enhanced during my time as an undergraduate, and I made the decision to teach at the college level instead of high school.

After I graduated, I got accepted to the doctoral program in mathematics at North Carolina State University. As a graduate student, I was the sole instructor for 7 courses, including a senior-level course called abstract algebra. It was during these years I began developing my teaching philosophy. On another note, I tried my hand at meeting girls through Match.com. Working toward a Ph.D. is time consuming, and I hoped this could be a way to meet someone. I eventually did meet a girl named Erika, who wound up becoming my future wife. In 2014, I graduated and accepted my first professorship at Spring Hill College in Mobile, Alabama; Erika came with me.

During my 3 years at Spring Hill College, I was introduced to the concept of mastery grading, which incorporates a growth mindset rather than collecting points. I found it to be a better way to use grading to help motivate and learn from one's mistakes. I now use mastery grading with all my classes. Aside from academics, Erika and I got married in October 2016, and the year after that I joined the mathematics department at Florida Southern College. I changed locations so that I could be more involved with students outside the classroom and have more support for research opportunities with students.

Aside from school and reading textbooks, some other things I enjoy doing are bowling, playing disc golf, [Dance Dance Revolution](#), retro video games (NES and SNES; [Zelda](#) and [Mega Man](#) series are two favorites), playing electric guitar, and playing with our cat Brando. What kind of things do you like to do? Tell me about them when we meet!



Glacier Hiking in Norway



The Parthenon in Athens, Greece



Brando

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What is it like in my classroom?

I work hard to create a comfortable classroom environment where you can ask questions and not be worried about being wrong but rather thrive on it to work toward a better answer. I arrange the desks into groups of four so that you can talk with other students about questions or to work out examples together. Sometimes I start class with a review game.

I incorporate many engaged learning activities in my lectures. The only way to learn mathematics is to *do* mathematics, and I encourage you to consistently practice in and out of class. I have also created “partial notes” for many of my lectures to serve as a skeletal outline with space for you to fill in details. The time saved in writing notes instead is spent being *engaged*. Every semester, I collect feedback from my students so that I can improve these techniques and get input when I incorporate new teaching ideas.

Student hours:

I call it “student hours” rather than office hours to emphasize this is time I have put aside specifically for you if you need help or want to chat. You can drop-in to ask questions or chat about your semester. If you cannot make the times I have listed, you can always send me a message to figure out a time that we can meet. If I am not in my office, feel free to leave a message on my door white board to let me know you stopped by!

Note to the Student (and my teaching philosophy in a nutshell):

Welcome to my class! I am excited to be sharing with you some of the coolest applications of mathematics you likely have not seen before. I believe every student is entitled to and capable of experiencing success and joy in math. Too often, people have poor experiences with mathematics and miss out on some of the most powerful tools human beings have created.

I enjoy the following description of teaching and agree with its sentiment:

“It is not so much what my students know but what they can do; likewise, teaching is not what I know but I enable others to do.”

–Phelps (2008)

I also find the following to be very powerful motivators behind excellence in teaching.

These thoughts from [Federico Ardila](#):

1. Mathematical potential is distributed equally among different groups, irrespective of geographic, demographic, and economic boundaries.
2. Everyone can have joyful, meaningful, and empowering mathematical experiences.
3. Mathematics is a powerful, malleable tool that can be shaped and used differently by various communities to serve their needs.
4. Every student deserves to be treated with dignity and respect.

The “Rights of the learner” adopted from [C. Kalinec-Craig](#):

1. I expect that you will be confused
2. I expect that you will claim your mistakes
3. You Have the right to speak, listen and be heard (e.g., engage in conversations, ask questions, share ideas, and listen to the thinking of others)
4. I expect that you will write, do, and represent only what makes sense to you

To promote equity in the mathematics classroom, the rights of the learner assumes that you can take more explicit ownership of your learning, both in writing and in oral communication. I aim to create a space that welcomes and serves everyone. I believe the only way to learn mathematics is to *do* mathematics. If you put in the effort, I am confident you will be rewarded with growth, and I want to help you along your path.

Asking questions is *strongly* encouraged and frankly *necessary* to learn science and mathematics on a deep level. If I have not explained an idea fully, I am happy to back up and try another explanation. One of the biggest missed opportunities is *not asking questions!* Never feel dumb asking questions for you have the *Right* to be confused. I am happy to discuss your thoughts, questions, or concerns at any time—just send me a message.

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Policies

Participation:

Participation is paramount to understanding the material. Throughout the semester, I will incorporate lots of group work, in-class labs, and other active breaks meant for your practice. It is expected that you will participate in these group activities and discussions. In addition, you may be asked to present your thoughts about a question or problem.

Attendance:

Attendance is mandatory for success in this class. You must notify me in advanced of any excused absences. Any more than 2 unexcused absences for a TH class or 3 unexcused absences for a MWF class will be considered excessive and **your total knowledge points will be reduced by 1 point for each unexcused absence** after the second. Only college-sanctioned excused absences will be considered for make-up work.

Phones and Calculators:

Every student is expected to be respectful in terms of their use of phones, which can be disruptive and distractive to both the professor and other students during lecture. Please turn off, silence, or set to vibrate your phone during class. Calculators may be used on assessments, and I am generally fine with you using your calculator app on your phone. However, *you will only receive credit when you show your work.*

Academic Integrity:

As an academic community, Florida Southern College is firmly committed to honor and integrity in the pursuit of knowledge. Therefore, as a member of this academic community, each student acknowledges responsibility for his or her actions and commits to the highest standards of integrity. In doing so through this Honor Code, each student makes a covenant with the college not to engage in any form of academic dishonesty, fraud, cheating, or theft. Further information on the Honor Code is available in the current *FSC Catalog*.

All students should submit their own work for all graded assignments, unless stated otherwise. *The first case of an academic infraction will result in the offender receiving a grade of 0 on the assignment. The second infraction will be reported to the academic dean. Major acts of Academic Dishonesty will be dealt with in accordance with FSC policy. If you are not sure what resources you can use on an assignment, re-read the directions. If you are still unsure, then ask the professor.*

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Assessment and Grading

Final Grades

“Knowledge points” refer to your progress on individual problems from any assessment.

“Homework points” can be obtained by doing any combination of the following:

- Every POGIL activity or essay can earn up to 5 points, and there will be around 8 total.
- Every homework presentation earns up to 10 points, and there will be an opportunity to volunteer during most weeks.
- The online homework will be the total percent earned out of a maximum of 50 points. For example, if you complete 20% of the online homework, then you have earned $(0.2)(50) = 10$ points.

Knowledge points and homework points do not average, but rather are kept separate. The following table outlines how many of each you need for the letter grade you desire.

To earn a...	...earn at least the following point totals (132 total KP and 90 total HP)
A	114 points from individual problems, and 85 points from homework, POGIL, and presentations
B	84 points from individual problems, and 65 points from homework, POGIL, and presentations
C	54 points from individual problems, and 50 points from homework, POGIL, and presentations
D	24 points from individual problems, and 40 points from homework, POGIL, and presentations
Not a D Yet	Do not fit in the above categories

Every problem can earn up to 3 points

The following table describes the feedback associated to the points.

3 points	You have demonstrated full understanding of the topic by getting the problem completely correct and with sufficient explanation or interpretation.
Revision Needed	You have demonstrated full understanding of the topic but something is unclear or amiss (e.g. misuse of symbols, arithmetic error, clarity needed). Make the corrections and explain it to the professor to earn full credit for that problem. If left unattended, or if the revision is incorrect, the problem will receive 2 points.
1 – 2 points	You have demonstrated partial understanding, but a crucial aspect of the problem needs revision or is missing. You need to rework this problem to figure out the correct solution to gain a deeper understanding of the topic. You may use your notes to review the topic or ask the professor questions concerning the revision you need to make. Once you have learned the topic better, you may attempt another version later in order to achieve a higher score.
0 points	It is unclear that you understand the concept. You need to rework this problem to figure out the correct solution, and you will benefit greatly by asking questions. Once you have learned the topic better, you may attempt another version later in order to achieve a higher score.

If you get a problem wrong, you can try it again for a higher score!

In this class, you have multiple opportunities to demonstrate full understanding of every topic. Students who have already achieved their desired letter grade by the last day of class do not need to take the final.

I have no expectations that you will reattempt problems outside of class time. However, if you do not do well on an assessment, I may contact you via email to set up an appointment to go over those problems and offer you an opportunity to reattempt a similar version of them during office hours. *Office hour reassessments are given at the discretion of the professor and are not guaranteed opportunities.*

Every problem attempted can earn up to 3 points. For any problem which earns less than 3 points, another version of that problem may be attempted at a later time for a grade replacement using the highest score. Replacing grades in this fashion rewards effort, growth, and deeper understanding of the material.

Once a problem has been mastered (and receives 3 points), you may repeat the process for an additional 3 points. This is regardless of the number of attempts needed to master the problem once. The maximum for any single topic is 6 points, meaning 2 correct problems completed on the same topic. Being able to relearn a topic when needed in the future is a valuable skill, and correctly completing a second problem at a later time may have you practice this skill.

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Celebration of Your Knowledge Days (i.e., Quizzes and Exams):

In-class assessments are opportunities to demonstrate your knowledge on any of the topics. An “exam” will represent the entire class dedicated to taking assessments. Unexcused absences (oversleeping, car trouble, alarm dysfunction, etc.) will only be considered for make-up if the student contacts the instructor *within 24 hours* of the exam.

Homework:

Homework will be divided between online and turn-in assignments.

Online Homework via WebAssign: There will be graded homework assignments using WebAssign, an online homework platform with assignments corresponding to each section covered in the text. Sign up for WebAssign by purchasing an access code (from the bookstore or the site) and use the link in the canvas WebAssign module.

It is the student's responsibility to keep up with assignments.

Turn-in Homework: Throughout the course, there will be several turn-in assignments or essays. I may ask for corrections before accepting the assignment for full credit.

Deadlines and Extensions:

Deadlines and due dates for assignments work the same as in the real world. They exist, and they are important. However, there is a certain amount of flexibility with them. If you need a little longer on

something, you email whoever has set the deadline and ask if you can have more time. This is usually not a big deal, but if it happens a lot, people will start asking you if everything is alright. That is also how deadlines work in this class. Send me a message to ask for an extension on anything you need, and that is mostly fine. If this becomes frequent, we'll need to work together to help keep you up with the work needed in this course.

Section Summaries:

These summaries are meant to show you the material that I you be exploring in the upcoming class. You should read each section *before* class and write a 1 – 2 paragraph summaries of each assigned section. The summary should include all the definitions and formulas presented within the section. If you complete every section summary leading up to an exam, you may prepare and bring with you a “cheat sheet” that consists of *one side of one regular size paper* with anything you want, except definitions and examples. This includes any formulas and instructions to use SPSS.

Once an exam is over, the section summaries restart, and all students are again open to complete all section summaries to have a cheat sheet on the next exam.

Presentation Days:

Periodically I will ask volunteers to present the solution to one of the homework problems. I would like to ask you to present at least once (I will aid if needed). Presentation Days will occur each week in which there is no exam. I will first select problems from the online homework. Volunteers will then be allowed to sign-up for the problem of their choice in class. If you can, please get to class early to write your solution on the board before class starts. If a problem is not already claimed or if the student is absent on the day to present, it is then open to any student.

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Course Aids

This section contains helpful, research-based information regarding the learning process, notetaking, and questions for accessing the different levels of learning (see Bloom's Taxonomy below).

Canvas, Excel Gradebook, and Email Updates:

All course documents will be available on canvas. Overall grades will not be shown on canvas; instead, I provide you with a personal gradebook (an excel file) which you can download on canvas homepage. I also periodically send out an email update of all points and current point totals to each student.

Technology:

You will experience the use of technology in the form of:

- Using a calculator or website to make calculations,
- Using the Desmos online graphing calculator to investigate calculus concepts,
- Using WolframAlpha to perform calculus functions,
- Using Excel to track your progress through the course (and overall grade).

Access for Students with Accommodations Spring 2023:

Florida Southern College and Student Disability Services are committed to providing access and inclusion for students with documented disabilities to courses, facilities (including Residence Halls), and programs. Categories of disabilities could include, but would not be limited to, chronic health diagnoses, learning disabilities, and mental health conditions. If you anticipate or experience barriers to your college experience due to the impact of a disability, please notify the Office of Student Disability Services to discuss the eligibility process for establishing accommodations.

You can reach FSC's Student Disability Services professionals, Dr. Marcie Pospichal and Dr. Sandy Calvert, by e-mail at disabilityservices@flsouthern.edu, in the 1st floor of the Carlisle Rogers Building, by telephone at (863) 680-4197, or by fax at (863) 680-4195. Drs. Calvert and Pospichal are available for both face-to-face and Zoom meetings, by appointment.

For more information on disability accommodations and access, please visit our website at <http://www.flsouthern.edu/campus-resources/student-disability-services.aspx>

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Elements of Success:

Here is a list of behaviors that are good habits for becoming a better learner:

1) Prepare for Class

- Browse the section from the text before class.
- Arrive early and review previous material while you wait.
- Actively listen during class and question everything!
- Concentrate on understanding, not just "calculating".

2) Study

- The secret to mastering mathematics is consistent practice and asking questions. Set aside time each day for review and practice. Write any questions down.
- Form study/homework groups. Research has shown that cooperative learning is best when you converse with those who are different from you (in ethnicity, gender, background, etc.).
- Find a comfortable place for you to study.

3) Question Everything

- If you are confused in class, stop the professor and ask a question.
- While studying or working homework, write any questions down.
- Make use of office hours for questions. The professor is your #1 resource.
- Talk to other students.

4) Practice

- Make use of the tutor service.
- Do more exercises than assigned.
- Review frequently.
- Be willing to spend as much time as necessary.
- Have a positive attitude, *you can do this!*

Note Taking Advice:

Some of the benefits of taking notes during lecture:

- Taking notes promotes deeper cognitive processing.
- Taking notes promotes active listening by paraphrasing, interpreting, and questioning.
- Taking notes helps to cement knowledge in your memory.
- Note takers perform better on exams.

To promote learning at higher cognitive levels, here are some pointers for taking notes:

- Use fewer words & avoid complete sentences.
- Arrive to class early & review previous notes.
- Strive for easy readability.
- Make important parts stand out.
- Draw a picture or concept map to organize or abbreviate relationships within the material.
- Develop your own shorthand.
- Balance writing and listening.
- Ask the professor to pause if the pace is too fast.
- If a part is missed, leave space and fill it in later.
- Review, edit, clarify, and elaborate your notes within 1 day, and again 1 week later.

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Accessing Bloom's Cognitive Operations:

Bloom's Taxonomy is a distinction between different cognitive operations, though there can be overlap between the different categories. To access these different levels, here are a list of questions you can ask, ranging from easier to more challenging and less direct.

Knowledge: Recall facts and basic concepts

- Practice recalling, restating, identifying, and recognizing information.
- Practice restating concept definitions and principles

Comprehension: Explain ideas or concepts

- Restate, paraphrase, and summarize information.
- Identify the correct meaning of concepts or terms.
- Add details to basic content.
- Construct visual representations of main ideas (ex: concept maps, tables, flowcharts, graphs)

Application: Use information in new situations

- Generate new examples and non-examples.
- Practice applying the material to problems to gain speed, consistency, and ease in following problem-solving steps.
- Practice choosing types of problem-solving strategies for different situations.
- Solve simple, structured problems, then complex, unstructured ones.

Analysis: Draw connections among ideas

- Classify concepts, examples, or phenomena into correct categories.
- Summarize different types of thinking strategies.
- Detect and identify any flaws and fallacies in thinking.
- Identify and explain instances of accurate vs. inaccurate applications of thinking strategies.
- Answer questions that require persistence in analyzing data or information.

Synthesis: Justify a stand or position

- Resolve a situation that requires speculation, inquiry, and hypothesis formation.
- Write the limitations or conclusions of a research study.
- Develop products or solutions to fit within available resources.
- Practice reframing a problem.
- Explain phenomena using metaphors and analogies.

Evaluation: Produce new or original work

- Evaluate the validity of given information, results, or conclusions.
- Draw inferences from observations, and make predictions from limited information.
- Identify factors that influence choice and interpretations.
- Detect mistakes, false analogies, and faulty predictions.
- Critique a research study.

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