

Course Syllabus: LB 118: Calculus I, Section 003, SS17

Course Description: LB 118 Calculus I is a one semester introduction to differential and integral calculus. Our section (003) will emphasize applications in the life sciences. In this course you will learn how to use the derivative of a function to analyze the rate at which the function changes. You will also learn how to use the integral of a function to compute the average value of a function and the area of a region bounded by the graph of the function. Many applications to the sciences will be studied in detail.

Why take this course? Completion of this course will prepare you for both LB 119: Calculus II and STT 231: Statistics for Scientists. Many of the in-class activities and homework assignments will develop your ability to utilize computational resources (typically, the spreadsheet program Excel) to make numerical estimates and to develop intuition. Additionally, this course will train you in the algebraic and geometric techniques that are traditional in a standard first semester calculus course.

Logistical Information:

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| Lectures: | MW 10:20–11:40 p.m. |
| Instructor: | Robert Bell |
| Office: | W-32 Holmes Hall |
| Office Hours: | MW 1:00–2:30 p.m. and by appointment |
| Recitation: | Tu 9:10 a.m. |
| LAs: | Andrew Ingersoll & Caitlin Papa |

Required Materials and Online Resources:

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| Textbook (or eBook): | <i>Calculus</i> , 8th edition by J. Stewart |
| Enhanced WebAssign: | EWA is used for online homework. |
| Piazza: | Piazza hosts our class discussion forum. |
| Course Web Page: | http://googleapps.msu.edu/ and see below. |

More on the Course Web Page: <http://googleapps.msu.edu/> references the MSU Google for Education web page. Login with your @MSU e-mail username and password. Select Google Classroom, click that you are a Student, and click Join a Class. Finally, enter the class code that I will provide to you. On our Google Classroom course page you will find a copy of this syllabus, links to Piazza and EWA, copies of in-class handouts, and other resources.

Resources for Success: I want you to succeed in this course. I encourage you to ask questions during class. I am also glad to answer your questions after class, during office hours, on Piazza, and via e-mail. The best way to contact me is by e-mail: rbell@math.msu.edu.

Expectations: You are expected to complete all homework assignments, attend all lectures and recitations, and be an active participant, both as a teammate during in-class activities and as an active listener and challenger of ideas. I have high expectations for hard-work, a positive attitude, and perseverance. You can succeed in the course. I will be your coach, and you will be my team. Let's help one another. I look forward to learning how to be a more successful teacher by working with each of you. I encourage you to keep an open mind. I will work hard to make the goals attainable, clearly defined, and rewarding.

Getting Help: If you are feeling left behind, overwhelmed, or lost, please seek out my help ASAP. Practice asking questions during class. When we are learning, it's very hard to ask a perfectly worded question. In fact, most of the time our questions don't even make sense. But this is how we learn to communicate. So, please ask questions. I will be supportive. I expect all of your classmates to be supportive as well.

Important Dates:

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|------------------|------------------------------|
| Midterm Exam I | February 1, 10:20–11:10 a.m. |
| Midterm Exam II | March 1, 10:20–11:10 a.m. |
| Midterm Exam III | April 5, 10:20–11:10 a.m. |
| Final Exam | May 3, 10:00–12:00 noon. |

Grades: Your grade in the course will be determined as follows:

| Graded Components | | Grading Scale | |
|-------------------|----------|---------------|----------------------|
| Homework | 20% | 4.0 | $90\% \leq x$ |
| Worksheets | 15% | 3.5 | $84\% \leq x < 90\%$ |
| Midterm Exams (3) | 15% each | 3.0 | $78\% \leq x < 84\%$ |
| Final Exam | 20% | 2.5 | $72\% \leq x < 78\%$ |
| | | 2.0 | $66\% \leq x < 72\%$ |
| | | 1.5 | $60\% \leq x < 66\%$ |
| | | 1.0 | $55\% \leq x < 60\%$ |
| | | 0.0 | $x < 55\%$ |

More on Homework: Homework is completed online using Enhanced WebAssign. The homework is graded automatically by WebAssign.

More on Worksheets: Worksheets are completed as part of a team. Worksheets are started in-class and either submitted at the end of class or completed outside of class. Worksheets are graded as follows: 40% of the grade is for attempting all of the questions, 20% is for correctly solving all of the questions, 20% is for sufficiently documenting your reasoning, e.g. showing your work, and 20% is for effectively working as a team.

More on Exams: The three midterm exams and the final exam are completed in-class without notes, textbook, calculator, or other resources. You will

need to study for these exams. Practice exams are not provided, but review problems and partial solutions will be provided as study aids. You can earn additional points (up to one third of the points lost) on midterms by submitting correct solutions; these are due one week after the exam is returned.

Absence & Tardy Policy: If you are absent for an in-class worksheet, then you receive a score of zero. If you are late for an in-class worksheet, you receive a partial score. The lowest two worksheet scores will be dropped at the end of the course. If you know you will be absent for an exam, you must inform me at least one week in advance; then we will arrange for a make-up exam. Make-up exams for students who have a serious illness, family emergency, or other unforeseeable conflict will be handled on a case-by-case basis. I reserve the option to use your answers on the final exam to determine a score for a missed exam; you will not have the opportunity to earn additional points in this case (see More on Exams, above).

Students with Academic Accommodations: If you are eligible for academic accommodations, please register with RCPD, <http://www.rcpd.msu.edu>. Then make an appointment to meet with me. I will help you to succeed in this course.

Academic Honesty Policy: Academic dishonesty in any form (e.g. copying another's work, failure to give proper citations) will not be tolerated. You will receive a score of zero on any graded work involving such instances. Further, these instances will be reported to the deans of Lyman Briggs College for possible disciplinary action. A copy of the Lyman Briggs Honor Code can be found at http://www.lymanbriggs.msu.edu/current_students/academics/AcademicPolicies.cfm

Learning Objectives: The following are the learning objectives for this course. The extent to which these objectives have been met will be measured by your performance on homework, worksheets, and exams.

1. Demonstrate mastery in solving calculus problems. This includes mastering computational methods (e.g. algebraic computation and numerical approximation of derivatives and integrals) as well as demonstrating skill at interpreting graphs, drawing conclusions from computations, and setting up complex and/or multi-step problems.
2. Demonstrate skill in communicating mathematical ideas in writing.
3. Acquire experience in using calculus to model problems in the sciences.
4. Acquire experience in using abstract reasoning to recognize and solve collections of problems which fall into the same category.
5. Acquire experience in working as part of a team to solve complex problems.

Parting Advice: Please think of me as a resource for your learning. I want to help you succeed in this course. For this to work, you need to give me some opportunities to help you. If you are not getting the help you need in

class, send me e-mail, ask questions on Piazza, come to office hours, or make an appointment to meet with me.