

Math 171 – Calculus 1 – Fall 2026 – Sections 1 and 2

Instructor

Joshua Ruiter

Email: jruiter@batten.edu

Office: Eggleston 110

Office hours: by appointment

Section 1

8:30-9:45am MWF

Greer 155

Section 2

11:30am-12:45pm MWF

Greer 260

Textbook: No textbook, just course notes posted on Blackboard.

Mastery-based grading: In this course, your grade depends on how well you eventually master the course topics on a unit-by-unit basis. You will have multiple chances to demonstrate mastery of each unit, and doing poorly on a single quiz doesn't tank your grade. Your final grade is determined by the number of units you master and the number of homework assignments you complete, using this table.

		Homework and worksheets							
		0-8	9-11	12-14	15-17	18-20	21-23	24-26	27+
Units	0-5	F	F	F	F	F	F	F	F
	6	F	D	D	D	D	D	D	D
	7	F	D	C	C	C	C	C	C
	8	F	D	C	C+	C+	C+	C+	C+
	9	F	D	C	C+	B	B	B	B
	10	F	D	C	C+	B	B+	B+	B+
	11	F	D	C	C+	B	B+	A-	A
	12	F	D	C	C+	B	B+	A-	A

Units: Course material is divided into 12 units, each spanning 3 classes. For each unit, there are

- Two paper **worksheets**, handed out on days 1 and 2
- One **online assignment**, due at the start of day 3
- One **quiz**, at the end of day 3

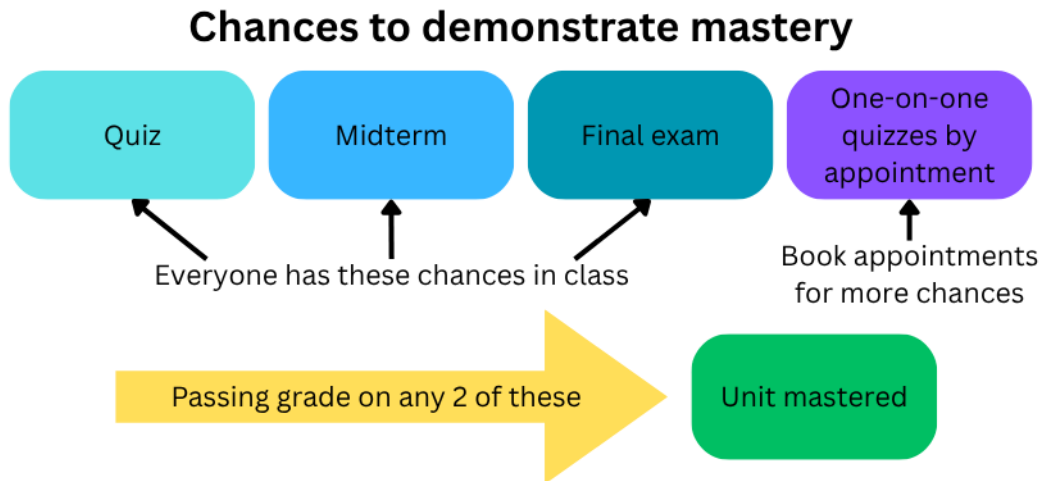
On days 1 and 2, I'll introduce new material and provide time to start on the worksheets. Before day 3, you'll complete the online assignment and any remaining worksheet problems. On day 3, I'll collect worksheets, we'll review, then you'll take the quiz.

Homework: For each unit (except the last unit), there will be **one online assignment** through Pearson MyLab and **two paper worksheets**.

- You'll have time in class to work on worksheets in the first two days of a unit. To get credit for a worksheet, complete it and turn it in at the start of class on the same day as the unit quiz. Worksheets are graded based on completion.
- An online assignment is considered complete if 80% of the possible points are earned by that day, or if 90% of the points are earned by one week later.

There will also be 3 online review assignments, one before each midterm exam. There are 36 total assignments (3 per units 1-11, plus 3 review). Passing the course requires completing at least 9 of these, and an A grade requires completing at least 27.

Unit mastery: For each unit, you have at least three chances at mastery: quiz, midterm, and final. If you pass two out of three then the unit is mastered. If three chances aren't enough, more are available through office hour appointments.



- **Quizzes.** At the end of day 3 of each unit, we'll have a 25 minute quiz. Each quiz is one sheet front and back, and graded as pass/fail with a cutoff of ~75% for a pass.
Failed quizzes can be re-submitted with corrections up to one week later. Corrected quizzes must be 100% correct to pass. Make any corrections in a color of pen/pencil different from both your own writing and any grading marks.
- **Midterm exams.** Midterm exams are Friday September 18 (units 1-3), Monday October 26 (units 4-7), and Wednesday December 2 (units 8-11). Each midterm is divided into unit sections, and each unit section is pass/fail.
- **Office hour assessments.** For make-up quizzes or additional chances, make an office hour appointment through the Google calendar link on Blackboard for a one-on-one oral assessment. These are pass/fail. If you don't pass, you can always make another appointment. Maximum twice per week per student, with exceptions at my discretion.
- **Final exam.** Each unit will have a separate page on the final exam, and each page is graded pass/fail. The final exam for section 1 (8:30am section) is 8am Tuesday December 8 and the final exam for section 2 (11:30am section) is 11:30am Wednesday December 9.

Disability accommodations: Talk to me if you have an accommodations letter so that we can discuss your specific needs. If you do not have a letter, contact disabilityservices@batten.edu.

Attendance and alerts: Attendance is not part of the grade, but I will track it just so that I can submit an academic alert for students who miss multiple consecutive classes.

Office hours: By appointment through a link on Blackboard. If you no-show or cancel an office hour within 12 hours, I will not accept appointments from you for 30 days.

Technology: As a blanket course policy, put away all technology before class. This includes laptops, phones, smart watches, etc. If you have it out, I'll ask you to put it away.

Units

This page describes the content of each unit. For more details, including practice problems, see the individual info sheet for each unit.

- ☐☐ **1 Shapes of curves** – Increasing and decreasing functions, tangent lines and slopes, secant lines, and shapes of basic curves: lines, parabolas, power functions, exponential, trigonometric, implicit curves.
- ☐☐ **2 Extremes and curve sketching** – Extreme values, critical values, concavity, and inflection points.
- ☐☐ **3 Sketching derivatives** – From a graph of a function, sketch the derivative function. More exploration of basic curves: lines, parabolas, cubic functions, power functions, exponential, trigonometric, and logarithmic curves.
- ☐☐ **4 Derivative formulas** – Calculating derivatives of power functions, trigonometric functions, exponential functions, and logarithmic functions. Calculating derivatives using the product rule and quotient rule.
- ☐☐ **5 Chain rule** – Calculating derivatives using the chain rule.
- ☐☐ **6 Applying derivatives to tangent lines** – Finding equations for tangent lines using point-slope form, computing derivatives using implicit differentiation, and finding equations for tangent lines to implicit curves.
- ☐☐ **7 Applying derivatives to curve sketching** – Using derivatives to make positivity diagrams, and interpreting positivity diagrams to sketch curves. Finding and classifying extreme values using the first derivative test.
- ☐☐ **8 Areas and definite integrals** – Definite integrals of piecewise-linear curves, and approximating definite integrals by hand using Riemann sums.
- ☐☐ **9 Antiderivative formulas** – Calculating antiderivatives of power functions, trigonometric functions, exponential functions, and logarithm functions. Solving initial value problems.
- ☐☐ **10 Fundamental theorem of calculus** – Using the fundamental theorem of calculus to evaluate definite integrals.
- ☐☐ **11 Integrals via u -substitution** – Evaluating definite and indefinite integrals using u -substitution (reverse chain rule).
- ☐☐ **12 Separable differential equations** – In-class project on separable differential equations.

Note: Material from Unit 12 will not appear on homework, quizzes, midterms, or the final. To complete this unit, you must:

- Complete a preparatory worksheet.
- Attend class on Friday, December 14 and spend the full class period working on the in-class project with your group.

Schedule

Day	Unit/topic	Assessment
Week 1		
Mon, Aug 24	1 Shapes of curves	Unit 1 quiz
Wed, Aug 26	1 Shapes of curves	
Fri, Aug 28	1 Shapes of curves	
Week 2		
Mon, Aug 31	2 Extremes and curve sketching	Unit 2 quiz
Wed, Sep 2	2 Extremes and curve sketching	
Fri, Sep 4	2 Extremes and curve sketching	
Week 3		
Mon, Sep 7	<i>No class, Labor day</i>	
Wed, Sep 9	3 Sketching derivatives	
Fri, Sep 11	3 Sketching derivatives	
Week 4		
Mon, Sep 14	3 Sketching derivatives	Unit 3 quiz
Wed, Sep 16	Unit 1-3 review	Unit 1-3 midterm
Fri, Sep 18		
Week 5		
Mon, Sep 21	4 Derivative formulas	Unit 4 quiz
Wed, Sep 23	4 Derivative formulas	
Fri, Sep 25	4 Derivative formulas	
Week 6		
Mon, Sep 28	5 Chain rule	Unit 5 quiz
Wed, Sep 30	5 Chain rule	
Fri, Oct 2	5 Chain rule	
Week 7		
Mon, Oct 5	6 Applying derivatives to tangent lines	
Wed, Oct 7	6 Applying derivatives to tangent lines	
Fri, Oct 9	<i>Class cancelled</i>	
Week 8		
Mon, Oct 12	<i>No class, Fall break</i>	Unit 6 quiz
Wed, Oct 14	6 Applying derivatives to tangent lines	
Fri, Oct 16	7 Applying derivatives to curve sketching	

Day	Unit/topic	Assessment
Week 9		
Mon, Oct 19	7 Applying derivatives to curve sketching	Unit 7 quiz
Wed, Oct 21	7 Applying derivatives to curve sketching	
Fri, Oct 23	Unit 4-7 review	
Week 10		
Mon, Oct 26		Unit 4-7 midterm
Wed, Oct 28	8 Areas and definite integrals	
Fri, Oct 30	8 Areas and definite integrals	
Week 11		
Mon, Nov 2	8 Areas and definite integrals	Unit 8 quiz
Wed, Nov 4	9 Antiderivative formulas	
Fri, Nov 6	9 Antiderivative formulas	
Week 12		
Mon, Nov 9	9 Antiderivative formulas	Unit 9 quiz
Wed, Nov 11	10 Fundamental theorem of calculus	
Fri, Nov 13	10 Fundamental theorem of calculus	
Week 13		
Mon, Nov 16	10 Fundamental theorem of calculus	Unit 10 quiz
Wed, Nov 18	11 Integrals via u -substitution	
Fri, Nov 20	11 Integrals via u -substitution	
Week 14		
Mon, Nov 23	11 Integrals via u -substitution	Unit 11 quiz
Wed, Nov 25	<i>No class, Thanksgiving break</i>	
Fri, Nov 27	<i>No class, Thanksgiving break</i>	
Week 15		
Mon, Nov 30	Unit 8-11 review	Unit 8-11 midterm
Wed, Dec 2		
Fri, Dec 4	12 In-class project on differential equations	
Exam week		
Tue, Dec 8	8-10:30am Final exam (8:30am section)	
Wed, Dec 9	11:30am-2pm Final exam (11:30am section)	

Math 171 Syllabus Summary

Table for final grades

		Homework and worksheets							
		0-8	9-11	12-14	15-17	18-20	21-23	24-26	27+
Units	0-5	F	F	F	F	F	F	F	F
	6	F	D	D	D	D	D	D	D
	7	F	D	C	C	C	C	C	C
	8	F	D	C	C+	C+	C+	C+	C+
	9	F	D	C	C+	B	B	B	B
	10	F	D	C	C+	B	B+	B+	B+
	11	F	D	C	C+	B	B+	A-	A
	12	F	D	C	C+	B	B+	A-	A

Track your progress

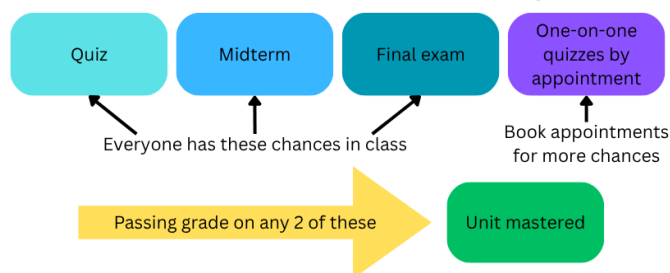
Homework: Check boxes for completed worksheets and homework.

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Units: Check boxes for partial/full mastery.

1 ☐	2 ☐	3 ☐	4 ☐
5 ☐	6 ☐	7 ☐	8 ☐
9 ☐	10 ☐	11 ☐	12 ☐

Chances to demonstrate mastery



Example of how this works with unit 1:

Aug 24, 26 – Lectures on unit 1, practice worksheets

Aug 28 – Review unit 1, quiz on unit 1

Sep 18 – 1st midterm, with a section on unit 1

Dec 7 – Final exam

If you pass the quiz and the unit 1 section of the midterm, unit 1 is mastered. If not, you have another chance on the final exam, or you can schedule an office hour for an extra quiz.

Frequently asked questions:

1. *I missed class because of illness/sports/funeral/overslept, what do I do? Can I make up the quiz I missed?*

Consult Blackboard for the posted notes document, and ask a classmate to see their notes. To make up a quiz, book an office hour appointment.

2. *I didn't turn in my worksheets because I missed class, will you still accept it?*

Mostly no, but exceptions can happen depending on the circumstances.

3. *I'm struggling, what can I do?*

Some ideas to try: Find a classmate to study with. Come chat with me. Book an office hour appointment and come prepared with questions about what is confusing you. Get in touch with the tutoring center.

4. *I did all the homework but am struggling with unit masteries, will my grade take this into account?*

No, that is not how grades are calculated in this class. You must complete at least 6 skills to pass the class. Completing homework or worksheets beyond 27 does not help your grade.