

Syllabus for Integral Calculus - Fall 2020

Math 1B Section 1 CRN 01486 **Math 1BH** Section 1 CRN 26261

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Prerequisite Math 1A or an equivalent course

Required Materials

1. “Calculus Early Transcendentals, 8th Edition” by James Stewart
2. A calculator or apps capable of graphing and numerical integration

Synchronous versus Asynchronous Instruction

Synchronous instruction is instruction that takes place during your regularly scheduled class time. Asynchronous instruction is instruction that gives you flexibility in when you complete the instruction. This class will be a mixture of these two types of instruction. Although we are scheduled to hold class daily between 7:30 and 8:20 in the morning, you are only required to attend class on the first day (a Monday) and afterwards on every Tuesday and Thursday. On these days we will engage in group work, begin lab assignments and take exams. I will also be available via Zoom on all of the other days of the quarter. On these optional days, I will discuss the lectures with those students who are interested and I will answer mathematics questions you might have.

Lectures

Throughout the quarter, you will be expected to keep up with the class lectures on your own time. There will be twenty six different lectures available for this course. All of them will be approximately one hour in length with some degree of variation. There are many lenses through which we can dig into the calculus. This course is designed for you to develop an understanding of why we can do the things that we can do. For this reason you may only use the definitions and theorems which are presented to you in these lectures. Although I encourage you to use as many different sources as possible to give yourself a broader view, it is important to remember the tools as presented in this class. Although you can choose to watch and re-watch these videos when you choose, it is important to note that they connect to quizzes and check-ins and it would be in your best interest to watch the video before these assessments.

Office Hours

My office hours will be held Monday through Friday from 11:00 to 12:00 in the morning. Due to our current status, these office hours will be held online. During this hour I will answer questions of a personal nature over email, and I will answer math questions on the office hour discussion board on Canvas. Please be aware that I will be monitoring 2 different discussion

boards during this time, so it may take some time to cycle through your questions. When asking math questions, please be specific. **Do not just reference a problem number.**

Accommodations

Those of you who need additional accommodations, due to disability, campus-related activities, or some other reason, please meet email me during the first week of class to discuss your options.

Homework

Homework will not be a part of your grade in this course. Some of you will read that sentence and have the mistaken impression that there will be no homework. The only way we can learn mathematics is by practicing mathematics. It is best to think of the homework assignments I assign as minimal problem sets. Students are encouraged to go beyond them. It is recommended that you complete all homework problems from a particular section before we take the quiz covering those sections.

Group Work

The most common type of activity that will take place on days of required attendance will be group work. In my experience, every calculus class understands the lecture right up until the point they have to work through a problem. To help facilitate this process, we will separate into breakout rooms and work with our classmates on a worksheet. This is both a synchronous and asynchronous assignment. During class time you will discuss the problems with each other as well as decide within your group who will be the primary representative for each question. (These tasks should be evenly distributed throughout the group.) For each group work assignment there will be a discussion board. You will have until noon the following day to complete the discussion board.

The discussion board will be the place for you to share your work with each other. For each question the primary representative will be required to make the first post for that question. The primary representative can propose a solution, an idea about how to begin the problem or a specific question that is troubling them about the problem. After this initial post, all members of the group must respond to either agree or disagree, offer answers or insights, or pose new questions. At this point the whole group (including the primary representative) will continue to work together to arrive at a consensus solution.

The only way can learn is through struggle and mistakes. This is why group work will not be graded based on correctness or even completeness. Instead, you will be graded on your collaborations during class time, your work as a primary on problems, and your responses to your group mates on other problems. The synchronous portion of the assignment will be graded out of 3 points and the discussion board will be graded out of 5 points. Group Work will account for 10% of your total grade.

Labs

A half dozen times throughout the quarter we will have lab assignments. The intention behind lab assignments is to encourage students to think more deeply about the material. These labs will be worked on in groups of three or four. Although each member of the group will submit their own lab, you will be graded as a group.

There will be some initial time allotted to these lab assignments during class, but you will need to work on them outside of class to complete them. To help you coordinate this outside work, each lab group will be provided with a discussion board. Part of your grade will be based on your communications on the discussion board. You are more than welcome (and even encouraged) to interact with your group in other ways; however, you need to make sure to document this interaction on your discussion board. This documentation needs to show what interactions are happening in your group. Bad example: "we met in zoom today and did the lab" Good example: attach a transcript of the meeting.

For further information regarding the lab assignments please read the Lab Grading Policies. Each submitted lab will be graded out of 100 points and each lab discussion board will be graded out of 20 points. Labs will account for 10% of your total grade. Your lowest lab score will be dropped.

Midterms

This course will consist of 4 midterms, each of which will represent 10% of your grade. These exams will be taken synchronously, that is to say they will take place during our class meeting time. The midterm will become available at 7:20. You will have until 8:20 to answer all of the questions, if you are unable to answer the question you must briefly state what you tried.

After you have finished the exam you will have until noon to upload a **pdf** of your solutions. If the work you upload does not match your answers you will score a zero for that problem. The bulk of your grade on the exam will be based on the work you show to justify your answers.

Quizzes

Quizzes will represent 20% of your grade. However, all points that are missed on quizzes will be replaced by your final. For example if you average a 60% across all quizzes and then score a 75% on the final, you will earn back 75% of the points you had missed on quizzes so that your final quiz score will be a 90%. In this way quizzes are designed to be a place where you can make mistakes and learn from them. However, your work on this exam should be your own. All students with duplicated work will receive a zero on those questions.

Unlike midterms, quizzes will be given asynchronously. On the day a quiz is assigned, you can click on the quiz at any time after 8:30. You will have 40 minutes to answer the questions and upload a **pdf** of your solutions. You must upload your solutions before midnight on the day the quiz is assigned. In a face to face format, students are given 17-20 minutes for

these quizzes, the additional 40 minutes is to give you time to take a picture or scan your solutions, convert them to a pdf if need be, and then upload them.

In addition to the more formal quizzes we will have more informal check-ins to correspond to each of these lectures. These check-ins serve to keep everyone on pace with the class. They generally consist of a single question related to the corresponding lecture. These questions are likely to be qualitative in nature as opposed to asking you to perform computations.

Quizzes will be scored out of 20 points and check-ins will be scored out of two points. Since all quizzes are protected by the final, I will not accept any quizzes that are not properly submitted.

Final Exam

We are scheduled to take our exam on Monday, December 7, from 7am to 9am. Like our midterms the final will take place synchronously. The final will follow the same format as our midterms. As with the midterms, you will have until noon to upload a **pdf** of your work. The final will represent 20% of your grade.

Honors

If you are taking the honors section of this course you will be required to do two honors assignments. These honors assignments will replace your group work grade.

Grading Scale

Due to the complexity of the material the grading scale we will use is as follows

A : 90-100	B+: 80-84	C+: 67-69	D : 50-59
A-: 85-89	B : 75-79	C : 60-66	F : 0-49
	B-: 70-74		

Student Learning Outcome(s):

*Analyze the definite integral from a graphical, numerical, analytical, and verbal approach, using correct notation and mathematical precision.

*Formulate and use the Fundamental Theorem of Calculus.

*Apply the definite integral in solving problems in analytical geometry and the sciences.