

Math 224/225 - Differential & Integral Calculus - Spring 2018

Syllabus

This syllabus includes information common to all sections. Your own instructor will give you additional details.

Prerequisites

You need a good background in algebra and trigonometry, which is usually satisfied by a High School precalculus course or Binghamton University's Math 108. The Mathematics Department administers a Placement Test, which is designed to identify students who do not have adequate preparation for the course. The Placement Test is an absolute prerequisite for Math 224: you **must** pass it or you will not be allowed to take the course. See <https://www2.math.binghamton.edu/p/calculus/placementtest> for details.

Textbook

OpenStax Calculus, Volume 1

A calculator is not required. In fact, their overuse is heavily discouraged. On some homework problems you may find it useful to use a calculator to check the legitimacy of your answer. Neither calculators nor any other electronic item, for example a cell phone as clock, may be visible to you during tests. The tests will be written such that calculators are not needed.

Objectives and Course Contents

MATH 224 and 225 covers the basics of differential and integral calculus, covering most of the text. The precise sections to be covered are listed in the weekly schedule. The objective of the course is to acquire mastery of the material covered in the course in the following senses:

1. Mathematical understanding, as demonstrated by the ability to solve appropriate mathematical problems.
2. Practical understanding, as demonstrated by the ability to solve appropriate word problems in the sciences, in engineering and in the social sciences.

Help outside of class

The Math Help Room, located in Whitney Hall Room 231 and 233, is staffed by some of the instructors and is open during most business hours. Students can walk in any time it's staffed and can ask questions of any of the instructors there, not just their own instructor. Click here for the Help Room Schedules.

There is free tutoring offered though University Tutoring Services. All information regarding tutoring can be found here: <http://www.binghamton.edu/clt/tutoring-services/index.html>

If you have test anxiety, the Discovery Program has helpful information regarding test-taking strategies, found here: <http://www.binghamton.edu/discovery/resources/index.html>

Exams and Grading

First, be mindful that MATH 224 and MATH 225 are separate courses. You will receive a grade in 224 at the end of that course, and upon successful completion, you will move on to 225 and receive a separate grade there.

Each course will have two types of tests:

The Basic Skills Tests The skills test is a take-home test, with an oral component. You will find the questions on WebWork, and hand in your answers, showing all work in detail. Afterward, you will orally present one of the problems, chosen at random, with different numbers. This can be done in the review class before the exam, or in office hours.

The Midterm and Final will cover higher-level problems. These are paper tests, graded by the instructors, and you will not be allowed to re-take these. They will not include any of the sort of basic computational problems covered by the Basic Skills Tests, although of course you may be required to do some basic computations as part of a bigger problem. These exams are taken during normal class time with the exception of the final exam for MATH 225, which will be taken during finals week in May. Each of these exams count for 30% of your course grade.

Each Basic Skills Test counts for 15% of your final grade. For both courses, the midterm and final exam will each count for 30% of your final grade. Quizzes (approximately one per week) will count for 5% of your final grade. Pre-class warmups will count for 3% of your grade. Written homework and in-class work (class participation) will count for 2% of your final grade.

One final, extremely important, note about grading: instructors do not “give grades.” Instructors simply award points based on the work the student produces. Each student's point total will correspond to a letter grade decided at semester's end, and it will be the same for all sections. Very little subjectivity is involved in the grading process. The scale that will be used to assign grades in Spring 2018 is:

Your Percentage	Grade
93% - 100%	A
90% - 92%	A-
87% - 89%	B+
83% - 86%	B
80% - 82%	B-
75% - 79%	C+
70% - 74%	C
65% - 69%	C-
60% - 64%	D
< 60%	F

Homework and in-class work

Before most class meetings, you will be assigned one or more short videos to watch, as well as “warmup exercises” that are intended to check that you have watched and understood the videos. This is required homework, due before class starts. The videos will cover aspects of the material that you just need to listen to and understand. Covering these aspects on video allows you to re-watch or pause as needed; it also frees up class time for more interactive work.

You will spend much of class time doing guided work, with your instructor coaching, answering questions, and leading discussions on examples as you complete them. Your instructor may grade your work, either by checking it in class or asking you to turn it in at the end of class. Grade will be based on participation and preparedness – it will

not be stressful as long as you come to class prepared. *If you do not view the videos in advance, you will probably not be adequately prepared for class, and you may not get a passing grade for that day.* Class activities will **expand** on the video material, not **review** it.

If you need to miss class for a serious reason, contact your instructor as soon as possible (in advance if possible). Your instructor will give you an alternate assignment in lieu of the classwork.

The videos and in-class work will replace a lot of traditional homework. (The stuff you would be doing in homework in a more lecture-based class is now partially moved to class work.) Your instructor may assign some traditional homework.

We will be using the **WebWork** system for class warmups, homework and the Basic Skills Tests. WebWork is an online question answering program. Your instructor will be able to schedule assignments for you to complete online, and it will guide you and grade your answers.

Make-ups

Make-up exams for the in-class tests will only be given for serious, documented reasons, and all make-ups must be approved by your instructor **before** the test date.

IF YOU HAVE A CONFLICT WITH THE FINAL EXAM AT THE END OF THE SEMESTER, YOU SHOULD TELL YOUR INSTRUCTOR ABOUT IT AT AS SOON AS THE FINALS SCHEDULE IS POSTED.

Academic honesty

You are reminded of Binghamton University's Student Academic Honesty Code.

Cheating on tests or quizzes will be dealt with severely and can result in suspension from the University for multiple semesters. Don't even think about it. Cheating on homework has a less severe penalty, but it will be dealt with nonetheless. Getting a solution from WolframAlpha and putting that solution in your homework is considered cheating.

In-class exams will be returned after they are graded, and an answer key will be available. If you do not understand your mistakes, or you think your exam was not correctly graded, you should immediately bring the test to your instructor for re-evaluation. **DO NOT MAKE ANY CHANGES OR WRITE NEW MATERIAL ON YOUR GRADED EXAM!! Turning in a modified exam for extra points is CHEATING.** Instructors may be making copies of exams before they are returned, so if a student changes a graded exam, it will be clearly shown by comparison with the copy.

Any cases of cheating will be subject to investigation by the Academic Honesty Committee of Harpur College.

General Comments

The structure of this class may be different from what you are used to. In contrast to many courses, where the material is introduced in class, then analyzed in-depth out of class in the homework, **in this class you need to cover the basics before class (by watching the videos), then do the in-depth work actively in the classroom.** We have found that most students come to greatly prefer this format to traditional lecture format (and they learn more too). But it is absolutely essential that you come to every class prepared and participate actively.

Even if you've taken a previous Calculus course, this course is likely to be taught from a more sophisticated

perspective, and if you think this class will be “review” you're probably mistaken.

You should expect to average about 8 hours per week studying outside of class.

In contrast to most high school math classes, if you don't understand the material being covered, you should NOT assume that your instructor will repeat the material until you get it. Ideally, you should ask questions at the time in class. Of course, you'll also probably need to spend time thinking things through on your own, but if you've tried that and are still confused, make use of the Help Room and office hours. Don't wait! The material in this course is very cumulative, so anything you don't understand now is likely to keep giving you trouble as the semester goes on.

The Director of Calculus is Dr. L. William Kazmierczak (kaz@math.binghamton.edu). The Course Coordinator for Fall 2018 is Richard Behr (behr@math.binghamton.edu). Barring exceptional circumstances, queries about the course should be directed to your instructor. If you are unable to get clarification from your instructor, feel free to contact the Course Coordinator.

Students in M courses will demonstrate competence in an area such as calculus, symbolic logic, the logic of computers, the logic of deductive and inductive reasoning, or probability and statistical inference.

From:

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