

## Math 223/224 - Introduction to Calculus and Differential Calculus - Fall 2015

### 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 [www.math.binghamton.edu/Calculus/Screening.html](http://www.math.binghamton.edu/Calculus/Screening.html) for details.

#### Textbook

"Calculus Single Variable" by James Stewart, Eighth Edition (with WebAssign Access Code), Cengage Learning, 20 Channel Center Street, Boston, MA 02210, USA, ISBN: 978-1-305-26663-6. The version available in the University book store covers the material in Calculus II as well.

Logging into WebAssign for the first time you will need to self-enroll yourself with a "Class Key". The "Class Key" will be provided to you by your instructor. You will also eventually need an access code. If you buy the book through the University book store then it comes with an access code. If you do not have an access code, then will need to purchase one on the WebAssign website. You will have temporary free access to WebAssign for 2 weeks into the semester without an access code. If you are repeating Calc 1 and bought a WebAssign Access Code for the course already, you don't have to buy it again. (Exception: if you only purchased one-semester access, you'll need to buy it again.) All information regarding how to log in can be found here [WebAssign Student Quick Start Guide](#)

A calculator is not required. In fact, their overuse is heavily discouraged. Neither calculators nor any other electronic item, e.g. a cell phone as clock, may be visible to you during tests (except as described below on Skills Tests). As an alternative to investing in a graphing calculator, you may wish to try Wolfram Alpha ([www.wolframalpha.com](http://www.wolframalpha.com)), an online query engine that accepts input in informal mathematical language, such as "graph of  $\sin(3x)$  from  $x=1$  to  $x=5$ ".

#### Objectives and Course Contents

MATH 224 and 225 covers the basics of differential and integral calculus, covering most of Chapters 1-5 of the text. The precise sections to be covered are listed in the schedule given on Blackboard. 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 Calculus Help Room room, located in Old Whitney Room 231, 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. The Help Room schedule is found here [http://www.math.binghamton.edu/dept/ugrad/help\\_room.html](http://www.math.binghamton.edu/dept/ugrad/help_room.html)

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

The class will have two types of test:

**Basic Skills Tests** will cover basic computations that you absolutely must be able to do for any class that has Math 224/225 as a prerequisite. There will be two Basic Skills Tests for 224 and two Basic Skills Tests for 225. Because these skills are so important, **you are required to pass each of the Basic Skills Tests with a 70% or higher in order to pass the class.** These tests are administered by computer, with no partial credit, and **you may take each test up to three times.** (More details on this below.) You can find a Practice Test for each Basic Skills Test, with a large pool of practice problems, on WebAssign.

**Midterm and Final** will cover higher-level problems. These are paper tests, graded by your instructor, 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.

Practice midterm and final are available on Blackboard.

Once again, you must pass all the Basic Skills Tests in order to pass the class. In addition, each Basic Skills Test counts for 15% of your final grade. 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 and graded WebAssign will count for 3% of your grade. Homework and in-class work will count for 2% of your final grade.

## Homework and in-class work

Before most class meetings, you'll 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, pause, or whatever works for you to learn the material best. 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 **WebAssign** system for class warmups, homework and for the Basic Skills Tests. There will also be many optional practice problems available on WebAssign. It is important that you buy the version of the textbook with WebAssign access code: otherwise your homework will not be graded and you will not be able to take the Basic Skills Tests. WebAssign is an online question answering program that comes with an e-book. Your instructor will be able to schedule assignments for you to complete online, and it will guide you and grade your answers. You will be given instructions on how to use WebAssign by your instructor.

### More on the Basic Skills Tests

The Basic Skills Tests will be administered by computer in Old Whitney Room G18. They use the same software as the WebAssign homework. Thus, you must have a WebAssign key before you take the tests. For security reasons, you must use the computers provided. You are not *assigned* a particular time to take the test – you will *reserve* times for your tests via a link available on the homepage. For each test, you have a window of about 2 weeks to pass, and you may take the test up to 3 times. See the weekly schedule for the time windows for each test.

The computers are equipped with a very basic calculator to do arithmetic calculations. No other electronic devices are allowed.

The grading is as follows: a score of 90-100 is an A, a score of 80-89 is a B, a score of 70-79 is a C, and any score below 70 is failing. Remember, you must get a passing grade on each Basic Skills Test in order to pass the class. Only the letter grade will matter in calculating your grade for the course, and only your highest score on each skills test is counted.

Example 1. Student X scores a 90 on her first try at Basic Skills Test 1. Thus, she has an A, the highest possible score, so she has no reason to re-take the test.

Example 2. Student Y scores an 80 on her first try at Basic Skills Test 2. She decides to try and improve this, but on her second try she gets a 68, and on her third try she gets a 75. Since her highest score on Basic Skills Test 2 was an 80, she gets a B.

As noted previously, each Basic Skills Test counts for 15% of your course grade. Numerically, an A will count as 100%, a B will count as 89%, and a C will count as 79%. (Remember that you need at least a C on each Basic Skills Test in order to pass the class.)

It is essential that you show up for your test appointments! If you decide not to take a test you've scheduled, then you must cancel at least 3 hours in advance. The testing room is filled to capacity at popular times, and if you make an appointment and then fail to show then you're keeping someone else out. If you don't show up for a test you've scheduled, you will NOT be able to schedule another time that week, and 3 points will be deducted from your highest score for that Basic Skills Test. (For instance, if your highest grade was an A, then it will count as 97%, not 100%.)

You must have an appointment in order to take a test – no drop-ins will be accepted. Appointments can be made until immediately before the test time. However, popular test times tend to fill up well in advance, and you are strongly encouraged to reserve test times as soon as you know that you'll need them. (For instance, schedule your first try at each test at the start of the semester.)

If you need an exception to any of the Basic Skills Test rules above (for instance, an extension due to illness), speak to your instructor **in advance**. All exceptions are at the discretion of your instructor.

The point of the Basic Skills Tests is to keep you on track on the most essential material, and to save you from digging yourself into a hole too deep to get out of. The questions on the Basic Skills Test are, for the most part, much more basic than the questions on the paper tests, and they cover material you need to master in order to

keep up with the class. So, you should *always* take the first possible try at each Basic Skills Test. If you get an A on your first try, then you should feel good that you have a solid foundation for studying the more sophisticated material, and you should charge ahead. If you don't get a grade you're happy with on your first try, this should set off alarm bells! It's time to drop everything and focus on getting the basics! Look at what gave you trouble on the test, and use the Practice Skills Tests, the Help Room, and your instructor to get your difficulties worked out. You might also contact the Discovery Program for tutoring or other academic support.

### 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 MIDTERMS OR FINAL EXAM, YOU SHOULD TELL YOUR INSTRUCTOR ABOUT IT AT THE START OF THE SEMESTER.**

### 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.

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 coordinator for the course is Dr. Alexander Borisov, [borisov@math.binghamton.edu](mailto:borisov@math.binghamton.edu). Barring exceptional

circumstances, queries about the course should be directed to your instructor, not to Prof. Borisov.

Obscure statement NY State requires us to include on this syllabus:

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:

<http://www2.math.binghamton.edu/> - **Binghamton University Department of Mathematical Sciences**

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