# Math 102: Calculus II
# Fall 2020
# Module 1 (24 Aug - 15 Oct)

*Last updated:* August 24, 2020

Monday 115-2p, Tuesday 115-145p,
Wednesday 115-230p, Thursday 115-145p,
Friday 115-230p (all times in EDT)
Zoom link:
https://mtholyoke.zoom.us/j/9092490638?pwd=a01tQlVCZVdFQTVVNDg3bGtra2h2QT09
Meeting ID: 909 249 0638
Passcode: `math102`

## Expectations

As a student, I expect you to: be self-motivated, be proactive, and communicate with me when something is not working.

As your instructor, you should expect me to: be caring, be transparent, and empower you to feel comfortable talking about math.

We should all treat each other with kindness, support, and understanding!

## Instructor

Ashley K. Wheeler *(she/her)*
Office hours: Tuesdays & Thursdays synchronous **(4-5p and 930-1030p EDT)** and by appointment (use the Zoom link above)
Email: `awheeler`

**I will respond to emails as timely as possible, but it can take up to 48 hours.**

## Textbook

*Calculus: Single Variable, 7th Ed.* by Deborah Hughes-Hallet, et al.

Unfortunately, the library cannot loan the text due to the COVID-19 outbreak. The 6th edition is available for free at https://archive.org/details/calculusSingleAndMultivariable, but I realize not everyone can access this site. **Please contact me if you cannot obtain the textbook.** Subject to copyright laws, I will post relevant examples to Moodle. Assigned problem sets will be typed separately.

**Essential technology**

See the Technology guide for information on how to get started.

- ~Moodle~. Course announcements, The forums!, lectures, slides, worksheets, homework assignments & solutions, preview quizzes, and links to Gateway exams.
- ~Zoom~. Synchronous meetings, office hours, and group meetings. You will need a webcam and a microphone. You can also download the Zoom app for your phone.
- ~Gradescope~. Weekly written assignments and your final will be submitted here.
- ~WeBWorK~. Gateway exams are administered here.
- Access to `desmos.com/calculator`. All graphing and calculations can be done using this free site and so there is no need to purchase a calculator for this course.
- *Optional*: ~Open Office Calc~. Free alternative software if you do not already have spreadsheet software to use the Grade calculator. You can also use the College's access to ~Office 365 for Education~.

# Overview of the course (learning goals)

Prereqs are Calc I or AP Calculus AB. In addition to the following list of topics, in this course you will learn how to communicate your mathematical ideas more effectively and gain the confidence to do so!

- **Part I: Integration.**

*Week 1* **Intro to integration techniques:** definite vs. indefinite integrals, integration by substitution, integration by parts

*Week 2* **Advanced integration techniques:** tables, partial fractions, trig substitutions

*Week 3* **Applications of integration:** areas & volumes by discs, washers, and other Riemann sum constructions

- **Part II: Taylor series.**

*Week 4* **Intro to infinite sums:** improper integrals & their convergence, sequences & their convergence, geometric series

*Week 5* **Convergence of series:** Divergence test, Integral test, Comparison test, Limit Comparison test, Ratio test, Alternating Series test

*Week 6* **Power series & intro to Taylor series:** convergence of power series, Taylor polynomials

*Week 7* **Taylor series:** standard Maclaurin series, deriving new Taylor series, applications of Taylor series

## Accessibility statement

If you need official accommodations, you have a right to have these met and kept confidential. For information on who might be eligible for accommodations and the application process, please see the ˜AccessAbility Services website˜. If you are eligible then you will receive an accommodation letter. See me with your letter so we can discuss how to make your approved accomodations work for our class.

All recorded videos will be captioned using ˜Kaltura˜. Lecture videos are accompanied by typed notes.

## Privacy and recording

With remote learning, we must be extra aware of each other's rights to privacy online.

- Your rights: Synchronous lectures will be recorded in the best way possible to protect student privacy. You are not required to have your camera on, you may change your display name to something anonymous, and you are invited to use the chat if you do not feel comfortable speaking.
- My rights: Do not share videos of the course outside of the Moodle site. Your own audio or visual recording of lectures is not permitted without explicit permission from me or without a letter from AccessAbility Services. Violation of these policies is an infraction of the Mount Holyoke Honor Code and academic regulations and will result in disciplinary action.

## Academic integrity a.k.a. the Honor Code a.k.a. don't cheat

You need to put in the hard work in order to learn, thus it is very important for you to follow the Honor Code in all of your work.

- Homework is a great time to practice Academic Integrity. In your solutions write only things you understand. If there is a step where it is fuzzy why or how to do it, acknowledge this. **Copying solutions from the internet or solution manuals counts as cheating.**
- I highly suggest these two resources about citing sources and understanding plagarism: from LITS, ˜How to Use Sources Properly˜ and from the McCulloch Center for Global Initiatives, ˜Academic Responsibility at Mount Holyoke College: What International Students Should Know˜.
- Honor Code violations will be brought to the Academic Honors Board. If you have any questions about what constitutes an Honor Code violation in this class, please talk to me!

# Course work flow details

This course should take 20-24 hours per week. If you are spending more time than that, please come see me! This course is designed so that you can strategically manage your time and not have to work on weekends. :)

We will not use Moodle to record grades. Instead, there is a Grade calculator on Moodle under "Course essentials". It allows you to keep track of your own grade, modulo the 3-2-1s (see below).

**Daily.** There is an asynchronous and a synchronous component of the course.

(1) Before class (asynchronous): 2-3 lecture videos (totaling 15-20 minutes) of the day's lesson will be posted the night before on Moodle, accompanied by slides and often a worksheet. Watch at your own pace, take notes, and write down questions for the synchronous session. If you have time, take a look at the worksheet.

(2) Daily class (synchronous): **starts at 115p EDT on Mon-Fri**. (We start 30 minutes later than scheduled because the asynchronous component counts as classtime!) See the first page of the Syllabus for the Zoom link. We will use this time to answer your questions about the asynchronous videos and complete the worksheet.

Synchronous lectures will be recorded and posted to Moodle. There won't be breakout rooms; instead, **you will be assigned into groups of 3-5**, according to time zones. We may change groups once or twice during the semester. **With your groups you are expected to schedule your own Zoom meetings**, as often as you want, to work on the homeworks and discuss the course material. See the Technology guide for instructions on how to schedule Zoom meetings.

We will not cover new material on Fridays. On Sunday nights I will post to The forums! 1-4 application problems for the week's material. Friday's lecture slides are devoted to solving them.

**Weekly.** A *very* detailed Course calendar is posted to Moodle under "Course essentials".

(1) Homeworks **(25% of grade)**: $\sim$15 problems, posted Mondays on Moodle and due the following week's Wednesday at 1159p EDT on Gradescope. See the Technology guide for instructions on how to upload. There is a **two-day late work grace period. However, there are no redos of written homework**. Graded within a week. Solutions are posted on Saturdays.

At the end of each homework submission, **you must report how often you met with your assigned group**. Also, under each problem, **indicate where you received help**, if any, whether it was via your assigned group, other classmates, office hours, tutors, or websites (or solution manuals, which you're highly discouraged from using!).

**If you spend more than an hour on any one problem, please see me for help!**

**Why no redos on homework?**

The homeworks are meant to challenge you and really get you thinking about the material and its applications. Start early, and use the week to ask questions where you are struggling. Redos enable you to fall behind, but the 2-day grace period is in place to give you a chance to put in your best effort before submitting. Class on Wednesdays is also dedicated to answering questions on the homework, before it is due.

(2) Gateway exams **(35% of grade)**: 7 total, administered on and graded by WeBWorK. (See the Technology guide for how to get started with WeBWorK.) Open 1159p EDT Wednesdays and due 1159p EDT Mondays. **You can attempt the problems as many times as you want during that time, but there will be no late submissions.** Open resources – meaning you may use your notes, consult your groups, etc. to complete them. Solutions are available on WeBWorK after the deadline.

Don't wait till the last minute to complete! WeBWorK always "mysteriously" becomes slow in the hours leading up to a submission deadline.

**Why no late submissions on the Gateway exams?**

In this course the Gateway exams take the role of traditional written exams, and so are timed, to a certain degree. Much of the material in this course builds on each other and so it is important you master previous topics before moving on to the next. This is why instead of late submissions, you are allowed to attempt the problems as many times as you need to.

(3) Preview quizzes (a.k.a. Sunday-Fundays) **(15% of grade)**: open Friday after class on Moodle and due Monday before class. You are expected to browse the following week's sections in the textbook. Graded within 48 hours. The Preview quizzes also include a portion for access check-in and course/material feedback. You can repeat attempts at the questions.

**There will be no Preview quiz for Week 1**, but you are still expected to browse the relevant sections in the textbook (§6.1-6.2, 7.1-7.2).

(4) 3-2-1s (a.k.a. Board quota): option to drop your lowest Preview quiz score. Choose one:

*Option A* Post three *math-related* comments to The forums!, located just below the Course announcements on Moodle. **The forums! are the best way to get immediate feedback and questions answered on assignments.** You are also encouraged to post ideas or solutions to the weekly application problems. **I will check The forums! at least once daily, and jump in when there are enough posts on a particular concept or problem.**

LaTeX: Under Moodle's "Course essentials" is a guide for using LaTeX. **LaTeX is not a requirement** but I highly encourage you to try it out, since it is very handy for incorporating math symbols into your posts. It's also useful (and likely required) if you plan to take higher level math courses, such as Discrete Mathematics and Real Analysis (this is my shameless plug for the math major ;)).

*Option B* Attend office hours (scheduled or by appointment) twice, individually. Scheduled office hours are **Tuesdays/Thursdays 4-5p and 930-1030p EDT**, using the Zoom link at the beginning of the Syllabus.

*Option C* Attend office hours (scheduled or by appointment) once, with your assigned group.

**Attendance and participation**

Attendance and participation are *not required* so much as they are not a part of your grade. However, they are *required* if you will be successful in the course. Synchronous lectures are recorded in case you have to miss class and the course is set up so that you have other opportunities to participate. **You can do as many of these 3-2-1 options as you want**, as many times as you want, and drop up to all of the Preview quizzes.

**Final (25% of grade)**. Cumulative. Scheduled during the College's final examination period. After a term of collaboration with classmates, the final is designed to test your *individual* mastery of the material. Open book, open Moodle, open notes only (no websites, collaboration, or other textbooks). Submit on Gradescope. The final should take about 2 hours to complete, but it is not timed.

**There is no Gateway or Homework for Week 7** (§10.2-10.3). Instead, we will have a day of exercises and review, before reviewing the rest of the course material.

**What to do when things aren't working out**

Learning math is hard and often frustrating! There is no need to despair - everyone goes through this.

If you are having difficulties in meeting the obligations for this course, one of the first things to do is reach out to the appropriate resources on campus to help you: your academic advisor and your class dean for academic issues, ˜Counseling Services˜ for mental health support, the ˜Cultural Centers˜ for when you feel disconnected, or the ˜Title IX Office˜ for support in cases of gender-based discrimination, sexual harassment, or assault.

The next step is to reach out to me for help with the course. Send me an email and/or see me in office hours. You don't have to tell me any details of what's going on, but we can make a plan to get you back on track.