

# Welcome to Calculus at Bucknell!

Are you ready for AY '22-'23?

## College-level mathematics is exciting and empowering!

You develop the skills to analyze interesting and complex problems that translate to many different disciplines. So cool! The Mathematics Department wants your experience to begin in the best way possible. That means helping you build a strong foundation in pre-calculus, namely algebra and trigonometry.

## All Calculus I (MATH 201) students enroll in a required online pre-semester preparation course.

To get everyone prepared, refreshed, and ready to begin your Calculus journey at Bucknell, you'll complete the Prep for Calculus course offered through [ALEKS](#), a research-based learning program developed with support from the National Science Foundation. This 6-week adaptive online course begins with a diagnostic, then constructs a personalized course of study in five fundamental pre-calculus topics: Functions & Graphs; Rational Expressions; Radical Expressions; Exponentials & Logarithms; and Trigonometry. Currently the course is offered in English and Spanish. Once logged in, you can change between the two by clicking the language button at the top right of your screen.

## *Why is this required? Is this some sort of placement exam?*

No, this is not a placement exam. The course is not intended to determine whether or not you should take Calculus, but rather to provide you with individualized preparation to help you be successful when you do. Calculus builds upon pre-calculus concepts, and a proficiency with algebra and trigonometry is necessary to solve higher-level problems. Different high school mathematics courses emphasize different topics, and it is easy to forget some of them after a summer or more without practice. The ALEKS program is an opportunity for you to refresh and fill in those gaps in your pre-calculus knowledge and start the semester with confidence. You have been admitted to Bucknell because we know you can succeed here, and the time you spend now is an investment in that future success.

## Students enrolled in MATH 201 for Fall semester 2022 must complete the course by August 30, 2022.

There are two 6-week periods of ALEKS course availability: one for students planning to take MATH 201 in the Fall semester, and one for students planning to take MATH 201 in the Spring semester. If you are taking MATH 201 this Fall, you complete the ALEKS course by August 30 so that you have a solid foundation at the start of your Calculus course. The ALEKS course will open on July 19, and we recommend you start by August 1, 2022. The course will reopen in December for students enrolled in MATH 201 for the Spring semester.

***I'm an incoming student. How do I know if I am taking MATH 201: Calculus I in the Fall?***

If you are in a declared major, you can see the [model first year programs](#). If you indicated an interest in MATH 201 as an elective, check your course schedule in early August, and then start ALEKS as soon as possible if enrolled. If you are not scheduled to take MATH 201 in the Fall, but hope to add the class during our drop/add period for course schedule changes at the start of the semester, we recommend that you complete the ALEKS course this summer; we will keep your score on file if you end up taking MATH 201 in the Spring semester instead. If you are not sure if you should start in MATH 201: Calculus I or further in our Calculus sequence, please see our information on [Calculus Placement](#). If you are transferring a course from another university or have placement questions, please contact Prof. Kelly Bickel at [kab074@bucknell.edu](mailto:kab074@bucknell.edu).

**You can start the ALEKS course on July 19<sup>th</sup>.**

On July 19<sup>th</sup> a link to the ALEKS course will appear on the ALEKS Prep for Calculus 2022-2023 [Moodle page](#). (Moodle is the course management software Bucknell uses; you'll use it for most of your classes.) Read the information provided. Once you're ready to take the initial diagnostic knowledge check and get started, click on the indicated link and follow the instructions.

***What is this initial diagnostic knowledge check you keep mentioning?***

Once you are logged into ALEKS, you will start with a comprehensive initial diagnostic knowledge check to assess your current skill level. Only use any resources provided by the program – don't use your calculator. ALEKS will then construct a personalized review program for you. Allow three hours for the initial diagnostic test. We recommend, if possible, that you take the entire diagnostic in a single session, though you may save your work and log out of the system at any time.

***Is my grade affected by my initial diagnostic score?***

No. A portion of your Math 201 grade comes from your final ALEKS score. The initial diagnostic is simply used by the program as a starting point to personalize your experience. Just do your best on the diagnostic; it should give you a realistic view of how much review you need before beginning Calculus. Don't worry if you miss a lot of questions; the goal of ALEKS is to help you identify the areas that are most helpful to review and to give you time this summer to work on them.

**Your goal is to master at least 90% of the material in all five content areas by August 30, 2022.**

You can check your progress in each content area by looking at the pie chart shown on your ALEKS account. This will also help you to identify where to target your efforts and to track your progress. You will earn an A- on your ALEKS assignment, part of your MATH 201 grade, if you master at least 90% of the material in all five content areas, and will earn additional credit for any additional progress. (That's 90% in each content slice of your pie chart, not 90% of the total topics in your pie chart.)

***Will it take me all 6 weeks to complete the ALEKS Prep for Calculus course?***

Since the course itself is personalized, we cannot predict how long it will take you to complete it once you finish the diagnostic; everyone will need to spend an individualized amount of time on it, and you will work according to your own schedule. Be assured, though, the time you give the course is time well spent ensuring the best possible start to your university mathematics career!

***My summer is really packed! Can I start on ALEKS earlier?***

We like your enthusiasm! Unfortunately, the start date cannot be adjusted due to our licensing agreement with ALEKS. However, you can get a head start on reviewing topics by visiting the resources on our [Bucknell Calculus Information Page](#); look under “How do I review topics?” The initial diagnostic will help you determine which topics you have already mastered, and set up an individualized study program of an appropriate length to help you master the rest. That means some early studying may decrease your time reviewing with ALEKS. Just make sure to answer the diagnostic questions the best you can without any outside sources. Remember the ultimate goal here is to give you a solid foundation and to provide you with the skills and confidence you need to learn Calculus.

***What if I run into technical difficulties while taking the course?***

For technical problems with the software, access the “Help” option under the account menu on the top right of the screen, or contact the [ALEKS support team](#). For all other problems or for mathematical questions, go to the ALEKS Prep. For Calculus 2022-2023 [Moodle page](#) or email Prof. Sharon Garthwaite, the Math. Dept. ALEKS Coordinator, at [math-precadadmin@bucknell.edu](mailto:math-precadadmin@bucknell.edu).

***Okay, I think I have this, but what do I do if I have any questions now or while I am completing the course?***

Please contact Prof. Sharon Garthwaite, the Math. Dept. ALEKS Coordinator. You can email her at [math-precadadmin@bucknell.edu](mailto:math-precadadmin@bucknell.edu).

***So, while I have you here... do you know any cool math facts?***

Oh my yes. How about:

$$\pi = 4 - 4/3 + 4/5 - 4/7 + 4/9 - 4/11 + 4/13 - 4/15 + \dots,$$

and

$$\pi^2 = 6 + 6/4 + 6/9 + 6/16 + 6/25 + 6/36 + 6/49 + \dots$$

Also, James Garfield, 20<sup>th</sup> President of the United States, discovered a [proof of the Pythagorean Theorem](#).