MATH 113 PRECALCULUS ALGEBRA

COURSE INFORMATION

Section 4, CRN 34063
Bracken Library, BL105E
MWF 3:00 – 3:50 PM, TR 3:30 – 4:45 PM
August 18, 2025 through October 14, 2025

INSTRUCTOR INFORMATION

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Ball State University, Muncie, IN

GETTING HELP IN THE COURSE

We provide time (often referred to as office hours or "drop-in" time) for students to come ask questions on a "come and go" basis. Every week, these hours will be held in the Schwartz Complex in Bracken Library, outside the regular classroom (BL105E) at the times:

Monday: 11 – 11:45 AM and 1:15 – 2 PM (staffed by Kyla)
2 – 2:45 PM (staffed by Jonathan)
Tuesday and Thursday: 11 – 11:30 AM and 1:30 – 2 PM (staffed by Kyla)
2:45 – 3:15 PM (staffed by Jonathan)
Friday: 11 – 11:45 AM and 1:15 – 2 PM (staffed by Kyla)

If these times do not work for you, send me a message (jlcromer@bsu.edu) to schedule a time!
I will often be in the Schwartz Complex in the thirty minutes before class starts. However the times mentioned above are times that I have committed to for the semester.

COURSE DESCRIPTION

Reviews fundamental concepts of algebra; covers functions and their graphs, linear, power, quadratic, exponential, logarithmic, polynomial, and rational functions. Core Transfer Library: Mathematics (IMA 1601). Course rationale and objectives can be found on the final page of this document.

PREREQUISITES

Three years of college preparatory mathematics in high school or equivalent. Not open to students who have credit in MATH 132 or MATH 161 or MATH 165.

COURSE MODALITY AND STRUCTURE

MATH 113 is a face-to-face class. Class time may be spent reviewing class topics through mini-lectures and guided notes, individual problem solving, group work, working on individual learning paths or others.

REQUIRED MATERIALS

- ALEKS 360 access code; with this code, you have access to the text: Precalculus; Miller, Gerken; 2nd edition. *NOTE: At some point during the temporary access provided, students can purchase access to the course materials at the BSU Barnes & Noble Bookstore.*

- TI-30X IIS is the only allowed calculator.

This course is part of Ball State First Day course material delivery program. The bookstore will provide each student with a convenient package containing all required physical books and any digital materials will be integrated into Canvas for this course.

You should have received an email from the bookstore confirming materials provided for each of your courses and asking you to select how you would like to receive any printed components (in-store pick up or home delivery). If you haven't done so already, please confirm your fulfillment preference so the bookstore can prepare your materials. Students who do not want to participate in the First Day program may choose to opt out. For more information about obtaining required course materials, see Ball State First Day.

COURSE ASSIGNMENTS AND ASSESSMENTS

Assignment details, including instructions, relevant readings, due dates, and grading criteria/rubrics will be posted and updated on Canvas. Please check Canvas regularly to stay informed and on track.

To support a learning experience that is responsive to the needs, interests, and pace of our class community, the course schedule may shift over the semester. The most current version of the schedule will always be available on Canvas. I encourage you to check Canvas regularly for updates and contact me if you have any questions.

It is good practice to keep all course materials—notes, quizzes, tests, etc.—for the duration of the course. This helps to clarify any grading questions or mistakes and serves as study material for the final exam.

It is critical for the justification and work that you write for problems to be neat, organized, and easy to follow. Justification and written work will always be required for quizzes and tests. Your justification should demonstrate your thought process from the beginning of the problem to the final answer. If there is not adequate justification for a problem, you may not receive credit.

ALEKS HOMEWORK

Homework will largely consist of modules completed in ALEKS. Modules will be due at 11:59 PM on the due date listed. There may be class time to work on this material; however, you should expect to spend several hours each week working in ALEKS. The time necessary to complete each module will vary.

QUIZZES

Quizzes will be given in the regular class meeting room at the start of class on the dates listed in the course calendar; they may be given on paper or in ALEKS. For each question in the quiz, you will work through the problems given, justifying each step with work.

EXAMS

Exams will be given in the regular class meeting room at the start of class on the dates listed in the course calendar; all exams will be given on paper. There will be three mid-semester exams and a comprehensive final exam for this course. As with quizzes, for each question in the exam, you will work through the problems given, justifying each step with work.

Exams can be made up at my discretion and only if the student makes arrangements no later than the day of the exam.

The final exam will be taken on **Tuesday, October 14 from 5:30 – 7:30 PM**.

PARTICIPATION AND ATTENDANCE

Participation points will be awarded based on a number of activities, which could include the time students spend in class, time learning in ALEKS, or other participation activities. Participation points will be made available to students who are unable to attend class due to University-approved absences; however, it is your responsibility to notify me of the absence and discuss any assignments or points that may have been missed.

Students are expected to attend all classes. Consistent and punctual attendance is expected. Students should notify the instructor once they anticipate being absent for any reason (e.g., funeral) or as soon as possible after the absence begins (e.g., unexpected injury or illness). Documentation may be requested. More detail on BSU Attendance Policies can be found here.

GRADING SCALE

Grades for the course will be assigned based on the following categories:

- 20% ALEKS Homework
- 10% Quizzes
- 40% Mid-semester Exams
- 25% Final Exam
- 5% Attendance and Participation

Students will be assigned letter grades based on their final course grade (x as a percent) as follows:

	B+ $87 \leq x < 90$	**C+** $77 \leq x < 80$	**D+** $67 \leq x < 70$	**F** $x < 60$
A $93 \leq x \leq 100$	**B** $83 \leq x < 87$	**C** $73 \leq x < 77$	**D** $63 \leq x < 67$	
A- $90 \leq x < 93$	**B-** $80 \leq x < 83$	**C-** $70 \leq x < 73$	**D-** $60 \leq x < 63$	

*****Students must earn a passing grade on the final exam in order to pass the class. *****

COURSE POLICIES AND STATEMENTS

FEEDBACK POLICY

I will respond to email from your official Ball State email address within 24 hours during week days (Monday – Friday) and within 48 hours on the weekend. Please include your course and section number (MATH 113 – 4) in the signature of the email.

I will grade your quizzes, assignments, and discussions no later than within 5 school days of submission.

Contact me directly if you have questions or concerns about your performance in class.

LATE ASSIGNMENT POLICY

Late assignments will not be accepted. Internet connectivity and technical issues may occur and impede you from turning in work on time. Turn in work early and often, and set up a back-up plan, such as visiting a local library or borrowing a peer's computer.

In order to account for extenuating circumstances, one quiz score will be dropped.

Canvas will not accept assignments for grading after 11:59 pm EST/EDT on the final day of class.

GRADING POLICY

It is my policy that appropriate evaluation of your academic performance is an integral part of your learning experience. In the absence of mistakes, fraud, bad faith or incompetence, I will be the key decision-maker on the assignment of grades.

If a grading mistake is found, students should notify the me immediately.

COURSE WITHDRAWAL

The Add / Drop period for this course ends August 21, 2025.

The course withdrawal period ends September 19, 2025. Before this date, students can elect to receive a "W" for the course by completing and submitting the proper form. The instructor's permission is not required. For details, see https://www.bsu.edu/about/administrativeoffices/registrar/registration-activities/withdraw-from-classes as well as Degree Requirements and Time Limits in the current Undergraduate Catalog OR Withdrawal Procedures in the current graduate catalog.

UNIVERSITY POLICIES AND STATEMENTS

UNIVERSITY STATEMENT

We are committed to ensuring that all members of the community are welcome, through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse. If you need course adaptations or accommodations because of a disability, please contact the instructor of record as soon as possible. Ball State's Disability Services Office coordinates services for students with disabilities; documentation of a disability needs to be on file in that office before any accommodations can be provided. Disability Services can be contacted at 765-285-5293 or dsd@bsu.edu.

FREEDOM OF EXPRESSION

In this course, we are committed to fostering a learning environment that values intellectual diversity, encourages free expression, and promotes open inquiry. As members of the Ball State Community, we treat each person in the Ball State community with civility, courtesy, compassion, and dignity and respect and learn from differences in people, ideas, and opinions. Please review Ball State University's Statement on Freedom of Expression, the resources on Ball State's Freedom of Expression webpage, and Ball State's Beneficence Pledge.

STUDENT ACADEMIC ETHICS POLICY

Honesty, trust, and personal responsibility are fundamental attributes of the university community. Academic dishonesty and other forms of academic misconduct threaten the foundation of an institution dedicated to the pursuit of knowledge and will not be tolerated. To maintain its credibility and reputation, and to equitably assign evaluations of scholastic and creative performance, Ball State University is committed to maintaining a climate that upholds and values the highest standards of academic integrity. Visit the VPAA's academic integrity website (Students tab) for resources on understanding academic integrity, citing sources properly, and avoiding inadvertent academic dishonesty. To learn about BSU's academic integrity expectations and students' rights, please read the University Student Academic Ethics Policy.

Academic integrity violations include giving or receiving an unfair academic advantage (cheating), presenting someone else's ideas or work as your own (plagiarism), and falsifying academic records. Unless otherwise indicated, you must work independently by yourself. Check with me if you are unsure whether something constitutes academic dishonesty. Examples of academic integrity violations include but are not limited to:

- Using resources not authorized by the faculty member (including devices, AI tools, hidden notes, and open books)
- Using commercial study websites to find answers to graded assignments (Chegg, Course Hero, StudyPool, OneClass, etc.).
- Without the instructor's written permission, giving away, buying, or selling graded assignments class notes, exams, study guides, or other course materials to other students or to third-party vendors (Course Hero, Chegg, 24HourAnswers, etc.).
- Working with another person on any assignment other than authorized group projects.
- Sharing or allowing others to access your files, whether done with permission or not.
- Reusing your own work from another semester, course, or section.
- Sharing answers with others during exams (passing notes, texting, whispering, gesturing)
- Discussing exam questions and answers with students who have not taken the exam.
- Soliciting others to complete work for you.

GENERATIVE AI STATEMENT

All work conducted and/or submitted in this course must be your own, completed in accordance with the Ball State University's Student Academic Ethics Policy. You may not collaborate with or make use of ChatGPT or any other generative AI applications at any time to develop materials submitted in this course.

STUDENT SUPPORT SERVICES

Students can benefit from free tutoring and coaching at the Learning Center, writing practice and feedback at the Writing Center, mental health assistance at the Counseling Center, assistance with basic needs at the Basic Needs Hub, and public speaking assistance at the Speaking Center.

SUBJECT TO CHANGE

This syllabus is subject to change in the event of extenuating circumstances.

ADDITIONAL COURSE INFORMATION

Other important course information can be found at this link.

COURSE RATIONALE

MATH 113 Precalculus Algebra exists to better prepare students for both applied and theoretical calculus courses which are necessary requirements for students in STEM fields. To be successful in calculus, students must have a firm grasp of the algebra topics covered in the course. The thorough coverage of topics seeks to prepare students for the fundamental concepts of calculus needed for a deeper understanding of their respective disciplines.

COURSE OBJECTIVES

The purpose of the course is to foster conceptual understanding, technical skills, and strategic competence in concepts of precalculus from an algebraic viewpoint. Specifically, students in this course will develop the following algebraic skills …

• Use properties of exponents and roots to simplify numerical and algebraic expressions that involve integer and rational exponents and roots. • Use the distributive property to expand and simplify products of algebraic expressions. • Factor algebraic expressions, recognizing special situations, such as the difference of two squares. • Simplify rational expressions by recognizing common factors in the numerator and denominator. • Add, subtract, multiply, and divide rational expressions. • Simplify complex fractions. • Solve equations that reduce to linear equations. • Solve quadratic equations by factoring, by completing the square, and by application of the quadratic formula. • Solve linear inequalities, compound linear inequalities, and absolute value inequalities, and express the solution in interval notation. • Solve equations involving square, cube, and higher roots. • Graph lines and find the equations of lines determined by geometric conditions. • Determine the domain and range of a function given its graph and express the domain and range in interval notation. • Determine the domain of a function that is given in symbolic form (e.g., by avoiding division by zero, taking an even root of a negative number, or taking a logarithm of a nonpositive number), and express the domain in interval notation. • Produce any graph from a library of functions, including the power functions x^n where n is an integer, square and cube root functions, the absolute value function $|x|$, and exponential and logarithmic functions b^x and $\log_b x$. • Graph a piecewise-defined function. • Transform a graph via vertical and horizontal translations, vertical and horizontal stretching/shrinking, and reflection across an axis. • Recognize the alterations in the symbolic expression of a function that produce the above graphing transformations. • Compose functions and write functions as the composition of simpler functions. • Find the intercepts and vertex of the graph of quadratic function, for quadratic functions written in standard, factored, and vertex form. • Convert between the standard, factored, and vertex form of a quadratic function. • Understand the relationship between a polynomial's roots and its linear factors. • Factor low-degree polynomials using the Rational Roots Theorem, long division, or synthetic division of polynomials. • Solve polynomial inequalities, predict the end behavior of a polynomial or rational function, find vertical and horizontal asymptotes of a rational function, and apply these skills to graphing polynomial and rational functions. • Determine whether a function is one-to-one, compute the inverse of a function, and understand the relationship between the graph, domain, and range of a function and its inverse. • Understand and graph exponential functions and solve applied problems involving exponential functions. • Understand the inverse-function relationship between exponential and logarithmic functions, apply this understanding to obtain the graph of a logarithmic function, and convert between exponential and logarithmic equations. • Evaluate numerical expressions involving logarithms, using the definition of a logarithm. • Use properties of logarithms, obtained from the corresponding properties of exponents, to simplify expressions involving logarithms and to solve equations involving logarithms.