



## Master Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: <https://catalog.uvu.edu/>

---

**Semester:** Spring

**Course Prefix:** MATH

**Course Title:** Algebra for Secondary Mathematics Teaching

**Year:** 2025

**Course and Section #:** 3030-001

**Credits:** 3

---

### *Course Description*

For Mathematics Education Majors: Includes the exploration of important conceptual underpinnings, common misconceptions and students' ways of thinking, appropriate use of technology, and instructional practices to support and assess the learning of algebra. Teaches algebra as an extension of number, operation, and quantity; various ideas of equivalence as it pertains to algebraic structures; patterns of change as covariation between quantities; connections between representations (tables, graphs, equations, geometric models, context); and the historical development of content and perspectives from diverse cultures. Focuses on deeper understanding of rational numbers, ratios and proportions, meaning and use of variables, functions (e.g., exponential, logarithmic, polynomials, rational, quadratic), and inverses.

---

### *Course Attributes*

This course has the following attributes:

- General Education Requirements
- Global/Intercultural Graduation Requirements
- Writing Enriched Graduation Requirements
- Discipline Core Requirements in Program
- Elective Core Requirements in Program
- Open Elective

Other: *Click here to enter text.*

---

### *Instructor Information*

**Instructor Name:** Dr. Michael Gundlach

---

### *Student Learning Outcomes*

- 1 Construct mathematical explanations and arguments.
- 2 Analyze definitions and statements of theorems.
- 3 Create examples and counterexamples.
- 4 Draw helpful diagrams and figures.
- 5 Use mathematical terminology and notation.
- 6 Use multiple representations of a mathematical concept.

7 Analyze mathematical errors and misconceptions.

---

## ***Course Materials and Texts***

You will need to use the [MODULES\(2\) Student Workbook](#), which is available for download for free from this course on Canvas. I will likely print off needed pages of this workbook. You will not need to purchase any additional software for this class, though a webcam or video camera of some sort will be needed for some demonstration of teaching assignments.

I would recommend purchasing a 1- or 1.5-inch binder and loose-leaf lined paper to use for this class. I will be printing off worksheets we will be using a great deal in this class, and you'll want a place to store them.

---

## ***Course Requirements***

### **Course Assignments, Assessments, and Grading Policy**

- Assignments: Weekly practice problems related to topics in the class. (20% of overall grade)
- In-Class Activities: Activities distributed in class for students to cooperatively complete in-class as part of their learning. (10% of overall grade)
- Simulations of Practice: Students respond to various teaching scenarios, either through writing or by video recording themselves giving an explanation. (20% of overall grade)
- Midterms: There are two midterms over problems like those in the assignments and activities. (30% of overall grade)
- Final exam: A comprehensive exam over all course topics (20% of overall grade)

Final grades will be rounded to the nearest percent and assigned the corresponding letter grade from the table below.

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Percent	93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	0-59

---

### **Required or Recommended Reading Assignments**

None

---

### **General Description of the Subject Matter of Each Lecture or Discussion**

Each of the topics below take up 1-2 weeks of class time.

1. Sets and Conjectures
2. Relations
3. Functions
4. Functions from a Covariational Viewpoint
5. Natural, Integral, and Rational exponents
6. Real-number Powers and Logarithms
7. Inequalities, Percent Change, and Powers of Two
8. Field Axioms
9. Polynomial Arithmetic
10. Polynomial Division
11. Factors and Roots of Polynomials

## ***Required Course Syllabus Statements***

### **Generative AI**

AI programs are not a replacement for your human creativity, originality, and critical thinking. Although more and more mathematics is being turned over to technology, as a mathematician you cannot replace your own creativity and critical thinking with artificial intelligence. Below are permitted and prohibited uses of generative AI.

The use of generative AI tools (e.g. ChatGPT, Google Gemini, etc.) is permitted in this course for the following activities:

- Brainstorming and refining your ideas on assignments.
- Generating review questions as part of studying.
- Checking answers to out of class assignments.
- Clarifying class material.
- Finding help on difficult topics.

The use of generative AI tools is **not** permitted in this course for the following activities:

- Completing knowledge checks or other out of class assignments for you.
- Impersonating you in classroom contexts, such as by using the tool to compose discussion board prompts/responses assigned to you or content that you put into a Teams/Canvas chat.
- Completing group work that your group has assigned to you, unless it is mutually agreed upon that you may utilize the tool.
- Writing entire sentences, paragraphs or papers to complete class assignments.

Use of generative AI in a prohibited way will be treated as equivalent to plagiarism, and you will be penalized as such.

Remember, you are a future teacher! You need to be prepared to do mathematics on your own without technological crutches.

---

### **Using Remote Testing Software**

This course does not use remote testing software.

This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

---

## ***Required University Syllabus Statements***

## **Accommodations/Students with Disabilities**

Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU [Accessibility Services](#) at [accessibilityservices@uvu.edu](mailto:accessibilityservices@uvu.edu) or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at [DHHservices@uvu.edu](mailto:DHHservices@uvu.edu)

DHH is located on the Orem Campus in BA 112.

---

## **Academic Integrity**

At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their [rights and responsibilities](#). In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in [UVU Policy 541: Student Code of Conduct](#).

---

## **Equity and Title IX**

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – [TitleIX@uvu.edu](mailto:TitleIX@uvu.edu) – 800 W University Pkwy, Orem, 84058, Suite BA 203.

---

## **Religious Accommodation**

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.

To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at [accessibilityservices@uvu.edu](mailto:accessibilityservices@uvu.edu). If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a [specially dedicated space](#) for meditation, prayer, reflection, or other forms of religious expression.