MATH 2010 – Math for Elementary School Teachers I

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

Semester: Spring
Year: 2025
Course Prefix: MATH
Course and Section #: 2010-X01
Course Title: Math for Elementary Teachers I
Credits: 3

Course Description

Math 2010 is the first part of a two-semester sequence for elementary education majors. These two courses provide an overview of the mathematics curriculum in Grades K through 6. The topics in the first semester include problem solving and algebraic thinking, sets, numeration systems, arithmetic of integers, rational numbers, real numbers, elementary number theory, ratios, decimals, and percents.

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: Debra D. Ward, PhD
Office Location: LA 109f
Contact Information: debra.ward@uvu.edu
801-863-8730

Student Learning Outcomes

1. Perform Boolean operations on sets.
2. Convert numerals from one numeration system to another numeration system including Hindu-Arabic, Egyptian, Mayan, Roman, Babylonian, and systems that have bases other than 10.
3. Apply basic properties of and algorithms for addition, subtraction, multiplication, and division of whole numbers, integers, rational numbers, real numbers, and numbers in different bases.
4. Apply concepts of elementary number theory including prime and composite numbers, the greatest common divisor, least common multiple, and divisibility rules of 2, 3, 4, 5, 6, 8, 9, 10, or 11.
5. Express a number as a percent, fraction, or decimal and a repeating decimal as a fraction.
6. Determine whether a number is rational or irrational from its decimal expansion.
7. Use basic problem solving skills including algebraic thinking, ratios and proportions.

Course Materials and Texts

Calculator	A scientific calculator is recommended for this course. Graphing calculators are allowed, though not necessarily recommended. Calculators with a Computer Algebra System (CAS) are NOT allowed
Guided Notes	Printed from Canvas
Optional Text	*Mathematics for Elementary School Teachers* (2013). R. D. Fierro. Cengage Learning.
Computer	Laptop or computer with a webcam and reliable internet access Note: Laptops, tablets, and webcams are available for checkout from the UVU Fulton Library.
Other Tech.	Phone or tablet with the ability to take pictures or that has built in Cam Scanner App (or something similar) to upload for written test and exam work. **All work is to be uploaded as a PDF only.**

Course Requirements

Course Assignments, Assessments, and Grading Policy
Your final grade will be computed using the following percentages:

15%	Homework Assignments	A	93 – 100%	C	73 – 76%
15%	Teaching Activities	A-	90 – 92%	C-	70 – 72%
5%	Course Participation	B+	87 – 89%	D+	67 – 69%
45%	Unit Tests	B	83 – 86%	D	63 – 66%
20%	Final Exam	B-	80 – 82%	D-	60 – 62%
100%	Total	C+	77 – 79%	E	0 – 59%

Homework Assignments: Homework assignments will be given following each individual lesson and will be assigned and submitted through Canvas. To succeed in this course, it is essential to keep up with the homework assignments.

Teaching Activities: You will be assigned several activities that focus on how the material we are learning in the course is related to what you will be teaching in the future. In these activities, you may be asked to find State Standards that align to the material we are covering or you may be asked to design short standards-aligned activities aimed at students in grades K through 6, your future students. The purpose of these activities is for additional practice and to promote teaching ideas.

Course Participation: Your regular participation and engagement with course material is expected, encouraged, and critical to your successful completion of the course. Canvas is organized with a week-by-week schedule that will unlock as the course progresses. To be counted as "attending" class for the week, there will be several lessons that cover the ideas for the week. Each video quiz will contain questions that will you will respond to in order to demonstrate participation.

Unit Tests: There will be three semester tests worth a total of 45% of your course grade. Unit tests contain problems similar to problems from the homework or video lessons. All tests are offered online through Proctorio and are closed notes.

Final Exam: The final exam is comprehensive and will be administered online through Proctorio. The final exam testing schedule is set by the university Please see the UVU Final Exam Guidelines for more information: https://www.uvu.edu/academicscheduling/exam_schedule/guidelines.html.

Required or Recommended Reading Assignments
All required readings will be provided by the instructor through Canvas.

General Description of the Subject Matter of Each Lecture or Discussion

Unit 1: Operations on Whole Numbers

- Section 1.1: Models and properties of addition and subtraction of whole numbers
- Section 1.2: Algorithms for addition and subtraction of whole numbers
- Section 1.3: Models and properties of multiplication and division of whole numbers
- Section 1.4: Algorithms for multiplication and division of whole numbers

Unit 2: Fractions, Decimals, and Percents

- Section 2.1: Models and algorithms for addition and subtraction of fractions
- Section 2.2: Models and algorithms for multiplication and division of fractions
- Section 2.3: Ratios and proportional reasoning
- Section 2.4: Models and algorithms for operations on decimals
- Section 2.5: Models and algorithms for operations on percents

Unit 3: Number Theory and Algebraic Reasoning

- Section 3.1: Divisibility rules for counting numbers
- Section 3.2: Prime and composite numbers, least common multiples, and greatest common factors
- Section 3.3: Models and algorithms for operations on integers
- Section 3.4: Solving linear equations using concrete and abstractrepresentations
- Section 3.5: Solving systems of equations using concrete and abstract representations

Required Course Syllabus Statements

Generative AI
This course requires you to complete assignments that assess your understanding and application of the material. You are expected to do your own work, and the use of artificial intelligence (AI) tools, such as chatbots, text generators, paraphrasers, summarizers, or solvers, is strictly prohibited for any part of your assignments. Using these tools will be considered academic dishonesty and will be handled according to the university's policy. If you have questions about acceptable use of AI tools, please consult the instructor before submitting your work.

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 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

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 – 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. 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.