UVU
UTAH VALLEY UNIVERSITY
SCHOOL of EDUCATION

EDEL 5520
Teaching K-8 Algebraic Reasoning for Practitioners

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Student-instructor conferences by appointment.

Empowering the student through knowledge, preparation, and ethics

The mission of the UVU School of Education endorsement programs at UVU is to prepare individuals for further career choices and advancement. Our professional education programs provide innovative courses and experiences to support the demands of professional standards, intellectual rigor, and collaboration among faculty, community, and other professional stakeholders. To accomplish this task we engage candidates in research and standards based instruction in pedagogy, content, and professional ethics, diversity, community experiences, field work and clinical practice, reflection and decision making, and technology opportunities. Participants acquire and develop knowledge, skills, and dispositions to positively impact students, the community, and themselves as they continue on the journey to life-long learning.

REQUIRED TEXTS

Beckmann, S. (2008). Mathematics for Elementary Teachers (2nd ed.). Boston, MA: Allyn & Bacon.
Van de Walle, J. A., et. Al., (2009). Elementary and Middle School Mathematics, Teaching Developmentally (7th ed.). Boston, MA: Allyn & Bacon.

Current professional journal articles, as assigned.

COURSE DESCRIPTION AND COURSE OBJECTIVES

This course, designed for K-8 teachers, provide practicing teachers with a deeper understanding of algebraic expressions, equations, functions, real numbers, and instructional strategies to facilitate the instruction of this content for elementary students.

Course Objectives

Students in this course will be able to

1 -	Demonstrate in-depth knowledge of problem-solving and reasoning using algebraic notation and functions
2 -	Use a variety of tools, technology, and mathematical representations to explore and model algebra and functions concepts
3 -	Make connections among mathematical topics, concepts, and real-world situations
4 -	Communicate algebraic ideas orally, visually, and in writing, as well as facilitate effective discourse related to these topics in a positive mathematics learning environment
5 -	Examine the variety of ways in which children learn the fundamentals of algebra, functions, problem-solving strategies, and how they construct an understanding of generalization, and use of variables

COURSE REQUIREMENTS

Class participation and attendance

Attendance is important both for developing an understanding of this complex issue and for creating a community of learners that is investigating a crucial educational issue. You must let your professor know if you will be unable to attend class. If you cannot make it to a particular class, please e-mail the instructor to make sure you are aware of any important information or assignments that you missed.

All students will be expected to come to class having completed assigned readings and prepared to discuss class topics.

Reading Responses

These assignments will require you to make classroom connections to the course readings. These might include written reflections, drawings, group activities, etc. that will show your level of understanding about how the readings apply to your own teaching. These assignments will be completed individually.
(Course objectives 3, 4, 5)

Math Journal (3-ring binder may facilitate this)

You will keep a journal of math problem solving and practice exercises that you complete during all class sessions. Portions of your journals will be reviewed by the instructor for your grade for this assignment. (Course objectives 1, 2, 3)

Portfolio of Lessons

This portfolio will contain a collection of at least five complete lesson plans, along with copies of any supplementary tools or materials used in those lessons, designed by you for use with your own students. These five lessons should reflect your understanding of the mathematical content presented in this course and should demonstrate your understanding of effective teaching practices for teaching mathematics. (Course objectives 1, 2, 3, 4, 5)

Lesson Presentation

You will work with a small group of your classmates to develop and present a math lesson on some area related to algebra in grades k-8. This lesson should be based on standards from the Common Core, and should be designed for use with students in a specific grade level.
(Course objectives 2, 3, 4, 5)

Summary of grading criteria

Course Requirements	Points
Class attendance, participation, and professionalism	50
Reading responses	100
Math journal	150
Portfolio of lessons	150
Lesson presentation	50
Final Exam	100
Total points possible	600

COURSE POLICIES

Students with Disabilities

If you have any disability that may impair your ability to successfully complete this course, please let me know as soon as possible. You will also need to contact the Accessibility Services Department (room BU 146), the people who will work with us to coordinate services to provide you access to course requirements. Academic accommodations are granted for all students who have qualified, documented disabilities.

Academic Integrity

Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. Students are expected to complete course assignments in a manner that is consistent with the ethical standards of the Utah Valley University and the School of Education. You are expected to do your own work on assignments and examinations unless they are designed as collaborative efforts. All course assignments and assessments, whether completed individually or collaboratively, should be generated from your own learning. Your work should not be copied from other students, Internet sites, or published materials. If you draw heavily from a particular source of information, that source should be credited and cited in your assignment (using APA style).

IF IT IS DISCOVERED THAT YOU HAVE BEEN INVOLVED IN ANY FORM OF ACADEMIC MISCONDUCT IN THE COMPLETION OF AN ASSIGNMENT OR ASSESSMENT FOR THIS COURSE, YOU WILL RECEIVE A GRADE OF "0" FOR THAT WORK, AND YOUR FINAL GRADE FOR THE COURSE WILL BE SIGNIFICANTLY AFFECTED. IF IT IS DISCOVERED THAT YOU HAVE BEEN INVOLVED IN AN ACT OF ACADEMIC MISCONDUCT ON MORE THAN ONE OCCASION, YOU WILL BE DROPPED FROM THE SCHOOL OF EDUCATION'S PROFESSIONAL PROGRAM.

The University requires all members of the university community to familiarize themselves and to follow copyright and fair use requirements. YOU ARE INDIVIDUALLY AND SOLELY RESPONSIBLE FOR VIOLATIONS OF COPYRIGHT AND FAIR USE LAWS. THE UNIVERSITY WILL NEITHER PROTECT OR DEFEND YOU, NOR ASSUME ANY RESPONSIBILITY FOR STUDENT VIOLATIONS OF FAIR USE LAWS. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action.

Late Work Policy

No late work accepted. Realize that your grade will be affected by absences and missing work. However, one absence and one set of missing assignments is not enough to drop your grade, more than one very likely will.

Course Readings

National Council of Teachers of Mathematics, (2000). *Principles and Standards for School Mathematics*. Reston, VA: NCTM.

Kilpatrick. J, Swafford, J. & Findell, B. (Eds.) (2001) *Adding it up: Helping children learn mathematics*. Washington D.C.: National Academy Press.

DMI- Number operations to algebra
Patterns, Functions

NCTM (2010)Teaching and Learning Mathematics Translating Research for Elementary School Teachers. Reston, VA: NCTM

Progression Document for Common Core
Usiskin (1988)
And more!!!