#### Elementary Math Learning Methods EDU 5360-001/6360-001 Fall 2015

**Instructor:** Linda Sorensen, Ph.D. **Office:** SAEC 2248 **Phone:** 801-587-1743 (office) **Office hours:** By appointment **Email:** linda.sorensen@utah.edu Class meeting: Thursday Time: 1045-1345 hours Room: 1145

# **Required Materials**

- Utah Common Core Standards (CCSS), <u>http://www.corestandards.org/Math/</u> Download the Standards through Grade 6 (and print, if you'd prefer)
- Additional readings (either handed out or available through Canvas)
- Supplies to bring to each class: Composition book/spiral notebook

Container to hold these items:

--Small scissors --Colored pencils (at least six colors)

- --Compass
- --Protractor
- --Glue stick(s)
- --Calculator (inexpensive)
- --Ruler with inches and centimeters
- --Highlighter(s)

## **Recommended Additional Resource**

• Van de Walle, J. A., Karp, K. S., & Bay-Williams, J. M. (2016). *Elementary and Middle School Mathematics: Teaching Developmentally.* 9<sup>th</sup> Edition. Upper Saddle River, NJ: Pearson.

## **Course Description and Purpose**

This course is specifically designed to follow Math 4010 and Math 4020. The mathematical content and ideas learned in those two courses will now be applied to the teaching of mathematics to elementary-aged students.

Teaching elementary mathematics requires...

- --a deep understanding of mathematical concepts
- --knowledge of the spectrum covered by the mathematics curriculum
- --the ability to create a classroom environment where students explore, communicate, and reason mathematically
- --mathematical knowledge for teaching (MKT), which involves:
  - -flexibly understanding the varied ways children learn mathematics
  - -explaining terms and concepts to young students
  - -diagnosing errors--and knowing multiple ways to correct them
  - -judging and correcting textbook treatments of particular topics
  - -using representations accurately in the classroom
  - -knowledge of instructional strategies specific to mathematics
  - -providing students with multiple examples of math concepts, algorithms, proofs, and story problems

The purpose of this course is to help pre-service teachers develop these skills and to provide them with tools to successfully teach all children mathematics.

# **Learning Objectives**

- Analyze and apply the CCSS in lesson planning for elementary classrooms
- Examine the eight Standards for Mathematical Practice
- Apply mathematical knowledge to instruction
- Develop teaching methods that enhance elementary-aged students' understanding of mathematical domains, including:
  - o counting and cardinality
  - o operations and algebraic thinking
  - numbers in base ten
  - measurement and data
  - o geometry
  - o fractions
- Create and use assignment tasks that align with the CCSS
- Utilize a variety of assessment strategies—both formative and summative—in accordance with research-based teaching practices and the needs of individual students
- Develop an understanding of pedagogical philosophy that provides for the differentiated instruction of all students

# **Assignment Information**

**Field Experience Activities (FEAs).** FEAs are varied assignments related to your field experience and are due at the *beginning* of class on the dates indicated on the schedule. Late FEAs may receive little or no written feedback and be docked 10% per day beyond the due date unless other arrangements have been made *prior to class.* Excessive typographical, grammatical, and/or spelling errors detract from your written work and will be reflected in your grade. You are strongly encouraged to work with a classmate to critique and proofread one another's assignments.

**Mini-Lessons.** Class members will teach several small-group (GLGs and SGs) minilessons during class. The content of a given mini-lesson should sometimes be taken from the "teacher's" grade level curriculum and at other times from the curriculum of the adjacent grade levels. Each mini-lesson should be 10 min in duration, followed by another 10 min for groupmember verbal and written feedback. Prior to the teaching the mini-lesson, the "teacher" should provide a mini-lesson plan to the instructor and to the group members.

Assignment Weights and Grading Scale. Weightings are as follows:

Professionalism and participation in class work/class discussions on readings = 10%In-class pre- and post-checkups = 10%Field Experience Activities (FEAs) = 20%Mini-lessons, in class and with group feedback = 20%Final project (unit plan, execution, reflections, and presentation) = 40%

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

## **Policies and Procedures**

#### **Academic Honesty:**

You will be held accountable to high standards for academic integrity and should read and understand the policy on academic integrity as printed in the University of Utah's Student Handbook. Utilizing the ideas, expressions, or words of others without citing the source constitutes plagiarism. Therefore, you must cite sources in ALL your work. Please also note that you may not submit an assignment for this class that has been previously submitted for another course. Please read the Student Code of Academic Conduct available at: <u>http://www.admin.utah.edu/ppmaual/8/8-10.html</u>

#### **ADA Statement:**

If you have special needs, as addressed by the American with Disabilities act (ADA) and need assistance, please notify the Center for Disability Services <u>http://www.sa.utah.edu/ds</u>. Please notify me if you have special needs that I can address in any way, and I will make every effort to accommodate you. "The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 801-581-5020(V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. Upon request, this information is available in alternative formats, such as cassette, Braille, or large print."

## **Important Dates during Fall 2015**:

9/4	Last day to add, drop (delete), elect CR/NC, or audit classes
9/4	Tuition payment due
9/7	Labor Day holiday
10/11-10/18	Fall break
10/23	Last day to withdraw from classes
11/26-11/27	Thanksgiving break
12/10	Classes end
12/14-12/18	Final exam period
12/29	Grades available

Week	Date	Topic(s)	Item(s) due
1	8/27	-Introductions, Syllabus	Bring supplies
-	0/21	-Overview of CCSS: teaching all students	every week from
		-FEA #1 assigned	now on
2	9/3	-Knowing and doing math	FFA #1
~	0/0	-Mini-lesson #1 to GI G	
		-FFA #2 assigned	
3	9/10	-Teaching through problem solving	FFΔ #2
0	5/10	-Mini-lesson #2 to GI G	
		-FFA #3 assigned	
1	9/17	-Planning in a problem solving classroom	<b>FF</b> Δ #3
4	3/17	Mini losson #3 to CLC	ΓLA #J
		FEA #4 assigned	
5	0/2/	Creating assessments for learning	FFA #4
3	3/ 24	-Mini-losson #4 to CLC	$\Gamma LA \pi 4$
		FEA #5 assigned	
6	10/1	Teaching math equitably to all kids	FFA #5
0	10/1	-Mini-losson #5 to CLC	TLA #J
		-FEA #6 assigned	
7	10/8	Using technological tools	FEA #6
	10/0	Mini lesson #6 to CLC	ΓLA #0
0	10/15	No class Fall broak	
0	10/13	Number sense, operations, and fluoney	
3	10/ 22	Mini losson #1 to SC	
		FEA #7 assigned	
10	10/20	Place value concepts and strategies for operations	<b>FFA #7</b>
10	10/29	-Place value concepts and strategies for operations Mini lesson #2 to SC	ГЕА #1
11	11/5	No class Field week	
11	11/ 3	**Evocute unit plan for final project**	
19	11/19	Algebraic thinking and fractions	
12	11/12	Mini lesson #2 to SC	
		FEA #8 assigned	
12	11/10	Desimals percents ratios propertion and	<b>FEA #9</b>
15	11/19	-Decimais, percents, ratios, proportion, and	ΓLA #O
		Mini lesson #4 to SC	
		FEA #0 assigned	
14	11/96	No class Thonksgiving	
14	19/2	Coometry and data analysis	<b>ΕΕΛ #9</b>
15	16/3	Mini lesson #5 to SC	$\Gamma LA \# S$
		$-FFA \pm 10 \text{ assigned}$	
16	19/10	Drobability apparents integers and real numbers	EEA #10
10	12/10	-i robability, exponents, integers, and real numbers	1 LA #10
17	19/17	-Final presentations	Final writa-un
11	16/11		r mai write-up

# <u>Weekly Class Schedule (subject to change):</u>

Key: CCSS = Common Core State Standards; FEA = Field Experience Activity; GLG = Grade-Level Group; SG = Spectrum Group;