Mathematics / Mathematics Education 228 Section 3
Tentative Syllabus, Spring Semester 2019

Place and Time:
Section 3
M 8:00-9:50 am, Sci. A212
W 8:00-9:50 am, Sci. A213

Instructor and Office Hours:
Dr. Senfeng (Thomas) Liang
Office: D329 Science
Email: sliang@uwsp.edu
Mondays, Wednesdays, Fridays 11:10am – 12:00pm, or by appointment

If you need to meet me, notify me in advance (check the google link). Please write **math228-3_ your full official name** in the subject line of the email. For example, it should look like math228-3_First name Last name. Always use **full official name** in All communications (e.g., at the end of an email). **No nick name** please!

Course Description:
MATH 228. Fundamental Mathematical Concepts for Elementary Teachers. 3 cr. Basic concepts and properties of set, number systems, and functions for elementary school math. Prereq: MATH 95 or MATH 100 or placement above MATH 95 or MATH 100 and con reg in MED 228; and declared elementary ed, early childhood ed, or special ed major. If you do not meet the prerequisites, you will not be allowed to take the course. GEP: QL*

MED 228. Teaching Elementary School Mathematics. 1cr. Principles, goals, methods, study of curricular content and assessment techniques; includes field experience.

**** This course will fulfill the Quantitative Literacy (QL) requirement as part of the General Education Program (GEP) for education majors only. Because this course is identified as a QL course in the GEP, assignments and assessments may be collected and copied for use in GEP assessment. Names or identifying marks will be removed from copies of collected artifacts.***

Student Learning Outcomes:
Students will be able to …

1. examine, explore, discuss, and strengthen their understanding of numeration, computation, and problem solving, and other related topics so that the content can be taught knowledgeably and confidently. [Note: This requires content to be stretched **beyond** the level typically taught in k – 8 settings.]
2. explore teaching skills of numeration, computation and problem solving.
3. prepare, conduct, and reflection their teaching through practicums.
4. get familiar with National Council of Teachers of Mathematics' (NCTM) standards and the Common Core State Standards for Mathematics.

Course Content:
1. Numbers and the base-ten system
2. Fractions and problem solving
3. Addition and subtraction
4. Multiplication
5. Multiplication of factions, decimals, and negative numbers
6. Division

Required Materials:

Binders to organize class handouts and assignments; colored pencils, and a scientific calculator (TI-30 type is sufficient; no other media device can be used as a calculator)

Texts:

Beckmann, S. (2018). Mathematics for Elementary Teachers with Activities (5th Ed), (**TEXT RENTAL**)
Van de Walle, J.A., Karp, K.S., & Bay-Williams, J. M. (2012). *Elementary and Middle School Mathematics: Teaching Developmentally* (8th ed.). Boston, MA: Pearson. (**TEXT RENTAL**)
National Council of Teachers of Mathematics. (2000). *Principles and Standards for School Mathematics* (will be available on D2L)
State of Wisconsin Department of Public Instruction. *Common Core State Standards for Mathematics* (will be available on D2L)

Additional Readings: will be provided as handouts (in paper or electronic version).

Tentative Course Requirements:

1 Test/Final:
There will be a midterm and a final. The test and final dates are provided in the schedule. You should avoid making travel plan on these days. For a test you will need to let me know at least two days in advance (barring medical emergency) that you will miss the test.

2 Homework (see class responsibility #5 for more information):
There will be some home assignments for this course. For some questions, you will be required to write down your solution and present during class.

3 *Teaching Practicum*
You will prepare and teach three lessons (one assessment and twos lessons) in a local school classroom. The assessment and lesson plan should demonstrate creativity, knowledge of mathematics, knowledge of mathematics pedagogy, and knowledge of generally accepted pedagogical practices. The content should be within this course. After you finish the teaching, you will write a reflection. More specifics about this activity will provided later.

4 Reading comments:
You will be required to read several chapters from the book of Van De Walle et al. and other materials. For each chapter/article your read, you need to write 3 comments and 2 questions (but not summaries) and review at least three other people's comments (be specific). This activity will enrich discussions of these chapters. Peer reviews like this won't count: "I agree with what you said."

5 Course reflection:
You will be required to write a reflection about what you have learned from this course by the end this semester.

Note1: Peer-review of writings. For all your writings (except #5 course reflection), for some assignments you will need to review 1-3 papers. The reviews will help the authors to write a stronger report. Thus, please try to use supportive and constructive comments. Revised writings based on peer-reviews tend to received higher points than those submitted without any insights from others. For writings need to peer-reviewed, we will use google documents. Thus you need to create a google account. **Fail to complete peer-review will result in losing your points substantially.**

Class Responsibilities:

1 Attendance, Participation and Preparation:
Attendance and full participation are very important for this course. Absences must be documented either medically or justified by other reasons considered valid by the University. **Every time your absence is unexcused, you miss**

2 points up to 3 absences. If you miss 4 or more classes without a valid excuse, you will not earn any credit for attendance and participation. If you miss 8 or more classes without a valid excuse, you will receive a letter grade F for this course. You are responsible for all announcements and assignments made in your absence. Practicum experiences are required for this class. If you miss a practicum experience due to extenuating circumstances, you must make arrangements to make up a missed practicum on your own. Major emergencies will be handled on an individual basis. **Media phone devices are not to be turned on or used during class time.** Activities such as texting messages will results in lose your participation points.

2 Conduct:
I will treat you as professionals and I expect the same in return.

3 Late Homework and make-ups:
No late homework will be accepted unless you have a reason that the university deems sufficiently compelling. (The same is true for tests.) Even if your homework is accepted, you may lose points for being late. All written assignments must be submitted on or before the time/date indicated.

4 Academic Integrity:
"Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors. Students who violate these standards will be confronted and must accept the consequences of their actions." A description of your rights and responsibilities as a member of the UW-SP community can be found at http://www.uwsp.edu/dos/Pages/Academic-Misconduct.aspx

Individual assessments, such as individual assignments and exams, must be completed by you alone. Work completed collaboratively must clearly identify all contributors. *When utilizing outside references, all sources must be fully and accurately cited* (use *APA format*). All essays should be typed, single-spaced with 1" margins on all sides. You must use 12 pt. Times New Roman font. You should learn the APA format at: https://owl.english.purdue.edu/owl/section/2/10/

5 More information of assignments:
All essays should be typed, single-spaced with 1" margins on all sides. **You must use 12 pt. Times New Roman font.** You should learn the APA format at: https://owl.english.purdue.edu/owl/section/2/10/

You may need to do some written assignments. The written assignments measure your understanding of the methods and other mathematical aspects of the course. Correct answers are, of course, crucial, but correct answers without supporting work won't count for much here! You need to write clearly! Legible handwritten solutions are critical. Also remember to circle your final answer.

6 Disability Accommodations: The Americans with Disabilities Act (ADA) is a federal law requiring educational institutions to provide reasonable accommodations for students with dis- abilities. For more information about UWSPs policies, check here:
http://www.uwsp.edu/ stuaffairs/Documents/RightsRespons/ADA/rightsADAPolicyInfo.pdf

If you have a disability and require classroom and/or exam accommodations, please register with the Disability and Assistive Technology Center and then contact me at the beginning of the course. I am happy to help in any way that I can. For more information, please visit the Disability and Assistive Technology Center, located on the 6th floor of the Learning Re- source Center (the Library). You can also find more information here:
http://www4.uwsp. edu/special/disability/

7 Religious Beliefs:

Students' sincerely held religious beliefs will be reasonably accommodated with respect to all examinations and other academic requirements. According to UWS 22.03, you must notify the instructor within the first three weeks of classes about specific dates which require accommodation.

8 Policies: UW-Stevens Point values a safe, honest, respectful, and inviting learning environment. In order to ensure that each student has the opportunity to succeed, a set of expectations for all students and instructors have been developed. This set of expectations is known as the Rights and Responsibilities document, and it is intended to help establish a positive living and learning environment at UWSP. Check here for more information: http://www.uwsp.edu/dos/Documents/CommunityRights.pdf

9 Extra credits: You may earn extra credits in several ways, such as (other opportunities may be possible):

a. If you volunteered to show your work on board you earn 0.5 point for each class. Even if you volunteered twice or more than twice, you earn 0.5 point for each class.
b. **No cell phone use in classroom. You earn FIVE EXTRA POINTS if you never display a cell phone, other mobile devices, or a laptop, in the classroom. You can keep your devices in your bag, but you cannot take them out for any reason (unless with a permission from me). You should follow the requirement starting at the moment you enter the room until you left the classroom when class formally ends. Break time will be counted as well.**

ASSESSMENT INDICATORS (tentative):

Tasks	*counts*	*points*	*notes*
Attendance and Participation	N/A	30	individually
Midterm	1*100	100	individually
Final	1*150	150	individually
Homework	varies	varies	individually
Reading comments	3*9	27	2 points for each reading' comments; 1 point for peer review
Practicum 1 (assessment)	1*5	5	in pairs or individually
Practicum 1 (assessment) reflection	1*5	5	in pairs or individually
Practicum 2 & 3 (Lesson plan)	2*15	30	in pairs or individually
Practicum 2 & 3 (Lesson) reflection	2*15	30	in pairs or individually
Course reflection	1*10	10	individually

Letter Grade	*Percentage*	*Letter Grade*	*Percentage*
A	94-100%	C	73-76.99%
A-	90-93.99%	C-	70-72.99%
B+	87-89.99%	D+	67-69.99%
B	83-86.99%	D	60-66.99%
B-	80-82.99%	F	0-59.99%

NOTE: The same grade will be assigned for both MATH 228 and MED 228.

Besides office hours, there are many resources available to you!

Math and Science Tutoring – Spring 2019

What	Details	Schedule	Cost
Drop-In Tutoring Center	DUC 205	https://www.uwsp.edu/tlc/Pages/dropInTutoring.aspx	Free
Group Tutoring	Based on course section	https://www.uwsp.edu/tlc/Pages/schedules.aspx	Free
One-on-One Tutoring	By appointment	Visit ALB 018 (library basement) to make a request. https://www.uwsp.edu/tlc/Pages/CA-tutoring.aspx	$9.00/session* **Fee waived for students listed as low-income*
Math Room	SCI A113A	https://www.uwsp.edu/mathsci/Pages/tutoring.aspx	Free
MathPad **Math 90, 95, 107 only*	CCC 302	https://www.uwsp.edu/mathsci/Pages/tutoring.aspx	Free
Physics Room	SCI A105	https://www.uwsp.edu/physastr/Pages/Tutoring.aspx	Free

Estimated time needed for this course

University guidelines suggest that students may need to spend 2-3 hours of preparation outside of class for every hour spent in class. MATH 228/ MED 228 is essentially a four-credit class, so YOU should expect to spend 8-12 hours each week devoted to studying and preparing assignments for this class. If you experience difficulty in meeting or understanding course expectations, please come in during office hours, or make an appointment to discuss this with me immediately.

IMPORTANT NOTES:

1. **Except chapters from the Van De Walle textbook, all other reading materials (NCTM and CCSS, etc.) on available on D2L.**
2. **All reading comments are on google.**
3. **Practicum assessment, lesson plans, and reflections need to be submitted on Google AND D2L.**
4. **Assignments on D2L/Google are always due 11:30pm on that day.**
5. **Grades given during the semester may not be disputed after one week of receiving the grade.**
6. **MARK ALL DUE DATES ON YOUR CALENDAR (PLEASE DO NOT EXPECT ME TO REMIND YOU THESE DUE DATES).**
7. **CALCULATORS MAY OR MAY NOT BE USED, DEPENDING ON THE TASKS.**
8. **If you missed all three practicums your course letter grade will be F (no matter what grades you get for other parts).**
9. **The syllabus is tentative, and I reserve the right to interpret and revise it.**
10. **If you find any errors or have any questions, please contact me.**

4. Reading comments due dates (all reading comments are due on Google).

Content (Van De Walle, NCTM, Readings etc.)	Comments/peer review due dates
Reading 1: Chp 11, Developing whole-number place-value concepts pp.192–214*	Reading 1 comment due T. 1/29
Reading 2: Ch 15: Developing Fraction Concepts pp. 290–312*	Reading 2 comment due T. 2/5
Reading 3: CCSS-M grade 1-5*	Reading 3 comment due T. 2/12
Reading 4: Chp 12, Developing strategies for addition and subtraction computation pp.216–228*	Reading 4 comment due T. 2/19
Reading 5: Chp 9, Developing meanings for the operations pp.148–168*	Reading 5 comment due T. 2/26
Reading 6: NCTM Numbers and Operations Standard, pp. 32-36, 78-88, 148-156*	Reading 6 comment due T. 3/5
Reading 7: Chp 13, Developing strategies for multiplication and division computation pp.236–249*	Reading 7 comment due T. 3/26
Reading 8: Ch 16: Developing strategies for fraction computation pp. 315–335*	Reading 8 comment due T. 4/9
Reading 9: Ch 17: Developing concepts of decimal pp. 338–355*	Reading 9 comment due T. 4/30

5. Other due dates: Course reflection due on Sun. 5/5;

6. Other homework assignments' due dates will be announced in classes.

			review and final version due on Sat. 4/21	& D2L
13	M, 4/22	Practicum 3 review		
	W, 4/24	Practicum 3	Practicum 3 reflection: draft due on Fri., 4/26; peer-review and final version due on Sun. 4/28	Google & D2L
14	M, 4/29	6.5 Fraction division from the how-many-units-in-1-group perspective 6.6 Divide decimals	Reading 9 comment due T. 4/30	D2L
	W, 5/1	No class *Reading 9*: Ch 17: Developing concepts of decimal pp. 338–355*	Course reflection due on Sun. 5/5	
15	M, 5/6	Review		
	W, 5/8	Review		
16	M, 5/13	Final exam, 12:30–2:30		

Note:
1. Topics with marked with "*" is from the Van Del Walle book or other resources (CCSS or NCTM, etc.).
2. Unless otherwise stated, teaching practicum assignments, and reading comments are always due 11:30pm of the designated due dates. For example, Reading 1 comment is due T. 1/29, 11:30pm.

MARK ALL DUE DATES ON YOUR CALENDAR (DO NOT EXPECT ME TO REMIND YOU THESE DUE DATES).

3. Teaching practicum due dates

Practicum 1 (assessment) due on Fri., 3/8; Peer-review and final version due on Sun. 3/10
Practicum 1 (assessment) reflection: draft due on Fri., 3/15; peer-review and final version due on Sun. 3/17
Practicum 2 due on Fri., 3/29; Peer-review and final version due on Sun. 3/31
Practicum 2 reflection: draft due on Fri., 4/5; peer-review and final version due Sun. 4/7
Practicum 3 due on Fri., 4/19; Peer-review and final version due on Sat. 4/21
Practicum 3 reflection: draft due on Fri., 4/26; peer-review and final version due on Sun. 4/28

		4.2 Why multiplying by 10 is special in base ten *Reading 6*: NCTM Numbers and Operations Standard, pp. 32-36, 78-88, 148-156*	on Sun. 3/10	
8	M, 3/11	Practicum 1 (Assessment) review		
	W, 3/13	Practicum 1	Practicum 1 (assessment) reflection: draft due on Fri., 3/15; peer-review and final version due on Sun. 3/17	Google & D2L
	M, 3/18	Spring break (No class)		
	W, 3/20	Spring break (No class)		
9	M, 3/25	4.3 The commutative and associative property of multiplication, area of rectangles, and volumes of boxes 4.4 The distributive property	Reading 7 comment due T. 3/26	
	W, 3/27	4.5 Properties of arithmetic, mental math, and single-digit multiplication facts 4.6 Why the standard algorithm for multiplying whole numbers works *Reading 7*: Chp 13, Developing strategies for multiplication and division computation pp.236–249*	Practicum 2 due on Fri., 3/29; Peer-review and final version due on Sun. 3/31	Google & D2L
10	M, 4/1	Practicum 2 review		
	W, 4/3	Practicum 2	Practicum 2 reflection: draft due on Fri., 4/5; peer-review and final version due Sun. 4/7	Google & D2L
11	M, 4/8	**Chp 5. Multiplication of fractions, decimals, and negative numbers** 5.1 Making sense of fraction multiplication 5.2 Making sense of decimal multiplication	Reading 8 comment due T. 4/9	
	W, 4/10	5.3 Extending multiplication too negative numbers 5.4 Powers and scientific notation *Reading 8*: Ch 16: Developing strategies for fraction computation pp. 315–335*		
12	M, 4/15	**Chp 6. Division** 6.1 Interpretations of Division 6.2 Division and fractions and division with remainder		
	W, 4/17	6.3 Why division algorithms work 6.4 Fractions division from the how-many-groups perspective	Practicum 3 due on Fri., 4/19; Peer-	Google

Tentative Schedule – Math/Math Ed 228, Spring 2019

W	Date	Content & Readings (Beckmann, Van De Walle etc.)	Assignments due	Note
1	W, 1/23	Introduction & Warm-up		
2	M, 1/28	**Chp 1. Numbers and the base-ten system** 1.1 The counting numbers 1.2 Decimals and negative numbers	Reading 1 comment due T. 1/29	
	W, 1/30	1.3 Reasoning to compare numbers in base ten *Reading 1*: Chp 11, Developing whole-number place-value concepts pp.192–214*		
3	M, 2/4	1.4 Reasoning about rounding **Chp 2. Fractions and problem solving** 2.1 Solving problems and explaining solutions	Reading 2 comment due T. 2/5	
	W, 2/6	2.2 Defining and reasoning about fractions 2.3 Reasoning about equivalent fractions *Reading 2*: Ch 15: Developing Fraction Concepts pp. 290–312*		
4	M, 2/11	2.4 Reasoning to compare fractions 2.5 Reasoning about percent	Reading 3 comment due T. 2/12	
	W, 2/13	**Chp 3. Addition and subtraction** 3.1 Interpretations of addition and subtraction 3.2 The commutative and associative properties of addition, mental math, and single-digit facts *Reading 3*: CCSS-M grade 1-5*		
5	M, 2/18	3.3 Why the standard algorithms for addition and subtraction in base ten work	Reading 4 comment due T. 2/19	
	W, 2/20	3.4 Reasoning about faction addition and subtraction *Reading 4*: Chp 12, Developing strategies for addition and subtraction computation pp.216–228*		
6	M, 2/25	3.5 Why we add and subtract with negative numbers the way we do	Reading 5 comment due T. 2/26	
	W, 2/27	Midterm Review *Reading 5*: Chp 9, Developing meanings for the operations pp.148–168*		
7	M, 3/4	Midterm	Reading 6 comment due T. 3/5	
	W, 3/6	**Chp 4. Multiplication** 4.1 Interpretations of multiplication	Practicum 1 (assessment) due on Fri., 3/8; Peer-review and final version due	Google & D2L