Mathematics / Mathematics Education 338 Section 1 and 2
Tentative Syllabus, Spring Semester 2018

Place and Time:

Section 1
T R 10:00-11:50 am, Sci. A212

Section 2
T 1:00-2:50 pm, Sci. A212
R 1:00-2:50 pm, Sci. A213

Instructor and Office Hours:

Dr. Senfeng Liang
Office: D329 Science
Email: sliang@uwsp.edu
T, R 3:10 pm– 3:50 pm; W 11:00 – 11:50 am (Time may vary; use the Google link to make an appointment)

If you want to contact me via email, please write **math338_section number _ student's full official name** in the subject line of the email. For example, it should look like math338_1_Full name. Use **full official name** in all communications and WebAssign registration (e.g., at the end of an email). **No nick name** please!

Texts: Bassarear, T. (2012). *Mathematics for Elementary School Teachers* (5th ed.). Belmont, CA: Brooks/Cole. (**TEXT RENTAL**)

Van de Walle, J.A., Karp, K.S., & Bay-Williams, J. M. (2010). *Elementary and Middle School Mathematics: Teaching Developmentally* (7th ed.). Boston, MA: Pearson. (**TEXT RENTAL**)

National Council of Teachers of Mathematics. (2000). *Principles and Standards for School Mathematics*.

State of Wisconsin Department of Public Instruction. *Common Core State Standards for Mathematics.*

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

Materials: Scientific calculator, compass, protractor, ruler, colored pencils or crayons or markers

Prerequisite: Math/MEd. 228 or MEd. 229

Course Goals and Objectives: This course should provide you with the geometric and measurement skills and understanding necessary to be an effective pre-K through sixth grade teacher of mathematics. The course content goes beyond what teachers might generally teach at those grade levels to give you the background and perspective to enable you to be an effective educator.

This course should expand your knowledge and understanding of the National Council of Teachers of Mathematics' (NCTM) vision for mathematics teaching, as well as the Common Core State Standards for Mathematics.

This course should develop your ability to plan and implement meaningful lessons and reflect on the effectiveness of those lessons.

Course Content:

Content for this course includes basic geometric properties, constructions, angles, circles, quadrilaterals, triangles, other polygons, transformations and tessellations, area, volume, surface area, spatial visualization, coordinate geometry, Pythagorean theorem, inductive and deductive reasoning, informal proof, metric and standard measurement and problem solving. Math education content includes the NCTM process standards, geometry and measurement content standards, the NCTM principles and Common Core standards relating to geometry and measurement. **There will be three practicum experiences and you must participate in all three.** Making up a missed practicum is your responsibility and could prove quite difficult.

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 business days in advance (barring medical emergency) that you will miss the test.

2 Homework (see class responsibility #5 for more information)*:*

Homework will include assignments from webassign website and other problems. More information about webassign will be provided. For some questions (may include problems from webassign), you will be required to write down your solution and present during class.

Webassign information (be sure to choose the correct section number and code!):

Math 338, Section 1 - Spring 2018: **uwsp 1158 6984**

Math 338, Section 2 - Spring 2018: **uwsp 2846 3648**

3 *Teaching Practicum*

During the course, you will prepare and teach for three lessons in three days (to be assigned). The lesson plans should demonstrate creativity, knowledge of mathematics, knowledge of mathematics pedagogy, and knowledge of generally accepted pedagogical practices. The lessons plans can be related but should be essentially different. After you finish the teaching, you will write a reflection of each lesson. More specifics about this activity will be distributed later.

5 Leadership activities:

As you are all preparing for careers that are likely to involve you as an instructor, this assignment involves the preparation and leading of the discussion/activities for one of the class sessions. You will be working in group of two to prepare and lead one session (45-50 minutes). Your group is required to meet the instructor at least one week (two weeks for some topics) in advance to talk about your preparation (**not on Fridays**). **When you meet the instructor, you should have your lesson prepared.** Times slots will be made by previous Saturday on google drive (remind me if you did not find it or the time slots do not work for you). Fail to meet the instructor during the previous week (or earlier) with a prepared lesson will suspend your opportunity of conducting leadership and will result in a zero point for this activity.

Leadership lesson should include a homework assignment (suggested but not required if you teach the Van De Walle book chapters) that can be finished in about 20-30 minutes. Set the due dates as the beginning of the following week's first class (unless we do not meet due to teaching practicums or other reasons). Update the due date document on google and upload the ppt on google. The leadership instructors then should collect and grade the homework assignments and send me the point grade report in google spreadsheet or excel (list student's first name in alphabet order). The homework assignments point usually are between 5 to 10 points.

5 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 at least five comments, questions or reflections (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."

6 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 of your writings (except #6 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, even though

positive encouraging comments are appreciated it is more valuable to provide the authors with constructive suggestions. Revised writings based on peer-reviews tend to received higher points than those submitted without any insights from others. 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 and participation:

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. If you have evidences for medical reasons please contact **Disability and Assistive Technology Center** (DATC) (609 Albertson Hall, 715-346-3365) and ask them to notify me the reason of absence.

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. **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 and/or used during class time.** Activities such as texting messages will results in lose your attendance and participation points (will be treated as an absence).

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/

Problems from WebAssign tend to emphasize and reward simply by getting the right answer. 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 (unless with a permission). You can keep your devices in your bag but you cannot take them out for any reason. 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	142	individually
Reading comments	3*6	18	2 points for each reading' comments; 1 point for peer-review
Leadership lesson	1*30	30	in pairs
Lesson 1 (Assessment)	1*5	5	in pairs
Lesson 1 (Assessment reflection)	1*5	5	in pairs
2 Lesson plans	2*15	30	in pairs
2 Lesson reflections	2*15	30	in pairs
Course reflection	1*10	10	individually
total		550	

Your grade will be assigned based on the following scale:

A: $\geq 94\%$	A - : $\geq 90\%$	B+: $\geq 87\%$
B: $\geq 83\%$	B- : $\geq 80\%$	C+: $\geq 77\%$
C: $\geq 73\%$	C - : $\geq 70\%$	D+: $\geq 67\%$
D: $\geq 60\%$	F: $< 60\%$	

NOTE: **The same grade will be assigned for both MATH 338 and MATH ED 338.**

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 338/ M ED 338 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.

Other resources

WRITING ASSISTANCE: Drop-in help and by appointment; TLC; Free!

Math and Science Tutoring – Spring 2018

What	Details	Schedule	Cost
Drop-In Tutoring Center	DUC 205	https://www.uwsp.edu/tlc/Pages/dropInTutoring.aspx	Free
Group Tutoring and Supplemental Instruction	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	May have fee
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

Tentative Schedule – Math/Math Ed 338, section 1 and 2 Spring 2018

W	Date	Content (Bassarear Readings, etc.)	Assignments due	Notes
1	T, 1/23	Introduction		
	R, 1/25	Warm-up Straight lines		
2	T, 1/30	sec. 8.1a, pp. 463-466, playing Tetris; different objects and their functions sec. 8.1b, pp. 472-480, point, line, and plane; measuring angles sec.		
	R, 2/1	sec. 8.1c, angles involving parallel lines sec. 8.2a, pp. 484-495, recreating shapes from memory; all the attributes; classifying figures	Web HW1 (8.1) due on Sun. 2/4	
3	T, 2/6	sec. 8.2b, pp. 495-497, triangle properties; special line segments in triangle sec. 8.2c, pp. 497-503, congruence with triangles		
	R, 2/8	sec. 8.2d, pp. 504-509, convex polygons sec. 8.2e, pp. 509-513, coordinate geometry **NCTM a (geometry), pp. 41-44, 96-102, 164-170**		
4	T, 2/13	construction with compass and straightedge 1 construction with compass and straightedge 2		
	R, 2/15	construction with compass and straightedge 2 construction with compass and straightedge 4	Web HW2 (8.2) due on Sun. 2/18	
5	T, 2/20	sec. 10.2a, pp. 619-625, what is the length of the arc; area sec. 10.2b, pp. 625-626, converting units of area; Pythagorean Theorem* construction with compass and straightedge 5		
	R, 2/22	TBA		
6	T, 2/27	sec. 10.2c, pp. 627-630, understanding the area formula for circles; a 16-inch pizza versus an 8-inch pizza; how big is the footprint; making a fence with maximum area sec. 10.1, pp. 606-615, system of measurement; developing metric sense; converting among units in the metric system		
	R, 3/1	**VdeW Chp19 (measurement), pp. 375-401**	Web HW3 (10.2) due on Sun. 3/4	

		Technology: GeoGebra Midterm review		
7	T, 3/6	Midterm		
	R, 3/8	sec. 8.3a, pp. 518-523, Three-dimensional figures; what do you see; connecting polygons to polyhedral; features of three-dimensional objects **VdeW Chp20 (geometry), pp. 402-433**	Lesson 1 (Assessment) due on Fri., 3/9; peer-review and final version due on Mon., 3/12 Web HW4 (10.1) due on Sun. 3/11	Google & D2L
8	T, 3/13	Practicum 1 (Assessment) review		
	R, 3/15	Practicum 1 (Assessment)	Lesson 1 (Assessment reflection: draft due on Sat., 3/17; peer-review and final version due on Mon. 3/19	Google & D2L
9	T, 3/20	sec. 8.3b, pp. 523-528, prisms and pyramids sec. 8.3c, pp. 528-533, different views of building; connecting two-dimensional representations to three-dimensional objects; different view of a building; isometric drawings; cross sections; nets; cylinders, cones, spheres	Lesson 2 due on Fri., 3/23; peer-review and final version due on Mon., 4/2 Web HW5 (8.3) due on Sun. 4/1	Google & D2L
	R, 3/22	sec. 10.3a, pp. 637-646, surface area and volume* **NCTM b (measurement), pp. 44-47, 102-107, 170-175**		
	T, 3/27	No class		
	R, 3/29	No class		
10	T, 4/3	Practicum 2 review		
	R, 4/5	Practicum 2	Lesson 2 reflection: draft due on Sat., 4/7; peer-review and final version due on Mon. 4/9	Google & D2L
11	T, 4/10	sec. 10.3a, pp. 637-646, surface area and volume (cont.) sec. 10.3b, pp. 646-648, are their pictures misleading; finding he volume of a hollow box; surface area and volume		
	R, 4/12	sec. 9.1a, pp. 543-550, transformations; congruence transformations; understanding translations; understanding reflections; sec. 9.1b, pp. 550-552, understanding rotation; understanding translations, reflections, and rotations; connecting transformations; transformations and art	Web HW6 (10.3) due on Sun. 4/15	

12	T, 4/17	sec. 9.2a, pp. 563-568, symmetry and tessellations; reflection and rotation symmetry in triangles; reflection and rotation symmetry in quadrilaterals; reflection and rotation symmetry in other figures construction with compass and straightedge 6		
	R, 4/19	sec. 9.2b, pp. 568-574, letters of the alphabets and symmetry; patterns; symmetries of strip patterns; the seven symmetries of strip patterns sec. 9.2c, pp. 576-579, symmetry breaking; symmetry of three-dimensional objects; tessellations	Lesson 3 due on Fri., 4/20; peer-review and final version due on Mon., 4/23 Web HW7 (9.1) due on Sun. 4/22	Google & D2L
13	T, 4/24	Practicum 3 review		
	R, 4/26	Practicum 3	Lesson 3 reflection: draft due on Sat., 4/28; peer-review and final version due on Mon. 4/30	Google & D2L
14	T, 5/1	sec. 9.3a, pp. 595-599, similarity; understanding similarity; similarity using an artistic perspective; using coordinate geometry to understand similarity*	Course reflection due on Tue. 5/1 Web HW8 (9.2, 9.3) due on Sun. 5/6	
	R, 5/3	TBA		
15	T, 5/8	Review		
	R, 5/10	Review		
16		Sec. 1, M, 5/14, 12:30-2:30 Sec. 2, W, 5/16, 10:15-12:15	Final	

Notes:

1. Sections with * are relatively difficult to teach for leadership lessons. If you choose any of them, talk to me **TWO weeks** before you teach and still meet me one week before you teach.

2. Shaded sections are not available for leadership lessons due to the difficulty of the content.

3. Chapter 19 and 20 from the White book are available for leadership lessons. NTCM readings may not be discussed in class due to time issue.

4. Unless otherwise stated, Web assignment, teaching practicum assignment, and reading comments are always due midnight of the designated due dates. For example, Web HW1 (8.1) due on Sun. 2/4 means due 11:59pm.

Mark All Due Dates on Your Calendar (Do Not Expect Me to Remind You These Due Dates!)

5. Reading comments due dates

Class Dates	Content (Van De Walle Readings etc.)	Comments/peer review due dates	Note
R, 2/8	1. NCTM a (geometry), pp. 41-44, 96-102, 164-170	Tue. 2/6	Google
R, 2/22	2. Additional reading A	Tue. 2/20	Google
R, 3/1	3. VdeW Chp19 (measurement), pp. 375-401	Tue. 2/27	Google
R, 3/22	4. NCTM b (measurement), pp. 44-47, 102-107, 170-175	Tue. 3/20	Google
R, 3/8	5. VdeW Chp20 (geometry), pp. 402-433	Tue. 3/6	Google
R, 5/3	6. Additional reading B	Tue. 5/8	Google

6. Webassigment due dates

Web HW1 (8.1) due on Sun. 2/4
Web HW2 (8.2) due on Sun. 2/18
Web HW3 (10.2) due on Sun. 3/4
Web HW4 (10.1) due on Sun. 3/11
Web HW5 (8.3) due on Sun. 4/1
Web HW6 (10.3) due on Sun. 4/15
Web HW7 (9.1) due on Sun. 4/22
Web HW8 (9.2, 9.3) due on Sun. 5/6

7. Teaching practicum due dates

Lesson 1 (Assessment) due on Fri., 3/9; peer-review and final version due on Mon., 3/12
Lesson 1 (Assessment) reflection: draft due on Sat., 3/17; peer-review and final version due on Mon. 3/19
Lesson 2 due on Fri., 3/23; peer-review and final version due on Mon., 4/2
Lesson 2 reflection: draft due on Sat., 4/7; peer-review and final version due on Mon. 4/9
Lesson 3 due on Fri., 4/20; peer-review and final version due on Mon., 4/23
Lesson 3 reflection: draft due on Sat., 4/28; peer-review and final version due on Mon. 4/30

8. Other due dates: Course reflection due on Tue. 5/1.

9. **In class homework assignments (such as assignments from leadership lessons) due dates will be announced in classes by leadership lessons' instructors.**