University of Wisconsin
Stevens Point

Course description and content:

Math 345: Fundamental Mathematical Concepts for Elementary Teachers III. 3 cr. Topics from probability, statistics, calculus, and rational and real numbers with an emphasis on problem solving. Prerequisite: MATH 338 and concurrent enrollment in M ED 345. [UWSP Course Catalog]

M ED 345. Teaching Elementary School Mathematics III. 1 cr. Principles, goals, methods, study of curricular content and assessment techniques at appropriate levels; includes field experience. Prerequisite: M ED 338 or 339; and concurrent enrollment in MATH 345. [UWSP Course Catalog]

Class hours: Monday 9:00 – 10:50 in SCI A212; Wednesday 9:00 – 9:50 in SCI A213; Thursday 9:00 – 9:50 in SCI A213

Exam Group: Monday, May 15 12:30 – 2:30

Office hours: Monday 2:00 – 3:00PM; Wednesday 1:00 – 3:00PM; Thursday 1:00 – 2:00; other times available upon request. *Note – Tuesdays and Fridays are set aside for Teacher Candidate supervision. Sometimes I will be in my office on these days, if the door is open, knock first but please come in. Contact me if you would like to meet on Tuesday or Friday to confirm that I will be there.*

Required Textbooks:

ELEMENTARY and MIDDLE SCHOOL
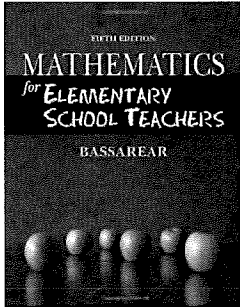MATHEMATICS
Teaching Developmentally
EIGHTH EDITION
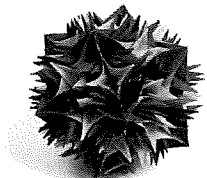
JOHN A. VAN DE WALLE
KAREN S. KARP JENNIFER M. BAY-WILLIAMS

Elementary and Middle School Mathematics: Teaching Developmentally (8th Ed), J. VandeWalle, K. Karp, J. Bay-Williams (2013)

ISBN: 0-13-261226-7

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Mathematics for Elementary School
Teachers (5ᵗʰ Ed), T. Bassarear (2012)

ISBN: 0-8400-5463-7

Other required materials: Scientific calculator, Stiki-notes, ruler, colored pencils or markers. It is highly encouraged to have a 3-ring binder to organize class handouts and assignments. [Note: using cell phones, tablets, or other electronic devices on tests will not be allowed. I will occasionally use a TI-83 or TI-84 for presentations, this is a preferable calculator.]

Course goals:

- The overall goal of this course is for students to develop a rich perspective and background in rational numbers, probability, data analysis 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.]
- Students will examine, explore, and strengthen their understanding of fractions, decimals, and percent along with related topics in number sense. Students will explore ideas and concepts of data collection, interpretation of quantitative information, data description, and determine probabilities both experimentally and theoretically.
- Students will demonstrate the ability to talk enthusiastically and deeply about mathematical concepts/ideas.
- Students will explore methodologies/theories related to the teaching & learning of rational numbers, data analysis, and probability along with effective questioning techniques to develop deep mathematical understanding.
- Preservice teachers will develop and practice habits of reflection and examination of teaching practices.
- Students will strengthen their ability to problem solve and reason with mathematical content.
- Our collective disposition towards mathematics will be enhanced. The utility of mathematics will be appreciated and valued. Mathematics will be seen as a challenging and enjoyable endeavor.

Student outcomes: Pre-service teachers will be expected to develop and show competency in each learning outcome (the corresponding InTASC Teacher Standards are indicated and can be viewed at:
http://www.ccsso.org/Documents/2011/InTASC_Model_Core_Teaching_Standards_2011.pdf

Upon successful completion of this course students will be able to:

- Demonstrate an enhanced ability to provide multiple representations, analyze concepts and potential student difficulties, and communicate about mathematical situations involving rational numbers, probability, data and proportions. (InTASC #4)
- Effectively communicate their personal beliefs relative to the teaching and learning of mathematics both orally and in writing. (InTASC #1, 8, 9, 10)
- Explore the issues and mathematical concepts required for teaching elementary mathematics and effectively communicate ideas and thoughts with peers via consistent dialog. This lays a foundation of confidence with mathematics that prepares prospective teachers for the ever-increasing demands within the profession of elementary teaching...not just able to do the mathematics but able to explain WHY. (InTASC #1, 3, 4, 8)
- Apply and adapt a variety of problem-solving strategies and develop the logical and critical thinking skills necessary to continue to read about and learn mathematical topics and how mathematics is used in real-world situations. (InTASC #5)
- Develop a deeper and broader understanding of mathematics as a whole by exploring the connections that exist among mathematical topics and between mathematics and other content areas. (InTASC #4, 5)
- Demonstrate deep understanding of the big ideas of number sense, both at the elementary level and beyond. (InTASC #4, 5)
- Demonstrate personal and professional skills and habits that prepare one for the work of a public school teacher, especially the practice of reflecting on one's work and the work of students. (InTASC #10)
- Model persistence, conjecturing, and generalizing when working with mathematical situations/problems.
- Demonstrate, through field experience, the ability to create an engaging and inclusive learning situation. (InTASC #2, 3)
- Attend class regularly and participate in a mode appropriate for a pre-service teacher.

Class structure: My teaching metaphor is that teaching mathematics and helping prospective teachers of mathematics is like being the guide of a mountain expedition. As a class we are scaling a steep peak and I must lead the way. This requires all of us to stick together, each of us to expend _effort_ and keep our eyes on the goal (reaching the peak). Yet, I must lead. This role requires that I sense when to push upward, when to rest, when to look back at what we've accomplished, when to re-fuel/replenish...and to make sure we are all prepared and motivated *(continued)*

for the next "adventure." To this end, many class sessions call for an interactive examination of the mathematics which I will lead with discussion/lecture. However, mathematics is not a spectator "sport" which means that since all of us must climb the mountain, we will all be doing mathematics in a manner that emphasizes understanding WHY? Much of our work will emphasize analyzing important mathematical concepts and methodologies and sharing explanations or insights in order to dig deep into our understanding and beliefs. I hope that some lessons will include a vision of what enacting of the lesson might look like in an actual classroom.

Policies & Expectations for Students:

1) Participation is a critical aspect of this class and constitutes 20% of your final grade. Participation will include three components (attendance, engagement, and effort) that will be monitored and assessed on a weekly basis.

- *Attendance*: Students are expected to attend each class session and be on time. Each week students will earn up to 16 points (for each 50 minute block of time missed students will lose 4 points, for each tardy students will lose 1 or 2 points up to 10 minutes late). **Additionally, if student attendance becomes excessive (more than 3 absences) their grade may be dropped by up to 10%. Remember our 2 hour block counts as 2 class periods.**
- *Engagement*: Students are expected to begin upon arrival to class (this can be working on a warmup or talking with the instructor about assignments or other course considerations). During scheduled class time you should be "on task," listening for understanding and relevance, offer ideas, and ask questions that clarify or extend ideas. This includes challenging ideas in a respectful fashion. Students will earn up to 4 points per week for engagement (4 pts. – distinguished, 3 pts. – proficient, 2 pts. – basic, 1 pt. – weak, 0 pts. – unacceptable).
- *Effort & attitude*: Students are expected to consistently complete assignments, demonstrate a reasonable level of enthusiasm for the content, respect the entire cohort, be willing to work in a variety of settings (individual, pairs, small, groups, whole class), be organized in a way that shows thought and preparation, and accept feedback in a profession manner. Students will earn up to 4 points per week using the same scheme described for engagement.

2) Incomplete grades will be given only under special circumstances.
3) Any work that is turned in should be completely your own work. Even though students will be working in groups often each individual is responsible for their own work. Cheating/Academic dishonesty can result in failing the course. Students are expected to adhere to the academic integrity guidelines as stated in the UWSP Community Rights & Responsibilities document (Student Academic Standards and Disciplinary Procedures). Complete information can found at the following location: http://www.uwsp.edu/dos/Pages/Academic-Misconduct.aspx
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4) Programming formulas into a calculator that is used on quizzes or tests is considered cheating.
5) CAS-capable calculators (such as TI-89 or TI-92), calculators with word processing capabilities, cell phones and SMART watches are not allowed on tests and quizzes.
6) Make-up tests/assignments will only be given under very special circumstances. Please look the course calendar and plan accordingly.
7) Calculators cannot be shared during quizzes and tests.
8) Cell phones and computers are a distraction to students and the instructor, please keep these devices silent and out of sight. If there is a situation that requires your attention to a cell phone contact, **please leave the classroom to deal with it.**
9) Please **prepare** for class. Reading the assigned section and completing (or at least a strong attempt with each problem) the assigned problem sets are critical components of success for most students.
10) Some writing assignments will be submitted to a dropbox within D2L. They will be checked for plagiarism. Using someone else's work to complete your assignment is cheating.
11) Assignments are due on the date given in the course calendar or daily lesson outline. These dates may be adjusted in class but only after discussion and notification in class and on D2L. Late work will only be accepted under special circumstances as determined by the instructor. Our D2L course shell and daily lesson outlines handed out at the beginning of each class session will be used often to communicate important course information, please check D2L daily.
12) Please communicate with the instructor regarding challenging circumstances ASAP. Email is the first way to communicate but some issues are more appropriately handled face-to-face. Please work to make all communication timely.

An undergraduate student should expect to spend a minimum of 2 hours on this course outside the classroom for every hour in the classroom.

Disabilities: If you have a disability, it is your responsibility to contact the Office of Disability Services during the first two weeks of classes and discuss accommodations with the instructor. For more information use the following link:
http://www.uwsp.edu/stuaffairs/Documents/RightsRespons/ADA/rightsADAPolicyinfo.pdf

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.

Students' Rights & Responsibilities: In addition to the policies and expectations listed above please refer to the following link for more information concerning your rights and responsibilities as a UWSP student:
http://www3.uwsp.edu/stuaffairs/Documents/RightsRespons/rightsCommBillRights.pdf

Grading will be on a weighted scale:

Grade component	% of overall grade
Attendance/Participation	10
Reading & Writing assignments	10
Weekly assessments/reflections	10
Problems/Problem solving	10
Tests	20
Field Experience (Lesson Plans, Reflections, Participation)	20
Final Exam - Note: Final Exam will be comprised of an individual presentation and a written exam.	20

The following scale will be provided to assign final grade:

94 -100% = A	90 – 93% = A-	87 – 89% = B+
83 – 86% = B	80 – 82% = B-	77 – 79% = C+
73 – 76% = C	70 – 72% = C-	67 – 69% = D+
60 – 66% = D	Less than 60% = F	

***There will be a tentative course calendar posted and continuously updated on D2L as an addendum to this syllabus.**

Teaching is not filling a bucket; it is lighting a fire. Prepare to light some fires!

Welcome! I look forward to sharing the semester with you and wish you the best over the coming weeks.

– Your instructor, Brad Kahrs