



University of Wisconsin
Stevens Point

Teaching Middle School Mathematics I

Math/Math Ed 359

Fall 2016

Instructor: Dr. Brad Kahrs

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Class times:

Monday: 11 - 12:50 in SCI A213

Wednesday: 12 - 12:50 in SCI A212

Thursday: 12 - 12:50 in SCI A212

Office hours:

Mondays: 1 - 3 PM

Wednesdays: 8 - 9 AM

Thursdays: 1 - 3 PM

Course Description: (Math 359) Problem-solving with extended topics from algebra, geometry, trigonometry, analytic geometry, measurement, probability, and statistics. (Math Ed 359) Techniques, research, curricular planning, and teaching of problem-solving.

Course Materials:

- Johnson, K., Herr, T., & Kysh, J. (2012). *Crossing the River With Dogs: Problem Solving for College Students* (2nd Ed.). Hoboken, NJ: Wiley [Text Rental]
- Gurl, T.J., Artzt, A.F., & Sultan, A. (2013). *Implementing the Common Core State Standards through Mathematical Problem Solving: Grades 6-8*. Reston, VA: NCTM [Text Rental]
- Student choice from the *Book List* provided in class for Book Study assignment.
- Other materials: journal (preferred - 1 subject/70 sheets/college ruled), hi-liters, stiki-notes, note cards, ruler, calculator (TI-83 or 84 preferred), different colored pens

Goals & objectives:

1. Students will build new mathematical knowledge and deepen existing knowledge and know-how in Number & Operations, Algebra, Geometry, Measurement, Probability, and Statistics through problem solving.
2. Students will solve problems from within mathematics and in real-world contexts.
3. Students will apply and adapt a variety of strategies to solve problems.
4. Students will monitor the problem solving process in their work and in the work of others.
5. Students will gain experience in a problem-based learning environment using technology when appropriate.
6. Students will communicate and collaborate about mathematical situations.
7. Students will investigate, explore, and question mathematically.
8. Students will examine ways of assessing problem solving tasks.
9. Students will enhance their disposition towards mathematics and strengthen their confidence in doing mathematics.

Student Outcomes:

1. Students will construct a complete description of a problem-solving perspective and practice appropriate for middle school educators that includes attention to issues of content, pedagogy, motivation, assessment and management.
2. Students will demonstrate the ability to facilitate the problem-solving process and present appropriate solutions to a variety of problems.
3. Students will research ideas and writings related to problem solving, summarize the research and present their findings, illuminating the connections to problem solving.
4. Students will consistently demonstrate competence with a variety of problem-solving strategies in various contexts.

Policies & Expectations for Students:

1) Participation is a critical aspect of this class and constitutes 10% 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 day students will earn points for attendance (4 pts. – present and on time, 2 pts. – present but tardy, 0 pts. – absent). **Additionally, if student attendance becomes excessive (more than 4 absences) their grade may be dropped by up to 10%.**

- **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>

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) and calculators with word processing capabilities are not allowed on tests and quizzes.

6) Make-up work 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. Please 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 best venue. Please work to make email 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 (components/weighting of grade and scale for assigning final grades):

- Problem sets with presentations & quizzes 25%
- Participation (includes attendance, in-class contributions & habits, 10%
online discussions and journal writing)
- Practicum 15%
(implemented lesson plan, attendance and follow-up/reflection)

- Midterm Exam 10%
- Reading, writing, reporting 30%
 - technology & problem solving (5%)
 - Book study (10%)
 - The Perfect Problem Solving classroom (15%)
- Final Exam 10%

[Note: The above percentages are approximate and may be altered slightly over the semester. If there is any alterations this will be discussed and communicated to all.]

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.

“Not everything that counts can be counted, and not everything we count, counts.” – Albert Einstein

“Since 1980 when the National Council of Teachers of Mathematics (NCTM) published *An Agenda for Action*, which included the recommendation that “problem solving be the focus of school mathematics” (p. 1), classroom teachers and curriculum writers have attempted to put this recommendation into practice. My work as a mathematics educator continually illuminates the challenge of creating a classroom environment that embodies authentic problem solving. It seems that there exist barriers to a consistent and genuine practice of problem solving at all levels of mathematics education.”

