Syllabus for Math 132: Problem Solving in Algebra, Probability and Statistics

MTWTh 11:00am-12:15pm, Van Hise 578
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Course website: www.math.wisc.edu/~mrjulian/sum16.html

1 Class Materials

Instead of a textbook, this course follows a series of worksheets in the Math 132 course packet. We will work through and discuss these worksheets in class. I will not be collecting any of the work that we do in the course packet, but it would be in your best interest to write your solutions to these worksheet problems clearly and thoroughly to help you study for the exams. You should also bring a notebook or loose leaf paper to class so you can take additional notes as needed.

2 Course Goals

This is not an education course, not remedial math course, and not a refresher course. I am not here to teach you how to teach math, but to:

1. prepare you for a deep understanding of the probability/statistics/data analysis and algebra that you will teach (to understand it as more than just a list of rules and formulas) so that you can be innovative and evaluate the best ways to present and teach material to your students

2. teach you how to clearly communicate mathematics both in speaking and in writing (something that is very different from simply understanding and using math)

3. build confidence in your mathematical abilities, so that you learn to trust your own solutions and your own understanding

4. build appreciation for mathematics as both useful and beautiful, so that you can develop this in your own future students
3 Grading

Your grade will be determined by your homework, participation, quizzes, and three exams. The average GPA in an education course is generally much higher than that of a math course. Since this is a math department course, you should be aware that hard work alone is not sufficient to guarantee an A in this course. Passing this course means that the University, the math department, and I all certify that you have mastered the mathematical content necessary to teach math in an elementary or middle school setting. I take this responsibility very seriously.

3.1 Homework- 30%

There will be about 8 homework assignments this semester. You are welcome to work together on homework, but you must write up solutions separately, in your own words. Your homework must be organized and easy to read, as well as:

- in complete sentences
- stapled
- have the questions in the order assigned

I reserve the right to take off points if these conditions are not met. If I cannot read a problem, you may receive zero credit.

On each homework, approximately one problem will require teacher solutions, in which, in addition to the above requirements, you need to explain your steps in complete detail. Don’t just describe what you are doing (“first I divided 5 by 2”); tell me why it is the correct thing to do (“since Joe runs 5 miles in 2 hours, his speed is 5/2 miles per hour”). Think about writing the solution so that a 130-131 student just starting 132 could read and understand it, and believe that your solution makes sense. I will provide an example teacher solution on the website.

You can correct and resubmit each assignment once, to receive up to half of the credit you missed. Turn in your original homework as well as the corrections rewritten on new paper.

Homework is due in class on the due date. No late homework will be accepted. If you turn in homework late it will count as your redo and will get you a maximum score of 50%. If you cannot attend class the day it is due, turn in your homework before classtime to my mailbox on the second floor of Van Vleck.

3.2 Participation- 5%

Everyone starts with a C participation grade. If you do none of the things below, it will remain a C. You can bring your grade up by:

- Participating in class discussions, and presenting ideas aloud and on the board even if you are unsure if they’re correct.
- Being a productive group member by suggesting ideas, and keeping your group on task.
Asking lots of questions (of your group, your classmates, or me).

Things that will lower your grade include:

- Having more than two unexcused absences (you will lose 1/2 percentage point for each additional absence; talk to me in emergency situations).
- Being late to class often.
- Being disrespectful of your classmates or myself. **Texting in class is not acceptable.**
- Not being on task during group work and class discussions.

### 3.3 Quizzes- 5%

Each Monday at the beginning of class (except near exams) we will have a 5 minute mental math arithmetic quiz. As teachers, you need to be able to think on your feet, and do arithmetic correctly in the most efficient way possible. These are not meant to challenge or trick you, but to practice techniques and to show you any areas where you may need a refresher, so that on our exams, and in the future, you will be prepared. There will be no **make-up** quizzes for absences or late arrivals, but I will drop at least your two lowest scores.

### 3.4 Exams- 60%

There will be two in-class midterm exams, approximately corresponding to our first two units, and a final exam. **No calculators.** The final is cumulative. **It is possible** that you will see something on the exams that we did not see in class (though of course related and accessible from class material). Make up exams will not be given except in extraordinary situations.

### 3.5 Qualitative Scale

An approximate qualitative grading scale follows. This should given you an idea of what is expected of you.

**D**- The student can implement a solution strategy to problems given.
**C**- In addition to the above, the student can understand and explain the solution strategy.
**B**- In addition to the above, the student can provide multiple solution strategies, and explain them in the context of the problem and the related mathematical principles. The student can also generate problems of his or her own about a given concept.
**A**- In addition to the above, the student can recognize when a strategy can be effectively extended to other types of problems and when it cannot and why. The student can also solve and generate interesting problems with multiple mathematical concepts, is flexible with several solution strategies, and demonstrates a deep understanding of the core mathematical principles by explaining connections between different strategies.

If you are a McBurney student, please talk to me as soon as possible.