Math 130: Contemporary Mathematics
Spring 2016
Course Procedures

Professor: Josh Laison
Ford 215, x6689, jlaison@willamette.edu

Office Hours:
Monday, Tuesday, and Wednesday 10:00-11:30
Thursday 1:00-2:00
Friday 11:30-12:30
Anytime by appointment or by catching me in my office.

My available times are on my webpage http://www.willamette.edu/~jlaison

Class Meetings:
MWF 12:40-1:40, Ford 201

Texts: The collection Martin Gardner’s Mathematical Games, available on CD
Course Web Page: http://www.willamette.edu/~jlaison/contemporary.html

Grading:

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<tbody>
<tr>
<td>Problem assignments (around 15)</td>
<td>25%</td>
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<td>Reading assignments (around 15)</td>
<td>15%</td>
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<td>Quizzes (around 4)</td>
<td>20%</td>
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<td>Class project (5 components)</td>
<td>35%</td>
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<tr>
<td>Class attendance and participation</td>
<td>5%</td>
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<td><strong>Total</strong></td>
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Learning Outcomes for Quantitative and Analytical Reasoning:

- Gain the ability to interpret and draw inferences from mathematical and formal models such as formulas, graphs, tables, and schematics.

- Gain the ability to represent logical and mathematical information symbolically, visually, numerically, and verbally.

- Gain the ability to employ methods such as arithmetic, algebra, geometry, statistics, or formal rules to solve problems.

- Gain the ability to check mathematical results and other conclusions for reasonableness.

- Gain the ability to recognize the limits of mathematical, statistical, or formal methods.

Learning Outcomes Specific to this Course:

- Have fun doing mathematics.

- Think deeply and creatively about mathematics.
• Experience the authentic process of mathematical research, including the creation of our own mathematical ideas.

• Gain an understanding and appreciation for the work of professional mathematicians.

Course Philosophy – Doing Mathematics: In this course, you will learn a lot of mathematics, but with a different emphasis than other mathematics courses you may have taken in the past. The course is not a prerequisite for any other, and it is unlikely that you will require the material you learn in this course for your career after you graduate. The material is simply presented to satisfy your own intellectual curiosity.

I will work to avoid making any problem you attempt in this course tedious or overly frustrating. Mathematics is all about solving puzzles, exploring patterns, and getting insights into new ideas. For your part, try not to race through the problem assignments with the goal of arriving at the solution as quickly as possible. Play with the ideas! Invent new problems and solve those! Discuss the problems with your friends and classmates! The problems are intended not as hurdles to be leapt over, but as intellectual challenges to be enjoyed. I hope that you will enjoy them as much as I do. To encourage you to think creatively, particularly interesting, creative, or unique solutions to any problem in this course will be given extra credit.

Ways to Get Unconfused:

• Find classmates to work together with. Although different people have different working styles, I find math problems much more interesting and less frustrating in a group than by myself. Also, there are enough Contemporary Math students to create a critical mass in the math hearth, which makes finding classmates to work with much easier. Hang out in the math hearth, and your classmates will too!

• Find me in my office during my office hours or at other times, and I will be more than happy to answer questions. Feel free to hang out in the math hearth or in my office and work on homework there. I hope to see everyone regularly!

• Come to the drop-in tutoring sessions held by the Learning Center. Student tutors will be available to help with Contemporary Math homework most nights of the week, in a classroom in Ford Hall. These are also great places to form study groups. Stay tuned for times and locations!

Problem Assignments: These will be due about once a week, and should be turned in to me in class. These problems are meant to challenge you and stimulate your intellectual curiosity. Don’t feel bad if you can’t solve the problems right away, or if you need to talk to someone before figuring them out – they’re designed to encourage you to work with others, and to need some time to puzzle them out. These are the only component of the course graded by a student grader.

Reading Assignments: These will also be due about once a week, and should also be turned in to me in class. We’ll be reading articles from the column Mathematical Games by Martin Gardner, published in Scientific American between 1956 and 1986. For each reading
assignment, I’ll ask you to read one of these articles and write some ideas and questions you have about it. Your thoughtful responses will help generate class discussion about each new mathematical topic.

**Quizzes:** We will have an in-class quiz about once a month. They should each take a full class. The quizzes will test your understanding of some of the mathematical ideas of the course, emphasizing concepts over calculation.

**Class project:** The class project is an opportunity for you to engage in actual mathematics research. Your group of three students will ask and answer original mathematical questions. You will start with a puzzle from class and then guide the direction of your investigation, in consultation with me. Over the course of the semester, you will get regular feedback from me and your classmates to help you generate fresh ideas and keep the project going in a productive and interesting direction. The graded components of the project will be:

- Two in-class informal presentations to other groups
- Two group meetings with me in my office
- A final 15-minute presentation to the class, using presentation software such as PowerPoint

**Missed Classes:** Please make every effort to attend all classes and be an active participant in class activities and discussions. Much of your learning and understanding of new mathematical ideas will come from thinking and talking about them in class.

**Late Assignments:** If you have a crises during the semester that prevents you from turning in homework on time, talk to me about it, and I will generally be sympathetic.

**Time Commitment:** Willamette’s Credit Hour Policy holds that for every hour of class time there is an expectation of 2-3 hours of work outside of class. Since this class meets three days a week you should anticipate spending 6-9 hours outside of class engaged in course-related activities.

**Disabilities:** If you have a disability for which accommodations may be required in this class, please contact Disability Services in the beginning of the semester. All such discussions will be confidential.

**Academic Honesty:** Cheating and plagiarism are serious offenses and will be treated severely, in accordance with Willamette University Standards of Conduct and the Willamette Ethic. The Willamette policy on plagiarism and cheating is located here:

http://www.willamette.edu/cla/catalog/resources/policies/plagiarism_cheating.php

These are the practices I expect you to follow in each of the components of the course:

- **on homework assignments:** You are encouraged to discuss the homework with your classmates, get help from tutors, your professor, calculators, or your textbook. You may not look up solutions on the internet, and you may not copy/paste any amount of text from any source without citation. Your submitted written work should be your own.
on the quizzes: You may not receive aid from any source other than your professor. Copying others’ work, or providing your work to be copied by other students, is a violation of university policy.

on the class project: All members of your group should contribute to producing all components of your project. Writing your name on work written by others is a violation of university policy.