

Math 102  
syllabus  
Fall 2013

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**Professor:** Matthew Neal (nealm@denison.edu)  
**Office and phone:** Olin 202 (6288)  
**Office Hours:** M 2:30 - 3:30, 4:30 - 5:30, T 1:30 - 5:30, R 9-11:30, 1:30-3:30 or by appointment  
**Web site:** <http://personal.denison.edu/~nealm/>

### Course

This course is an introduction to methods of collecting and analyzing data to solve real world problems. The goal is to use mathematics on properly constructed data samples to make precise probabilistic statements about real world variables. We will also learn to interpret the limitations and practical applications of these probabilistic statements in real world contexts.

### Book

*Statistics and Data Analysis* by Peck, Olsen, and Devore

### Grades and Expectations

The grade will be calculated with the following weights.

1. 10 % for weekly homework checks
2. 10 % for weekly homework turned in to me
3. 15 % each for three tests
4. 15 % for a written project on a problem in sports analysis.
5. 20 % for a final exam

The following bullets explain how the homework, tests, and project will work

- Every Wednesday I will assign what I call **Basic Homework**. On the following Monday there will be a one problem **homework check** to begin class. This will be randomly selected from the Basic Homework. The homework checks are testing (1) that you have done the required work and (2) your speed in an examination setting.
- Every Wednesday I will also assign **Advanced Homework** that is due the following Wednesday. I will grade 3 randomly chosen problems from the Advanced Homework for correctness and the remaining problems for completeness. **One of these 3 graded problems will be announced beforehand and graded for quality of written exposition as well as correctness of mathematical analysis.** These problems will prepare you for the written project.
- The **project** will be an involved problem in sports modeling. You will be required to submit a 2-3 page essay with an introduction, analysis, and concluding paragraph. I will hand out a rubric indicating elements that must be addressed in your analysis and the writing skills that must be exhibited. **The first draft is due on Friday, November 22nd and the final draft is due on Monday, December 9th.** In addition, **I will require every student to visit me on Tuesday, November 5th between 12:30 and 9:30 p.m. to discuss your methods and outline.** Failure to provide a detailed outline on time or a first draft on time will result in a 10
- The **tests** and **final** will mostly consist of somewhat altered homework problems with one or two extra challenging problems that requires deeper understanding of the homework to complete.

The tests dates are **September 18th, October 16th, and November 13th.** The **final exam is at 9 a.m. on Friday, December 20th** in our classroom.

## Topics

We will try to cover as much of chapters 2 and 4-15 in the book as we can. I will periodically add some fun math topics from sports. Topics include experimental design, summary statistics, basic probability, distributions of sample statistics, hypothesis testing, confidence intervals, single and multivariable regression, ANOVA, and goodness of fit tests.

## Office Hours

Please come to office hours so I can get to know you better!

## Late Work

Late assignments will receive a 20 % point penalty per day late unless there is a PRIOR written note (such as a note from Whistler) that verifies a VERY strong excuse (such as illness or important sports team events). Late quizzes are not accepted at all without a written excuse as above.

## Academic Integrity

The students and faculty of Denison University and the Department of Mathematics and Computer Science are committed to academic integrity and will not tolerate any violation of this principle. Academic honesty, the cornerstone of teaching and learning, lays the foundation for lifelong integrity.

Academic dishonesty is, in most cases, intellectual theft. It includes, but is not limited to, providing or receiving assistance in a manner not authorized by the instructor in the creation of work to be submitted for evaluation. This standard applies to all work ranging from daily homework assignments to major exams. Students must clearly cite any sources consulted, not only for quoted phrases but also for ideas and information that are not common knowledge. Neither ignorance nor carelessness is an acceptable defense in cases of plagiarism. It is the students responsibility to follow the appropriate format for citations.

Proposed and developed by Denison students, passed unanimously by DCGA and Denisons faculty, the Code of Academic Integrity requires that instructors notify the Associate Provost of cases of academic dishonesty, and it requires that cases be heard by the Academic Integrity Board. Further, the code makes students responsible for promoting a culture of integrity on campus and acting in instances in which integrity is violated.

For further information about the Code of Academic Integrity see <http://www.denison.edu/about/integrity.html>

## Disabilities

Any student who feels he or she may need an accommodation based on the impact of a disability should contact me privately as soon as possible to discuss his or her specific needs. I rely on the Academic Support and Enrichment Center in 102 Doane to verify the need for reasonable accommodations based on documentation on file in that office.