

MATH 540 Probability and Statistics for Teachers

Summer, 2011 (June 27 – July 1, July 22 on-line day)

meets 9:00 – 12 noon and 1:00 – 4:00 June 23 - 27 in room 305 of the Mathematics Building.

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Course description:

The main purpose of this course is to explore the place and content of probability and statistics in the 7-12 mathematics curriculum.

This includes two responsibilities:

1. Participants will gain familiarity and depth with the probability and statistics concepts that are appropriate for secondary mathematics students.
2. Participants will organize classroom presentations and develop units of instructional material that could be used with their students.

Text and resources:

Rossman, Chance, & von Oehsen, Workshop Statistics: Discovery with Data and the Graphing Calculator (Second Ed.), Key College Publishing, 2002.

The NCTM's Navigation Series on Probability (two modules: 6-8, 9-12).

The NCTM's Navigation Series on Data Analysis (two modules: 6-8, 9-12).

Data Driven Mathematics, Addison Wesley Longman, 1998.

Topic outline:

1. exploring data and distributions,
2. using simulations as a problem solving tool,
3. making inferences from data,
4. developing the mathematical ideas found in classroom materials,
5. solving mathematical problems in probability and statistics, and
6. creating exploratory lessons for students.

Projects / Course Requirements:

There will be four assessment events:

1. Two quizzes, one over probability topics and the other over statistical topics.
2. A **short report**, which will include a presentation and a written page about a teaching activity that you found or created. The most important feature of the short report is that it communicates some probability and statistics that you have done and can share.
3. A plan for an **instructional unit**. This will be a collection of material that could be used by your students to develop a probability or statistical idea. A unit should have specific goals for teaching the selected topic (or topics).

It is expected that all students will become familiar with the following common technology: Calculator statistics, random number generators, Excel, some statistical software package.