

Course Syllabus for

SETE Q690M

AP Summer Institute for Statistics

Summer I 2008

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Course homepage: <http://faculty.uscupstate.edu/bomolo/APStat2008.html>.

Texts:

Stats: Modeling the World

The Practice of Statistics: TI-83/84/89 Graphing Calculator Enhanced

AP Course Description for Statistics

AP Statistics Teachers Guide

AP Free Response Questions

Description of Content

The course will be offered for graduate credit and covers the material in the Advanced Placement Statistics Exam and methods of delivery to high school junior/senior students.

Participants will create appropriate AP Statistics curriculum and lesson plans that provide students with a learning experience equivalent to that of a college introductory Statistics course.

The following four broad conceptual themes will be emphasized:

Exploring Data: Using the calculator to study patterns or departures from patterns in data; describing data by numerical and graphical techniques; examining and understanding relationships in bivariate data.

Planning and Conducting a Study: The importance of careful planning of a survey or statistical experiment is emphasized. The topics covered are deciding what and how to measure variables and conducting surveys and experiments. Sampling bias and questionnaire bias is illustrated via examples and case studies.

Probability and Simulation Methods: Statistical data often display values that follow a probability model. Probability models are tools for anticipating what the distribution of the data from an experiment should look like. Here the basic concepts of probability are

covered, including some probability distributions. Sampling distribution is introduced via simulation.

Statistical Inference: The process of inference, or drawing conclusions about a population, is always with some degree of uncertainty. Here we shall cover inferential topics such as confidence interval estimation, tests of hypotheses and analysis of variance.

Institute Schedule: June 12 – June 24, 2008 on the campus of University of South Carolina Upstate, located in Spartanburg. The class will meet in the Hodge Center, Room 265.

Each class session will have a content topic, a focused evaluation of the Statistics exam, and review of course assignments. Additionally, there will be reflective reviews of current course syllabi, discussion and presentation of modifications, as well as assignments and quizzes.

Date	Times	Topics and Assignments
June 12	1:00 - 4:00 pm	<p>Orientation and Introduction to the Institute.</p> <p>Collecting data using surveys/scientific studies.</p> <p>Course Assignment: AP Curriculum assignment will be given and AP Course Audit process to be reviewed.</p>
June 13	9:00 am - 12:00 pm	<p>Examining relations in bivariate data/correlation</p> <p>Course Assignment: Sample syllabi, made available through College Board, will be reviewed and discussed.</p>
June 16	9am -12, 1 -4 pm	<p>Describing data graphically/numerical measures</p> <p>Course Assignment: The AP Statistics Exam, and Free-Response Questions will be reviewed and discussed.</p>
June 17	9am -12, 1 -4 pm	<p>Binomial/normal problem distributions</p> <p>Course Assignment: Teachers will review their current statistics course content, and discuss how they can be modified to incorporate topics discussed.</p>

June 18	9am -12, 1 -4 pm	<p>Sampling dist./Simulation/Central Limit Theorem</p> <p>Course Assignment: The TI-83 Graphing Calculator, SAS software, and the availability of computers as research and statistical resources will be discussed.</p>
June 19	9am -12, 1 -4 pm	<p>Confidence intervals for mean/variance</p> <p>Course Assignment: Mid-term exam will be given.</p> <p>One-sample t-test/two-sample, paired t-tests</p>
June 20	1:00 - 4:00 pm	<p>Course Assignment: Available Teaching Resources, for reference post-Institute, will be discussed and reviewed. Deadlines and deliverables for AP Course Audit will be presented.</p>
June 23	9am -12, 1 -4pm	<p>Regression models/Project</p> <p>Course Assignment: Teachers will present their revised statistic course content to their peers, and discuss how they modified their syllabus' to meet the specific needs of their students.</p>
June 24	9:00 am – 12:00 pm	<p>Analysis of Variance</p> <p>Course Assignment: A comprehensive final exam will be given.</p>

Software

The TI-83 Plus graphing calculator will be used for computations. The popular statistics software, SAS, will be used to demonstrate the capability of statistical software in performing analyses and as a supplement to the graphing calculator. An introduction to the software will be provided.

Attendance Policy

Regular attendance is expected as per university policy. The nature of the course does not lend itself to excessive absences.

Assessment Policy

Final grades will be determined as follows:

Content Knowledge-based Assignments & Quizzes Demonstration of broad factual knowledge and interpretive knowledge measured through sample AP practice tests	35%
AP Curriculum Creation or revision of AP United States History course syllabus	55%
Demonstrated competency in TI-83 Enhanced Graphing calculator	10%
Total points	100%

Grading Scale

90-100: A; 86-89: B+; 80-85: B; 76-79: C+; 70-75: C; 66-69: D+;
60-65: D; 00-59: F.

Course Requirements:

Participants

- are expected to attend all class meetings
- will complete an AP year long curriculum
- will provide evidence that curriculum lessons provide students with regular opportunities to develop the skills necessary to gain broader knowledge in the 4 main statistical themes put forth in the institute.
 - will strive to ensure that their schools provide students with the resources necessary to become familiar with the operation of a graphing calculator with statistics capabilities, as the AP Test/Exam policy is that a calculator will be utilized during testing.