

## **STATISTICS 101** **Dr. Roger Woodward**

### Course Justification:

Statistics 101 is the first introduction to statistics for statistics majors. Since statistics is a subject rarely taught in high school, prospective majors choose a discipline about which they know little. A freshman level introduction to many areas of statistics enables these students to make better-informed decisions about their academic programs and provides them with an overview of their future work in statistics. Statistics 101 is also taken by mathematics education majors. Probability and statistics play an increasingly important role in the middle and high school mathematics curricula. Future math teachers must acquire the knowledge and pedagogical skills to teach these subjects well. Statistics 101 is taught using new technology and teaching methods that provide a model for future teachers. Students from many other departments also take Statistics 101, either to satisfy a mathematical sciences requirement or as part of their general education. The course provides insight into decision making processes which affect all of us.

### Proposed Revision with Reasons:

The proposed revision is the creation of new learning outcomes and means of assessing those outcomes to meet the new GER objectives as set forth by the CUE.

### Enrollment for the Past 5 years: -contact registration and records

Spring 1999	0
Summer 1 1999	0
Summer 2 1999	0
Fall 1999	101
Spring 2000	0
Summer 1 2000	0
Summer 2 2000	0
Fall 2000	74
Spring 2001	0
Summer 1 2001	0
Summer 2 2001	0
Fall 2001	62
Spring 2002	0
Summer 1 2002	0
Summer 2 2002	0
Fall 2002	73
Spring 2003	0
Summer 1 2003	0
Summer 2 2003	0
Fall 2003	97

### Resources Statement:

N/A

### Consultation with Other Departments:

N/A

## GER Objectives:

Statistics 101 will provide instruction and guidance that help students to

1. improve and refine mathematical problem-solving abilities;

A learning **outcome** related to GER objective 1 would be:

Students will use standard scores and a table of the standard normal distribution to find the proportion of values that are greater than a particular point.

Students will demonstrate their achievement of the outcome through a question on a written exam. This problem will describe a variable that has a normal distribution. Students will be required to calculate the standard score for a particular value, find the corresponding proportion from the table of standard normal distribution.

## GER Objectives:

Statistics 101 will provide instruction and guidance that help students to

2. develop logical reasoning skills

A learning **outcome** related to GER objective 2 would be:

Students will use the concepts of inferential statistics to draw appropriate conclusions from statistical material presented in the news media.

Evaluation of this objective will be accomplished by requiring students to write a paper that contrasts two public opinion polls presented in the news media. Students will identify which poll makes more appropriate conclusions about the population of interest.

## Syllabi

### Statistics 101

**Instructor:** Dr. Roger Woodard

**Office:** Cox 612E **Phone:** 515-1938 **Email:** woodard@stat.ncsu.edu

**Office Hours:** Monday, Wednesday 2:30 to 3:30. Thursday 9:30 to 10:30.

**Teach Associate:** To be announced.

**Restrictions:** Credit for this course is not allowed for students who have credit for any other ST course.

**Course Web Site:** Additional materials and course policies will be available on the course website (Wolfware) <http://courses.ncsu.edu/st101/lec/001/>. This course also makes use of WEBCT to deliver grades, supplemental materials and announcements. Students should insure that they have their Unity password to log into WEBCT.

**Course Goal:** To develop an understanding of the basic ideas of statistical reasoning. This course seeks to expose students to statistical techniques used in the media and create informed consumers of statistics. This course expects the student to actively think about statistical issues.

**GER Objectives:** This course satisfies the General Education Requirement (GER) in the Mathematical Sciences. As part of the GER Statistics 101 will provide instruction and guidance that help students to

1. improve and refine mathematical problem-solving abilities;
2. develop logical reasoning skills

**Required Texts:** *Statistics Concepts and Controversies* 5<sup>th</sup> edition by David Moore (ISBN 0-7167-4008-7).

**Calculator:** Although it is not required, students are strongly encouraged to purchase a TI-83 or TI-83 Plus calculator. This calculator provides the basic functionality that will be needed for this course. Instructions on performing basic calculations using a TI-83 will be provided on the course website.

**Software:** Students in this course will use the WebStat® software. This software is an online product and can be accessed from any internet connected web browser at <http://www.webstatsoftware.com>.

**Please note:** Reasonable accommodations will be made for students with verifiable disabilities. Any student who feels they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss your specific needs. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653. [http://www.ncsu.edu/provost/offices/affirm\\_action/dss/](http://www.ncsu.edu/provost/offices/affirm_action/dss/). For more information on NC State's policy on working with students with disabilities, please see [http://www.ncsu.edu/provost/hat/current/appendix/appen\\_k.html](http://www.ncsu.edu/provost/hat/current/appendix/appen_k.html)

**Attendance and communication:** Students are expected to attend all regularly scheduled meetings of the course. Students who have a legitimate reason to miss a class meeting should contact the instructor prior to that absence. Students who are unable to attend an exam for a legitimate unavoidable reason may take a make-up exam only if the student provides suitable documentation of the absence and takes the make-up in a timely manner. Furthermore, students are expected to check their Unity email regularly to receive course announcements.

**Grades:** It is the student’s responsibility to be aware of their grades in the course and the appropriate level of work required. Your final grade in this course will depend on the following

Four mini-projects (25 points each)	100 points
In class activities	150 points
Two quizzes (25 points each)	50 points
Midterm Exam	100 points
Comprehensive Final Exam	200 points
<b>Total</b>	<b>600 points</b>

Grades will be determined by calculating the student’s percentage out of the available points and comparing with a predetermined cutoff points as follows: A+: 98%, A: 92%, A-: 90%, B+: 88%, B: 82%, B-:80%, C+: 78%, C: 72%, C- :70%, D+: 68%, D: 62%, D-: 60%. Percentage cutoffs are firm and no rounding occurs. Incomplete (IN) grades are given only as specified in university regulations.

**Mini-projects:** Students will have an opportunity to explore the concepts of this course through four short written assignments. These mini-projects will require students to find materials outside of class and write a short (2 pages) paper about these materials. These mini-projects are graded on content and presentation. (Exact assignments are given on the course website.) No late work will be accepted. Students should allow sufficient time to complete written assignments. Computer failures, lost files and other technical difficulties are not valid excuses for submitting an assignment late.

**In class Activities:** This course is taught in student centered manner. During lecture periods students will complete activities and exercises that illustrate course content. The instructor will randomly select activities to grade and students will receive points accordingly.

**Quizzes:** This course will use two in class quizzes to help students access their progress between exams. Students may use one 8 ½ X 11 page of notes (front only) and a calculator for these quizzes.

**Exams:** All exams are closed book. For the midterm exam students may use one 8 ½ X 11 page of notes (front and back). For the final exam, students may use two 8 ½ X 11 pages of notes (front and back). Basic calculators may be used on all exams. Requests for re-grading of exams must be made in writing. These requests should contain a complete description of the reason for grade adjustment and student’s name. The request should be attached to the exam and submitted to instructor by the announced due date.

**Academic Misconduct:** Students are encouraged to discuss ideas related to this course but mini-projects and exams are to be the unique work of the individual student. Cheating, plagiarism and other forms of academic dishonesty will not be tolerated. To create a fair and equitable environment the instructor aggressively enforces the universities policies on academic misconduct. All cases of academic misconduct will be handled as set out in university policies. For additional information see:  
[http://www.ncsu.edu/policies/student\\_services/student\\_conduct/POL445.00.1.htm](http://www.ncsu.edu/policies/student_services/student_conduct/POL445.00.1.htm).

**Other policies:** The instructor reserves the right to routinely record classes and meetings with video, audio, photographic and other methods. These recordings will be used to improve the classroom environment, quality of the classroom experience and insure academic integrity.

**Course Outline:**

The following is a general outline of the course. Specific readings sections are available on the course website.

<b>Topic</b>	<b>Text Chapters</b>	<b>Tentative Schedule</b>
Sampling	1-4	Week 1, 2
Describing Distributions	10-13	Week 2, 3,4
<b>Quiz 1</b>		<b>Friday September 12<sup>th</sup></b>
Probability	17-19	Week 5
Sampling distributions	21,25	Week 5,6
Estimation	21,25	Week 6,7
<b>Midterm Exam</b>		<b>Wednesday October 8<sup>th</sup></b>
Experimentation	5-6	Week 9
Tests of Significance	22,23,25	Week 9,10,11
Understanding relationships	14	Week 12
<b>Quiz 2</b>		<b>Friday November 7</b>
Prediction	15	Week 13,14
Two way tables	24	Week 14
Ethics	7	Week 15
Measurement and Errors	8,9	Week 16
<b>Final Exam</b>		<b>Monday December 8 1:00pm.</b>