Syllabus

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Course Goal: This course is intended to give students a background in the methods of statistical analysis that will assist them in analysis of data generated from research in the biological sciences. Concentration in this course will be on realistic examples and the problems that arise in them.

Required Texts: An Introduction to Statistical Methods and Data Analysis by R. Lyman Ott and Michael T. Longnecker. Duxbury Press. 7th edition. Cost is approximately $200 new but used copies may be available.

Calculator: Students will need a basic calculator that can do addition, subtraction, multiplication, division and square roots. Students are allowed but not required to use a more advanced statistics specific calculator such as a TI-83 or TI-84 calculator.

Software: Students in this course will use SAS statistical software. This software is widely used in analysis of research data. This software may be accessed:

1. Students may install the software on their own machine for free. For information on obtaining SAS for your own machine see sas.ncsu.edu

2. Students may also use SAS on the Virtual Computing Laboratory (VCL). Machines in the VCL are assigned on a reservation basis and may fill up. Students should plan accordingly to insure assignments are completed on time. There is no cost for using the VCL. For more information see http://vcl.ncsu.edu/

3. Students who are on campus can use SAS at a variety of campus laboratories.

Students with disabilities: 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
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/. For more information on NC State’s policy on working with students with disabilities, please see http://www.ncsu.edu/policies/academic_affairs/courses_undergrad/REG02.20.1.php

Communication: Students are expected to check their NCSU email regularly to receive course announcements. Students who do not use their NCSU email should arrange to have this email forwarded to an account they do use. Due to university regulations the instructor can send course announcements only to NCSU email addresses.

Support mechanisms: Since this course is online the instructor will have virtual office hours. Students who can not attend the posted times may make an appointment via email for other times. Additionally, a general discussion board on the course website will allow students to ask questions of each other.

Course Content: Students in this course do not attend a typical class period. Instead students will receive course content through online presentations and activities. Students should set aside sufficient time in their schedules to complete these materials. The course content is indexed by learning outcomes that are presented in the weekly overviews. Students should use these learning outcomes as a guide for their learning.

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:

<table>
<thead>
<tr>
<th>Item</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Midterm Exams (100 points each)</td>
<td>200</td>
</tr>
<tr>
<td>10 Online Quizzes (10 points each)</td>
<td>100</td>
</tr>
<tr>
<td>10 Online Discussion Postings (5 points each)</td>
<td>50</td>
</tr>
<tr>
<td>Comprehensive Final Exam</td>
<td>200</td>
</tr>
<tr>
<td>Total</td>
<td>550</td>
</tr>
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Grades will be determined by calculating the student's total out of the available points and comparing with a predetermined cutoff point scale as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>F</th>
<th>D</th>
<th>C</th>
<th>C+</th>
<th>B-</th>
<th>B</th>
<th>B+</th>
<th>A-</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>&lt;60%</td>
<td>60%-69%</td>
<td>70%-75%</td>
<td>75%-80%</td>
<td>80%-83%</td>
<td>83%-87%</td>
<td>87%-89%</td>
<td>90%-92%</td>
<td>93%-97%</td>
</tr>
</tbody>
</table>

Incomplete (IN) grades are given only as specified in university regulations. Students who wish to audit the course with satisfactory status must register officially for the course and will be required to complete all online quizzes.

Quizzes: Throughout the semester there will be 11 online quizzes. The lowest 2 quiz scores will be dropped. These online quizzes will help students insure that they have mastered the material. Each quiz will be tied to course content modules posted to the course website. Students should work through the modules before attempting these quizzes. Quizzes are presented in Moodle and are
through the modules before attempting these quizzes. Quizzes are presented in Moodle and are
taken online. They may be taken anytime from 11:55 pm Wednesday to 11:55 pm on the following
Wednesday. There is NO time limit on quizzes. Students will have two attempts for each quiz. The
score for the quiz will be the average of the two attempts.

**Exams:** All exams are closed book. For midterm exams 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 (such as TI-83) may be used on all exams. 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 delay and take the make-up in a timely manner. Students may take the
exam on any of the three days listed in the course outline below. The midterm exams are limited to
1.5 hours. The final exam is limited to 3 hours.

**Exam proctoring:** Students must arrange to take their exams during the assigned three day
window. Students may take exams in their choice of two possible methods.

- Through the Distance Education Proctoring Offices. Students who are in Wake and adjoining
  counties may arrange to take their exams at the DE Proctoring offices on a walk in basis. For more
  information see [https://online-distance.ncsu.edu/current_students/testing-services/testing-
  services-on-campus/](https://online-distance.ncsu.edu/current_students/testing-services/testing-
  services-on-campus/)
- Off campus proctoring. Students who are not in Wake County or the adjoining counties or have
  extenuating circumstances may take exams through an approved proctor. All remote proctoring
  should be arranged through the Distance Education Proctoring Office For more information on
  arranging proctors see [https://online-distance.ncsu.edu/current_students/testing-services/testing-
  services-remote/](https://online-distance.ncsu.edu/current_students/testing-services/testing-
  services-remote/)

Regardless of the location, students should plan their exam location well in advance and verify
arrangements at least one week in advance of the exam.

**Discussion Board Postings:** Student in this course will be broken into small groups of 3 to 5
students. Each week these groups will answer questions and discuss course content using the
online discussion board. These discussion questions will be keyed to the specific weeks material and
will have specific due dates. Due dates are firm and your fellow group members will be counting on
your contributions to be submitted by the due date. Discussion postings will be graded based on
quality of responses. Students are expected to treat each other with respect on the boards.

**Academic Misconduct:** 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 exams are to be completed individually. All cases
of academic misconduct will be handled as set out in university policies. For additional information
see: [https://studentconduct.dasa.ncsu.edu/students/student-conduct-policies/](https://studentconduct.dasa.ncsu.edu/students/student-conduct-policies/)

**Course Outline:**

- Data collection
- Graphical and numerical summaries
- Normal distribution
- Sampling distributions
Sampling distributions
Confidence intervals
Experiments
Hypothesis testing
Two sample tests
Regression and correlation
Inference for regression
One-way ANOVA

Calendar of Events:

09/25/17 to 9/27/17 – Midterm Exam 1
10/5/17 to 10/6/17 – Fall break.
10/13/17 – Last day to drop without a grade
11/6/17 to 11/8/17 – Midterm Exam 2
11/22/17 to 11/24/17 – Thanksgiving break
12/4/17 to 12/6/17 – Final exam

Last modified: Friday, April 28, 2017, 9:15 AM