SYLLABUS AND POLICY STATEMENTS
APPLIED REGRESSION IN
NATURAL RESOURCES – FOR 518.001
SPRING 2015

INSTRUCTOR
Dr. Dean W. Coble, Forestry Building 213, 936-468-2179
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Office Hours: Monday & Wednesday, 9 – 11 am
   Monday 1 – 3 pm
   Tuesday & Thursday 1 – 3 pm
   Or by appointment

TIME AND PLACE
Tuesdays and Thursdays, 8:00 – 9:15 am, Forestry Building Room 234

COURSE DESCRIPTION
3 semester hours. Applications of regression analysis in natural sciences. Emphasis on regression
techniques for analyzing biological data. Prerequisites: an introductory statistics course and FOR 517, or
a similar graduate-level applied statistics course.

PROGRAM LEARNING OUTCOMES
Forestry 518 is an advanced graduate-level applied statistics class for students pursuing a M.S. or Ph.D,
and thus competency is required. The course is designed to address the following Program Learning
Outcomes (PLOs), as stated in the M.S. and Ph.D. Program Matrix:

1) The student will demonstrate proficiency in research design, relative to their field of study,

2) The student will demonstrate proficiency in the process of reviewing scientific literature pertinent
to their field of study,

3) The student will demonstrate proficiency in basic statistical analysis, relative to their field of
study,

4) The student will demonstrate preparation to pursue a professional career and/or Ph.D. degree in
subject, and

5) The student will demonstrate competency in oral and written communication skills.
M.S. and Ph.D. Forestry Program Learning Outcomes

Proficiency Levels

<table>
<thead>
<tr>
<th>Course</th>
<th>PLO 1 Research Design</th>
<th>PLO2 Scientific Literature</th>
<th>PLO3 Statistical Analysis</th>
<th>PLO4 Professional Career and/or Ph.D.</th>
<th>PLO5 Oral &amp; Written Communication Skills</th>
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<tbody>
<tr>
<td>FOR 518</td>
<td>A</td>
<td>A</td>
<td>M</td>
<td>A</td>
<td>I</td>
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I – Intermediate – FOR 518 supports Program Learning Outcome by providing students with topic-specific information, concepts, applications, and lab activities that increase the students’ skills in making tactical implementation decisions relative to the expected outcomes.

A – Advanced – FOR 518 supports Program Learning Outcome by providing students with transitional, high level topic-specific information, activities, and opportunities that enable the students to apply their critical thinking and tactical skills to resolve increasingly challenging strategic situations.

M – Mastery – FOR 518 supports Program Learning Outcome by providing students with opportunities to independently apply tactical and strategic planning skills to successfully accomplish real-world, non-academic management objectives. Completes students’ preparedness for entry-level professional activity accomplishment.

STUDENT LEARNING OUTCOMES

Upon successful completion of this course, the student will:

1) Understand how to use regression analysis to analyze biological data (PLO #1 and 3),

2) Understand to concept of regression analysis in the context of experimental and sampling designs (PLO #1 and 4),

3) Be able to interpret regression analysis results in a meaningful context for application by practitioners in the field (PLO #4 and 5),

4) Understand how regression analysis and modeling fits in the larger context of the scientific literature (PLO #2), and

5) Demonstrate competency in oral and written communication skills (PLO #5).

Ph.D. STUDENTS: If necessary, Ph.D. students should schedule a meeting with the instructor to discuss special course content deemed required to support their research.
COURSE GOALS AND OBJECTIVES

This course is designed to teach natural resource management graduate students techniques in applied regression analysis. The focus will be to how to perform regression and analyze the results in a natural resource context. The class includes a lecture component plus assignments using statistical software packages such as SAS.

REQUIRED TEXT


COURSE REQUIREMENTS AND GRADING SYSTEM

Grades will be based on the number of points earned in assigned projects. A total of 400 points are possible. On a percentage basis, final grades will be computed as: 90+ = A, 80 – 89 = B, 70 – 79 = C, 60 – 69 = D. There will be 8 graded projects, each worth 50 points, for a total of 400 points. Projects are due the week following when they were assigned. You can work together on the projects.

ATTENDANCE POLICY

I expect every person to attend class. It is the best way to learn the material. I will keep attendance records, which I will use to decide “borderline” grades. For instance, if you regularly attend class and your final grade is “89”, I will be highly inclined to give you an “A” for the class.

ACADEMIC INTEGRITY (SFA Policy A-9.1)

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty: Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit. Please read the complete policy at:

http://www.sfasu.edu/policies/academic_integrity.asp
WITHHELD GRADES (Semester Grades Policy A-54)

A grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances and is done at the discretion of the instructor of record with the approval of the academic chair/director. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

STUDENTS WITH DISABILITIES

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

SOCIAL JUSTICE STATEMENT

The Arthur Temple College of Forestry and Agriculture at SFASU is committed to social justice. I concur with that commitment and expect to maintain a positive learning environment based upon open communication, mutual respect, and non-discrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration.

COURSE CONTENT AND TENTATIVE SCHEDULE

Week 1: Simple Linear Regression (chapter 1).

Week 2: Inferences in Simple Linear Regression (chapter 2).

Week 3: Regression Diagnostics in Simple Linear Regression (chapter 3).

Week 4: Simultaneous Inferences in Simple Linear Regression (chapter 4).

Week 5: Matrix Approach to SLR (chapter 5).

Week 6: Multiple Linear Regression, Part 1 (chapter 6).

Week 7: Multiple Linear Regression, Part 2 (chapter 7).

Week 8: Regression Models for Quantitative & Qualitative Predictors (chapter 8).
Week 9: **SPRING BREAK**

Week 10: Selection of Predictor Variables in MLR (chapter 9).

Week 11: Regression Diagnostics in MLR (chapter 10).

Week 12: Remedial Measures in MLR (chapter 11).

Week 13: Nonlinear Regression (chapter 13).

Week 14: Logistic Regression (chapter 14).

Week 15: Other topics like Mixed Effects Models?

Week 16: Wrap-up.

Week 17: Final Exam Week (there will be no final exam for this class).