SYLLABUS AND POLICY STATEMENTS
BIOMETRICS – FOR 517 / FOR 617
SPRING 2020

INSTRUCTOR
Dr. Yuhui Weng
Forestry Building 203D
Phone: 936-4681354
E-mail: wengy@sfasu.edu
Office Hours: Monday: 9:30 – 11:50 am / Tuesday: 1:30 – 3:00 pm / Thursday: 8:00 – 9:00 am /
or by appointment

TIME AND PLACE
Tuesdays and Thursdays, 9:30 – 10:45 am, Forestry Building Room 225

COURSE DESCRIPTION
3 semester hours. Application of statistical methods in natural sciences. Emphasis on techniques
for analyzing biological data. No prerequisites are required but an undergraduate class in statistics
is desirable.

PROGRAM LEARNING OUTCOMES
Forestry 517 / 617 is a required class of all students pursuing a M.S. or Ph.D. in Forestry 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

<table>
<thead>
<tr>
<th>Course</th>
<th>PLO 1</th>
<th>PLO 2</th>
<th>PLO 3</th>
<th>PLO 4</th>
<th>PLO 5</th>
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</thead>
<tbody>
<tr>
<td>FOR 517</td>
<td>A</td>
<td>A</td>
<td>M</td>
<td>A</td>
<td>N/A</td>
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</table>

N/A – Not Applicable – course does not support the Program Learning Outcome.
A – Advanced – FOR 517 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 517 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 statistics to analyze biological data (PLO #1 and 3),

2) Understand to concept of statistical inference and hypothesis testing in the context of experimental design (PLO #1 and 4),

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

4) Understand how statistical analysis fits in the larger context of the scientific literature (PLO #2).

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 provide natural resource management graduate students an exposure to applied statistics. The focus will be to learn which statistical tests are appropriate for different types of data in an applied context (i.e., no derivation of theorems, interpreting results, etc.) The class includes a lecture component plus assignments using statistical software like SAS.

REQUIRED TEXT

COURSE REQUIREMENTS AND GRADING SYSTEM

Grades will be based on the number of points earned in exams and homework assignments. A total of 100 points are possible. On a percentage basis, final grades will be computed as: 90+ = A, 80 – 89 = B, 70 – 79 = C, 60 – 69 = D.

Homework Assignments: There will be 5 graded homework assignments, each worth 6 points, for a total of 40 points. Homework assignments are due one week following the assignment date. Failure to turn in a homework assignment by the due date will result in a ZERO for that assignment. You must show all your work on each problem; failure to do so will result in no credit for a problem. You can work together on the homework assignments.

Exams: There will be two exams, with each worth 30 points. You must show all your work on each problem; failure to do so will result in no credit for a problem. You must finish your work alone on the exams.

Academic Integrity (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.

Student Academic Dishonesty Policy (4.1)

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/student_academic_dishonesty.pdf

Withheld Grades Semester Grades Policy (A-54)

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. 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/.

Responsible Use of Technology

It is expected that all students will only use cell phones, PDAs, laptop computers, MP3 players and other technology outside of class time or when appropriate in class. Answering a cell phone, texting, listening to music or using a laptop computer for matters unrelated to the course may be grounds for dismissal from class or other penalties.

Acceptable Student Behavior

Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy 10.4). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed. Please read the complete policy at http://www.sfasu.edu/policies/student-code-of-conduct_10.4.pdf

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

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<th>Week</th>
<th>Content</th>
<th>Homework</th>
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<td>Introduction to SAS</td>
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<td>2</td>
<td>Descriptive statistics</td>
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<tr>
<td>3</td>
<td>One-sample hypotheses</td>
<td>Homework #1</td>
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<tr>
<td>4</td>
<td>Two-sample hypotheses</td>
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<td>5</td>
<td>One-way analysis of variance</td>
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<td>6</td>
<td>Multiple comparisons</td>
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<td>7</td>
<td>Two-way analysis of variance</td>
<td>Homework #3</td>
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<td>8</td>
<td>Two-way analysis of variance</td>
<td>Exam 1</td>
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<td>9</td>
<td>March break</td>
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<tr>
<td>10</td>
<td>Multiple-way analysis of variance</td>
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<tr>
<td>11</td>
<td>Data analysis examples (1)</td>
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<td>12</td>
<td>Introduction to simple regression</td>
<td>Homework #4</td>
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<tr>
<td>13</td>
<td>Introduction to multiple regression</td>
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<td>14</td>
<td>Analysis of covariance</td>
<td>Homework #5</td>
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<tr>
<td>15</td>
<td>Data analysis examples (2)</td>
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<td>16</td>
<td>Others</td>
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<td>17</td>
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<td>Exam 2</td>
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