WILD 5750/6750

ANALYSIS FOR WILDLIFE SCIENCES

1. Instructor: Dr. Todd D. Steury

Office: 2347 Forestry and Wildlife Building

Office Hours: TBA

Office Phone: 844-9253

E-mail – steury@auburn.edu

Course website: <http://www.auburn.edu/~tds0009/wild5750.html>

1. **Pre-requisite**

STAT 2510 or similar course

1. **Course Format**

The course will consist of three 1-hour of lectures per week (for 3 semester credits), and 2 hours of lab (for 1 semester credit). The labs will consist primarily of computer use. The course will be 4 credit hours total

1. **Text**

The OPTIONAL text will be: Gotelli, N.J., and A.M. Ellison. 2004. A Primer of Ecological Statistics. Sinauer Associates, Inc., Sunderland, MA, USA.

1. **Course Description**

WILD 5750 is intended to provide students with applied training in data analysis tools that are most commonly used in wildlife sciences. Students will learn how to analyze data with examples from wildlife studies.

1. **Course Objectives**
2. Familiarize the student with the scientific method and the various types of study designs used in wildlife studies.
3. Familiarize the student with some of the most common procedures used in the analysis of data from wildlife studies.
4. Familiarize the student with the assumptions of common analytical procedures so that the student can recognize which procedures are appropriate for any given data-set.
5. Train the student how to conduct common analyses manually and using software.
6. Expose the student to some of the common pitfalls and errors that wildlife scientists make in the analysis of data so that such errors may be avoided.
7. **Course Requirements/Evaluation**

Undergraduate students will be evaluated via lab assignments, quizzes, a mid-term exam, and the final exam. Lab assignments will include weekly reports summarizing activities performed in labs and will count 40% of the total grade. The mid-term exam will count for 15% of the total grade. The final exam, which will be comprehensive, will count for 30% of the total grade. The remaining 15% of the total grade will come from quizzes. Quizzes will be posted on Canvas and will be due before the start of class. Exams will be short answer and multiple choice. Exams will be conducted during lab period and will include general questions on the subject matter as well as questions that require the analysis of data using procedures learned in class. The standard grading scale will be used (i.e., 90-100% = A; 80-90% = B; 70-80% = C; 60-70% = D; <60% = F).

Course format for graduate students will be similar to that for undergraduate students. However, grade breakdown will be as follows: Labs – 25%; Mid-term – 15%; Quizzes – 10%; Final – 20%. In addition, graduate students will serve as T.A.s for the undergraduate student lab. Therefore, graduate students will need to complete the lab before lab time and consult with me on their answers and work. Participation in the undergraduate labs will count 15% of the final grade in the class. Finally, graduate students will be required to do a ‘course project’, which will involve a written description of their proposed graduate research and the methods they will use to analyze their data. The course project will count toward 15% of the final grade.

1. **Course Policies**

Students are expected to attend all lectures and labs.

1. **Academic Honesty**

Students should become familiar with the Student Academic Honesty Code that is published in the latest version of the Tiger Cub. Students in this class are expected to strictly adhere to this code, and any violations of the code will be brought before the Academic Honesty Committee.

1. **Students with Disabilities**

Students who need special accommodations in class, as provided for by the American Disabilities Act, should arrange a confidential meeting with the instructor during office hours the first week of classes - or as soon as possible if accommodations are needed immediately. You must being a copy of your Accommodation Memo and an Instructor Verification Form to the meeting. If you do not have these forms but need accommodations, make an appointment with the Program for Students with Disabilities, 1244 Haley Center, 844-2096 (V/ TT) or e-mail: scw0005@auburn.edu.

WILD 5750

ANALYSIS FOR WILDLIFE SCIENCES

Lecture Outline

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| **Week** | **Lecture/Lab Topics** |
| 1. | Intro to data analysis; Intro to MS-Excel; Review of STAT 2510  |
| 2. | The scientific method; hypotheses and predictions; common analytical assumptions  |
| 3. | Comparison of categorical traits among groups (contingency tables) |
| 4. | Relationships between continuous characteristics (regression) |
| 5. | Relationships continued (assumptions, reporting results) |
| 6. | Relationships continued (prediction, coefficient of determination, C.I.) |
| 7. | Comparisons of continuous traits between 2 groups (t-tests) |
| 8. | Comparison of continuous traits among >2 groups (ANOVA) |
| 9. | Comparisons continued (Post-hoc tests) |
| 10. | When X can be continuous or categorical (ANOVA vs regression) |
| 11. | Comparisons of multiple traits among groups (Multi-factor ANOVA) |
| 12. | General linear modeling (ANCOVA) |
| 13. | Count and binomial responses (Logistic and Poisson regression) |
| 14. | Interactions |
| 15. | Review; words of wisdom; pitfalls; examples of problem data |