**Instructor: Course Meeting Times:**

Robert Bubb Wednesday 11:00 – 1:45 (302 Spidle)

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**COURSE DESCRIPTION**

The HDFS 7060 course is intended for HDFS students who completed the basic graduate level research course HDFS 7050. HDFS 7060 is designed to further develop and extend students’ data analytic skills and to improve communication of findings to audiences of empirical researchers, scholars, and policy makers. The course will contribute directly to the diverse data analytic toolkit that the well-equipped empirical researcher must have available to perform sensible and believable analyses of complex psychological, developmental, and social data. Toward this end, the content of HDFS 7060 will help you 1) understand and use the general linear model and selected appropriate methods to answer your research questions, 2) interpret and explain the results of your statistical analyses, and 3) understand how most statistical analysis techniques are related to one another.

**COURSE FORMAT**

Class will be a mixture of lecture, discussion, and in-class activities. In each class, I will lecture on the key concepts for the week and discuss the readings. I will upload the PowerPoint presentations to the course webpage prior to each class. I expect students to come to class prepared to discuss the readings and to raise other relevant questions. Students will have the opportunity to apply class concepts and to learn how to use statistical software.

In the class, you will observe and engage in authentic data analysis. The use of statistical techniques will be “modeled” in class, and then you will apply these techniques to problems using real data in out-of-class homework assignments. You will interpret the results of your data analyses in words and communicate these interpretations clearly and concisely in writing. Learning computer skills necessary for data analysis will be an integral part of the course. In addition, you will learn some of the technical details underpinning the selected analysis, the inter-relationships among the different techniques discussed, and ways of dealing with the limitations of each technique.

I strongly recommend students form study groups to discuss the weekly readings before class. I also encourage students to help each other when conducting analyses for assignments; however**, everyone must turn in their own assignment in their own words**.

**READINGS**

Readings for each week, as well as course handouts, will either be placed on the course website, emailed, or handed out in class prior to the due date. The readings are critical to class discussions and written assignments and were chosen either because they are classics in the field, or they illustrate particular problems and difficulties in designing and conducting research.

**ASSIGNMENTS AND GRADING**

REACTION WORKSHEETS: The reaction worksheets are designed to promote application and critical reading and thinking skills. They also allow you to be familiar with the material *before* class time. Almost every week there will be several assigned readings. *For each reading*, I will provide a brief worksheet to get you thinking and writing about the topics. Please complete the worksheets in written form (unless otherwise stated) and *not* an outline form. I want you to articulate the topics. Reaction worksheets are due before class starts. This is a hard deadline as I want you to be familiar with the topics before we discuss them.

ASSIGNMENTS: There are 5 assignments. For most assignments, you will analyze data then write a response based on guiding questions, paying attention to issues of APA writing style. Your work will be graded on both the statistical analysis and the writing. Every assignment should have an introduction and a conclusion. You should also include only the relevant output with your assignment. Get an APA Style Manual if you do not own one already. Your grade will be lower if you do NOT use the proper APA format. Please note: APA format dictates that all tables come after the text and all figures follow the tables. Avoid putting your tables and figures in-text.

ASSIGNMENT WRITING: An important focus of these assignments is to help you learn how to write clearly and succinctly. The beginning assignments will mostly be a review of last semester. As we move to later concepts, brevity will serve you well. Finally, you will also need to explain your results. Each assignment will be limited to only 2 or 3 pages of text, plus any tables or figures.

IN-CLASS TESTS: There will be four in-class tests. Each test will be cumulative and will cover the basic topics learned in the course. Each week, I will post a handout with the basic topics from the lecture. Use the handout as a study guide as you prepare for the tests. Please feel free to see me regarding any topics that you feel need clarification. The dates of the tests are presented in the course schedule.

Assignments (25 points each) 125 points

Reaction Worksheets 55 points

In-Class Tests 80 points

**250 points possible**

**Your final grade will be computed using the following grading scale:**

225 - 250 points = A

200 - 224 points = B

175 - 199 points = C

150 - 174 points = D

000 - 149 points = F

*All assignments are to be handed in at the beginning of class on the day they are due. Assignments handed in late without my permission will be docked the equivalent of half a grade for each day they are late.*

***Class Participation & Professionalism***

You are expected to complete all of the required readings and review all of the handouts prior to class each week. I highly recommend that you do not miss class as much as it is humanly possible. The class moves very quickly, and you will feel lost if you miss a day. It is critical that you ask questions and know what is happening in the class. If you miss class, then you are required to let me know before class or as soon as possible following the absence. You are solely responsible to find out what is missed if you are absent. To encourage attendance and participation, up to 4 professionalism points will be provided for each class day. The professionalism points are added to the numerator and denominator of your course grade at the end of the semester (they are not extra credit points but will always equal a 100% grade).

Because the tenor of a course is directly affected by what you bring to class, you will also be evaluated on your professional conduct. Behaviors that reflect professionalism include coming to meeting on time, being engaged in classroom activities, and respecting those in the classroom. Additionally, professionalism should be reflected in your written assignments. Assignments should be well-written (e.g., organized, with few if any grammatical or spelling errors) and turned in on time. DO NOT TURN IN YOUR FIRST DRAFT. Have your first draft reviewed and then re-write it before turning it in. I encourage you to use the Miller Writing Center (<http://wp.auburn.edu/writing/writing-center/>), peers, and advisors for help with improving your writing. Behaviors that detract from a professional learning environment include (but are not limited to) using your computer or other electronic devices for activities not related to class (e.g., email, Facebook, texting), homework for other classes, calendaring, being inattentive, sleeping, and talking to others during class. I will give you one warning if you are in jeopardy of losing professionalism points; if the behaviors continue, your final grade will be lowered by 10 points.

**ACADEMIC INTEGRITY**

I expect that every assignment you turn in will be your own work. Students should be familiar with the many forms that plagiarism can take, including inadequate citations, a failure to acknowledge collaborations with colleagues, etc. All portions of the Auburn University Academic Honesty Code (Title XII) apply in this class. Please make sure you are familiar with these policies. You can find more information about the Academic Integrity Code in the Tiger Cub. Cases of plagiarism will result in you receiving a 0 for the assignment and referral to the University’s academic discipline board.

**STUDENTS WITH ACCOMMODATIONS**

Students who need 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 send me your Accommodation Memo prior to the meeting. If you do not have these forms but need accommodations, make an appointment with the Student Accessibility Center, 1244 Haley Center, 844-2096.

**Course Schedule**

*Every reasonable attempt will be made to follow the outlined course schedule; however, I reserve the right to make changes as necessary. All changes will be announced in class.*

**Week Topic Deliverables**

Week 1 (1/11) Introduction, Review of Linear Regression from HDFS 7050

Week 2 (1/18) Comparison between ANOVA and Regression Modeling

Week 3 (1/25) Introduction to Multivariate ANOVA Modeling

Week 4 (2/1) Detection and Correction of Model Violations I Test 1

Week 5 (2/8) Detection and Correction of Model Violations II Assignment 1

Week 6 (2/15) Detection and Correction of Model Violations III

Week 7 (2/22) Issues in Multiple Regression Analysis I Assignment 2

Week 8 (3/1) Issues in Multiple Regression Analysis II Test 2

Week 9 (3/8) **Spring Break (No Class)**

Week 10 (3/15) Looking for Structure in High Dimensional Data I Assignment 3

Week 11 (3/22) Looking for Structure in High Dimensional Data II

Week 12 (3/29) Predicting a Categorical Outcome I Test 3

Week 13 (4/5) Predicting a Categorical Outcome II Assignment 4

Week 14 (4/12) Mplus Workshop I

Week 15 (4/19) Mplus Workshop II

Week 16 (4/26) Mplus Workshop III/CFA/Flex day Test 4

Week 17 (5/4) Final Exam Week (No Class) Assignment 5