**MULTIPLE REGRESSION ANALYSIS IN BEHAVIORAL STUDIES (REMS 6013)**

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Or by appointment

**COURSE DESCRIPTION:**

Applications of multiple regression as a general data analysis strategy for experimental and non-experimental research in behavioral sciences.

**Required Course Textbook:**

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2002). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). New York, NY: Routledge.

**Course Objectives:**

1. To develop an understanding of correlation and regression as statistical methods for understanding behavioral, social, psychological, and educational phenomena.
2. To understand the underlying mathematical principles and procedures involved in regression methods for statistical analysis.
3. To appropriately apply regression to research problems and understand its application to real-world research.
4. To develop analytic and interpretive skills as related to regression methods necessary for independent research and for independent critique and understanding of others’ research.

**Mode/Style of Teaching:**

The teaching style for this class is a four-domain holistic education model, wherein education is targeted toward the whole person. In this model the “whole person” is conceptualized as the body, mind, soul, and heart, or the “doing”, “thinking”, “creating”, and “feeling” functions. Weekly discussions and course projects are all designed to target these domains and functions to encourage development and growth in all of these areas. This class is also built on a constructivist and social learning model, wherein students are expected to learn from the textbook, from the instructor, and from each other. This is accomplished through a reciprocal social interaction process where students contribute their understanding and knowledge to each other, thus enhancing the overall understanding of everyone in the class and allowing everyone to construct a more complete base of knowledge than would otherwise be possible.

**Course Assignments:**

1. **Projects:** There are four projects in the class. Projects will consist of data analysis and interpretation written up in APA style. Each project will include use of real data, addressing problems with those data, appropriately analyzing the data to answer the research question, writing up the results in an APA style results section, and then interpreting those results in an APA style discussion section. The projects will also include APA style tables as appropriate. Each project will include additional instructions. Projects are worth 100 points each.
2. **Exams:** There are two exams in this course, each worth 200 points. Each exam covers material from the preceding units and chapters, and will be comprised of calculations, theory, and interpretation.

1. **Presentation:** As a student in this course, you will be expected to apply the concepts of multiple regression analysis to an applied research database of your choice, and present your findings and interpretation to the class either in 1) a poster presentation that you explain and walk the class through, or 2) a 5-7 minute presentation (e.g. PowerPoint presentation) of your research. In either case, you will include a brief literature review supporting your research question, an APA style method section, an overview of your results, and an APA style Results section detailing your findings, and a Discussion section interpreting your findings. Your presentation will be accompanied by a brief write up (2-3 pages) of your research. You are expected to use *real data* for this project, either from your own research, research teams you work with or your department are conducting, or you can obtain data from other students or your instructor related to your research interests. More details on this assignment will be given in class. The combination of the presentation and the paper is worth 175 points.
2. **Research Participation:** As researchers, we often ask individuals to participate in our research. As such, it is incumbent on us to participate in the research of our colleagues. A requirement in this course is that you complete 2.0 units of research participation through the College of Education Sona system (<http://okstate-coeosu.cona-systems.com/>). You have automatically been added to the Sona system as a result of your enrollment in this course. If you for any reason do not wish to participate in human subjects research, contact the course instructor for an alternative assignment such as writing a research review or attending research seminars and writing about those experiences. This assignment is worth 25 points.

**Grading Structure/Requirements:**

There are a total of 1000 points in the course, which means you can take your total points and divide by ten to determine your percentage grade in the course. The grading structure is as follows:

|  |  |
| --- | --- |
| **Assignment Type** | **Total Points Possible** |
| Projects | 400 points |
| Exam One | 200 points |
| Exam Two | 200 points |
| Presentation/Paper | 175 points |
| Research Participation | 25 points |
| **TOTAL POINTS** | **1000 points** |

The course is graded as follows: A = 100-90%, B = 89.99%-80%, C = 79.99%-70%, D = 69.99%-60%, F < 60%. Therefore, an A is a final course grade ranging from 900-1000 points, a B is a final course grade ranging from 800-899 points, a C is a final course grade ranging from 700-799 points, a D is a final course grade ranging from 600-699 points, and an F is a final course grade of 599 points or less.

**CLASS PREPAREDNESS:**

Students are expected to arrive to class on time and prepared for required coursework. This means arriving prepared for in-class activities that may require the use of the textbook, spare paper, and a basic calculator. You should bring a calculator, the course textbook, and paper with you to each class period to be prepared for in-class activities designed to strengthen conceptual understanding.

**LATE WORK POLICY:**

Late work is not acceptable in graduate work. However, if you find that you are falling behind in your coursework, it is of the utmost importance that you immediately contact your instructor. As soon as you know there is any problem, immediately contact the course instructor. This is the best way to stay caught up with the course, and to achieve the highest possible grade.

If you find that you need to submit late work **it is required that you contact the instructor before submitting any late work.** Any late work submitted without first contacting the instructor to discuss the work and form a plan for getting caught up to date with coursework will not be accepted. This is to make sure that you receive all information you need about which assignments will take priority in getting caught up, and what, if any, credit can be given to late work before beginning. Communication is the key in getting caught up if you find yourself behind on work, so call, email, or stop by, whatever you need to do to get in contact!

**TENTATIVE Course Calendar:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Readings** | **Content** | **Assignments** |
| 1  8/20/12 | None | Introductions; Variance, Covariance, and Correlation |  |
| 2  8/27/12 | Chapter 2 | Simple Linear Regression |  |
| 3  9/3/12 | None | University Holiday – NO CLASS |  |
| 4  9/10/12 | Chapter 3 | Regression with Two Predictor Variables | Project 1 **DUE** |
| 5  9/17/12 | Chapter 3, Chapter 10 | Regression with *k* Predictor Variables |  |
| 6  9/24/12 | Chapter 3, and Handout | Partial and Semipartial Correlation  (Meet in Willard 007) | Project 2 **DUE** |
| 7  10/1/12 | Chapter 5, and Handout | Stepwise Regression Methods  (Meet in Willard 007) |  |
| 8  10/8/12 | None | Review Session for Exam One |  |
| 9  10/15/12 | None | **Exam One** | **Exam One** |
| 10  10/22/12 | Chapter 5 | Hierarchical Regression |  |
| 11  10/29/12 | Chapter 8 | Regression with One Categorical Predictor | Project 3 **DUE** |
| 12  11/5/12 | Chapter 9 | Regression with More than One Categorical Predictor |  |
| 13  11/12/12 | Chapter 9 | Regression with Categorical and Continuous Predictors |  |
| 14  11/19/12 | Chapter 12 | Path Analysis | Project 4 **DUE** |
| 15  11/26/12 | None | Presentations and Review | Presentation **DUE** |
| 16  12/3/12 | None | Presentations and Review | Research Participation **DUE** |
| 17  12/10/12 | None | **Exam Two** | **Exam Two** |

*Note.* All handouts can be found on D2L listed under the name of that week’s topic.

**Possible Changes to the Syllabus:**

“This syllabus is your contract for production in the course. If changes are made to it they will be posted on Desire 2 Learn. No changes increasing requirements will be made as they might adversely affect your grade.”

**Additional Information and Resources:**

**Academic Integrity:** “I will respect OSU’s commitment to academic integrity and uphold the values of honesty and responsibility that preserve our academic community.” Oklahoma State University is committed to the maintenance of the highest standards of integrity and ethical conduct of its members. This level of ethical behavior and integrity will be maintained in this course. Participating in a behavior that violates academic integrity (e.g., unauthorized collaboration, plagiarism, multiple submissions, cheating on examinations, fabricating information, helping another person cheat, unauthorized advance access to examinations, altering or destroying the work of others, and fraudulently altering academic records) will result in your being sanctioned.  Violations may subject you to disciplinary action including the following: receiving a failing grade on an assignment, examination or course, receiving a notation of a violation of academic integrity on your transcript (F!), and being suspended from the University.  You have the right to appeal the charge.  Contact the Office of Academic Affairs, 101 Whitehurst, 405-744-5627, [academicintegrity.okstate.edu](applewebdata://87CC91E0-1DEA-45C4-B616-8134158E7C0A/academicintegrity.okstate.edu).

Refer to the Contents Section for these additional course documents:

1. Oklahoma State University Syllabus Attachment Fall 2012

<http://osu.okstate.edu/acadaffr/aa/syllabusattachment-Fall.htm>

2. Oklahoma State University Office of the Registrar Enrollment Guide Fall 2012.