

**REMS 6003: ANALYSIS OF VARIANCE
COURSE SYLLABUS**

Spring 2010

Course Instructor: Chris M. Ray, Ph.D.
Office Address: 112 UAT Building
Office Phone: (405) 744-9650
E-mail Address: chris.ray@okstate.edu
Office Hours: Monday - Friday: 8:00a – 5:00p; Appointments recommended.

Course Materials

Textbook (*Required*):

Keppel, G. & Wickens, T. D. (2004). *Design and analysis: A researcher's handbook* (4th ed.). Upper Saddle River, NJ: Prentice Hall. (ISBN#0-13-515941-5)

Reference Materials (*Recommended*):

American Psychological Association. (2009). *Publication manual of the American Psychological Association*. (6th ed.). Washington, D.C.: American Psychological Association.

Additional Materials:

A calculator with a square root function is required. Supplemental readings may also be used, and other course materials including notes, handouts, and assignments will be posted on the D2L course website (<http://oc.okstate.edu/>).

Prerequisites

REMS 5013, REMS 5953, and admission to a doctoral level program or consent of instructor.

OSU Catalog Description of Course

A thorough examination of analysis of variance procedures as they relate to principles of experimental design in education and behavioral sciences.

Course Description

This course is designed to be an advanced presentation of experimental designs and the analysis of variance procedures associated with them. Students will gain conceptual and practical understanding of analysis of variance applications with an emphasis on building-block designs. Several complex designs will be addressed, including the analysis of covariance. Students will learn to conduct and interpret statistical analyses based upon these procedures.

Course Learning Opportunities

I. Attendance and Participation

Expectation: You are expected to prepare for and attend all class sessions and to participate in class discussions. Should you find an extreme circumstance that prevents you from attending class, arrangements for any due assignments must be made before class begins.

Invitation: As you consider the wide range of possibilities for understanding research in education, you are invited to bring in relevant topics, cognitive connections, or articles of new knowledge and understanding to present to the class members. This is not graded but is a necessity for collegiality, collaboration and other professional skills of researchers and practitioners in education.

II. Demonstration of Competencies Learned (Breadth of Learning Content)

Expectation: You are expected to complete two exams to demonstrate your mastery of the breadth of the course content. The exams will primarily be comprised of short answer and applied questions, though true-false, multiple choice, and essay questions may also be utilized as necessary to further demonstrate mastery. Additional information concerning each exam will be provided during the class period immediately preceding the exam. The exams are worth 100 points each.

Invitation: While we will cover numerous experimental designs using analysis of variance procedures, we will be unable to cover all designs and procedures, and some that are covered will be done so only in a cursory manner. As such, you are strongly encouraged to explore more fully other analysis of variance procedures that are of professional interest to you, some of which may be found in the text or in journal articles in your respective field. Should you choose to do so, the instructor will be glad to provide additional resources for your review.

III. Integrative and Creative Thought (Depth of Learning Content)

Expectation: You are expected to complete six projects throughout the semester based upon performing the statistical analyses required with a data set provided by the instructor and presenting a draft results section in APA (6th ed.) style. The assignments cover the basic ANOVA designs as discussed in class and are worth 50 points each.

Invitation: You are strongly encouraged to select data sets that are both personally and professionally meaningful, including data that can be used as the basis for future productive, scholarly endeavors. Should you wish to pursue analysis of such data sets outside of the course, the instructor will provide additional guidance and feedback upon request.

Grading and Other Important Details

- The contribution of each requirement to the grade is as follows:

Projects	<u>Value</u>	<u>Due Date</u>
Single-Factor Between-Subjects	50	February 4 th
Trend Analysis	50	February 18 th
Two-Factor Between-Subjects	50	February 25 th
Analysis of Covariance	50	April 1 st
Within-Subject	50	April 8 th
Mixed Model Design	50	April 15 th
Midterm Exam	100	March 11 th
Final Exam	100	April 29 th

- Course grades will be calculated as follows:

A: 90% or above
B: 80% - 89%
C: 70% - 79%
D: 60% - 69%
F: 59% or below.

- Use a realistic estimate when predicting the time you will need to complete the course activities and requirements. Although the option of taking an incomplete (“I”) may be available to you at the end of the semester should you encounter an emergency or other unexpected events, it will mean that you will receive one letter grade decrease in your course grade.

If you find that you are falling behind or are experiencing difficulty in completing course assignments, please discuss the situation with the instructor as soon as possible so that mutually-negotiated accommodations can be made that will enable you to fulfill the requirements of the course and to avoid having to take an incomplete. University policy dictates that incomplete grades can only be given if 70% of the course requirements have been completed by the end of the grading period.

- Because attendance is expected, late or make-up work will not be accepted except in the case of rare emergencies, which the student is required to document (e.g., accident report, signed/dated doctor’s note, etc.). If suitable documentation is provided, all make-up work must be completed within 3 working days of the absence. In the case of foreseen, documented absences, all assignments are expected to be submitted prior to the absence. If necessary, make up exams will be given at the convenience of the instructor and may be significantly more difficult than the scheduled exam (since you will have had additional preparation time).
- It is highly unlikely that extra credit will be allowed as ample opportunities have been provided for students to demonstrate their mastery of course objectives. If an extra credit opportunity does become available, however, it will be announced to the entire class and never offered on an individual basis.
- In an effort to ensure a quality learning environment for everyone involved, it is imperative that classroom disruptions, such as unnecessary conversations, be eliminated. As ringing cell phones, text messaging, and playing games typically cause a disruption, you are expected to ensure that your cell phone is turned off before entering the classroom. If you must keep an electronic device turned on for emergency communications, please inform the instructor before the class period begins.
- Learn and practice APA (6th edition) style of writing early as all written assignments in this course must be submitted using this style. For more information regarding APA Style, including changes in the sixth edition, visit <http://www.apastyle.org/>.
- Students are expected to search library databases to retrieve scholarly research articles. This information will not be covered during class meetings, though the OSU library assists students to become proficient in using academic search engines and databases.
- You are encouraged to structure professional input from others throughout the semester to promote optimal success. In other words, fully utilize your colleagues as appropriate – including fellow students and the instructor – as you work on course products.

Course Schedule

<u>Session</u>	<u>Topics</u>	<u>Readings & Due Dates</u>
1 – January 14	Introductions (to each other and the course)	
2 – January 21	Experimental Design	Chapters 1, 9
3 – January 28	Single-Factor Between-Subjects Design	Chapters 2, 3, 7, 8
4 – February 4	Post-Hoc Techniques for Main Effects/Single Factors	Chapter 6 Assignment #1 Due
5 – February 11	Analytical Comparisons and Analysis of Trends	Chapter 4, 5
6 – February 18	Two-Factor Between-Subjects Design	Chapters 10, 11 Assignment #2 Due
7 – February 25	Post-Hoc Techniques for Interaction	Chapters 12, 13 Assignment #3 Due
8 – March 4	Blocking Designs	Chapter 11 (pp. 228-232)
9 – March 11	Midterm Exam	
<i>March 18</i>	<i>Spring Break – No Class</i>	
10 – March 25	Unequal Sample Sizes; Analysis of Covariance	Chapter 14, 15
11 – April 1	Within-Subjects Design	Chapters 16, 17, 18 Assignment #4 Due
12 – April 8	Mixed Model Design	Chapters 19, 20 Assignment #5 Due
13 – April 15	Multidimensional Between-Subjects Design	Chapters 21, 22, 23 Assignment #6 Due
14 – April 22	Random and Nested Factors	Chapters 24, 25
15 – April 29	Make-Up/Review	
Tuesday, May 4 th 10:00 – 11:50a	Final Exam	

Possible Changes in the Syllabus

This syllabus is your contract for production in the course. Any changes made to it will be announced in class and posted on D2L as soon as possible. No changes increasing requirements will be made as these might adversely affect your grade.

Students Rights and Responsibilities

<http://www.okstate.edu/ucs/sja/srr.html>

Classroom Conduct Policy

Classroom conduct will be governed by Student Rights and Responsibilities Governing Student Behavior, Fall 2009, Section IX, Academic Policies, Rights, and Responsibilities, Subsection C, last sentence: "It is the responsibility of the student to conform to conduct conducive to learning by being prepared, prompt, attentive, and courteous in the classroom and by conforming to policies set by the teacher to maintain an academic decorum". <http://www.okstate.edu/ucs/SJA/sectionIX.htm>.

Academic Integrity

Consistent with Oklahoma State University policy, academic dishonesty and/or misconduct will not be tolerated. It is important that you are aware of university policy and procedures in the event that violations of academic dishonesty or misconduct do occur (please see www.okstate.edu/ucs/srr.html). Should a violation of this policy occur (and following a meeting between the instructor and the accused student), disciplinary actions consistent with university policy would be initiated. A description of behaviors that constitute academic dishonesty and/or misconduct can be found online at <http://osu.okstate.edu/acadaffr/aa/ai-violations.htm>

Intellectual Property Policy

Words and ideas are the intellectual property of the individuals who originated them. Thus, whenever you quote more than three words in sequence from any single source, you must enclose those words in quotation marks. Cite in parentheses the author of the book or article, the year of publication, and the number of the page on which the words were written (e.g., Solomon, 2003, p. 125). Include the complete citation of the source in your references at the end of your paper. Failure to follow these procedures will result in loss of points on any paper in which such failure occurs. Furthermore, failure to follow these procedures may be viewed as plagiarism and, thus, a violation of university policies that pertain to academic integrity. **The instructor reserves the right to report academic integrity violations and assign a grade of "F" in the course.**

Sexual Harassment

Please see the link below to review university policy and procedures regarding sexual harassment and gender discrimination.

<http://home.okstate.edu/policy.nsf/0/1fed349052d11b0a862562d8007c090f?OpenDocument>

Drop and Add Policy

The standard drop/add policy for fall classes will be followed as described in the Spring 2010 Syllabus Attachment.

Students with Disabilities

If any member of this class feels that he or she has a disability and needs special accommodations of any nature, the instructor will work with you and the Office of Student Disability Services (Student Union Room 326) to provide reasonable accommodations to ensure that you have a fair opportunity to perform in this class. Please advise the instructor of such disability and the desired accommodations no later than the end of the first week of classes.