

Psychological Statistics: ANOVA Models
 PSY 6290/6291 and PSY 7290
 Summer 2010
 MTWR 10:10 – 12:30

Note. I reserve the right to correct any errors on or omissions from the syllabus.

Instructor: Dr. Dana K. Fuller

Office Hours: By appointment due to JH renovations

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Recommended Text: *Designing Experiments and Analyzing Data, 2nd edition* (Maxwell & Delaney, 2004)

Lecture Notes: Copies of the lecture notes may be downloaded from this website www.mtsu.edu/~dkfuller/psy629/. You need to bring the notes to class.

Statistical Software: SPSS will be used for in-class demonstrations and exams. You are welcome to use another software package for your projects, but no support from the instructor will be provided for other software packages. As well, you are responsible for any software inaccuracies.

<http://www.e-academy.com/>

- **SPSS GradPack** (\$85 for six month rental; \$120 for 12 month rental); Windows, Mac, and Linux platforms available. The base version does not include within-subjects designs.
- **Tibco Spotfire S+ 8.04** Student Edition (free license for 1 year; Windows platform)
- **SAS Learning Edition 4.1** (\$60, license expires at the end of 2011; XP only)

BAS Computer Lab

- SPSS and SAS are available on computers 1 – 10.
- The lab is open 24 hours, 7 days per week.

LRC Computer Lab

- SPSS and SAS are available on all computers.
- **Summer Schedule**

Monday – Thursday	8:00 a.m. - 7:00 p.m.
Friday	8:00 a.m. - 4:30 p.m.
Saturday	Noon - 4:00 p.m.
Sunday	CLOSED
Monday, July 5	CLOSED

PSY 6290 Grading Criteria—Grades will be posted on D2L.

Grading		Final Course Grade	
Exams	2 @ 100 = 200	A = 270 + points	C- = 210 to 215 points
Project	60	B+ = 264 to 269 points	D+ = 204 to 209 points
Assignments	40	B = 246 to 263 points	D = 186 to 203 points
Total Points Possible	300	B- = 240 to 245 points	D- = 180 to 185 points
		C+ = 234 to 239 points	F = 0 to 179 points
		C = 216 to 233 points	

PSY 7290 Grading Criteria—Grades will be posted on D2L.

Grading		Final Course Grade	
Exams	2 @ 100 = 200	A = 315 + points	C- = 245 to 251 points
Project	60	B+ = 308 to 314 points	D+ = 238 to 244 points
Article Critique	20	B = 287 to 307 points	D = 217 to 237 points
Article Summaries	3 @ 10 = 30	B- = 280 to 286 points	D- = 210 to 216 points
Assignments	40	C+ = 273 to 279 points	F = 0 to 209 points
Total Points Possible	350	C = 252 to 272 points	

All assignments, projects, and articles are due by 10:10 a.m. on the dates shown below.

June 7	June 8	June 9	June 10 Article 1 Due *Drop without a grade by June 10
June 14 Assign. 1 Due	June 15	June 16	June 17 Article 2 Due *Drop with a 'W' by June 20
June 21 Assign. 2 Due Exam 1	June 22	June 23	June 24 Article 3 Due
June 28 Assign. 3 Due	June 29	June 30	July 1 Article 4 Due
July 5 No Class	July 6 Assign. 4 Due Exam 2	July 7	July 8 Project Due Comprehensive Final

Exams and Assignments

- ❑ Exams must be taken on the specified dates and times. Students who miss one exam must take a comprehensive final exam on July 8. If you miss more than one exam, the excess missed exams will be treated as zeroes for purposes of grade calculations.
- ❑ MTSU Student IDs will be checked on exam days.
- ❑ A calculator* and two **hand-written** 'cheat sheets' (8.5"x11", double-sided per sheet) are permitted during the exams. You may not borrow another person's calculator or cheat sheet during exams. *Communication devices (e.g., cell phones, blackberries) are not permitted.
- ❑ Assignments, article reviews/, and projects must be turned in by the specified dates and times to receive any credit. **Upload them to D2L.**

Proposed Topics To Be Covered (in order)

1. Review of Basic Statistics
2. Review of t Tests
3. One-Way ANOVA
4. Multiple Comparisons
5. Trend Analysis
6. Factorial ANOVA (Two-Way Emphasized)
7. One-Way ANCOVA
8. Univariate One-Way Repeated Measures ANOVA
9. Univariate Factorial Repeated Measures ANOVA (Two-Way Emphasized)
10. Multivariate One-Way Repeated Measures ANOVA
11. Multivariate Factorial Repeated Measures ANOVA (Two-Way Emphasized)

Academic Misconduct

Each student is expected to do his or her own work. Students caught engaging in academic misconduct (plagiarism, cheating, fabrication, or facilitation) will be given an **F for the course**. As well, the academic misconduct will be reported to the university authorities—including program coordinators. MTSU's Judicial Affairs has prepared a handout about academic integrity that defines it and provides examples of what is considered academic misconduct (<http://www.mtsu.edu/~judaff/ainews.pdf>). You are expected to read it.

- ❑ **Assignments:** Students are permitted to compare answers as a means of checking for calculation errors. That said, students are expected to do their own work.
- ❑ **Exams, Projects, and Articles:** Collaboration of any kind is prohibited and considered academic misconduct.

Attendance

Attendance is not required, but you are responsible for all information given in class.

Accommodations

Students who may need assistance or accommodation for testing, note takers, readers, etc. should contact the Office of Disabled Student Services (898-2783). After I have received official notification from the Office of Disabled Student Services, I will make the necessary accommodations within a reasonable amount of time.

Classroom Behavior

I ask students to be considerate of others.

- ❑ Change cell phones to vibrate or silent mode.
- ❑ Do not engage in personal conversations during class unless the class is engaged in small group activities and your group has finished the task at hand.
- ❑ Treat each other courteously.

Article Topics (summarize 3, critique 1)**Between-Subjects Designs (at least one article)**

- One-Way ANOVA with pairwise comparisons
- One-Way ANOVA with trend analysis (not regression)
- Factorial ANOVA
- ANCOVA

Within-Subjects Designs (at least one article)

- One-Way Repeated Measures ANOVA with pairwise comparisons
- Factorial Repeated Measures ANOVA
- Repeated Measures ANCOVA

Article Summary and Critique Guidelines**Type of Article to be Reviewed**

- Empirical research study
- Published within the last 24 months
- Published in a peer-reviewed APA journal or equivalent (check with instructor)
- Minimum article length of 10 pages
- Article may be reviewed only once (i.e., you cannot use the same article for two or more summaries or critiques)

Format of the critique

- Two to four pages in length, typed
- Times New Roman, 12 point font, 1 inch margins on all sides, number the pages
- Written in your own words using current APA format; do not quote from the article

Provide a summary of the article (approximately two pages)

- Introduction
 - Purpose of the article
 - Hypotheses tested
- Methods Section
 - Description of sample(s)
 - Description of measure(s)
 - Research design used
- Results
 - Descriptive statistics reported
 - Statistical procedure(s) used to test each hypothesis
 - Describe follow-up analyses if relevant
- Discussion Section
 - Interpretation of results

Critique the article (approximately two pages), especially as it relates to the statistical procedure(s) used and their interpretations of the results.

Descriptive statistics. Were descriptive statistics (e.g., M, SD, correlations) included for relevant variables, for each group? You may want to check sample sizes against reported degrees of freedom. Were the means and standard deviations within reason (e.g., if scale is from 1 to 10, is the mean 12?) Were the reported statistical values plausible? Was the sample of sufficient size to justify the analysis used?

Statistical procedure(s). Was the appropriate analysis used to test the hypothesis? Were the statistical assumptions valid for the data they had?

Thoroughness of results section. Did they describe the criteria they used to determine importance/significance (e.g., alpha level of .05, effect sizes, statistical procedure(s) used, reliability or validity of measures)? Did they describe any follow-up analyses?

Clarity. Did they clearly describe the results they found? Were the results presented in a clear, logical, and concise manner?

Accuracy of interpretation. Did they correctly interpret their findings? Stated another way, were the conclusions supported by the results they found?

You are welcome to mention other methodological flaws in their study, but the critique should focus on the statistics.

The top of your summary or critique should be single-spaced and include the statistical procedure being reviewed as well as the bibliographic citation for the article. The article summaries and critique should be double-spaced. An example is shown below.

Dana Fuller
Factorial ANOVA Article Critique

Kim, J. K. (2009). An IRT analysis of students' religiosity. *International Journal of Religious Studies*, 24, 19 – 30.

Introduction (Double-space for the rest of the paper)

The purpose of the article was to

Attach a copy of the article to your summary or critique.