PSYC 5405 Advanced Statistics I Fall 2011

Instructor: Angela Liegey Dougall, PhD
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Course Website: Please go to Blackboard at http://www.uta.edu/blackboard/

Office Hours: Tuesday & Thursday 10:50-11:50 AM and by appointment

Time and Place of Class Meetings:

Lecture: 428 Life Science; Tuesday & Thursday 9:30-10:50 AM
Lab: 256 ELAB; Monday 4:00-6:50 PM

Lab Teaching Assistants:

Coordinator:	Jeffrey Swanson	Anna Park
Office Location	521 Life Science	538 Life Science
Email Address:	jeffrey.swanson@mavs.uta.edu	anna.park@mavs.uta.edu
Office Hours:	Monday 12:00 - 1:00 PM	Monday 1:00 – 2:00 PM

Description of Course Content: PSYC5405- ADVANCED STATISTICS I 4 hours credit
The course offers an in-depth practical and conceptual approach to fundamental descriptive and inferential statistics used in psychological research.

Student Learning Outcomes: This course consists of learning a variety of procedures commonly used for testing hypotheses in psychological research, learning to examine and analyze the data accordingly, and learning to communicate the research results to the scientific community. Specific learning outcomes are listed below.

1. Learn how to **create a database, properly code and screen data, and present the results**. These objectives will be accomplished by using SPSS or another statistical software package to create a database, manage data, and conduct data screening procedures, and by writing sections describing data screening and results for assignments, take-home exams, and the final project.
2. Learn how to **determine and describe the strength of association and direction of relationships between two or more variables** by identifying and computing (both by hand and with a statistical package) appropriate statistical tests, such as chi-square statistics, correlation coefficients, and linear regression models, and by writing Data Analysis and Results sections.

3. Learn how to **examine and present significant mean differences between and within groups** by identifying and computing (both by hand and with a statistical package) appropriate statistical tests, such as t-tests and analysis of variance models (ANOVA), and by writing Data Analysis and/or Results sections.
4. Learn how to **write professional papers** by composing drafts of one complete paper and many drafts of Data Analysis and Results Sections each using the knowledge gained about APA writing style and the content of each of these sections.

Requirements: One (1) lab section is available. You must be registered in lecture (PSYC 5405-001) and the lab section (PSYC 5405-002) concurrently. Please see the **lab schedule** for further information.

Required texts and resources (bring texts to lecture and lab):

- Howell, D. C. (2010). *Statistical methods for psychology* (7th ed.). Belmont, CA: Wadsworth. (ISBN: 978-0-495-59784-1)
- American Psychological Association (2009). *Publication manual of the American Psychological Association* (6th edition). Washington, D.C.: APA. (ISBN: 1-4338-0561-8)
- UT Austin SPSS Online Tutorial available at http://ssc.utexas.edu/software/software-tutorials#SPSS .
- Reserved readings will be available in the Science Education and Career Center in LS106.

Required supplies:

- A calculator will be needed.
- Access to a computer with statistical software. Computers are available in the OIT Labs. The following labs have computers on which SPSS is installed: Business Building and University Hall. Computers with statistical software (SPSS & SAS) are also available in the Graduate Reading Room (LS544B) and statistical software is available for purchase through the University of Texas at Arlington. SPSS will be used in the lecture and lab but students are able to use another statistical software program if they choose.

Recommended (optional) resources:

- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Thousand Oaks, CA: Sage. (ISBN: 978-1-84787-907-3)
- www.apastyle.org

Assignments and exams: In addition to in-class exercises, other exercises and assignments will be scheduled throughout the term. Homework assignments will total to equal 100 points. Participation in lecture and lab will also be worth 100 points. Two cumulative take-home exams will be given and will be worth 100 points each. See the **course schedule** for exam dates. A final project will be due on November 28, 2011 and will be worth 200 points. The final project will be a complete manuscript that will consist of using the statistical analyses learned in this course to test hypotheses generated by the student using a database identified by the student. Approval of hypotheses, data analyses, and data sets must be secured prior to submitting the final project.

Attendance: Regular attendance at lecture and lab is expected and counts toward the participation grade.

Make-up work: Make-up and/or late assignments and exams will be granted only for University-approved, documented absences.

Grading: You will receive one course grade for your combined performance in the lecture and laboratory. You will have a chance to earn **600 points** total. There will be two take-home exams worth 100 points each and a final project worth 200 points. Additionally, lecture and lab participation will be worth 100 points and homework assignments will be worth 100 points. Final course grades will be calculated by adding participation, homework, exam and final project points together, dividing by 600, and assigning final letter grades as follows:

Letter Grade	Percentage of Points	Points required
A	89.5-100.0%	537-600
B	79.5-89.4%	477-536.4
C	69.5-79.4%	417-476.4
D	59.5%-69.4%	357-416.4
F	0%-59.4%	0-356.4

Grade Grievance Policy: The University Grade Grievance Policy will be followed. (See Grade Grievance Policy in the Graduate School Regulations and Information.)

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/ses/fao). The University Drop Policy will be followed. (See Drop Policy in the Graduate School Regulations and Information.)

Americans With Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for

obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Academic Integrity: At UT Arlington, academic dishonesty is completely unacceptable and will not be tolerated in any form, including (but not limited to) "cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts" (UT System Regents' Rule 50101, §2.2). Suspected violations of academic integrity standards will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Sections of your work for which scholastic dishonesty has been detected will receive zero points and a disciplinary report will be filed.

Student Support Services:

- **Computers** are available in the OIT Labs. The following labs have computers on which SPSS is installed: Business Building and University Hall.
- **Library information** can be obtained through Helen Hough, Psychology Librarian. Please contact her by phone (817-272-7429) or by email (hough@uta.edu). You will find useful information for psychology at http://libguides.uta.edu/cat.php?cid=521.
- **Other** services can be obtained from the University. UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may contact the Maverick Resource Hotline by calling 817-272-6107, sending a message to resources@uta.edu, or visiting www.uta.edu/resources.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory will be asked to complete an online Student Feedback Survey (SFS) about the course and how it was taught. Instructions on how to access the SFS system will be sent directly to students through MavMail approximately 10 days before the end of the term. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback data is required by state law; student participation in the SFS program is voluntary.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, **classes are held as scheduled**. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Librarian to Contact: Library information can be obtained through Helen Hough, Psychology Librarian. Please contact by email (hough@uta.edu). You will find useful information for psychology at http://libguides.uta.edu/psychology and at http://libguides.uta.edu/content.php?pid=5716 .

PSYC 5405 Advanced Statistics I Tentative Lecture Schedule Fall 2011 Tentative Lab schedule

Wk	Date	Lecture Topic	Reading Assignments	Date:	Lab Exercises/Assignments	Assignment Due
1	T 8/23			M 8/29	SPSS: Codebook, Database Construction, Data Entry, Checking Data	
	R 8/25	Overview & Data Coding	Howell Chpt. 1			
2	T 8/30	Data Screening: Data Coding, Entry, & Descriptive Statistics	Howell Chpt. 2-3 Reserve Readings: T & F Chpt. 4 UT – Austin SPSS Tutorial: 1 Getting Started & 4 Data Manipulation & Advanced Topics Section 8 Syntax UT Austin SPSS Tutorial: 2 Descriptive & Inferential Statistics Section 1: Summarizing Data	M 9/5	***Labor Day Holiday*** ***NO LAB***	
	R 9/1					
3	T 9/6	Data Screening: Distributions & Scoring		M 9/12	SPSS: Screening & Descriptive Statistics	Assignment 1: Copy of UTA CITI Human Research Subjects Training & Copy of Completion of UTA Tutorial on Acknowledging Sources
	R 9/8	Probability & Sample Statistics	Howell Chpt. 5		How To Write A Results Section: Data Screening	
4	T 9/13	Sampling Distributions & Hypothesis Testing	Howell Chpt. 4	M 9/19	Probability	Assignment 2
	R 9/15	Hypothesis Testing: z tests			How To Write A Data Analysis Section & The Beginning Of A Discussion	Ex. Of Results Sections For Descriptive Statistics Due 9/16
5	T9/20	Measures of Association: chi-square	Howell Chpt. 6 UT Austin SPSS Tutorial: 2 Descriptive & Inferential Statistics: Chi-square	M 9/26	Z and Chi-square	Assignment 3
	R 9/22				How To Write Data Analysis & Results Sections For Chi-square	Ex. Of Results Sections For Chi-Square Due 9/23
6	T 9/27	Correlation & Prediction	Howell Chpt. 9-10 UT Austin SPSS Tutorial: 2 Descriptive & Inferential Statistics: Correlation	M 10/3	Correlations	Assignment 4
	R 9/29				How To Write Data Analysis & Results Sections For Correlations	Ex. Of Results Sections For Linear Regression Due 9/30
7	T 10/4	Introduction To Linear Regression	Howell Chpt. 9 UT Austin SPSS Tutorial: 2 Descriptive & Inferential Statistics: Regression	M 10/10	Simple Linear Regression	Assignment 5
	R 10/6	T-tests	Howell Chpt. 7		How To Write Data Analysis & Results Sections For Linear Regression	Ex. Of Results Sections For Linear Regression Due 10/7
8	T 10/11	T-tests	Howell Chpt. 7 UT Austin SPSS Tutorial: 2 Descriptive & Inferential Statistics: T-test	M 10/17	T-tests	Assignment 6
	R 10/13	Oneway ANOVA ***Hand out Exam 1***	Howell Chpt. 11, pp.317-343		How To Write Data Analysis & Results Sections For T-test	Ex. Of Results Sections For T-test Due 10/14
9	T 10/18	Oneway ANOVA	Howell Chpt. 11, pp.317-343	M 10/24	Oneway ANOVA	***First Take-Home Exam Due***
	R 10/20	Multiple Comparisons	Howell Chpt. 12		How To Write Data Analysis & Results Sections For Oneway ANOVA	Ex. Of Results Sections For One-way Due 10/22

Wk	Date	Lecture Topic	Reading Assignments	Date:	Lab Exercises/Assignments	Assignment Due
10	T 10/25	Trends & The Linear Model	Howell Chpt. 12	M 10/31	Comparisons & Contrasts	Assignment 7 ***Proposal Due***
	R 10/27	Power Analysis	Howell Chpt. 8 & Chpt. 11, pp. 343-354		How To Write Data Analysis & Results Sections For Comparisons & Contrasts	Ex. Of Results Sections For Comparisons & Contrasts in ANOVA Due 10/28
11	T 11/1	Factorial Design	Howell Chpt. 13	M 11/7	How to Calculate Sample Size	Assignment 8
	R 11/3	Factorial ANOVA	Howell Chpt. 13 & Chpt. 16, pp. 579-598 UT Austin SPSS Tutorial: 2 Descriptive & Inferential Statistics: General Linear Model		How To Write Sample Size Determination In A Proposal	Ex. Of Sample Size Determination for T-Test or One-way ANOVA Due 11/4
12	T 11/8	Factorial ANOVA	Howell Chpt. 13 & Chpt. 16, pp. 579-598 UT Austin SPSS Tutorial: 2 Descriptive & Inferential Statistics: General Linear Model	M 11/14	ANOVA & GLM	Assignment 9 ***Rough Draft Due (optional)***
	R 11/10				How To Write Data Analysis & Results Sections For Factorial ANOVA	Homework Exam 1 Due Ex. Of Results Sections For Two-Way Between ANOVA Due 11/11
13	T 11/15	Repeated Measures ANOVA	Howell Chpt. 14, pp. 461-471 & 498-499	M 11/21	GLM Factorial ANOVA	Assignment 10
	R 11/17				How To Write Data Analysis & Results Sections For Factorial ANOVA	Ex. Of Results Sections For Two-Way Between ANOVA Due 11/18
14	T 11/22	Multivariate Approach to Repeated Measures	Reserved Reading: T & F Chpt. 8	M 11/28	GLM RM ANOVA	***Final Project Due***
	R 11/24	***Thanksgiving Holiday NO LECTURE***			How To Write Data Analysis & Results Sections For RM ANOVA	Ex. Of Results Sections For Within-Subjects ANOVA Due 11/23
15	T 11/29	Mixed ANOVA ***Hand out Exam 2***	Howell Chpt. 14, pp. 471-495	M 12/5	GLM Mixed ANOVA	Assignment 11
	R 12/1	Hypothesis Generation			How To Write Data Analysis & Results Sections For Mixed ANOVA	Ex. of Results Sections For Mixed ANOVA Due 12/2
16	T 12/6	TBA	TBA	M 12/12	***Finals Week***	***Exam 2 Due***
	R 12/8					
17	T 12/13	***Second Take-Home Exam Due 12/12 by 4:00 p.m.***				
	R 12/15					