

PSYC 5405

Advanced Statistics I

Fall 2009

Instructor: Angela Liegey Dougall, PhD
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Course Website: Please go to WebCT at <http://www.uta.edu/webct/index.htm>

Office Hours: Tuesday & Thursday 2:00-3:00 PM and by appointment

Time and Place of Class Meetings:

Lecture: 420 Life Science; Tuesday & Thursday 12:30-1:50 PM

Lab: 04 University Hall; Monday 4:00-6:50 PM

Lab Teaching Assistant:

Coordinator:	Jason Popan	Wen Cheng
Office Location	537 Life Science	405 Life Science
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Office Hours:	Monday 12:00 - 2:00 PM and by appointment	Wednesday 1:00-2:00 PM and by appointment

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 to test 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 and how to properly code and screen data and present the results** by using SPSS or another statistical software package for data management and database creation and by conducting appropriate data screening procedures and writing sections describing data screening 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)
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Thousand Oaks, CA: Sage. (ISBN: 978-1-84787-907-3)
- 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/consulting/tutorials/index.html> .
- 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 PASW/SPSS is installed: Business Building, Fine Arts Building, Ransom Hall, and University Hall. Computers with statistical software (PASW/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. PASW/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: 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 be and worth 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 30, 2009 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:

<u>Letter Grade</u>	<u>Percentage of Points</u>	<u>Points required</u>
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:

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 federal equal opportunity legislation; reference Public Law 92-112 - The Rehabilitation Act of 1973 as amended. With the passage of federal legislation entitled *Americans with Disabilities Act (ADA)*, pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty of their need for accommodation and in providing authorized documentation through designated administrative channels. Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found at www.uta.edu/disability. Also, you may visit the Office for Students with Disabilities in room 102 of University Hall or call them at (817) 272-3364.

Academic Integrity:

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

"Scholastic dishonesty includes but is 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." (Regents' Rules and Regulations, Series 50101, Section 2.2)

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 PASW/SPSS is installed: Business Building, Fine Arts Building, Ransom Hall, 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://library.uta.edu/JDBC/DBs/narrowdbs.jsp?DBID=PSYCHOLOGY>.
- **Other** services can be obtained from the University. The University supports a variety of student success programs to help you: learning assistance, developmental education, advising and mentoring, admission and transition, and information about federally funded programs. Students seeking assistance with academic, personal or social problems should contact the Office of Student Success Programs at 817-272-6107.

E-Culture Policy:

The University of Texas at Arlington has adopted the University email address as an official means of communication with students. Through the use of email, UT-Arlington is able to provide students with relevant and timely information, designed to facilitate student success. In particular, important information concerning registration, financial aid, payment of bills, and graduation may be sent to students through email.

All students are assigned an email account and information about activating and using it is available at www.uta.edu/email. New students (first semester at UTA) are able to activate their email account 24 hours after registering for courses. There is no additional charge to students for using this account, and it remains active as long as a student is enrolled at UT-Arlington. Students are responsible for checking their email regularly.

PSYC 5405 Advanced Statistics I Tentative Lecture Schedule

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Tentative Lab schedule

Wk	Date	Lecture Topic	Reading Assignments	Date:	Lab Exercises/Assignments	Assignment Due
0				M 8/24	NO LAB Assignment 1 will be electronically distributed	
1	T 8/25	Data Entry & Screening	Howell Chpt. 1 Reserve Readings: T & F Chpt. 4	M 8/31	SPSS: Codebook, Database Construction, Data Entry, Checking Data SPSS: Screening & Descriptives How To Write A Results Section: Data Screening	Assignment 1: Copy of UTA CITI Human Research Subjects Training & Copy of Completion of UTA Tutorial on Acknowledging Sources DUE Friday 8/28
	R 8/27	Data Manipulation	Field Chpt. 1 & Chpt. 3 UT – Austin SPSS Tutorial: 1 Getting Started & 4 Data Manipulation & Advanced Topics Section 8 Syntax			
2	T 9/1	Descriptive Statistics	Howell Chpt. 2-3 Field Chpt. 2, pp. 31-48; & Chpt. 4 pp. 87-103; Chpt. 5;	M 9/7	Labor Day Holiday NO LAB	
	R 9/3	Distributions & Data Screening	Chpt. 17, pp. 673-681 UT Austin SPSS Tutorial: 2 Descriptive & Inferential Statistics			
3	T 9/8	Probability & Sample Statistics	Howell Chpt. 5	M 9/14	Probability How To Write A Data Analysis Section & The Beginning Of A Discussion	Assignment 2 Ex. Of Results Sections For Descriptive Statistics Due 9/11
	R 9/10					
4	T 9/15	Proportions & Measures of Association	Howell Chpt. 6 Field Chpt. 18, pp. 686-701	M 9/21	Z and Chi-square How To Write Data Analysis & Results Sections For Chi-square	Assignment 3 Ex. Of Results Sections For Chi-Square Due 9/18
	R 9/17					
5	T 9/22	Correlation & Prediction	Howell Chpt. 9-10 Field Chpt. 4, pp. 116-120 & Chpt. 6	M 9/28	Correlations How To Write Data Analysis & Results Sections For Correlations	Assignment 4 Ex. Of Results Sections For Linear Regression Due 9/25
	R 9/24					
6	T 9/29	Introduction To Linear Regression	Howell Chpt. 9 Field Chpt. 7, pp. 197-209	M 10/5	Simple Linear Regression How To Write Data Analysis & Results Sections For Linear Regression	Assignment 5 Ex. Of Results Sections For Linear Regression Due 10/2
	R 10/1	Z tests & T-tests	Howell Chpt. 4 Field, Chpt. 2, pp. 48-56			
7	T 10/6	T-tests	Howell Chpt. 4 Field Chpt. 9 UT Austin SPSS Tutorial: 2 Descriptive & Inferential Statistics: T-test	M 10/12	T-tests How To Write Data Analysis & Results Sections For T-test	Assignment 6 Ex. Of Results Sections For T-test Due 10/9
	R 10/8	Oneway ANOVA Hand out Exam 1	Howell Chpt. 11, pp.317-343			
8	T 10/13	Oneway ANOVA	Howell Chpt. 11, pp.317-343 Field Chpt. 10	M 10/19	Oneway ANOVA How To Write Data Analysis & Results Sections For Oneway ANOVA	First Take-Home Exam Due Ex. Of Results Sections For One-way Due 10/15
	R 10/14	Multiple Comparisons	Howell Chpt. 12			

Wk	Date	Lecture Topic	Reading Assignments	Date:	Lab Exercises/Assignments	Assignment Due
9	T 10/20	Multiple Comparisons & Planned Contrasts	Howell Chpt. 12 Field Chpt 4, pp. 103-115	M 10/26	Comparisons & Contrasts How To Write Data Analysis & Results Sections For Comparisons & Contrasts	Assignment 7 Proposal Due Ex. Of Results Sections For Comparisons & Contrasts in ANOVA Due 10/23
	R 10/22					
10	T 10/27	Power Analysis	Howell Chpt. 8 & Chpt. 11, pp. 343-354	M 11/2	How to Calculate Sample Size	Assignment 8 Ex. Of Sample Size Determination for T-Test or One-way ANOVA Due 10/30
	R 10/29	Factorial Design	Howell Chpt. 13		How To Write Sample Size Determination In A Proposal	
11	T 11/3	Factorial ANOVA	Howell Chpt. 13 Field Chpt. 12 UT Austin SPSS Tutorial: 2 Descriptive & Inferential Statistics: General Linear Model	M 11/9	ANOVA & GLM How To Write Data Analysis & Results Sections For Factorial ANOVA	Assignment 9 Rough Draft Due (optional) Homework Exam 1 Due Ex. Of Results Sections For Two-Way Between ANOVA Due 11/6
	R 11/5					
12	T 11/10	Factorial ANOVA	Howell Chpt. 16, pp. 579-598	M 11/16	GLM Factorial ANOVA How To Write Data Analysis & Results Sections For Factorial ANOVA	Assignment 10 Ex. Of Results Sections For Two-Way Between ANOVA Due 11/11
	R 11/12					
13	T 11/17	Repeated Measures ANOVA	Howell Chpt. 14, pp. 461-471 & 498-499 Field Chpt. 13	M 11/23	GLM RM ANOVA How To Write Data Analysis & Results Sections For RM ANOVA	Assignment 11 Ex. Of Results Sections For Within-Subjects ANOVA Due 11/20
	R 11/19					
14	T 11/24	Multivariate Approach to Repeated Measures	Reserved Reading: T & F Chpt. 8 Field Chpt. 13	M 11/30	GLM Mixed ANOVA How To Write Data Analysis & Results Sections For Mixed ANOVA	Final Project Due Ex. of Results Sections For Mixed ANOVA Due 11/25
	R 11/26	Thanksgiving Holiday NO LECTURE				
15	T 12/1	Mixed ANOVA Hand out Exam 2	Howell Chpt. 14, pp. 471-495 Field Chpt. 14	M 12/7	Finals Week	
	R 12/3	Hypothesis Generation				
16	T 12/8	Second Take-Home Exam Due 12/8 by 12:30 p.m.				
	R 12/10					