

**LING 6381: Research Design and Statistics
Spring 2015**

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Office Hours: Wednesday 3-4PM or by appointment

Section Information: LING 6381 Section 001

Time and Place of Class Meetings: Monday and Wednesday 4:00PM - 5:20PM, TH14

Teaching Assistant: Samantha Cornelius (samantha.cornelius@mavs.uta.edu)

Description of Course Content: In this course, students will learn the fundamentals of quantitatively-oriented research in linguistics and language-related fields. Students will learn how to develop viable research hypotheses, how to collect (and manage) the data necessary to evaluate these hypotheses, and how to analyze these data using standard statistical tests (with R statistical computing software).

Student Learning Outcomes: Students who successfully complete this class should be able to do the following:

- 1) develop research hypotheses that can be evaluated using standard statistical tests;
- 2) organize quantitative data in readily analyzable data frames;
- 3) manipulate and navigate through complex data sets;
- 4) generate descriptive statistics and graphics for data exploration and presentation;
- 5) apply appropriate statistical tests to a range of language-related data types;
- 6) report these analyses in a publishable format.

Students will learn how to conduct all of these data analysis techniques using R -- powerful, free, open-source software for statistical computing.

Required Textbook and Other Required Materials: The textbook listed below is necessary for this course. You will regularly be required to complete readings and assignments from this book. It is available for purchase online as well as in the campus bookstore. Additional readings will be provided on the course Blackboard site (login at <https://elearn.uta.edu/webapps/login/>). You are responsible for checking this Blackboard site regularly to access (among other things) class notes, updates, readings, and assignments.

Gries, S. Th. (2013). *Statistics for linguistics with R: A practical introduction* (2nd Edition). Berlin: De Gruyter Mouton. (9783110307283)

Other helpful texts:

Baayen, R.H. (2008). *Analyzing linguistic data: A practical introduction to statistics using R*.

Brown, J.D. (1988). *Understanding research in second language learning*.

Johnson, K. (2008). *Quantitative methods in linguistics*.

It will also be useful for you to download R statistical computing software (and the R packages used in the Gries textbook), RStudio, and a text editor (Notepad++ or TextWrangler) onto your personal computer. Detailed downloading instructions will be provided. If you do not have a computer, all R-related coursework can be done on computers in the Linguistics Lab (Trimble Hall 14).

Descriptions of Major Assignments and Examinations:

- 9 problem sets: see the schedule below for due dates
- Article Presentation: during weeks 5-13, depending on the topic (submit 3 possible articles by F 2/6)
- Paper Proposal Presentation: 3/16
- Paper Proposal: due 3/23
- Exam: distributed F 4/17; due F 4/24
- Final Presentation: 5/4 or 5/6
- Final Paper: due 5/13

(See below for detailed descriptions of these assignments/exams.)

*** All written assignments should be submitted to the course Blackboard site. Late assignments will only be accepted if you contact me in advance of the deadline and let me know why you need an extension. ***

Grading: Your grade on each component of the class will be determined on the basis of the percentage of points earned to points possible: 100-90% = A, 89-80% = B, 79-70% = C, 69-60% = D, 59-0% = F. Your final grade will be determined in the same fashion but taking into account the weightings listed below:

Course Engagement	10%
Problem Sets	30%
Article Presentation	10%
Paper Proposal/Proposal Presentation	10%
Exam	20%
Final Presentation	10%
Final Paper	10%

Course Engagement. Please attend all classes (and show up on time) and participate in class discussion/activities. You will lose participation points if you are late or absent from class.

Problem Sets. You will complete 9 problem sets for this class (see the schedule below for due dates). In these exercises, you will review analysis techniques that we have dealt with in class and/or practice new techniques in preparation for class discussion.

Article Presentation. For this presentation, you will report on a study that uses statistical analysis techniques. After briefly explaining the motivation for the study, you will detail its analysis procedures. You should create PowerPoint slides and/or a handout to support your presentation. It should be 15 minutes long and will be followed by a short question-and-answer session. You will be required to select three possible articles for this presentation by Friday 2/6. We will then decide which of the three would be best for your presentation. I will try to schedule your presentation during the portion of the course that relates (most closely) to the analysis procedures used in the article that you select.

Exam. You will have a final take-home exam. This exam will essentially just be a longer problem set that covers the analysis techniques dealt with in class. This exam will be distributed on Friday 4/17; it will be due on Friday 4/24.

Final Paper. Your final paper will focus on data analysis for a study that you have already started or that you would like to conduct. It should be no more than 10 pages and should consist of a short (~2 pages) motivation for the study and a detailed description of the analysis techniques you used and the results of these analyses. If you have not collected data for this study, this project will also involve creating hypothetical data sets for your analyses. This paper will be due on Wednesday 5/13.

Additional steps on this project:

Paper Proposal Presentation. On Monday 3/16 you will have the opportunity to present your idea for this project to the class in order to get feedback in advance of your proposal submission. This will be a short presentation: ~5 minutes, with ~5 minutes for discussion.

Paper Proposal. A proposal for your final paper (1-2 pages) will be due on Monday 3/23.

Final Paper Presentation. You will give a presentation based on the analyses in your final paper on 5/4 or 5/6. You should create PowerPoint slides and/or a handout to support this presentation. It should be 15 minutes long, with 5-10 minutes for discussion and questions.

Projected Course Schedule

		Topic	Readings / Assignments
Week 1	21-Jan	Intro / Syllabus	
Week 2a	26-Jan	Fundamentals of Quantitative Research	SFLWR Ch. 1
Week 2b	28-Jan	Fundamentals of Quantitative Research	SFLWR Ch. 1
Week 3a	2-Feb	EXCEL Tutorial Fundamentals of R	SFLWR Ch. 2
Week 3b	4-Feb	Fundamentals of R	SFLWR Ch. 2 problem set #1 due before class submit possible presentation articles by F 2/6
Week 4a	9-Feb	Descriptive Statistics Univariate Statistics	SFLWR Ch. 3 pp. 102-135
Week 4b	11-Feb	Descriptive Statistics Bivariate Statistics	SFLWR Ch. 3 pp. 136-156 problem set #2 due before class
Week 5a	16-Feb	Analytical Statistics Distributions and Frequencies	SFLWR Ch. 4 pp. 157-197
Week 5b	18-Feb	Analytical Statistics Distributions and Frequencies	SFLWR Ch. 4 pp. 157-197 problem set #3 due before class
Week 6a	23-Feb	Analytical Statistics Dispersions and Means	SFLWR Ch. 4 pp. 197-238
Week 6b	25-Feb	Analytical Statistics Dispersions and Means	SFLWR Ch. 4 pp. 197-238 problem set #4 due before class
Week 7a	2-Mar	Analytical Statistics Correlation and Regression	SFLWR Ch. 4 pp. 238-246

Week 7b	4-Mar	Analytical Statistics Correlation and Regression	SFLWR Ch. 4 pp. 238-246 <i>problem set #5 due before class</i>
Week 8a	9-Mar		<i>NO CLASS</i> <i>SPRING BREAK</i>
Week 8b	11-Mar		<i>NO CLASS</i> <i>SPRING BREAK</i>
Week 9a	16-Mar	Paper Proposal Presentations	
Week 9b	18-Mar	Non-repeated Measures ANOVAs	SFLWR Ch. 5 pp. TBD <i>problem set #6 due before class</i>
Week 10a	23-Mar	Non-Repeated Measures ANOVAs	SFLWR Ch. 5 pp. TBD <i>paper proposal due</i>
Week 10b	25-Mar	Repeated measures ANOVAs	SFLWR Ch. 5 pp. TBD
Week 11a	30-Mar	Repeated measures ANOVAs	SFLWR Ch. 5 pp. TBD
Week 11b	1-Apr	Repeated measures ANOVAs	SFLWR Ch. 5 pp. TBD <i>problem set #7 due before class</i>
Week 12a	6-Apr	Mixed ANOVA / ANCOVA	SFLWR Ch. 5 pp. TBD
Week 12b	8-Apr	Mixed ANOVA / ANCOVA	SFLWR Ch. 5 pp. TBD <i>problem set #8 due before class</i>
Week 13a	13-Apr	Binary Logistic Regression	SFLWR Ch. 5 pp. TBD
Week 13b	15-Apr	Binary Logistic Regression	SFLWR Ch. 5 pp. TBD <i>problem set #9 due before class</i> <i>final exam distributed F 4/17</i>
Week 14a	20-Apr	Final Exam Review	
Week 14b	22-Apr	Exam Workshop	<i>final exam due F 4/24</i>
Week 15a	27-Apr	Final Exam Discussion / Final Paper Workshop	
Week 15b	29-Apr	Final Paper Workshop	
Week 16a	4-May	Final Presentations	
Week 16b	6-May	Final Presentations	<i>final paper due W 5/13 noon</i>

Other important dates: 2/4 – Census Day; 2/19-20 – UTASCILT; 4/3 – last day to drop classes

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this class. –Jeffrey Witzel.

Attendance: At The University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I have established the attendance policy described in the Grading section above.

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://www.uta.edu/aao/fao/>).

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.

Title IX: The University of Texas at Arlington is committed to upholding U.S. Federal Law "Title IX" such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit www.uta.edu/titleIX.

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) 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.

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” shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

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.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Student Support Services: 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 visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Auditors: The Department of Linguistics and TESOL has a “no audit” policy. However, with instructor permission, Department of Linguistics and TESOL faculty, staff, and students enrolled in a linguistics/TESOL program may be able to sit in on a course. These courses cannot be used to satisfy any degree or program requirements/electives, nor will any credit (including retroactive credit) be granted.

Emergency Phone Numbers: In case of an on-campus emergency, call the UT Arlington Police Department at 817-272-3003 (non-campus phone), 2-3003 (campus phone). You may also dial 911.