ANG 7496: Advanced Quantitative Methods in Anthropology

Course Information

Course Name: Advanced Quantitative in Anthropology (ANG 7496-0001)
Class Number: 12252
Course ID: 046358
Prerequisites: ANG 5486 and Admission to the Ph.D. in Integrative Anthropological Sciences program or C.I.
Dates: 1/6/19 – 4/24/19
Course Type: Face to Face Instruction (P)
Class Notes: Computer, WWW access, browser, e-mail required.
Credit Hours: 3.0
Semester/Year: Spring 2020
Location: Psychology Building (PSY), Room 107
Day/Time: Fridays 1:00 PM – 3:50 PM (see schedule below)

Professor Information

Professor: Kelly Heim, Ph.D. (pronouns: she, her, hers)
Office: HPH 311A (check in with desk attendant in 309F)
Office Phone: (407)823-2124
In-Person Office Hours: Monday/Friday 10 am – 12 pm, or by appointment
Virtual Office Hours: Wednesday 10 am – 12 pm, or by appointment
E-mail: WebCourses messaging (best way to contact me) or kelly.heim@ucf.edu

University Course Catalog Description

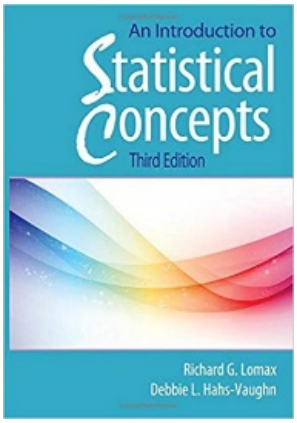
Advanced quantitative methods in anthropology, including multivariate systems, assessment of reliability, and approaches for small samples.

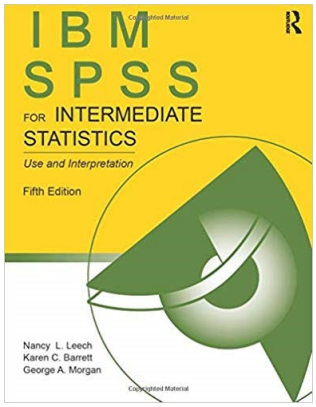
Course Overview and Goals

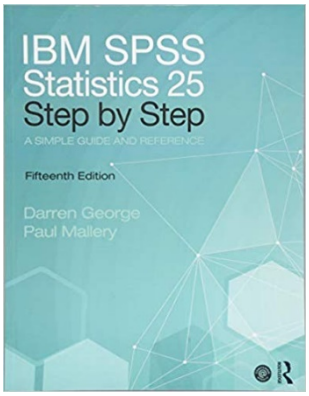
Students will build upon the statistical knowledge gained during the first half of the quantitative methods course (e.g., univariate descriptive statistics, basic probability, inferential statistics involving means and proportions, non-parametric alternatives, etc.). In the second half, students will learn more in-depth univariate analyses, such as ANOVA, ANCOVA, and simple linear regression, as well as multivariate analyses, including multi-factor ANOVA, MANOVA, multiple linear regression, discriminant function analysis, and methods of ordination (e.g., polar ordination and principal components analysis). Students will also learn how to implement these analyses in the statistical program SPSS by completing homework assignments associated with each topic, along with two large data analyses, one conducted as a group and one as an individual.

Required Textbooks

1. An Introduction to Statistical Concepts, 3rd edition. 2012. Richard G. Lomax and Debbie L. Hahs-Vaughn. Routledge: Taylor & Francis Group.
2. IBM SPSS for Intermediate Statistics: Use and Interpretation, 5th edition. 2012. Nancy Leech, Karen Barrett, George Morgan. Routledge: Taylor & Francis Group.
3. IBM SPSS Statistics 25 Step by Step: A Simple Guide and Reference, 15th edition. 2018. Darren George and Paul Mallery. Routledge: Taylor & Francis Group.







I highly recommend that you purchase these books and keep them beyond this course for future reference.

Additional Required Reading

Any additional readings will be provided on WebCourses.

Required Software

You will be required to have access to IMB SPSS Statistics (available here on the cloud: https://my.apps.ucf.edu/vpn/index.html). Log in, select Statistics and Analysis Apps, and then IBM SPSS Statistics to use the software. I highly recommend you practice with this software as you complete reading assignments and well before any assignments are due, because the installation on the cloud is not as functional as the full version.

Class Set-Up

Last semester, we spent a good deal of our time learning how to critically evaluate the statistical methods presented in published research. But this semester, we're diving into more complicated statistical methods. So since you've had practice deciding whether statistical methods in published research were appropriate, we're going to focus entirely on learning how and when to apply these methods in our own analyses this semester. To this end, each class period will be divided into roughly two sections (with accommodations on weeks with presentations). First, I will lecture on a new topic. Then, you will spend the rest of the class period applying the methods we've learned that day while you work on your homework assignment and/or dataset analyses.

Grading

Grades will be posted in the gradebook on WebCourses@UCF. Your final grade will be based on the following activities:

1. Financial aid requirement (10 points)
2. Lab participation (40 points)
3. Homework assignments (10 per semester – 10 points each)
4. Group dataset analysis presentation (40 points)
5. Group dataset written analysis (80 points)
6. Analysis workshop discussion on WebCourses (20 points)
7. Individual dataset analysis presentation (40 points)
8. Individual dataset written analysis (100 points)

Total = 430 points

You will notice that we have no quizzes or exams in this course. It is my philosophy that quantitative methods are more effectively learned by doing, rather than by memorizing and regurgitating. Instead, I would rather you focus your energy on the homework assignments and the dataset analyses. Comfort in statistics only comes from practicing!

Grading Scale

The following grading scale will be used in this course:

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
92.5-100%	90-92.4%	87.5-89.9%	82.5-87.4%	80-82.4%	77.5-79.9%	72.5-77.4%	70-72.4%	67.5-69.9%	62.5-67.5%	60-62.4%	0-59.9%

Lab Participation

Since each class is divided into just two sections (lecture and lab time), I will be devoting a considerable amount of class time so that you can practice with SPSS. Take this time seriously. Not only is this a chance to work on your homework assignments, but this is also your chance to work in SPSS while I am around to answer questions. So, I expect everyone to use this time wisely. Lab participation for the semester will be worth a total of 40 points – as long as you stay in class and show that you are trying, you will get full marks!

Homework Description and Requirements

During the semester, you will complete a total of 10 homework assignments, worth 10 points each. Homework assignments are designed to provide evidence of mastery of course concepts. There will be devoted class time to work on homework assignments, but you may need extra time outside of class to finish. Homework assignments will be found online in the module for the week they are due, but they will only open one week prior to the due date. You will upload each homework assignment through the online assignment portal before the start of class on the due date. Typically, I will not accept late homework assignments unless there are special circumstances with documentation. When I approve a late assignment, you will lose 10% per day the assignment is late. If I do not give prior approval, you will receive a zero for the assignment.

Dataset Analyses: Group and Individual

You will have two large projects this semester: one dataset analysis completed as a group and one completed individually. For the group analysis, I will provide the dataset and background information, and you will decide on a hypothesis to test as a group. For the individual analysis, you must provide your own dataset. If you have data from your own thesis/dissertation, absolutely use that! If not, ask your advisor if they have any data you can use, or search for open access datasets online (there are plenty out there, trust me). While the group analysis may not be directly related to your own research, the goal for the individual project is to learn how to conduct analyses that will be useful as you dive into your dissertation. Your data should include both qualitative (e.g., sex, ancestry, location, etc.) and quantitative (e.g., craniometrics, artifact count, item weight, etc.) variables, and you should have *at least* 30 data points.

Group Dataset Presentation (40 points) – Around the middle of the semester (**February 28**), you will give a 12-minute presentation of your analysis results to the class as a group, and you will be expected to answer at least 3 minutes of questions afterwards. The group presentation should be in the form of a PowerPoint. Your job during this presentation is to walk us through every part of the analysis, including all details of the figures and tables, and you must email your presentation to me before class on the day you present.

Group Dataset Written Analysis (80 points) – As a group, you will write up a report describing the statistical choices you made throughout the analysis of your dataset, due the week after the group presentations (**March 6**). This report should include the types of statistical tests conducted, why those tests were appropriate based on your group's data, and a written description of results from the tests that you chose to conduct. Your group's final written analysis should essentially be the written version of what you all presented to the class.

Individual Data Plan Workshop Discussion (20 points) – For two weeks (Monday, 2/10 through Friday, 2/21), a discussion board will be open on WebCourses. You have two different jobs in this discussion board. First, you will write a post outlining the plan of attack for your individual dataset analysis (dataset, hypothesis, potential statistical methods, etc.). Second, you will need to respond to *everyone else's* data plan post to provide feedback. The purpose of this discussion board is to make sure your analyses are appropriate for your data type and see if anyone has constructive ideas to improve your final project. The board will remain open, but your posts are due by **11:59 pm EST on February 21**.

Individual Dataset Presentation (40 points) – At the end of the semester (**April 10**), you will give a 15-minute presentation of your individual analysis results to the class, and you will be expected to answer around 5 minutes of questions afterwards. The individual presentation should be in the form of a 48"x36" poster (you do NOT need to print a physical copy – instead, you can pull the poster up on the projector). As with the group presentation, your job will be to walk us through the analysis you conducted, including all details of the figures and tables. However, you should additionally address the design of your poster – why did you choose to

present the results in this format, why do you think this design was effective, etc.? You must email me your poster before class on the day you present.

Individual Dataset Written Analysis (100 points) – Finally, as with the group analysis, you will write up a report describing the statistical choices that you made throughout the analysis of your dataset, due by the beginning of our assigned final exam period (**Friday, April 24 at 1:00 pm EST**). Again, this report should include the types of statistical tests conducted, why those tests were appropriate based on your data, and a written description of results from the tests that you chose to conduct.

Instructions to Save and Load Datasets

If you require technical assistance opening or working with SPSS on MyApps, please use the following link: https://online.ucf.edu/support/ .

Rules of Conduct Statement

Electronic devices must be turned off during class. This includes phones, radios, headphones, and any other gadgets you may have that may distract me or your classmates. Failure to comply may result in your removal from the class.
The point of working in the computer lab is to allow you to open SPSS, handouts, and PDFs as needed. Please do not surf the internet or do things not related to this course during class time. Failure to comply may result in your removal from the class.

Unauthorized Use of Class Materials or Class Notes Statement

Course materials are the intellectual property of instructors, the university, or publishers and may not be distributed without prior authorization. Students who engage in such activity are in violation of academic conduct standards and may face penalties. I give you permission to download course handouts and PDFs and save them. I expect that these materials will be useful to you throughout the course and beyond.

Academic Integrity Statement

Students should familiarize themselves with UCF's Rules of Conduct at <http://osc.sdes.ucf.edu/process/roc>. According to Section 1, "Academic Misconduct," students are prohibited from engaging in:

1. Unauthorized assistance: Using or attempting to use unauthorized materials, information or study aids in any academic exercise unless specifically authorized by the instructor of record. The unauthorized possession of examination or course-related material also constitutes cheating.
2. Communication to another through written, visual, electronic, or oral means: The presentation of material which has not been studied or learned, but rather was obtained through someone else's efforts and used as part of an examination, course assignment, or project.

3. Commercial Use of Academic Material: Selling of course material to another person, student, and/or uploading course material to a third-party vendor without authorization or without the express written permission of the university and the instructor. Course materials include but are not limited to class notes, Instructor's PowerPoints, course syllabi, tests, quizzes, labs, instruction sheets, homework, study guides, handouts, etc.
4. Falsifying or misrepresenting the student's own academic work.
5. Plagiarism: Using or appropriating another's work without any indication of the source, thereby attempting to convey the impression that such work is the student's own.
6. Multiple Submissions: Submitting the same academic work for credit more than once without the express written permission of the instructor.
7. Helping another violate academic behavior standards.

For more information about Academic Integrity, students may consult The Center for Academic Integrity <https://academicintegrity.org/>. For more information about plagiarism and misuse of sources, see "Defining and Avoiding Plagiarism: The WPA Statement on Best Practices" <http://wpacouncil.org/node/9>.

Responses to Academic Dishonesty, Plagiarism, or Cheating

Students should also familiarize themselves with the procedures for academic misconduct in UCF's student handbook, *The Golden Rule* <https://goldenrule.sdes.ucf.edu/>. UCF faculty members have a responsibility for students' education and the value of a UCF degree, and so seek to prevent unethical behavior and when necessary respond to academic misconduct. Penalties can include a failing grade in an assignment or in the course, suspension or expulsion from the university, and/or a "Z Designation" on a student's official transcript indicating academic dishonesty, where the final grade for this course will be preceded by the letter Z. For more information about the Z Designation, see <https://goldenrule.sdes.ucf.edu/zgrade/>.

Course Accessibility Statement

The University of Central Florida is committed to providing access and inclusion for all persons with disabilities. Students with disabilities who need disability-related access in this course should contact the professor as soon as possible. Students should also connect with Student Accessibility Services (SAS) <http://sas.sdes.ucf.edu/> (Ferrell Commons 185, sas@ucf.edu, phone 407-823-2371). Through Student Accessibility Services, a Course Accessibility Letter may be created and sent to professors, which informs faculty of potential access and accommodations that might be reasonable. Determining reasonable access and accommodations requires consideration of the course design, course learning objectives and the individual academic and course barriers experienced by the student.

Campus Safety Statement

Emergencies on campus are rare, but if one should arise during class, everyone needs to work together. Students should be aware of their surroundings and familiar with some basic safety and security concepts.

- In case of an emergency, dial 911 for assistance.

- Every UCF classroom contains an emergency procedure guide posted on a wall near the door. Students should make a note of the guide's physical location and review the online version at <http://emergency.ucf.edu/emergency_guide.html>.
- Students should know the evacuation routes from each of their classrooms and have a plan for finding safety in case of an emergency.
- If there is a medical emergency during class, students may need to access a first-aid kit or AED (Automated External Defibrillator). To learn where those are located, see <http://www.ehs.ucf.edu/workplacesafety.html> (click on link from menu on left).
- To stay informed about emergency situations, students can sign up to receive UCF text alerts by going to <my.ucf.edu> and logging in. Click on "Student Self Service" located on the left side of the screen in the toolbar, scroll down to the blue "Personal Information" heading on the Student Center screen, click on "UCF Alert", fill out the information, including e-mail address, cell phone number, and cell phone provider, click "Apply" to save the changes, and then click "OK."
- Students with special needs related to emergency situations should speak with their instructors outside of class.
- To learn about how to manage an active-shooter situation on campus or elsewhere, consider viewing this video (<https://youtu.be/NIKYajEx4pk>).

Make-Up Assignments for Authorized University Events or Co-Curricular Activities

Students who represent the university in an authorized event or activity (for example, student-athletes) and who are unable to meet a course deadline due to a conflict with that event must provide the instructor with documentation in advance to arrange a make-up. No penalty will be applied. For more information, see the UCF policy at: < https://policies.ucf.edu/documents/4-401.2MakeUpAssignmentsorAuthUnivEventsorCocurricularActivities.pdf)>

Religious Observances

Students must notify their instructor in advance if they intend to miss class for a religious observance. For more information, see the UCF policy at: <https://regulations.ucf.edu/chapter5/documents/5.020ReligiousObservancesFINALJan19.pdf>.

Deployed Active Duty Military Students Statement

Students who are deployed active duty military and/or National Guard personnel and require accommodation should contact their instructors as soon as possible after the semester begins and/or after they receive notification of deployment to make related arrangements.

Important Dates

Please consult the Academic Calendar (http://calendar.ucf.edu) to keep yourself informed of holidays, special events, etc.

Schedule

Date	Topics	Assigned Weekly Readings	Assignment(s) Due
Jan. 10	Introduction to course and syllabus; Refresher on topics from part 1	Review Lomax Chap. 6-8 and Madrigal Chap. 7	UCF Financial Aid Requirement
Jan. 17	Planning and presenting research refresher; Inter- and intraobserver error	Review Research PowerPoint Leech Sect. 3.4-3.6	
Jan. 24	Inferences about variances	Lomax Chap. 9	Homework 1 due
Jan. 31	Bivariate measures of association	Lomax Chap. 10 George Chap. 10	Homework 2 due
Feb. 7	ANOVA; Non-parametric alternative tests for more than two groups; Multiple comparison procedures	Lomax Chap. 11 & 12 George Chap. 12 and Sect. 17.4 Madrigal Sect. 7.3	Homework 3 due
Feb. 14	Multi-factorial ANOVA; ANCOVA	Lomax Chap. 13 & 14 Leech Chap. 9	Homework 4 due Data Plan Workshop Discussion Board opens Feb. 10
Feb. 21	**No in-person class – AAFS Annual Conference** Data Plan Workshop Discussion Board posts due Feb. 21		
Feb. 28	Multivariate ANOVA (MANOVA)	Leech Chap. 11 George Chap. 23	Group dataset presentations Homework 5 due
Mar. 6	Simple linear regression; Multiple linear regression	Lomax Chap. 17 & 18 Leech Chap. 6 George Chap. 15 & 16	Group dataset written analysis due Homework 6 due
Mar. 13	**No class – Spring Break**		
Mar. 20	Logistic regression	Lomax Chap. 19 Leech Sect. 8.1 George Chap. 25	Homework 7 due
Mar. 27	Discriminant function analysis	Leech Sect. 8.3 George Chap. 22	Homework 8 due
Apr. 3	Ordination	Leech Chap. 4 George Chap. 20	Homework 9 due
Apr. 10	N/A	N/A	Individual dataset presentations Homework 10 due
Apr. 17	**No class – AAPA Annual Conference**		

Apr. 24	Finals Week	N/A	Individual dataset written analysis due by 1:00 pm EST