

Anthropological Data Analysis

ANTHROPOLOGY 305 | Winter 2019

Mon 12:45 – 2:00 p.m.

Wed 11:15 a.m. – 12:30 p.m.

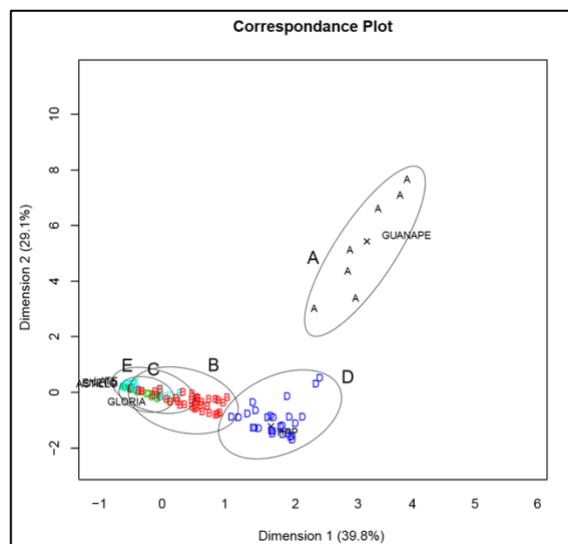
Physical Sciences Centre PS3046

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Office Hours: Tue 1–3 | Wed 1–3 | Thu 11–1



This course will introduce students to the use of quantitative analysis in anthropology. After discussing principles of research design and data management, we will work through basic statistical methods that are widely used to analyze anthropological data. While anthropology students often find statistics to be daunting, it is important to understand how to approach research use statistics in your own research and analysis and how to critically interpret the statistics you find published in the anthropological literature. Even anthropologists whose work focuses on qualitative analysis should be well-versed in quantitative anthropology; the two are not mutually-exclusive.

Students will learn how to: (1) understand different types of data; (2) design data-driven research strategies; (3) manage and store data; (4) perform key statistical analyses; and (5) present data and analysis results in a clear and easily understood manner.

Throughout the course we will focus on the mathematical procedures behind the statistics. Each week will cover a specific topic; Mondays will be a lecture and discussion and Wednesdays will be time to work through the week's formulae and topics. The best thing that students can do to ensure their success in this course is to come to class prepared to actively work through the material on both days.

LEARNING OBJECTIVES—This course has several learning objectives that students should accomplish by its completion:

- Understand the different types of data and how to apply appropriate statistical procedures to each.
- Learn data management and long-term storage problems and solutions
- Practice collecting and analyzing anthropological data
- Learn how to critically evaluate published statistical analyses
- Gain experience with both industry-leading and up-and-coming software packages
- Work within a team environment to apply your knowledge

WEEKLY READINGS—Readings are assigned from the textbooks and from selected online resources. **Assigned readings are fair game for the final exam.**

STATEMENT ON EQUITABLE LEARNING—“Everyone learns more effectively in a respectful, safe and equitable learning environment, free from discrimination and harassment. I invite you to work with me to create a classroom space – both real and virtual – that fosters and promotes values of human dignity, equity, non-discrimination and respect for diversity”.

COURSE MATERIALS—The textbooks for this course are:

- Bernard, H. R. (2006) *Research Methods in Anthropology: Qualitative and Quantitative Approaches* (4th ed.). Lanham, MD: Altamira Press.
 - Available from: http://www.dphu.org/uploads/attachements/books/books_476_o.pdf
- VanPool, T.L. & Leonard, R. D. (2011), *Quantitative Analysis in Archaeology*. Malden, MA: Wiley-Blackwell.
 - Available for purchase from the StFX bookstore & online
- Other readings (journal articles, etc.) are listed in the weekly schedule (below).

Additionally, the following free statistics textbook may be useful as an additional resource to help you understand and work through the course material:

- Illowesky, B., Dean, S. (2018). *Introductory Statistics*. Houston, TX, OpenStax.
 - Available from: <https://openstax.org/details/books/introductory-statistics>

Software—Microsoft Excel is required for this course. All StFX students have no-cost access to Microsoft Excel through your Office 365 subscription. Excel is also installed on all campus lab computers so all students have equitable access to it.

Please see this page for information on accessing your Office 365 subscription:

- <https://stfx.teamdynamix.com/TDClient/Requests/ServiceDet?ID=20505>

I recommend downloading the application rather than using the browswe-based version as the latter may be missing some key features. Do not use Apple Numbers in place of Excel; while the differences may be minor, you will have a bad time if you use Numbers.

In addition to Excel, you may be interested in free software that academics commonly use for statistical analysis. These are not required:

- *R*: <https://www.r-project.org/> & <https://www.rstudio.com/>
- *Python*: <https://www.python.org/>

COURSE REQUIREMENTS

All assignments must be submitted on Moodle by 11:00 p.m. on the date that they are due. The take-home final exam must be submitted on Moodle by 12:00 p.m. on the day it is due. Paper copies will not be accepted.

Assignment	Due Date	Value
Attendance & Participation	Weekly	7%
Find Some Data!	January 18 th (11:00 p.m.)	8%
Lab Exercises		



Assignment	Due Date	Value
- Exercise #1	February 1 st (11:00 p.m.)	10%
- Exercise #2	February 15 th (11:00 p.m.)	10%
- Exercise #3	March 8 th (11:00 p.m.)	10%
- Exercise #4	March 22 nd (11:00 p.m.)	10%
Huaca Santa Clara Ceramics Project	April 1 st (11:00 p.m.)	25%
Final Exam (Take-Home)	Submit by 12:00 p.m. April 23	20%

Attendance & Participation—Regular attendance in this class is required. In fact, the easiest way to do well in any course is to come to every class on time and prepared to learn. Attendance will be taken every class, but your attendance and participation grade will also be based on your willingness to participate in group discussions and activities.

Find Some Data!—You are required to find a quantitative dataset that is anthropological in nature (any sub-discipline). You will use this same dataset for your in-class activities throughout the course (sharing datasets with other class members when necessary). In addition to downloading and submitting an appropriate dataset, you are required to submit a short written assignment that describes the dataset and the study from which it came (a separate assignment guide will be posted in the first week of class).

Lab Exercises— A total of four lab exercises will be assigned throughout the course. Lab exercises are short assignments that require you to complete statistical tests and analyses on real anthropological data (which will be provided to you), and to answer questions about the data and results. These are a chance to apply what you are learning in class. While you are encouraged to discuss the exercises with partners, your work and final submission must be your own.

Huaca Santa Clara Ceramics Project—For this project you will analyze and interpret a real dataset collected from an archaeological site in Peru. We will discuss and examine this dataset throughout the course. As a final project, you and 1-2 partners will submit a written paper describing your interpretations of this dataset. In addition to the statistical analysis, your paper will include a short discussion of the site and of ceramic analysis in archaeology, backed by research. Groups are required to briefly present their interpretations during the final class of the term.

Final exam—A take-home exam will be released on Moodle at 1:00 p.m. on Friday, April 5 and will be due at 12:00 p.m. on Tuesday, April 23. This exam will cover the entire course, including assigned readings.



COURSE POLICIES:

Moodle—this course will use Moodle to post assignments, submit your work, return grades, make announcements, etc. Please make sure that you access the Moodle course site early in the course and use it frequently. Log in at moodle.stfx.ca.

Late Assignments—Please speak to me *BEFORE* a deadline if you feel the need for an extension for assignments. I am flexible if you have good reasons for needing an extension. Last-minute extensions will not be granted except under conditions of medical, family, or other extraordinary circumstances. Late assignments will be penalized at 2% per day (including weekends).

Missed Exams—As this course uses a take-home exam format, you will have more than two weeks to complete and submit the exam. The exam due date is final and will not be extended. Accommodations will only be made for extenuating circumstances.

Assignment/Exam Grading—Assignments will be graded promptly and returned with comments through Moodle. Exam grades will be posted on Moodle. Please note that your grades are private and will not be seen by anyone else.

Accommodations—I encourage students that require special testing accommodations or other classroom modifications to contact Learning Services (http://sites.stfx.ca/accessible_learning/services) within the first two weeks of class. If you are comfortable discussing the matter, you may also speak to me during my office hours.

Computer Problems—All StFX students have access to Microsoft Cloud services and should take advantage of this to ensure a backup of academic files. If you choose not to use this service, you are responsible for making your own backups to prevent losing data and not being able to submit required coursework. Do not email me two hours before the assignment is due to say that your hard drive crashed—back up your work *constantly*.

Communication—All students have a StFX e-mail account, which must be checked regularly as notices and information pertaining to the course will be sent electronically. You can send electronic correspondence to my university e-mail address (jtdowney@stfx.ca). Please practice professionalism in your communications.

Computers & Social Media in the Classroom—Computers, tablets, & smartphones are all great and can help promote your learning in the classroom by allowing you to take notes, look things up, etc. Social media can be great for networking and communicating important ideas. I promote the use of websites and social media for teaching anthropology and you are allowed to use these materials in class.

That said, if you are just using your phone or computer to browse Reddit, watch Youtube, play Fornite, or whatever, why bother coming to class? You are not learning anything and you are potentially distracting others from learning. Please be mindful of your peers.

ACADEMIC INTEGRITY

The Academic Integrity Policy may be found at:

<http://www2.mystfx.ca/registrars-office/academic-integrity>.



Please read this page **carefully and completely**. Academic dishonesty is a very serious offense and can result in serious consequences for your academic career. These are all examples of **offenses against academic integrity**:

- Copying three paragraphs from Wikipedia and putting them in your paper, changing a few words, and not citing your material (**plagiarism**).
- Paying someone online to write your research paper for you (**cheating**).
- Asking for an extension by lying about a friend's or relative's death (**falsification**).
- Sabotaging a classmate's work because you do not like them (**tampering**).

Note that these are just a few examples of offenses. Please pay special attention to Section 3.8.2 b (v) which reads “**Possession** of unauthorized aids or assistance including copying during tests and examinations” This means that you do not need to be caught **USING** a device like a cell phone or smart watch (for example) during a test or exam to be in violation of the policy. **Simply having the unauthorized device on your person during the test or exam is a violation of the policy**. These devices must be left in your bag at the front of the exam room, or left at home.

Your instructor reserves the right to examine submitted course assignments against available resources (e.g. by Googling suspect phrases) to check for academic offenses.



WEEKLY SCHEDULE

Except where indicated, topics and readings cover the entire week. Please complete all readings prior to Monday's class. I suggest reviewing the readings a second time at the end of the week. This stuff is complicated and may be pretty different from what you are used to. Doing the readings before class will help you understand lectures and activities.

Readings and topics are subject to change, depending on how we progress through the material.

Week	Dates	Topic	Weekly Readings	Items Due
1	Jan. 7	Introduction & Syllabus Review	- VanPool & Leonard Chapter 1	
	Jan. 9	An Introduction to Statistics and Quantitative Data	- VanPool & Leonard Chapter 2 - Utts, J. (2003). What educated citizens should know about statistics and probability. <i>The American Statistician</i> , 57(2), 74-79. https://www.jstor.org/stable/30037236	
2	Jan. 14 & 16	Designing Research in Anthropology	- Bernard Chapter 1 - Bernard Chapter 3 - Driscoll, D. L., Appiah-Yeboah, A., Salib, P., & Rupert, D. J. (2007). Merging qualitative and quantitative data in mixed methods research: How to and why not. <i>Ecological and Environmental Anthropology</i> , 3(1), 19-28 - http://digitalcommons.unl.edu/icwdmeea/18/	Find Some Data! Due Jan. 18 (11:00 p.m.)
3	Jan. 21 & 23	Understanding and Summarizing Quantitative Data	- Bernard Chapter 2 - VanPool & Leonard Chapter 3	
4	Jan. 28 & 30	Descriptive Statistics & An Introduction to Sampling	- VanPool & Leonard Chapter 4 - Bernard Chapter 6	Exercise #1 Due Feb. 1 (11:00 p.m.)
5	Feb. 4 & 6	Probability, Distributions, and More Sampling	- VanPool & Leonard Chapter 5 - VanPool & Leonard Chapter 6 - Bernard Chapter 7	
6	Feb. 11 & 13	Setting Up and Testing Hypotheses	- VanPool & Leonard Chapter 7 - VanPool & Leonard Chapter 8	Exercise #2 Due Feb. 15 (11:00 p.m.)

February 18 – 22 Reading Break No Classes				
7				
8	Feb. 25 & 27	ANOVA	- VanPool & Leonard Chapter 10	
9	Mar. 4 & 6	Analysis of Frequencies	- VanPool & Leonard Chapter 13	Exercise #3 Due Mar. 8 (11:00 p.m.)
10	Mar. 11 & 13	Linear Regression & Multivariate Analysis	- VanPool & Leonard Chapter 11	
11	Mar. 18 & 20	Correlation & Rank	- VanPool & Leonard Chapter 12	Exercise #4 Due Mar. 22 (11:00 p.m.)
12	Mar. 25 & 27	Introducing the More Complicated Stuff	- VanPool & Leonard Chapter 14 - VanPool & Leonard Chapter 15	
13	Apr. 1	Big Data & Data Management	- Gandomi, A., & Haider, M. (2015). Beyond the hype: Big data concepts, methods, and analytics. <i>International Journal of Information Management</i> , 35(2), 137-144. https://doi.org/10.1016/j.ijinfomgt.2014.10.007 - Additional Readings TBA	Huaca Santa Clara Ceramics Project Due Apr. 1 (11:00 p.m.)
13	Apr. 3	Ethics Issues in Research Design	- Fluehr-Lobban, C. (1998). Ethics. In <i>Handbook of Methods in Cultural Anthropology</i> , H. R. Bernard (Ed.). Pp. 173-202. Walnut Creek, CA, Altamira Press. - Jenkins, R. (1995). Social Skills, Social Research Skills, Sociological Skills: Teaching Reflexivity?. <i>Teaching Sociology</i> , 16-27. http://www.jstor.org/stable/pdfplus/1319369.pdf - Clancy, K. B., Nelson, R. G., Rutherford, J. N., & Hinde, K. (2014). Survey of academic field experiences (SAFE): Trainees report harassment and assault. <i>PLoS One</i> , 9(7), e102172. https://doi.org/10.1371/journal.pone.0102172	



