



**Anthropology 3014 FA  
Quantitative Anthropology  
FALL 2022**

**Class Times:** Tues & Thurs 4:00 – 5:30 pm  
**Location:** BB 2002

**Instructor Information:** Dr. Jessica Metcalfe  
jmetcal1@lakeheadu.ca  
Office Location: BB 2001 D

**Office Hours:** Tues & Thurs 1:00-2:00 pm, or by appointment

*Note: Please use the email address above. Do not send messages through mycourselink as they will not be forwarded. The instructor usually replies to emails within a few hours, except during evenings and weekends.*

**Course Description/Overview:** This course is a hands-on introduction to applying quantitative methods to anthropological research. Students will gain practical experience designing, conducting, interpreting, and presenting research that uses quantitative data. Skills developed through this course are not only vital for a career in research but are also critical for many non-academic careers.

**Prerequisites:** Third year standing or higher, or permission of the instructor and the Chair of the Department of Anthropology.

**Course Learning Objectives:**

The overall goal of this course is to provide students with experience conducting quantitative anthropological research, from start (development of a research question and methods) to finish (dissemination of results). By the end of this course, students will be able to:

- Formulate quantitative anthropological research questions and approaches to answering the questions
- Compile data into spreadsheets
- Examine data using statistical methods and data visualization
- Interpret and critique quantitative analyses
- Communicate research background, methods, results, and interpretations in oral and written formats
- Work collaboratively in a group and provide constructive feedback to peers

**Class Format:** This is an **in-person** course that utilizes active learning strategies, so it is important to attend class at the appointed times. Participation marks will accrue for regular attendance and active participation. Furthermore, the major project for this course is partially collaborative, so your fellow students will be depending on your active

participation. If you are unable to attend the in-person class and you have a reasonable excuse, please let your instructor know—ahead of time, if possible.

**Course Website:** Access through Lakehead University website 'Quicklinks' (top right corner), 'For Students > **myCourseLink**. The website includes:

- Content folder with PowerPoint slides, recorded lectures, journal article readings
- Discussion boards for general questions and assignments
- Assignment instructions and submission folders

**Required Readings will be posted on the course website** (no book purchases required), including excerpts from the following sources:

- **Banning**, E.B., 2020. Sampled to Death? The Rise and Fall of Probability Sampling in Archaeology, *American Antiquity* 86, 43-60.
- **Bernard**, H.R., 2006. *Research Methods in Anthropology*, Sixth Edition, AltaMira Press, Oxford. (selected excerpts)
- **Lane**, D., Scott, D., Hebl, M., Guerra, R., Osherson, D., Zimmer, H. [Introduction to Statistics: Online Edition](#). (Public domain document)
- **Smith**, R.J., 2018. The continuing misuse of null hypothesis significance testing in biological anthropology, *American Journal of Physical Anthropology* 166, 236-245.
- **Williams**, L., **Quave**, K., 2019. *Quantitative Anthropology: A Workbook*. Academic Press.

## Required Materials:

### Laptop Computer

Please bring a laptop to every class. We will often be working through examples in Excel and PAST. If you do not have a laptop, please talk to me ASAP. Laptops are available for borrowing at the university library.

### Microsoft Excel:

Microsoft Office 365 software (including Excel) is free for LU students – please download and install it if you do not already have it:

[https://www.lakeheadu.ca/faculty-and-staff/departments/services/helpdesk/software/software\\_available/office-365-for-students](https://www.lakeheadu.ca/faculty-and-staff/departments/services/helpdesk/software/software_available/office-365-for-students)

### PAST 4.03 Statistical Software (PALeontological STastics):

Download and install this free software package from

<https://past.en.lo4d.com/windows> (Windows), or

<https://www.macupdate.com/app/mac/62317/past> (Mac)

This software package was chosen because it is user-friendly and *free*, so you can use it even after you have graduated from LU without paying a subscription fee.

PAST instructions and manual will be available on the course website.

## Evaluation

Your grade for this course will be based on two major components. The largest component is a research project that will be completed in several stages, including developing a research question, creating a sampling strategy, and collecting data. Each student will present the results of their research as a poster during our class mini-conference, and then revise their work into a final paper that is due during exam period. There is no final exam for this course. Besides the research project, the other major graded component is two tests that are designed to help you practice and demonstrate skills that you will need to complete your research project and/or be a critical consumer/producer of research in the future. There is also a participation component to your grade. These assessment strategies have been designed with the goal of promoting meaningful, practical, and long-lasting learning.

Item	Value (%)	Due Date(s)
Participation	10	Ongoing
Tests (2 x 20% each)	40	Nov 1 and 24
Research Project		
Assignments (3x 5% each)	15	Sept. 20, Oct. 4, Oct. 18
Research Poster	15	Dec. 1
Research Paper	20	Dec 12 (during exam period)
<b>TOTAL</b>		

**Participation (10%):** Your participation grade will be based on a combination of your attendance, the quality of your in-class participation, and the quality of written feedback you provide to your peers (peer feedback activities).

**Tests (40%):** There will be 2 in-class tests during this course, each worth 20% of the final grade. Each of the tests will follow a **two-stage format**.

- **Stage 1:** Each **individual** will complete the test on their own.
- **Stage 2:** The whole class will **complete the same (or slightly modified) test as a group**. One person will fill out the answers on behalf of the whole group.

The goal of the two-stage format is to give you a chance to learn from mistakes you made in your original attempt, through collaborative learning with your classmates. This format has been shown to result in better learning than traditional test formats (e.g., see Wieman et al., 2014).

**Format:** Questions may include true/false, multiple choice, and short written answers. Portions of the tests will be problem-based.

**Grading:** The individual component of the test will be worth 80% and the group component will be worth 20% of your total grade for the test. If you score higher on the individual component, your individual score will count for 100% of the grade for the test. (In other words, your grade can only increase based on the group component.)

**Missed Tests:** You must take the test at the appointed time in order to receive a grade, or you must contact the instructor ahead of time to schedule an alternative time to take the test. 'Make up tests' that were not scheduled in advance will only

be allowed in emergency situations, with appropriate documentation of the emergency. If you take the test outside of the scheduled class time your entire grade will be based on an individual attempt (i.e., you will not be able to take advantage of the possibility of receiving extra marks from the group stage). Please reach out to the instructor if you have questions or concerns.

**Research Project Overview:** During this course you will work through a research project from start (formulation of research question, creation of sampling strategy) to finish (presentation of results and interpretations). Like most real research projects, this will involve both individual and group work. The purpose of this project is to develop and practice quantitative research skills, giving you some practical expertise in the topics discussed in class. Your research will be conducted at local cemeteries, where you will non-invasively collect and analyze 'mortuary archaeology' data by recording information from grave markers. You will develop the class sampling strategy as a group, but each individual student will develop their own research question and analyze an appropriate subset of the collected data individually. At the end of term we will have a class mini-conference where each student will present their research as a poster. After receiving peer and instructor feedback on the poster, each student will submit a final paper based on their research.

### **Graded Portions of the Research Project:**

**Assignment 1:** Preliminary research question (5%)

**Assignment 2:** Sampling strategy (5%)

**Assignment 3:** Data collection (5%)

**Poster** about your research project, presented at the class mini-conference (15%)

**Paper** on your research project, incorporating modifications based on the feedback you received from the instructor and your peers after the class mini-conference. (20% of final grade)

Further instructions will be provided separately.

### **Lateness Policies**

- **Tests** must be completed within the time periods allotted (see above for details), or the student will receive a grade of 0 (exceptions detailed under 'Tests', above)
- **Late Assignments** will receive deductions of 5% per calendar day late (including weekends and holidays). Assignments more than one week (7 days) late will not be accepted and will receive a grade of zero unless excused in advance by the instructor.
- **Poster Presentations** must take place in class on the scheduled date, unless discussed in advance with the instructor or with documentation of an emergency.
- **Research Papers** will be due during the exam period (Dec. 12 at noon), with a 3-day grace period (no questions asked) to Dec. 15 at noon, if you contact me ahead of time. Deductions of 5% per calendar day, including weekends and holidays, will apply after the grace period. Papers submitted more than one week (7 days) past the original due date will receive a grade of zero unless prior permission was obtained from the instructor.

## Course Schedule (subject to modification)

*Readings are listed for each date in parentheses. The readings are intended to support the material presented in class, not to stand alone. When doing the readings, I recommend that you first skim the text to extract key information, then read more carefully for details.*

### Module 1: Introduction and Research Design

**Tues. Sept. 6: Course overview**

Readings: Course outline

**Thurs. Sept. 8: Quantitative research: what, why, how?**

Readings: Lane pp. 11-14, 223-224

**Tues. Sept. 13: Research design**

Readings: Williams & Quave pp. 1-4

**Thurs. Sept. 15: Variables**

Readings: Bernard ch. 2 pp. 28-52; Lane pp. 34-39

**Tues. Sept. 20: Validity and uncertainty**

Readings: Lane pp. 231-234; Bernard ch. 2 pp. 53-68

**Assignment 1 – Preliminary Research Question (5%) due on Sept 20 at 4 pm**

**Thurs. Sept. 22: Sampling**

Readings: Banning, full article; Lane pp. 20-25

**Tues. Sept. 27: Cemetery field trip & research planning**

Readings: None

### Module 2: Descriptive Statistics

**Thurs. Sept 29: Visualizing data**

Readings: Lane pp. 65-115

**Tues. Oct. 4: Category data collection & presentation**

Readings: Lane pp. 40-42 and see previous class readings

**Assignment 2 – Sampling Strategy (5%) due on Oct 4 at 4 pm**

**Thurs. Oct. 6: Distributions of interval and ratio data**

Readings: Lane pp. 42-51, 123-135

**Fall Study Break Oct. 10 - 14: No Classes**

**Tues. Oct. 18: Dispersion of interval and ratio measurements**

Readings: Lane pp. 144-153

**Assignment 3 – Data Collection (5%) due on Oct. 18 at 4 pm**

**Thurs. Oct. 20: Normal distributions & Exploratory Data Analysis**

Readings: Lane pp. 248-258

**Tues. Oct. 25: Correlation and regression**

Readings: Lane pp. 164-175, 180

**Thurs. Oct. 27: Review**

Readings: None

**Tues. Nov. 1: Test 1 (20%) in class**

### **Module 3: Inferential Statistics**

**Thurs. Nov. 3: Intro to Inferential statistics: Chi-Square Tests**

Readings: Lane pp. 185-197, 369-376, 601-607 (exclude mathematical derivations)

**Tues. Nov. 8: Null hypothesis significance testing & alternatives**

Readings: Smith (2018) whole article

**Thurs. Nov. 10: Normality tests & T-tests**

Readings: Lane pp. 248-258 388 and ch. 12 for reference

**Tues. Nov. 15: 2 and >2 comparisons of univariate data**

Readings: Lane pp. 516-517

**Thurs. Nov. 17: Practice Inferential Statistics**

Readings: None

**Tues. Nov. 22: Review**

**Thurs. Nov. 24: Test 2 (20%)**

### **Module 4: Research Interpretation and Presentation**

**Tues. Nov 29: Research Poster Workshop**

**Thurs. Dec. 1: Class Mini-Conference: Poster presentations (15%)**

**Tues. Dec. 6: Research Paper Workshop (final class)**

**Final Research Paper (20%)** is due during exam period, on Dec. 12 at noon. There is a 3-day grace period (no questions asked) to Dec. 15 at noon, but you must let me know if you want to take advantage of this grace period by Dec 12 at noon. Further extensions will only be considered in exceptional circumstances. Please talk to the instructor as far in advance as possible if you anticipate problems with these deadlines.

#### **Important Dates:**

First day of classes: Sept. 6

Final date to register: Sept. 19

Study Break (no classes): Oct. 10-14

Final date to withdraw: Nov. 4

Last day of classes: Dec. 6

Exam period: Dec. 8 – 18

Instructor must submit grades by Dec 22

## General Information

### **Regulations** – from the Lakehead University [Academic Calendar](#)

“It is the responsibility of each student registered at Lakehead University to be familiar with, and comply with all the terms, requirements, regulations, policies and conditions in the Lakehead University Academic Calendar. This includes, but is not limited to, Academic Program Requirements, Academic Schedule of Dates, University and Faculty/School Policies and Regulations and the Fees and Refund Policies and Schedules.”

**Plagiarism** is defined in [University Regulation IX](#) with additional examples in Article I, Section 1 of The Code. Sanctions associated with Academic Misconduct are defined in Article II of The Code and Enforcement Procedures are outlined in Article III of The Code. Students wishing to learn more about Academic Misconduct are encouraged to read the [University and relevant Faculty Regulations](#) and The Code (noted above) and access other resources on the [Teaching Commons](#) website.

**Support for Students** – there are many resources available to support our students. These include but are not limited to:

- [Student Success Centre](#)
- [Student Accessibility Services](#)
- [Library](#)
- [Academic Support Zone](#) (Writing and Math Tutoring Centre)
- [Lakehead International](#)
- [Indigenous Initiatives](#)
- [Health and Wellness](#)

Lakehead University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities and/or medical conditions to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please contact [Student Accessibility Services](#), SC0003, 343-8047, [sas@lakeheadu.ca](mailto:sas@lakeheadu.ca)

As a university student, you may sometimes **experience mental health concerns or stressful events** that interfere with your academic performance and negatively impact your daily activities. All of us can benefit from support during times of struggle. If you or anyone you know experiences academic stress, difficult life events or feelings of anxiety or depression, Student [Health and Wellness](#) is here to help. Their services are free for Lakehead Students and appointments are available. You can learn more about confidential mental health services available on and off campus at [lakeheadu.ca/shw](http://lakeheadu.ca/shw). Remember that getting help is a smart and courageous thing to do – for yourself, for those you care about, and for those who care about you. Asking for support sooner rather than later is almost always helpful.