

# **Applied Data Analysis**

**QAC201 – Fall 2019**

Website: [adata.site.wesleyan.edu](http://adata.site.wesleyan.edu)

## **WHO SHOULD TAKE THIS COURSE?**

This course is designed for students who are interested in developing skills for working with data and using statistical tools to analyze them. No prior experience with data or statistics is required.

## **WHAT ELSE SHOULD YOU KNOW?**

The approach is “statistics in the service of questions”. As such, the research question that you choose (from data sets made available to you) is of paramount importance to your learning experience. It must interest you enough that you will be willing to spend many hours reading about it, thinking about it and analyzing data having to do with it.

The course will offer a focused hands-on experience in the research process. You will develop skills in 1) generating testable hypotheses; 2) conducting a literature review; 3) understanding large data sets; 4) formatting and managing data; 5) conducting descriptive and inferential statistical tests; and 6) reporting and interpreting results.

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## **COURSE REQUIREMENTS**

**Weekly Class Sessions:** Tuesday and Thursday class sessions include instructor and peer mentor support aimed at helping you to make consistent and meaningful progress on your research project. Put simply, attendance is required. It is the truly exceptional student who can afford to miss more than a session or two without placing undue pressure on peer mentors, instructors and themselves.

**Materials:** All supporting materials for the course will be made available through the course website [adata.site.wesleyan.edu](http://adata.site.wesleyan.edu). Moodle will be used for assignment submissions.

**Lessons:** Rather than a traditional textbook, this course provides a series of "lessons" aimed at preparing students conceptually and technically for the various steps taken in completing their research project. Lessons are presented in video with corresponding text and content/demonstrations. **All lessons should be completed prior to each class session.** If you come to class without having engaged with the lessons, you will have the opportunity to spend your time on them during class (in this case, bring ear buds!).

**Quizzes:** After reviewing each lesson, you will be asked to complete a brief quiz. **These must be completed prior to the associated class session to receive credit.**

**Blog Entries and Project Component Assignments:** Students will submit blog entries through moodle. The purpose of the blog is to encourage you to reflect on the research process, both in terms of concept and execution. You should describe your decisions, observations, learning and experiences as precisely as possible, paying attention to details (e.g. what you accomplished, what the process was like, how you felt about it,

what you hope to accomplish next, what you wish you would have known, etc.). There are prompts on the website that you can also examine. But you should feel free to include as many questions and as much information as you have. Component assignments will also be submitted as part of your journal entries as a way of building your story around results and next steps. **To receive credit, blog entries and component assignments are due on time. No exceptions.**

**Drop in Hours:** Additional support will be available on Fridays. These meetings provide an opportunity for you to share your work with others throughout the semester and to seek additional support and clarification. Each student must attend a minimum of **4 Friday drop-in sessions** during the semester and attend additional sessions if instructed by professor or TA. This will be counted as part of your course attendance grade. Instructors may require you to attend more than 4 if they need to follow up with you about your project. It is required that you keep your Friday schedule open during this time.

**Research Plan:** Students will prepare and submit a research plan that includes a literature review on their research topic, a description of the study method and an evaluation of the potential implications of the research. Outlines are due and should be posted as part of your blog entries. The final research plan paper is due October 11th 6pm. [This assignment will be penalized one grade step for each day that it is late (e.g. - to +)]. For example, a B+ paper submitted after 10:00 pm on the due date and before 6 pm the following day will receive a B.

**Exams:** Four quarterly exams will be given during class sessions and will include questions in objective format (i.e. multiple-choice). You will be taking them on your computer – so bring your laptop to class. In each exam, you will be asked to apply your knowledge and integrate material from lessons and class experiences. These exams are “closed-book”; however, you are permitted to bring ONE standard 8.5x11 sheet of paper including anything that you think will help you in the exam (your notes may be written on both sides). These are proctored exams and take place in the classroom.

**Research Poster/Oral Presentation:** Blog entries and assignments will build to the completion of an individual project that will be presented at the end of the semester as a research poster and oral presentation. The poster session will be scheduled Friday, **December 6th from 12:00 to 3:00 (you must clear your schedule in order to be able to attend the entire session – no exceptions!).** A 5-minute oral presentation followed by a question and answer session is required of each student. **All posters must be submitted for printing by 6 pm on Friday, November 22<sup>nd</sup>.** Students who miss this deadline will be responsible for finding a way to print their poster off campus, on their own time, and at their own cost.

**Additional Support:** Additional tutors are available in the Quantitative Analysis Center (ALLB108) throughout the week. **Monday–Thursday 4:00-5:30 pm and 7-10:30 pm, Friday 4:00-5:30 pm, Sunday 6-10:30 pm.** You can also use the two computing work areas adjacent to the tutoring office (rooms 107 and 110) to do your work.

**Commitment to the Course:** Students are expected to make marked progress each week and to come to class sessions and drop in hours prepared with questions and planned next steps. It is important to note that to really learn the material and skills presented in this course, students will need to devote a substantial amount of time and that a significant portion of that time will likely require support from instructors, mentors,

tutors and classmates. Everyone should be taking advantage of one-on-one support throughout the semester.

**Scientific Integrity:** The rules of science should be carefully upheld in everything that you do. The following behavior is absolutely unacceptable: Data fabrication, selective reporting, omission, suppression or distortion. Please be mindful that there is no such thing as a “little scientific misdemeanor”.

**Accommodations:** It is the policy of Wesleyan to provide reasonable accommodations to students with documented disabilities. Students are responsible for registering with Disabilities Services, in addition to making requests known to their instructor. If you require accommodations in this class, please make an appointment with your instructor during the 1st week of the semester, so that appropriate arrangements can be made.

**Grades: Course grades will be based on**

- a. Mini-Assignments and Blog Entries (15%)
- b. Quizzes (5%)
- c. Exams (40%, each exam 10%)
- d. Research Plan (15%)
- e. Regular and punctual attendance at all class sessions and required Friday drop-in hours. Students missing no more than 3 total required meetings will receive full credit. Those missing more than 5 class meetings will receive a zero for this portion of the grade. Three times late for class will be considered one absence. (5%).
- f. Research Poster/Oral presentation (20%)

**Grade Reappraisal:** Students seeking reappraisal of graded assignments, exams or feedback/attendance records must discuss his/her work with their instructor within two weeks of the assignment, exam, or feedback/attendance having been recorded. **No reappraisal will be considered after this two-week period.**

**Passing Letter Grades/Percentages:** A 95-100%; A- 91-94%; B+ 88-90%; B 85-87%; B- 81-84%; C+ 78-80%; C 75-77%; C- 71-74%; D+ 68-70%; D 65-67%; D- 60-64%