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.

SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>September 7</td>
<td>Data sets and code books</td>
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<td>September 9</td>
<td>Data architecture</td>
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<td></td>
<td>Data architecture quiz/feedback (due start of class)</td>
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<tr>
<td>September 10 (Thurs)</td>
<td>Pre-course survey (through e-mail, due 6:00 pm)</td>
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<td>September 11</td>
<td>Drop in hours</td>
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<td>Medical records data set assignment (due 6:00 pm)</td>
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<td>September 14</td>
<td>Literature review</td>
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<td>Lit. review quiz/feedback (due start of class)</td>
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<td>Personal codebook assignment (to show during class)</td>
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<td>September 16</td>
<td>Writing about empirical research</td>
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<td>Writing about research quiz/feedback (due start of class)</td>
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<td>First journal entry (due 6:00 pm)</td>
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<td>September 18</td>
<td>Drop in hours</td>
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<td></td>
<td>Journal entry and literature review assignment (due 6:00 pm)</td>
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<tr>
<td>September 21</td>
<td>Working with data</td>
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<td>Working with data quiz/feedback (due start of class)</td>
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September 23:  
Data management  
**Data management quiz/feedback** (due start of class)  
Journal entry and working w/ data assignment (due 6:00 pm)  

September 25:  
**Drop in hours**  
Journal entry and research paper outline (due 6:00 pm)  

September 28:  
Discuss draft literature review and outline  

September 30:  
Exam 1  
Journal entry (due 6:00 pm)  

October 2:  
**Drop in hours**  
Journal entry and data manage assignment (due 6:00 pm)  

October 5:  
Graphing variables  
**Graphing variables quiz/feedback** (due start of class)  

October 7:  
Graphing relationships  
**Graphing relationships quiz/feedback** (due start of class)  
Journal entry and univariate graph assign (due 6:00 pm)  

October 9:  
**Drop in hours (**mandatory session**)**  
Research paper (due for peer grading 12:00 pm)  

October 11(Sun.):  
Final research paper (due 10:00 pm)  

October 12:  
Hypothesis testing and ANOVA  
**ANOVA quiz/feedback** (due start of class)  

October 14:  
Chi Square and Correlation coefficient  
**Chi Square quiz/feedback** (due start of class)  
Journal entry and graphing relationships (due 6:00 pm)  

October 16:  
**Drop in hours**  
*Journal entry and 2 different inferential tests* (due 6:00 pm)  

October 19:  
Exploring Moderation  
**Moderation quiz/feedback** (due start of class)  

October 21:  
Exam 2  

October 23:  
**Drop in hours**  
Journal entry and moderation assignment (due 6:00 pm)  

October 26:  
**FALL BREAK**  

October 28:  
Regression and study design  
**Mid-semester survey - check e-mail for link** (due 6:00 pm)
October 30:  Drop in hours

Journal entry (due 6:00 pm)

November 2:  Confounding and Multivariate modeling

Multivariate modeling quiz/feedback (due start of class)

November 4:  Multivariate modeling continued

November 6:  Drop in hours

Journal entry (due 6:00 pm)

November 9:  Exam 3

November 11:  Making posters

Journal entry and multivariate model assign (due 6:00 pm)

November 13:  Drop in hours

November 16:  Analyses and poster work

November 18:  “What’s next?” panel discussion

November 20:  Drop in hours

Journal entry (due at 6:00 pm)

Poster title (due at 6:00 pm)

November 23:  Analyses and poster work

November 25/27:  THANKSGIVING

November 30:  Analyses and poster work

December 2:  Analyses and poster work

Final poster submitted (10:00 pm)

December 4:  Drop in hours

Final journal entry (due at 6:00 pm)

December 7:  Continue preparing oral presentations

December 9:  Exam 4

December 11:  Final Poster Session (12:00 to 3:00 – Beckham Hall)

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**COURSE REQUIREMENTS**

**Weekly Class Sessions:** Monday and Wednesday 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. **Note:** Attendance will not be recorded until the beginning of the second week of classes, Monday, September 14.
Materials: All supporting materials for the course will be made available through Schoology.com. You will need to set up an account and use the following access code to register and join the course 82GS8-F7H6R

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 assigned 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!).

Surveys/Quizzes/Feedback: After reviewing each lesson, you will be asked to complete a brief quiz with additional feedback questions. **These must be completed prior to the associated class session to receive credit.** Three surveys will also be administered (pre mid and post). Full credit will be given for those who complete them.

Journal and Component Assignments: Students will submit journal entries through Schoology. The purpose of the journal 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.). 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, journal entries and component assignments are due on time. No exceptions.**

Drop in Hours: Additional support will be available on Fridays from 12:00 to 2:00. 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, one which is mandatory (Oct 9), at least one before the first exam; at least one more between the first and third exam and one before the fourth exam (one green, one purple and one blue). This will be counted as part of your course attendance grade.

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 importance of the research question. Outlines are due and should be posted as part of your journal entry. The paper is due by the start of our mandatory drop in session on, Friday, October 9. The final paper is due Sunday October 11 [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 6:00 pm on the due date and before 6:00 pm the following day will receive a B.

Exams: Four quarterly on-line exams will be given during class sessions and will include questions in objective format (i.e. multiple-choice). 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).

Research Poster/Oral Presentation: Journal 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 on the last day of class for the course 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 to 7-minute oral presentation followed by a question and answer session is required of each student. All posters must be submitted for printing by 10:00 pm on Wednesday, December 2. 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.

**Exhibition of Interest (optional)**

Composer, artist and performer **R. Luke DuBois** utilizes data to create maps, scores and videos that explore subjects including the Iraq War and the census; and that raise questions of artistic agency, privacy and fair use. It includes recent and commissioned pieces that take as their basis real-time data flows, topical statistics and contemporary media footage. Zilkha Gallery exhibition with an artist talk and opening reception on 9/16 at 4:30pm in the CFA Hall.

If you have any questions or would like to schedule a class visit, please let me know.

**Peer Mentors:**

**SAS (Section 1)**
- Chavez, Olivia <ochavez@wesleyan.edu>
- Ebenal, Royce <rebenal@wesleyan.edu>
- Yu, Yingqi <yyu01@wesleyan.edu>
- Saarim Zaman <szaman@wesleyan.edu>
- Mejia, Michael <mmejia@wesleyan.edu>
- Lyu, Pinzhen <plu@wesleyan.edu>
- Carlo Medina <lmedina@wesleyan.edu> W
- Mann, Alison <amann@wesleyan.edu> W
- Ammar Zafar <azafar@wesleyan.edu> W
- Nadezhda S Georgieva <ngeorgieva@wesleyan.edu>

**R (Section 2)**
- Ariel Kaluzhny <akaluzhny@wesleyan.edu>
- Mann, Alison <amann@wesleyan.edu>
- Vivian Deng <vdeng@wesleyan.edu> W

**Stata (Section 3)**
- Moraski, Jill <jmoraski@wesleyan.edu>
- Lyons, Aliya <al Lyons@wesleyan.edu>
- Fragen, Jordan <jfragen@wesleyan.edu>
- Katz, Joshua <jm Katz@wesleyan.edu>
- Norman, Hannah <hnorman@wesleyan.edu>
- Chase Knowles <tknowles@wesleyan.edu>

**Zachary Carfi** <zcarfi@wesleyan.edu> Fridays

**Additional Support:** Additional tutors are available in the Quantitative Analysis Center (ALLB108) throughout the week. **Monday–Thursday 3:00-5:30 pm and 7-10:30 pm,**
Friday 3:00-5:30 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. Journal and component assignments (25%)
  b. Surveys/quizzes/feedback (10%)
  c. Exams (30%)
  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 (15%)

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%