Meeting times and locations

- M/W/F Lectures: 11:30am-12:20pm, Kane Hall 210
- Tu&Th Quiz Section Meetings
  - Sections AA and AC (8:30-9:20am)
    - In person (TA: Sean Ewen): Thomson Hall 202
    - Online (TA: Andrea Boskovic): Zoom
  - Sections AB and AD (9:30-10:20am)
    - In person (TA: Sean Ewen): Thomson Hall 202
    - Online (TA: Andrea Boskovic): Zoom
  - Sections AE and AG (8:30-9:20am)
    - In person (TA: Erin Lipman): Thomson Hall 234
    - Online (TA: Hyeonseok Park): Zoom
  - Sections AF and AH (9:30-10:20am)
    - In person (TA: Erin Lipman): Thomson Hall 234
    - Online (TA: Hyeonseok Park): Zoom
- University Holidays (no lecture, quiz sections, or office hours)
  - Monday 30 May (Memorial Day)

Teaching Team

Instructor: Dr. William Brown (preferred name: Will or Dr. Brown)
- Pronouns: he/him/his
- Email: brownw@uw.edu or via Canvas
- Office days and hours: TBD, or by appointment
- Office location: Zoom

TA: Andrea Boskovic (preferred name: Andrea)
- Pronouns: she/her
- Email: abosko26@uw.edu or via Canvas
- Office days and hours: Wednesdays 10:00-11:00am, or by appointment
- Office location: Zoom

TA: Sean Ewen (preferred name: Sean)
TA: Erin Lipman (preferred name: Erin)

- Pronouns: she/her
- Email: erlipman@uw.edu or via Canvas
- Office days and hours: Tuesdays and Thursdays 3:00-4:00pm
- Office location: Statistics Tutor and Study Center

TA: Hyeonseok Park (preferred name: Hyeonseok Park or Mr. Park)

- Pronouns: he/him/his
- Email: parkh27@uw.edu
- Office days and hours: Tuesdays and Thursdays 11:00am-12:00pm
- Office location: Zoom

Teaching team email policy

- You are strongly encouraged to use Canvas's messaging function rather than email when communicating with members of the teaching team.
- If you prefer to communicate via email, be sure to (a) use your UW (uw.edu) rather than your personal (hotmail, gmail, outlook, yahoo, etc.) email account, and (b) include an email subject beginning with "CSSS 221", "SOC 221", or "STAT 221".
- Be sure to address your instructor or TA by their preferred names and titles, as provided above.
- Be sure to write a clear email, identifying the questions for which you desire answers. If your question(s) cannot be easily answered in a short message, your instructor or TA may recommend that you meet with us during our regular office hours or set up an appointment to discuss your question(s).
- Be sure to conclude your message with your as you would prefer to be addressed.
- Be sure to acknowledge your instructor or TA's response if appropriate, for example if we ask you follow-up questions related to your message.
- Please allow up to 48 hours for a response. After 48 hours, if you have not heard back from your instructor or TA, please feel free to send a reminder message.
- Communicating about individual grades electronically: To comply with the Family Educational Rights and Policy Act (FERPA), students and members of the teaching team are discouraged from communicating about individual students' grades via email. Instead, please use Canvas's messaging function for such communications.
- Grade petitions: If you disagree with a grader's interpretation and score of your work on any graded assignment, please submit a request for a re-evaluation only to your instructor (Will Brown); do not respond to the grader. You must submit any request for a
reassessment of graded work within one week of receiving the grade and include a written explanation of your case. Note that not all re-evaluations will result in a changed grade or may even result in a reduced grade if (and only if) further problems are identified upon review.

- No member of the teaching team will accept any graded coursework submitted via email; all assignments must be submitted online via the course Canvas website.

**Required material**

- Calculator: any device capable of basic mathematical operations (addition, subtraction, multiplication, divisions, squares, square roots).

**Course motivation, objectives, and assessment**

*Course motivation*

This course is intended to help enrolled students develop statistical literacy—the ability to comprehend and critically evaluate the results of statistical data analyses—especially in the social sciences. As a discipline, statistics focuses on describing and modeling variability and uncertainty in our world. It includes a wide assortment of theories and methods for summarizing variability in all kinds of data, as well as exploring relationships that exist between variables, for example:

- crime rates by jurisdiction or geopolitical unit (neighborhood, city, state, country);
- incidence and prevalence of particular diseases by community;
- life expectancy and fertility rates by county, state, or country;
- age, sex, gender, ethnic, or SES composition by population;
- unemployment rates over time;
- number of motorists on the roadway at different hours of the day;
- birth rates by date and day of the week;
- educational outcomes based on different levels of access to resources, class size, or attendance at different schools;
- carbon emission levels by country relative to population size or GDP.

We are all voters or members of various communities, organizations, and institutions that make important decisions based on our understanding of these kinds of information. Consequently, it is important to understand the objectives, built-in assumptions, results, and limitations of statistical methods social scientists use to collect and explore such data. It is also also important to understand the pitfalls that arise when these methods are applied incorrectly. This course will
prepare you to be a more critical consumer of statistical analyses you you will encounter in popular media and in professional and academic publications. You will learn a bit about how to apply statistical methods, but the emphasis of this course is on cultivating your understanding of the logic underlying these methods and the interpretation of their results, the "why" rather than the "how."

**Course objectives**

By the end of this course, you should be able to

- Distinguish between nominal, ordinal, and different kinds of numerical variables;
- Distinguish between sample statistics and population parameters;
- Identify the strengths and limitations of different strategies researchers use to collect data, as well as how these relate to research questions and goals;
- Evaluate the ability of different statistics to summarize different kinds of data, both numerically and graphically;
- Use the rules of probability theory to explore relationships between variables in different ways;
- Identify parametric probability distributions that we can use as models of different data generating processes;
- Understand how statisticians use sampling distributions to calculate interval estimates of unknown parameters, as well as conduct statistical hypothesis tests about such parameters;
- (Maybe) understand the results of regression analyses exploring relationships between two numerical variables.

**How we will facilitate and assess your accomplishment of course goals**

- Lectures: M/W/F Lectures will introduce students to statistical concepts and methods, including clarification of many of the concepts and methods discussed in the course readings
- Quiz section exercises: Tu/Th quiz section meetings will give students a chance to actively engage statistical concepts and practice applying and interpreting statistical methods and results, often in small-group discussion contexts.
- Participation Reports: These assignments are low-stakes, credit-no credit exercises involving guided reflection on several of the quiz section exercises throughout the quarter. These assignments are intended to encourage students to participate in quiz section exercises, as well as to help the teaching team evaluate the effectiveness of these exercises in facilitating the course goals. Prompts for these assignments will appear on the course Canvas website and your responses will be submitted online via Canvas as well.
• Assigned readings and Reading Quizzes: We will cover Chapters 1 through 7 of the course textbook, as well as Chapter 8 if we have enough time. Students are expected to read each chapter prior to our discussion of each chapter’s contents in lectures and quiz sections. To encourage students to do this, there will be seven to eight online, open-book reading quizzes throughout the quarter, each quiz covering a single chapter of the textbook. You will be able to take as much time as you need to complete each reading quiz up to the assignment’s due date, but you are only allowed one attempt. All quizzes will be completed online, via Canvas. You should not discuss the reading quiz content with anyone but the teaching team. There will also be a small handful of additional, short reading assignments related to quiz section exercises early in the quarter. These additional readings will not be covered by the reading quizzes.

• Problem Sets: To give students a further opportunity to practice your understanding of statistical concepts and skills at applying and interpreting statistical methods, there will be four to six medium-stakes Problem Set assignments. You are allowed and encouraged to collaborate with your peers when completing these assignments, but every student is required to submit their own solutions in their own words for each Problem Set assignment. All Problem Set solutions will be submitted online, via Canvas.

• Exams: There will be three noncumulative exams throughout the quarter, completed online via Canvas. These exams are high-stakes assignments, intended to assess how successfully you have accomplished the course goals outlined above. Students will have the entire day on the date of the exam to begin it, but once you begin each exam, it will be timed for one hour (Exams 1 and 2) or two hours (Exam 3). These assignments are closed-book, closed-note, and you are not allowed to discuss the exam content with anyone but members of the teaching team. There will be no lecture on exam days, but your instructor will still be present in the lecture hall at the normal lecture time if you have any questions.

How your grade will be calculated

• Percentage grades
  o Reading Quizzes: 12.5% weight
  o Participation Reports: 12.5% weight
  o Problem Sets: 50% weight
  o Exams: 25% weight

• Grade Point (GP) conversion from percentage (P) grades
  o If $P \leq 17.5\%$, then $GP = 0.0$
  o If $17.5\% < P < 20\%$, then $GP = -0.8 + 0.08P$
  o If $20\% \leq P < 90\%$, then $GP = 0.04P$
  o If $90\% \leq P < 98\%$, then $GP = -0.9 + 0.05P$
  o If $98\% \leq P$, then $GP = 4.0$

• Late work policy
  o Late work will be accepted for up to four 24-hour periods following the due date. However, out of fairness to your fellow students, 25% of your earned points will be deducted automatically by Canvas for each 24-hour period late. Canvas is very
strict about this policy, so please be sure to allow yourself enough time to submit your work early.

A note on Canvas's dynamic grade reports

Canvas reports your grade for each assignment as it is entered. Check these reports regularly to make sure that your grades have been entered properly. Canvas also provides an estimate of your overall course grade, but this report is based only on the scores you have received for graded assignments; ungraded assignments are ignored. Consequently, your overall grade estimate may move up or down dramatically especially early in the quarter, and it will continue to move up or down even near the end of the quarter, as graders enter each new grade into your record. Consequently, you should not regard Canvas's overall course grade estimate as official, final, or authoritative; use it only as a way of monitoring your success in accomplishing course goals.

UW Community standards and academic integrity

- **Course COVID-19 policies:** Students in this course are expected to uphold the University of Washington's COVID-19 Prevention and Response Policies, including the UW Face Covering Policy. As of Friday 25 March 2022, this Face Covering Policy includes mandatory face covering in healthcare settings and on UW shuttles. Face coverings are also *strongly recommended* in other indoor settings (e.g., during in-person lectures and quiz section meetings) during the first two weeks of the Spring 2022 quarter (28 March through 8 April 2022) regardless of vaccination status. After 8 April 2022, face coverings are still recommended indoors for members of the UW community who have vaccine exemptions, who are immunocompromised or at high risk for severe illness, in childcare settings, when engaging in activities that generate high amounts of respiratory aerosols in close proximity to others, in crowded settings, etc. For updates to the UW's COVID-19 Prevention and Response Policies, please visit [this UW webpage](https://www.washington.edu/coronavirus/prevention-response/).

- **Collaborative learning and diversity statement:** Learning in a structured social setting is a very different experience from independent, self-guided learning. Interacting with your teaching team and with your peers presents a unique learning opportunity, but to enjoy the full rewards of such collaborative learning and the free exchange of ideas, mutual respect is indispensable between all parties involved. Your teaching team is committed to encouraging and valuing diverse student perspectives, showing every student our utmost respect, and investing ourselves in cultivating your mastery of the course content. We also expect that you will show each other and the teaching team a similarly high and sustained level of respect. We understand that diversity is integral to academic excellence and strive to create welcoming and respectful learning environments, promoting equal access and opportunity for everyone enrolled in the course. **Actions on the part of students that contradict these goals are expressly in violation of the University of Washington’s Student Conduct Code and are not tolerated.** As a condition of enrollment, all students assume responsibility to observe high standards of conduct that
will contribute to their own and their peers’ academic goals, as well as to the welfare of the UW's academic community more generally. For more information on this and other policies related to diversity, please visit the following website:
http://www.washington.edu/diversity/

- **Academic integrity statement:** Collaborative study is not only accepted but encouraged, if you find cooperation beneficial to your learning. However, for submitted course assignments (Problem Sets), one unique submission per student is required, written in your own words. If you have worked on submitted assignments with other students in the class, be sure to note this collaboration on your work, including your collaborators’ names. You cannot collaborate in any way with your peers or anyone else while completing the Reading Quizzes or Exams. All submitted coursework should adhere to the University of Washington’s Student Conduct Code. Plagiarism is not tolerated. Plagiarism includes but is not limited to copying phrases, sentences, or paragraphs without proper citation; paraphrasing another person’s ideas or words without citing them; etc. Sharing answers to questions on quizzes and exams with your peers is also not tolerated. Academic misconduct of any kind is grounds for failure in the class and removal from the University of Washington. Lack of familiarity with the rules of academic conduct does not excuse misconduct. For more information please visit the following websites:


**Equal access, accommodations, and other useful resources**

All lectures (with the possible exception of "Syllabus Day," Monday 28 March 2022) will be recorded using Panopto. Lecture recordings should become available approximately 10 to 15 minutes following the conclusion of each lecture. In the event of technical difficulties such as microphone failures or other failures of classroom audiovisual technology, students should understand that the instructor will attempt to record brief, "make-up" lectures at his earliest convenience. Students who miss lectures are still expected to watch the recording of missed lectures, as lecture material is fundamental to accomplishing course goals.

In the case of unexpected family, health, or other emergencies that interfere with your ability to complete assigned coursework on time, notification of absence at your earliest convenience is expected. Documentation to validate your absence may be requested by your instructor.

For students who have established accommodations with Disability Resources for Students (DRS, [http://depts.washington.edu/uwdrs/](http://depts.washington.edu/uwdrs/)), please communicate your approved accommodations to your instructor (William Brown) at your earliest convenience so we can discuss your needs in this course. For students who have not yet established accommodations through DRS but have a temporary health condition or permanent disability that requires accommodations, you are welcome to contact DRS at 206-543-8924 or uwdrs@uw.edu or disability@uw.edu. Such
conditions include but are not limited to mental health, attention-related, learning, vision, hearing, physical or health impacts. DRS offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s), and DRS. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law.

Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW’s policy, including more information about how to request an accommodation, is available at Religious Accommodations Policy (https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/). Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form (https://registrar.washington.edu/students/religious-accommodations-request/).

For facts and resources about the COVID-19 pandemic, see the University of Washington's page here: https://www.washington.edu/coronavirus/

For resources and points of contact to promote a safer UW community, see https://www.washington.edu/safecampus/

Course schedule

**Week 01**

- Monday 28 March: Course overview
- Tuesday 29 March: **NO QUIZ SECTION MEETINGS**
- Wednesday 30 March: Chapter 1 (Motivating statistics, data sets, and variables)
- Thursday 31 March: An overview of big themes in statistics
- Friday 1 April: Chapter 1 (More on variables)

**Week 02**

- Monday 4 April: Chapter 1 (Research questions, data collection, representative samples, and observational studies); **Problem Set 1 due**
- Tuesday 5 April: WEIRD social sciences (Henrich et al. 2010); **Reading Quiz 1 due**
- Wednesday 6 April: Chapter 1 (more on observational studies; confounding)
- Thursday 7 April: Narcotic epidemiology (Banta-Green and Field 2011)
- Friday 8 April: Chapter 1 (More on experiments; ecological studies and the ecological fallacy)

**Week 03**
- Monday 11 April: Chapter 2 (Goals and challenges of descriptive statistics; numerical summaries of numerical variables); Reading Quiz 2 due
- Tuesday 12 April: Research ethics in the social sciences; Participation Report 1 due
- Wednesday 13 April: Chapter 2 (Visual summaries of numerical variables)
- Thursday 14 April: Cleaning, summarizing, and interpreting numerical data
- Friday 15 April: Chapter 2 (Summarizing categorical variables; bad graphs)

**Week 04**

- Monday 18 April: Chapter 2 (visual summaries of associations between variables); Problem Set 2 due
- Tuesday 19 April: Exam 1 study session
- Wednesday 20 April: NO LECTURE; Exam 1
- Thursday 21 April: NO QUIZ SECTION MEETINGS
- Friday 22 April: Chapter 3

**Week 05**

- Monday 25 April: Chapter 3; Reading Quiz 3 due
- Tuesday 26 April: Probability experiments with dice; Participation Report 2 due
- Wednesday 27 April: Chapter 3
- Thursday 28 April: Bayes' rule in clinical diagnosis
- Friday 29 April: Chapter 4; Participation Report 3 due

**Week 06**

- Monday 2 May: Chapter 4; Reading Quiz 4 due
- Tuesday 3 May: Work on Problem Set 3
- Wednesday 4 May: Chapter 4; Problem Set 3 due
- Thursday 5 May: Exam 2 study session
- Friday 6 May: NO LECTURE; Exam 2

**Week 07**

- Monday 9 May: Chapter 5; Reading Quiz 5 due
- Tuesday 10 May: Developing intuitions regarding sampling distributions
- Wednesday 11 May: Chapter 5
- Thursday 12 May: Confidence intervals for one proportion
- Friday 13 May: Chapter 5

**Week 08**

- Monday 16 May: Chapter 6; Reading Quiz 6 due
- Tuesday 17 May: Null hypothesis tests for one proportion
- Wednesday 18 May: Chapter 6
- Thursday 19 May: Confidence intervals for differences in proportions
- Friday 20 May: Chapter 6; Problem Set 4 due
**Week 09**

- Monday 23 May: Chapter 7; **Reading Quiz 7 due**  
- Tuesday 24 May: Null hypothesis tests for differences in proportions  
- Wednesday 25 May: Chapter 7  
- Thursday 26 May: Chi-squared tests for independence between two categorical variables  
- Friday 27 May: Chapter 7; **Participation Report 4 due**

**Week 10**

- Monday 30 May: **NO CLASS OR OFFICE HOURS** (Memorial Day observation)  
- Tuesday 31 May: TBD  
- Wednesday 1 June: Chapter 8; **Reading Quiz 8 due; Problem Set 5 due**  
- Thursday 2 June: Exam 3 study session  
- Friday 3 June: Chapter 8

**Finals Week**

- Monday 6 June: **NO LECTURE**  
- Tuesday 7 June: **NO QUIZ SECTION MEETINGS**  
- Wednesday 8 June: **NO LECTURE; Exam 3**  
- Thursday 9 June: **NO QUIZ SECTION MEETINGS**  
- Friday 10 June: **NO LECTURE**