

# MA151 Introduction to Statistics

Seminar Leader: Ann-Kathrin Blankenberg

Course Times: Mo and Wed 10:45-12:15

Email: [a.blankenberg@berlin.bard.edu](mailto:a.blankenberg@berlin.bard.edu), office hours: on appointment

## Course Description

The goal of this course is to introduce students to quantitative methods in economics and politics. The course covers the basics of descriptive and inferential statistics, including probability theory, hypothesis testing, and an introduction to regression analysis. To facilitate students' ability to understand and critically engage with these methods, examples of quantitative social science research are discussed throughout the course. Classes are complemented with exercises to build students' skills in applying the learned methods independently. Many of these exercises use data from public opinion surveys, which cover a wide range of social, economic, and political topics. Working with this survey data, students will also have the opportunity to explore research questions of their own. At the end of the course, students will be able to read and engage with the majority of modern quantitative research. They also will be well prepared to pursue a variety of more advanced quantitative research courses.

*This course also fulfills the mathematics and science requirement for humanities students.*

## Learning Outcomes

- Understandig importance of statistics
- Understandig of basics of descriptive and inferential statistics, including probability theory, hypothesis testing, and regression analysis
- Capacity to complete exercises and projects proper to statistical analysis or its use in economics

## Requirements

### Textbook

We will use the OpenSource Textbook "OpenIntro Statistics" by Diez/Cetinkaya-Rundel/Barr, 4th edition, 2019, which can be freely downloaded via [openintro.org/os](https://openintro.org/os). You can also buy print versions there and via other sources at low cost.

### Attendance

Attendance at ALL classes is expected. Absences due to illness or compelling circumstances outside of the students' control are excused if notification is given via email before the course. The instructor may require additional documentation in case of absences or frequent exams/quizzes on the day of absence. Optional non-academic travel, hosting visiting family and friends, or work schedules are not grounds for excused absences.

#### SPECIAL CONSIDERATIONS FOR SPRING 2021:

Some students might need to begin the semester remotely due to travel restrictions caused by the pandemic. In addition, all students and instructors must refrain from in-person attendance if they are feeling ill. Instructors should make efforts to offer alternatives to in-person attendance where needed, including remote participation or asynchronous options.

#### Academic Integrity

Bard College Berlin maintains the staunchest regard for academic integrity and expects good academic practice from students in their studies. Syllabi should note that, instances in which students fail to meet the expected standards of academic integrity will be dealt with under the Code of Student Conduct, Section 14.3 (Academic Misconduct) in the Student Handbook.

## Grading

#### Assessment

Assessment will be based on attendance, preparation for classes, regular and active participation, professionalism (see below), quizzes, exercises as well as a midterm (60 minutes) and final examination (90 minutes). The worst-graded quiz and exercise will not count towards the grade.

#### Policy on Late Submission of Exercises

Exercises that are up to 24 hours late will be downgraded one full grade (from B+ to C+, for example). After that, we will accept late submissions only until the end of the week in which they were due (Sun, 23:59), but these cannot receive a grade of higher than C. Thereafter, the student will receive a failing grade for the assignment.

#### Grade Breakdown

Seminar preparation, professionalism and participation 20%

Quizzes and exercises 20%

Midterm examination 30%

Final examination 30%

## Schedule

Spring 2020 classes start on Monday, February 01 and run until Friday, May 14 with spring break planned from Mar. 29 - Mon, Apr. 5, 2021. Completion week is from May 17 - 21.

Students are required to be on campus during completion week and the final exam will be scheduled during this week. Given the current situation regarding COVID-19, exam in completion week may be take place online. Scheduled class times are available online under the relevant course heading:

<https://berlin.bard.edu/academics/courses/>

The schedule provided is provisional in order to allow for flexibility. It is the students' responsibility to keep themselves informed of any changes to the schedule provided here. An up-to-date schedule will

be maintained by the course management on the internet in Google classroom. The password to join google classroom will be handed out in class.

Class sessions will generally consist of three parts: Exposition of mathematical concepts and techniques, exercising their use as well as a discussion of their use in economics via examples where appropriate.

	Topic	Reading
Week 1 Feb 01 & 03	Introduction and Basic Terminology	Ch. 1 & 2
Week 2 Feb 8 & Feb 10	Basic Terminology/ Description of Data	Ch. 1 & 2
Week 3 Feb 15 & Feb 17	Description of Data	Ch. 2
Week 4 Feb 22 & Feb 24	Intro Google Spreadsheet Lab/ Description of data/ presentation	
Week 5 Mar 01 & Mar 3	Probability	Ch.3.1 -3.3
Week 6 Mar 8 & Mar 10	Random Variables and Probability Distributions <i># No class on Mar 8 due to Federal Holiday</i>	Ch.3.4 -3.5, 4.1
Week 7 Mar 15 & Mar 17	Random Variables and Probability Distributions	Ch.3.4 -3.5, 4.1
Week 8 Mar 22 & Mar 24	Distributions of random variable <i># mid-term is Mar 24, during class hours</i>	Ch. 4.2 – 4.5
Mar 29 & Mar 31	Spring break	
Week 9 Apr 07	Foundations for inference <i># No class on Apr 5 due to Federal Holiday</i>	Ch. 5
Week 10 Apr 12 & Apr 14	Foundations for inference	Ch. 5
Week 11 Apr 19 & Apr 21	Hypotheses Testing I	Ch. 6
Week 12 Apr 26 & Apr 28	Hypotheses Testing II	Ch. 6
Week 13 May 3 & May 5	Hypotheses Testing III	Ch. 7
Week 14 May 10 & May 12	Hypotheses Testing IV/ Review	Ch. 7
Week 15 May 17 – Fri, May 21 Completion week	<b>FINAL EXAMINATION: to be scheduled</b>	

*Classes missed due to federal holidays will not be rescheduled.*

## **Professionalism**

Being a student is your full-time job and with it come a set of responsibilities and expectations, as with any other job. Maintaining a professional attitude towards your course of study is something that also prepares you for later work life. A professional attitude towards your studies is shown by coming to class on time, being prepared, being courteous to your teachers and fellow students. It is exhibited by writing your essays with care, actively participating in class, avoiding distractions (excessive bathroom breaks, using smartphones to check on irrelevant issues during class etc.), not missing classes except for the most dire of circumstances and in general by adapting to the rules of the course without trying to bargain for personal exceptions.

## **Ethics/Academic honesty**

A core value of the academy is truth and the pursuit thereof. Nothing can shake the foundations of this pursuit as much as academic dishonesty as it undermines the trust that is indispensable to it. This is why I will not excuse any instance of academic dishonesty. Plagiarism, cheating during exams, copying homework assignments (or doing individual assignments with a classmate) all constitute violations of academic honesty and of the clause on “academic integrity” that each student has signed in the student handbook. They can lead to failing the course and will be reflected in the student’s record (having a record of academic dishonesty can make obtaining scholarships, achieving a study abroad place or admission to another program difficult if not outright impossible). If students fail to meet the expected standards of academic integrity, this will be dealt with under the Code of Student Conduct, Section III Academic Misconduct.

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