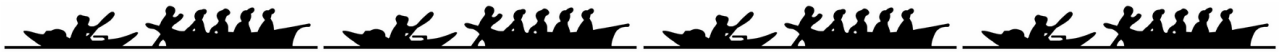

Statistics

Course syllabus - (5 ECTS) Spring 2026 - University of Greenland - Ilisimatusarfik

Lecturer details

Lecturer: Dr. Brian Beadle, Assistant Professor, -Ilisimatusarfik
Email: brbe@uni.gl
Office: D243
Language of instruction and assessment: English

Course description

This course provides an introduction to fundamental concepts and methods in statistics, with an emphasis on data analysis, probability, and statistical inference. Students will learn how to describe, visualize, and model data, assess uncertainty, and draw evidence-based conclusions using both analytical techniques and the statistical software `R`. The course is designed to develop statistical reasoning skills applicable for natural and social sciences, and in business settings.

Learning outcomes

Upon successful completion of the course, students will be able to:

- **Describe** fundamental statistical concepts and explain the assumptions, limitations, and appropriate use of simple statistical methods
- **Apply** basic statistical techniques to analyze quantitative data and draw conclusions
- **Perform** and interpret statistical tests
- **Analyze** relationships between variables using simple linear regression
- **Evaluate** quantitative data and statistical results using descriptive and inferential methods
- Use `R` to conduct and present simple statistical analyses

Teaching method

Lecture-based with discussions, exercises using `R`, and practice test questions.

Evaluation

During the semester, students are required to complete three smaller mandatory assignments involving the practical application of the statistical methods and techniques covered in the course. These assignments must be approved by the lecturer before the student is eligible to register for the final exam.

The final exam is an individual, in-person written examination covering all topics discussed in the lectures. The exam assesses the stated learning objectives of the course, including knowledge of statistical methods, the ability to apply and interpret simple statistical analyses, and the evaluation of quantitative data. The exam is conducted with the use of permitted aids, excluding access to the internet. Grades are awarded according to the Greenlandic Grading Score (GGS) scale. The exam language is English.

Literature and schedule

As shown in the table below, the course schedule is designed to guide students through the core components of introductory statistics in a logical and cumulative manner. The course begins with an introduction to data, sampling, and descriptive statistics, establishing the empirical foundation needed for statistical reasoning. It then progresses to probability theory and random variables, followed by key distributional concepts such as the normal distribution and the central limit theorem.

Building on this foundation, students are introduced to confidence intervals and applied statistical modeling through linear regression. The schedule concludes with a dedicated review session to consolidate learning outcomes and support exam preparation, followed by the final examination.

Week	Topic and activity	Chapters/ Sections
8	*Topic*: Sampling and data	1
	Activities: Introduction to `R`, collecting a data sample	
9	*Topic*: Descriptive statistics	2
	Activity: Generating descriptive statistics in `R` with student data	
10	*Topic*: Probability	3
	Activity: A practical approach to understanding probabilities	
11	*Topic*: Random variables, the normal distribution, and central limit theorem	4.1, 4.2, 5.1, 6.1, 6.2, 7.1
	Activities: Distinguishing discrete vs. continuous variables; evaluating distributions with simulated data	
12	*Topic*: Confidence intervals	8
	Activities: Confidence interval calculations and interpretation	
13	*Topic*: Linear regression and correlation	12
	Activities: Spurious correlations; running and interpreting regressions in `R`	
14	Review session	–
15	Final exam	–

All assigned readings refer to chapters and/or sections from the open-access textbook *Introductory Statistics (2e)*. The full citation for the book is provided below, and clicking on the title will direct you to the page where you can view it online, download a free PDF copy, or order a print copy for a fee.

References

Illowsky, B., Dean, S., Birmajer, D., Blount, B., Boyd, S., Einsohn, M., Helmreich, J., Kenyon, L., Lee, S., & Taub, J. (2023/2024). *Introductory Statistics* (2nd ed.). OpenStax.

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