



Birzeit Univeristy
Mathematics Department
First Semester 2023/2024
STAT 3311 – STATISTICS 2
Course Outline

Classes / Instructors / Office Hours:

- **Classes:** Check Ritaj.
- **Instructor:** Dr. Hani Kabajah
- **Office Hours:** Check Ritaj.

Textbook:

- D. R. Anderson, D. J. Sweeney, T. A. Williams, J. Freeman, and E. Shoensmith, **Statistics for Business and Economics**, 2nd edition, CENGAGE learning, 2010.

References:

- D. Wackerly, W. Mendenhall, and R. L. Scheaffer, **Mathematical Statistics with Applications**, 7th edition, CENGAGE learning, 2008.
- I. Miller and M. Miller, **John E. Freund's Mathematical Statistics with Applications**, 8th edition, PEARSON, 2014.

Software and Manuals:

- Microsoft Excel
- R: The R Project for Statistical Computing
Download: <https://cran.r-project.org/mirrors.html>
Manual: <https://cran.r-project.org/doc/manuals/r-release/R-intro.pdf>
- GNU Octave
Download: <https://www.gnu.org/software/octave/index>
Manual: <https://octave.org/octave.pdf>

Grading Policy:

• Classwork / Homework	15 %
• Midterm Exam	35 %
• Final Exam	50 %

Dates / Topics of Exams:

- The dates and the topics of the exams will be announced when the reservation system is open. Check Ritaj continuously!

Notes:

- You must attend all lectures.
- You need a scientific calculator for the lectures and the exams.
- You are highly encouraged to take notes during the lecture.
- Further notes, material, and information will be posted using Ritaj Course Board. Check Ritaj continuously!

In the following you can find:

- The lectures planned for each topic (where 1 lecture stands for 80 minutes).
- **Textbook Exercises (at the end of each section) are very useful for practice.**
- **The best way of studying is to solve the questions after each section.**

Detailed Topics:

Lecture	Chapter 10	Statistical Inference about Means and Proportions with Two Populations
1	10.1	Inferences about the difference between two population means: variances known
2	10.2	Inferences about the difference between two population means: variances unknown
3	10.3	Inferences about the difference between two population means: matched samples
4	10.4	Inferences about the difference between two population proportions
Lecture	Chapter 11	Inferences about Population Variances
5	11.1	Inferences about a population variance
6	11.2	Inferences about two population variances
Lecture	Chapter 12	Tests of Goodness of Fit and Independence
7	12.1	Goodness of fit test: a multinomial population
8	12.2	Test of independence
9 + 10	12.3	Goodness of fit test: Poisson and normal distributions

Lecture	Chapter 13	Analysis of Variance and Experimental Design
11	13.1	An introduction to analysis of variance
12	13.2	Analysis of variance: testing for the equality of k population means
13	13.3	Multiple comparison procedures
14	13.4	An introduction to experimental design
14	13.5	Completely randomized design
15	13.6	Randomized block design
16	13.7	Factorial experiments
Lecture	Chapter 14	Simple Linear Regression
17	14.1	Simple linear regression
17	14.2	Least squares method
18	14.3	Coefficient of determination
19	14.4	Model assumptions
19	14.5	Testing for significance
20	14.6	Using the estimated regression equation for estimation and prediction
21	14.7	Computer solution
22	14.8	Residual analysis: validating model assumptions
Lecture	Chapter 15	Multiple Regression
23	15.1	Multiple regression model
24	15.2	Least squares method
25	15.3	Multiple coefficient of determination
25	15.4	Model assumptions
25	15.5	Testing for significance
26	15.6	Using the estimated regression equation for estimation and prediction
27	15.7	Qualitative independent variables
Lecture	Chapter 16	Regression Analysis: Model Building
28	16.1	General Linear Model