

Instructor: Dr. Sevtap Kestel
Lectures/Week: Monday 12:00-14:00 HS 1015
Tutorials/Week: Monday 17:00-19:00 HS 3042*
Office Hours: **By appointment.** Room: 2338
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* every other week starting from the first week of the semester

Brief Description of Subject:

The study of inferential processes, especially, the planning and analysis of experiments and surveys, developing and utilizing techniques for the collection, presentation, analysis and interpretation of numerical data relating to real life occurrences enables us to make the correct decisions and predictions under uncertainty. Descriptive techniques under probabilistic assumptions, random variables in uni- and multi-variable cases, statistical distributions, point and interval estimations, hypothesis testing and regression analysis are covered throughout the content of the course.

Subject Objectives:

Students will learn to

- determine the basic indicators in uncertainty stochastically
- interpret the information collected in terms of probabilistic approaches
- determine the estimators, forecast and test these estimators
- fit an appropriate statistical model to the data

Teaching Methods:

Presentation of teaching materials include introduction of the theoretical base with illustrative examples and exercises solved in the class. Tutorials enhance the application of the theory and the interpretation of the results. Class participation in application and interpretation of the exercises are highly expected. Students are **strongly** recommended to participate to the lectures. **It is your responsibility to keep up with the material covered in class.**

Assessment:

Assignment	10%
Final Exam	90%
TOTAL	100%

Assignments (10%)

Assignments include exercises from the text book and/or reference books. Each student is expected to do them individually. Late submission of assignment with or without any excuse is not accepted.

Final Exam (90%)

A comprehensive two-hour final exam will be given. The test will be in-class and closed-book exam. If you miss the final exam, you will be treated according to the regulations of the University. Students are required to pass at least 50% of the final test.

Text Book:

Freund, J.E., Miller, I. and Miller. M. (2004). Mathematical Statistics with Application, 7th Edition, Prentice Hall.

Preliminary Lecture and Tutorial Schedule

Lecture and Tutorial	Topics
Week 1 / CW* 43 / October 22	Counting techniques, Set Theory, Probability, Conditional probability
Week 2 / CW 44 / October 29	Random Variable, Expected Value, Variance and Moments
Week 3 / CW 45 / November 5	Discrete and Continuous Distributions
Week 4 / CW 46 / November 12	Discrete and Continuous Distributions
Week 5 / CW 47 / November 19	Joint distributions and correlation
Week 6 / CW 48 / November 26	Functions of random variables, sampling distribution, order statistics
Week 7 / CW 49 / December 3	Estimation techniques
Week 8 / CW 50 / December 10	Properties of estimators
Week 9 / CW 51 / December 17	Properties of estimators
CHRISTMAS BREAK	B R E A K
Week 10 / CW 2 / January 7	Interval estimation
Week 11 / CW 3 / January 14	Interval estimation
Week 12 / CW 4 / January 21	Hypothesis Testing
Week 13 / CW 5 / January 28	Hypothesis Testing
Week 14 / CW 6 / January 28	Simple Regression Analysis
Week 15/ CW 7/ February 4	Multiple Regression Analysis Deadline: Assignment
Week 16/ CW 8/ February 11	Non-linear Regression Analysis
Final Exam	
Date: To be announced later	

*CW: Calendar Week