1 Instructors and Teaching Assistants

Instructor       Melike Efe  
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Teaching assistants:  
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2 Time and Venue

Lecture Hours     Thursday 8.40-11.30 FENS L055  
                  Friday 12.40-15.30 FENS L035  
Recitation Hours  Friday 10.40-12.30 FMAN G045 (A1)  
                  Friday 10.40-12.30 FMAN G065 (A2)  

3 Office hours

Office Hours Instructors Thursday 11.40-12.30 UC 1089  
or by appointment  
Office Hours TA’s    Thursday 12.40-13.30 FENS L068 (Annissa Rachel Vanwieren)  
                      Thursday 13.40-14.30 FENS L068 (Afrim Bojnik)  

4 Textbook


5 Prerequisite and Corequisite

Prerequisite is a grade at least D for MATH 102. MATH 203R is a corequisite.  

6 Course Description

The course covers the material listed below. Chapters refer to the above mentioned textbook.  

• Chapter 1: Introduction and Combinatorial Methods
– The Basic Principles of Counting
– Permutations
– Combinations
– Multinomial Coefficients

• Chapter 2: Probability
– Sample Space and Events
– Postulates of Probability
– Some Rules of Probability
– Conditional Probability
– Independent Events
– Bayes’ Theorem

• Chapter 3,4,5: Discrete Random Variables
– Discrete Random Variables (Ch. 3.1)
– Discrete Probability Functions and Cumulative Distribution Functions (Ch. 3.2)
– The Expected Value of a Discrete Random Variable (Ch. 4.1)
– Moments, Variance of a Discrete Random Variable (Ch. 4.3)
– Moment Generating Function a Discrete Random Variable (Ch. 4.5)
– Special (Discrete) Probability Distributions (Selected Sections)
  * The Uniform Distribution (Ch. 5.2)
  * The Bernoulli and Binomial Distributions (Ch. 5.3 and Ch. 5.4)
  * The Negative Binomial and Geometric Distributions (Ch. 5.5)
  * The Hypergeometric Distribution (Ch. 5.6)
  * The Poisson Distribution (Ch. 5.7)

• Chapter 3,4,6: Continuous Random Variables
– Continuous Random Variables (Ch. 3.3)
– Continuous Probability Densities and Cumulative Distribution Functions (Ch. 3.4)
– The Expected Value of a Continuous Random Variable (Ch. 4.2)
– Moments, Variance of a Continuous Random Variable (Ch. 4.3)
– Moment Generating Function a Continuous Random Variable (Ch. 4.5)
– Special Probability Densities (Selected Sections)
  * The Uniform Distribution (Ch. 6.2)
• The Gamma and Exponential (Ch. 6.3)
• The Normal Distribution (Ch. 6.5)
• The Normal Approximation to the Binomial Distribution (Ch. 6.6)

• Chapter 3,4,5,6: Multivariate Random Variables
  – Multivariate Distributions (Ch. 3.5)
  – Marginal and Conditional Distribution Functions (Ch. 3.6 and Ch. 3.7)
  – Product Moments, Covariance (Ch. 4.6)
  – Moments of Linear Combinations of Random Variables (Ch. 4.7)
  – Conditional Expectation (Ch. 4.8)
  – Special Joint Probability Distributions (Selected Sections)
    * Multinomial Distribution (Ch. 5.8)
    * Multivariate Hypergeometric Distribution (Ch. 5.9)
    * Bivariate Normal Distribution (Ch. 6.7)

• Chapter 7: Functions of Random Variables
  – Distribution Function Technique

• Chapter 8: Sampling Distributions
  – Samples, the Distribution of the Mean
  – The Law of Large Numbers, the Central Limit Theorem

• Chapter 8+: Basic Methods for Statistical Estimation and Testing
  – Point Estimation
  – Confidence Interval
  – Hypothesis Testing

7 Exam Policy and Dates

• There will be 1 midterm during the semester and a final after the semester. The tentative dates are as follows:
  Midterm 1 (40%) : Thursday August 08, 2024 (at Lecture time)
  Final (50%) : TBA
  Lecture Quiz (10%) : Pop-up
  Recitation Attendance: +5% BONUS
  The date & time of the final exam will be announced by the Student Resources.
  The exam rooms will be announced before the exams.
• Exams are closed book. This means that during the exams, the use of books, notes, electronic devices (including cell phones, smart watches, calculators, computers etc.), or any other kind of supporting learning material is NOT allowed. A student violating this rule will receive 0 points for that exam.

• Do not underestimate this course! It is advised that you study regularly and attend all lectures and recitation sessions. If you do not fully understand the material it is recommended to take an appointment with your TA or your instructor immediately after class.

• The passing grade will be determined after the last exam. Be aware that this passing grade may not match the overall average of the students.

• It is students’ responsibility to follow all the announcements made in class and those made via SUCourse+.

8 Make-up Policy

• Make-ups are only allowed for the midterm exam and the final exam to those with an official report and to those with an official permission notice from the university on the date of the exam in question. Students must submit their reports/notices to the instructor before the exam in question. The ones having other excuses should contact the instructor within the day of the exam to be missed and then it will be decided whether these students are allowed to take the make-up exam. Any excuses to be brought to the attention of the instructors after the exam will not be considered. No exceptions to these rules! If the student do not contact with the instructor and do not take neither the exams nor the make-up, the (s)he gets NA.

• Make-up for the midterms and the final exam will be held at the end of the final exam period and it will cover all the topics. Only students who miss an exam will be able to take it.

• Note that make-up exam will be considerably harder than regular exams. Thus, we suggest that without a present of any dire situations (e.g., a serious health problem), a student should not take the make-up exam.

9 Course Policy

• Lectures & SUCourse+: Following the lectures and SUCourse+ activity is a prerequisite for the course. The students are responsible from every announcement made during the lectures or on SUCourse+.

• Homeworks: There will be homework problems assigned each week. They will not be graded. You are not expected to return solutions but you are strongly advised to solve them and discuss during the next recitation.
• **Recitations**: Attendance in recitations will be checked every week starting from the second week (after the Add-Drop period). The total score for attending recitations is capped at 5 bonus points. Students must attend the recitation sessions that they are registered in. Recitations are supposed to be an active learning environment. Your behavior will be monitored by the TA’s. If you misbehave during recitations, this will be reported to the instructor and appropriate measures will be taken. In extreme cases, this may even affect your course grade.

• **Quiz**: There will be pop-up short quizzes in the lectures. During lectures, total of 6 or more quizzes will be given, and out of them, 5 will be taken, which will reflect in your grade as a 10% points.

• **Academic Honesty**: We expect all students to follow common-sense practices during the exams. Cheating will not be tolerated. The action against such violations could range from getting a zero on the particular exam to explaining the case in front of the Disciplinary Committee.

• **Registration Overrides**: Time conflict requests will be accepted. However, any and all negative outcomes that may result are solely the student’s responsibility.