Math 203- Introduction to Probability  
Summer 2021-2022

This syllabus may be subject to update and change.

Instructor: Canan Kaşkıcı

e-mail/office: canankasikci@sabanciuniv.edu, FENS L017.

Office Hours: TBA.

Lectures: Mondays 11:40 - 14:30 at FENS G077,  
          Wednesdays 08:40 - 11:30 at FASS G062.

Recitations: Fridays 16:40 - 18:30, (A1, A2)

Prerequisite: Prerequisite is a grade at least D for MATH 102.

Textbooks: John Freund’s Mathematical Statistics with Applications,  

Grading: Your grade exclusively depends on the below listed items.  
         There will be no other extra-credit opportunities.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm I</td>
<td>30%</td>
</tr>
<tr>
<td>Midterm II</td>
<td>30%</td>
</tr>
<tr>
<td>Final</td>
<td>40%</td>
</tr>
<tr>
<td>Lecture Attendance</td>
<td>5%</td>
</tr>
</tbody>
</table>

Exam Dates: The midterms will be on the below listed dates and times.  
            More detailed information will be available in the due course.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm I</td>
<td>06.08.2022, Saturday, 13:00</td>
</tr>
<tr>
<td>Midterm II</td>
<td>20.08.2022, Saturday, 13:00</td>
</tr>
</tbody>
</table>

The university will later announce the final exam date. The  
final exam may be given on any day between September 3rd - September 6th. Student resources will determine the dates  
and times for all final exams, and instructors cannot change  
it. So, do not plan to leave Istanbul before September 9th,  
2022. All the exams will be given in-person, on campus.
Exam Policies:

- Students who miss any two exams will automatically receive the NA grade.
- There will be 2 midterms and a final exam.
- The final grade will be based on the lecture attendance (5%), midterms (60%) and the final exam (40%).
- 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 automatically receive 0 points for that exam.
- 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.
- 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 me or your TA immediately after class.

Make-up Policy:

- If a student misses an exam and wishes to make it up, she/he must contact me and explain her/his excuse before the exam in question. If it is a health problem, a doctor’s report is requested, which is given or checked by SU Health Center. You can have a make-up exam for ONLY one of the midterms.
- Make-up for the midterms and the final exam will be held right after the final exam period and it will cover all the topics. Only students who got permission for the make-up will be able to take it.

Course Policies:

- 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+. Lectures will NOT be hybrid/online.
• **Lecture Attendance**: There will be attendance checks in the form of pop-up quizzes during lecture times. There will be no make up for any of these quizzes.

• **Supplementary Exercises**: There will be supplementary exercises assigned each week via SuCourse+ after lectures. You are not expected to return the solutions but you are strongly advised to solve them (even if not in full detail) before the recitation.

• **Recitations**: Recitations will NOT be hybrid/online. Students must attend the recitation classes to which they are registered. Recitations are supposed to be an active learning environment. Your behavior will be monitored by the TAs. If you misbehave during recitations, this will be reported to the instructor and appropriate measures will be taken, which may effect your course grade.

• **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.

**Tentative Schedule:**

<table>
<thead>
<tr>
<th>Chap.</th>
<th>Introduction and Combinatorial Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>The Basic Principles of Counting, Permutations, Combinations, Multinomial Coefficients.</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chap.</th>
<th>Probability</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Chap.</th>
<th>Probability Distributions and Densities</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td><em>Random Variables, Discrete Probability Functions and Cumulative Distribution Functions, Continuous Probability Densities and Cumulative Distribution Functions,</em></td>
</tr>
</tbody>
</table>
Multivariate Distributions, Marginal and Conditional Distribution Functions.

Chap. 4 Mathematical Expectation
The Expected Value of a Random Variable, Moments, Variance, Chebyshev’s Theorem, Moment Generating Functions, Product Moments, Covariance, Moments of Linear Combinations of Random Variables, Conditional Expectation.

Chap. 5 Special (Discrete) Probability Distributions

Chap. 6 Special Probability Densities

Chap. 7 Functions of Random Variables
Distribution Function Technique, Transformation Technique, Moment Generating Function Technique.

Chap. 8 Sampling Distributions
Samples, the Distribution of the Mean, The Law of Large Numbers, the Central Limit Theorem. (If time allows.)

Remark: Lecture notes will be posted on SUCourse+. The order in the tentative schedule might be altered. It is your responsibility to follow all the announcements made in class and those posted on SUCourse+. Not attending the class or not checking the SUCourse+ is not an excuse, in case you miss something.