Mathematics 2501 – old number: 8.1 (Elementary Probability and Statistics), Spring 2026,
Section TR2, Code: 18866, Tuesday, Thursday 02:15–03:30pm,
Section TR3, Code: 17591, Tuesday, Thursday 03:40–04:55pm.
Classroom: IH-1105 Instructor: Attila Máté

Office. IH-1149b, 718-951-5000/2734, IH-1156 (the main Mathematics Department Office) 718-951-5246.

Office Hours. Tuesday, Thursday 5:00–6:00 pm

Textbook. Gunnar Blom: *Probability and Statistics: Theory and Applications* (Springer Texts in Statistics), Softcover reprint of the original 1st ed. (1989 Edition) Springer, Softcover ISBN 978-1-4612-8158-0 List Price: $84.99.

`https://www.springer.com/us/book/9781461281580`
`https://www.amazon.com/Probabitily-Statistics-Theory-Applications-Springer/dp/146128158X`

Final Exam. Section TR2: Time: Thursday, May 21, 1:00–3:00 p.m., room Ingersoll 1105.
Section TR3: Time: Thursday, May 21, 3:30–5:30 p.m., room Ingersoll 1105.

Exams. Exam dates: Feb 26, Mar 26, May 7, Class exams count 60%, the final exam counts 40% in the course grade. One of the scores for the first or the second class exam will be dropped if this improves your grade. The score for the third class exam will not be dropped. A grade zero assigned to an exam missed without a proper excuse will not be dropped either. No makeup exams will be given. In case of a missed exam, please talk to me how to re-weigh your other exams. A grade less than 30 out of 100 on the final will result in a course grade of F regardless of the class exam grades. Irregular attendance or being late to class often may result in a grade worse than indicated by exam averages.

Web Site. Course material may be put on the Web site:
`http://www.sci.brooklyn.cuny.edu/~mate/elemprob/`

Department Web Site.
`http://depthome.brooklyn.cuny.edu/math/`

Syllabus. (What follows is the official class syllabus. The actual material covered, and the order in which it is covered may be slightly different, to best take advantage of the resources offered by the textbook.)

1. Introduction (1 week)
- **a.** Combinatorial methods
- **b.** Binomial coefficients

2. Probability (2 weeks)
- **a.** Sample spaces
- **b.** Events
- **c.** Probability of an event
- **d.** Some rules of probability
- **e.** Conditional probability
- **f.** Independent events
- **g.** Bayes's theorem

3. Probability distributions (1 week)
- **a.** Random variables
- **b.** Discrete probability and distributions functions
- **c.** Continuous density and distribution functions

4. Expectation (1 week)
   a. Expected value
   b. Variance and other moments

5. Special discrete probability distributions (2 weeks)
   a. Uniform distribution
   b. Bernoulli distribution
   c. Binomial distribution
   d. Geometric distribution
   e. Negative binomial distribution
   f. Hypergeometric distribution
   g. Poisson distribution

6. Special continuous probability distributions (2 weeks)
   a. Uniform distribution
   b. Exponential distribution
   c. Gamma (Erlang) distribution
   d. Chi-square distribution
   e. Normal distribution

7. Estimation (2 weeks)
   a. Sample mean and sample variance
   b. Central limit theorem (no proof)
   c. Confidence interval for mean of normal population, assuming variance is known
   d. Confidence interval for proportion
   e. Confidence interval for variance of normal populations

8. Hypothesis testing (1 week)
   a. Simple and composite hypotheses
   b. Type I and type II errors

Examinations, slack, review (2 weeks)

The inclusion of the following in the syllabus is mandated by Brooklyn College

Academic Integrity. The faculty and administration of Brooklyn College support an environment free from cheating and plagiarism. Each student is responsible for being aware of what constitutes cheating and plagiarism and for avoiding both. The complete text of the CUNY Academic Integrity Policy and the Brooklyn College procedure for implementing this policy can both be found at this site:

http://www.brooklyn.cuny.edu/bc/policies

If a faculty member suspects a violation of academic integrity and, upon investigation, confirms that violation, or if the students admits the violation, the faculty member MUST report the violation.

Plagiarism. Submitting the work of another person or persons without proper attribution is considered plagiarism, and will be treated accordingly. Proper attribution requires identifying the source of your work. Failure to do so may result in a charge of plagiarism, and students can be subject to administrative actions, including

- A 0 grade on the assignment or exam,
- An F grade in the course.

Additional actions may be taken by the College, including admonition, warning, censure, disciplinary probation, restitution, suspension, expulsion, complaint to civil authorities, and ejection.

Students with disabilities. In order to receive disability-related academic accommodations students must first be registered with the Center for Student Disability Services. Students who have a documented disability or suspect they may have a disability are invited to set up and appointment with the Director of the Center for Student Disability Services at 718-951-5538. If you have already registered with the center for Student Disability Services please provide your professor with the course accommodation form and discuss your specific accommodation with him/her.