

MAT 721 – Probability I – Spring 2019

Contact Information

Instructor: J T Cox

Email: jtc Cox@syr.edu

Office: Carnegie 311B

Phone: 315-443-1488 (office)

Office Hours: TBA

Class Time and Location: Tue-Thur 11:00am–12:20pm, Carnegie 120.

Course Content

Catalog Description: Measure and integration, random variables and their distributions and transforms, modes of convergence, classical limit laws. *Prereq.:* MAT 701.

Textbook: *Probability, Theory and Examples, 4th ed.*, by Richard Durrett, Cambridge University Press.

Course outline: Chapters 1-4, plus additional selected topics, time permitting.

1. Measure theory: Probability spaces, distributions, random variables, integration, properties of the integral, expected value, product measures, Fubini's theorem.
2. Laws of large numbers: Independence, weak laws of large numbers, Borel-Cantelli lemmas, strong law of large numbers, convergence of random series.
3. Central limit theorems: De Moivre-Laplace theorem, weak convergence, characteristic functions, central limit theorems, Poisson convergence.
4. Random walks: stopping times, recurrence

Course Policies

Grading: Course grades will be based on homework (30%), a class presentation (10%), two midterm exams (40%), and a final exam (20%). The grading scheme will be no stricter than: 93 for A, 90 for A-, 87 for B+, 83 for B, 80 for B-, 77 for C+, 73 for C, 70 for C-, 60 for D.

Homework: You are encouraged to discuss the homework problems with your classmates and to work together, and also to get help from Prof. Cox. Submitted assignments must be written up individually, in LaTeX, and submitted via email.

Midterm Exams will be given on Wed, Feb 20, 7-9pm, and on Wed April 10, 7-9pm. The final exam will be a take-home exam, details to be announced in class later in the semester.

University Policies

Students with disabilities. If you believe that you need academic adjustments (accommodations) for a disability, please contact the Office of Disability Services (ODS), visit the ODS website–<http://disabilityservices.syr.edu>, located in Room 309 of 804 University Avenue, or call (315) 443-4498 or TDD: (315) 443-1371 for an appointment to discuss your needs and the process for requesting academic adjustments. ODS is responsible for coordinating disability-related academic adjustments and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since academic adjustments may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

Academic Integrity. Syracuse University's Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the University's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice.

The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in course failure regardless of violation level.

Religious observances policy. SU religious observances policy recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to are religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice (Student Services -> Enrollment -> My Religious Observances) from the first day of class until the end of the second week of class.