

**INEG 5313 Engineering Applications of Probability Theory
University of Arkansas, Spring Semester 2020, First Eight Weeks**

Course Syllabus

The material contained in this syllabus is subject to change upon announcement by the instructor via Blackboard.

Catalog Description

Introduction to probability, discrete random variables, continuous random variables, multiple random variables. Applications of these topics from inventory, reliability, quality control.

Basic Course Information

Instructor	C. Richard Cassady, PhD University Professor of Industrial Engineering
Office Location	ENGR 0320
E-mail	cassady@uark.edu

Course lectures and homework reviews are provided on video via Blackboard. Consultation with the instructor can be accomplished via e-mail or by scheduling an appointment. To schedule an in-person, phone, or web conference appointment with the instructor:

1. Login to Blackboard, and click on UASuccess.
2. Click on the navigation bar (three parallel lines) and select Courses.
3. Look for this class under Courses I'm Taking.
4. Click Schedule Appointment under your instructor's name.
5. Choose one of the available appointment times by clicking Sign Up.
6. When the Appointment window opens, select a Reason, select this Course, and add Notes if you wish. Then, click Submit.
7. You will receive an e-mail notification of the scheduled appointment, and you can see your scheduled appointments in the Appointments section of UASuccess. You can click the calendar icon next to a scheduled appointment to edit or cancel it.

Required Textbook

There is no required textbook. Students will be provided with reading material.

Course Topics (Reading Chapters)

1. Probability Modeling using Events
2. Static Reliability Models
3. Discrete Random Variables
4. Continuous Random Variables
5. Time-Dependent Reliability Models
6. Multiple Random Variables
7. Random Sampling

Assessment

Self-assessment of student progress in the course will be based on nine homework assignments. Homework assignments are detailed in Blackboard and must be completed by 11:59 pm on the following dates.

Assignment 1	Chapter 1	January 17
Assignment 2	Chapter 1	January 22
Assignment 3	Chapter 2	January 28
Assignment 4	Chapter 3	February 2
Assignment 5	Chapter 4	February 9
Assignment 6	Chapter 5	February 14
Assignment 7	Chapter 6	February 21
Assignment 8	Chapter 6	February 26
Assignment 9	Chapter 7	March 1

To allow plenty of time for test preparation, students are encouraged to strive to stay ahead of the homework schedule.

The homework assignments are essential to this course because they provide students with the opportunity to evaluate and develop their understanding of the course material. The homework assignments are time-consuming and require students to solve some problems that go beyond what is presented in the text and lecture videos. Therefore, students are expected to:

- attempt to complete the assignments on their own after reading the corresponding text and watching the corresponding lecture videos (no later than 48 hours prior to the due date)
- seek assistance from the instructor and/or peers on any parts of the assignment that they do not fully comprehend (no later than 24 hours prior to the due date)

Students are then required to:

- prepare and submit (in Blackboard) a detailed, neat, handwritten or word-processed response to the assignment including only the portions of the assignment they fully understand (by the due date)
- review the solution video for the assignment and assign themselves an integer grade from the set $\{0, 1, \dots, 100\}$ for the assignment in Blackboard (within 48 hours of the due date)
- e-mail their assignment grade to the instructor with a brief explanation of the grade

In assigning themselves a grade for a homework assignment, the general expectation is that students will give themselves “full credit” for the portions of the assignment they successfully understood and documented prior to submission and “half credit” for the portions of the assignment that they fully understood only after reviewing the solution video. The instructor will review and approve homework grades.

The solution video for an assignment becomes available to a student upon submission of the assignment. Accessing a solution video prior to assignment submission is considered a violation of the university’s academic integrity policy.

Instructor assessment of student progress is based on four tests. Tests must be completed by 11:59 pm on the following dates.

Test 1	Chapter 1	January 24
Test 2	Chapters 2-3	February 4
Test 3	Chapters 4-5	February 16
Test 4	Chapters 6-7	March 3

When ready to take tests, students should notify the instructor by e-mail of their desired test date and time (the e-mail must be received by the instructor at least 48 hours in advance of the desired date/time). The test will become available to the student in Blackboard 10 minutes before the scheduled start time, and it will disappear 10 minutes after the scheduled start time. To avoid any confusion, students should base their desired start time on the US Central time zone and avoid a start time of 12:00 AM.

On tests, students are authorized to use only their own notes (including materials provided by the instructor via Blackboard), a calculator, Microsoft Excel, Mathematica, and their own Microsoft Excel workbooks and Mathematica notebooks that were created in advance of the test. The time limit for tests is two hours.

Tests require students to solve problems that require several steps of analysis. In order to maximize partial credit, students are required to submit their handwritten work. The exact method that students use is not important as long as the instructor can read and follow the handwritten work.

Upon completion of a test, students submit their handwritten work to the instructor by attaching a single PDF containing all handwritten work to an e-mail to the instructor.

Final grades will be calculated based on the following percentages.

- 30% Average Grade on Eight Best Homework Assignments
- 60% Average Grade on Three Highest Test Grades
- 10% Lowest Test Grade

Final course letter grades will be assigned using the following scheme.

Course Grade Range	Letter Grade
[85,∞)	A
[70, 85)	B
[60,70)	C
[50,60)	D
[0,50)	F

Academic Honesty

Students are expected to read, understand and abide by the university policy on academic honesty. Although students are permitted to seek assistance from their peers, students are expected to only submit a response to the parts of the assignment they fully understand. Copying and/or submitting another person's work/ideas is an act of academic dishonesty. Accessing a solution video prior to assignment submission is an act of academic dishonesty.