

Department of Mathematics and Statistics
Math 318 Introduction to Probability and Statistics (4 credits)
Spring 2007

Instructor: Nusrat Jahan,
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Class Time: TTh 3:30–4:45pm, MW 2:30–3:20pm, **Class Room:** Roop 212
Office Hours: TTh 1:00 – 3:00 pm, Wed 2:00-4:00pm
Text Book: Probability and Statistical Inference by Hogg and Tanis – 7th Edition.
Prerequisite: Math 236

Course Description: This is an introductory course covering both probability and inferential statistics. Topics that will be covered include basic concepts of probability, counting techniques, discrete and continuous random variables, discrete and continuous distributions, transformation techniques, Normal distribution, method of moment and maximum likelihood estimation, test of hypothesis, dependent sample inference, correlation coefficient, and linear regression.

Chapter Outline :

- Chapter 1 Section 1.1 Basic concepts, section 1.2 Properties of Probability, section 1.3 Methods of Enumeration, section 1.4 Conditional Probability, section 1.5 Independent events, section 1.6 Bayes' Theorem.
- Chapter 2 Section 2.1 Random variables of the discrete type, section 2.2 Mathematical expectation, section 2.3 Mean, Variance, and Standard deviation, section 2.4 Bernoulli trials and Binomial distributions, section 2.6 Poisson distribution.
- Chapter 3 Section 3.1 Continuous type data, section 3.2 Random variables of the Continuous type, section 3.3 Uniform and Exponential distribution, Section 3.4 Gamma and Chi-square distributions.
- Chapter 4 Section 4.1 Distributions of two random variables, section 4.2 The Correlation Coefficient, section 4.4 Transformations, section 4.5 Several Independent random variables, section 4.6 Distributions of sums of independent random variables.
- Chapter 5 Sections 5.1 & 5.2 Normal distribution, section 5.4 The Central Limit Theorem.
- Chapter 6 Section 6.2 Point estimation, section 6.4 Confidence intervals for Means, section 6.6 Confidence intervals for Variances, section 6.7 Confidence intervals for Proportions, section 6.8 Sample size.
- Chapter 8 Section 8.1 Tests about Proportions, section 8.2 Test about one mean and one variance, section 8.3 Tests of the equality of two Normal distributions.
- Section 6.11 Simple Linear Regression.

Homework: Problems will be assigned from the text book as we progress. Some of the homework will be collected and graded. Some of the problems may require the use of SAS.

Exams: Six in class exams will be given during the semester. No makeup exams. You get to drop the lowest exam. Exam questions will be based on homework problems and class lectures.

Tentative exam dates are:

1st Exam: January 29, 2nd Exam: February 21, 3rd Exam: March 13, 4th Exam: March 28,
5th Exam: April 16th, 6th Exam: April 25th.

Final Exam : Final exam is comprehensive. Date & Time : May 1st, 4:00-6:00 pm.

Grading : The overall course grade is based on in class exams and the final exam.

In class exams: 50%, Homework: 10%, Final exam: 40%

Grading Policy:

97 & above : A+	87 to 89 : B+	77 to 79 : C+	67 to 69 : D+
93 to 96 : A	83 to 86 : B	73 to 76 : C	63 to 66 : D
90 to 92 : A-	80 to 82 : B-	70 to 72 : C-	60 to 62 : D-
			Below 60 : F

Attendance Policy: Attendance will be taken each class, missing classes doesn't help borderline grades.

Academic Integrity: All students are expected to read and be familiar with the James Madison University's Academic Integrity Code. All charges of cheating or other academic offenses will be taken with utmost seriousness.