Tennessee Tech University
Mathematics Department
MATH 5470-Section 001
3 Credit Hours, Fall 2017

Instructor Information
Name: Motoya Machida
Office: Bruner 333
Office Hours: Mondays, Wednesdays and Fridays 10:10-11:05 a.m. and 1:25-2:20 p.m. Or, an appointment at different time can be arranged by request.
Email: mmachida@tntech.edu
Phone: (931) 372-3583
Course Name: Probability & Statistics I
Meeting Days, Times and Location: MWF 2:30-3:25 p.m. at Bruner Hall 305

Course Requirements

Course Pre-requisites
C or better in MATH 2110 or consent of instructor.

Course Description
This course provides a strong foundation in mathematics of probability and random phenomena.

Course Objectives
At their successful completion of the course students will be able to

(a) understand basic concepts of probability theory;
(b) manipulate frequency functions, density functions, and cumulative distributions;
(c) calculate probability of an event and expectation and variance of a random variable;
(d) use conditional expectations to find the best prediction.

Furthermore, the course will help students to develop the skills to read professional research articles involving probabilistic approach and/or statistical methods.
Resources

**Required Texts**
Introduction to Mathematical Statistics, 7th ed. Prentice Hall, by Robert V. Hogg, Joseph W. McKean, and Allen T. Craig,

**Topics to be covered**
We begin with the basic concepts of probability, such as events, random variables, independence, and conditional probability. Having developed these concepts, the remainder of the course concentrates on the methods of calculation in probability and their applications through exercises. The topics treated here are divided into the four major parts:

(a) probability and distributions;
(b) discrete distributions;
(c) continuous distributions;
(d) joint distributions.

When completed, these topics will unify the understanding of density and distribution functions of various kinds, calculation and interpretation of moments, and distributions related to normal distributions.

**Instructional Platform**
- Course website at [e-stat/4470](http://math.tntech.edu/e-stat/4470)
- iLearn website at iLearn

**Course Structure**

**Student Learning Outcomes**
Upon successful completion of the course students will understand the fundamental principles of probability theory and statistical reasoning; gain problem-solving skills in calculating probability and expectation of random variables in various distributions; acquire skills in probabilistic approach, descriptive statistics, and exploratory graphics; and utilize appropriate methodology to create probabilistic models as a supporting skill for probability theory and data-oriented analysis.

**Major Teaching Methods**
Lectures and assignments will be substantial course portfolios. Each assignment must be completed individually and organized well for your own future reference. Then quiz will be given to follow up your work, and cover the class material and homework assignment from the previous topics. Thus, it is very important to complete the homework assignment before quiz.

**Grading Criteria and Evaluation Procedures**
The final grade is determined as follows:
<table>
<thead>
<tr>
<th>Optional Problem</th>
<th>10%</th>
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<tbody>
<tr>
<td>Quiz</td>
<td>20%</td>
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<tr>
<td>Test 1</td>
<td>20%</td>
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<tr>
<td>Test 2</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
</tbody>
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This is the grading scheme for the course:

<table>
<thead>
<tr>
<th>Scaled Score</th>
<th>Letter Equivalent</th>
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<tbody>
<tr>
<td>90% - 100%</td>
<td>A</td>
</tr>
<tr>
<td>80% - 89%</td>
<td>B</td>
</tr>
<tr>
<td>70% -79%</td>
<td>C</td>
</tr>
<tr>
<td>60% - 69%</td>
<td>D</td>
</tr>
<tr>
<td>Below 59%</td>
<td>F</td>
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**Course Policies**

**Attendance Policy**
Students must send me a brief e-mail to explain their absence in advance. I will occasionally prepare the attendance sheet to sign when you come to the class. Students who repeatedly arrive late to the lecture may have their overall evaluation lowered.

**Student Academic Misconduct Policy**
Maintaining high standards of academic integrity in every class at Tennessee Tech is critical to the reputation of Tennessee Tech, its students, alumni, and the employers of Tennessee Tech graduates. The Student Academic Misconduct Policy describes the definitions of academic misconduct and policies and procedures for addressing Academic Misconduct at Tennessee Tech. For details, view Tennessee Tech Policy 217 – Student Academic Misconduct at Policy Central.

**Disability Accommodation**
Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119. For details, view Tennessee Tech Policy 340 – Services for Students with Disabilities at Policy Central.