

## **STAT 3600: Probability and Statistics I**

### **3 Credit Hours**

**Instructor:** Mehmet Kurt

**Course Textbook:** Probability and Statistical Inference, Hogg, Tanis, and Zimmerman, 10<sup>th</sup> edition.

- Reference Book- Prob & Stat for Engineering and the Sciences, Jay L. Devore, Cengage Learning.

### **Course Content:**

- Description- Calculus-based introduction to probability and statistics with an emphasis on practical problem-solving.
- Prerequisite- MATH 1620
- Class is Required

### **Course Goals:**

- Objectives: Students understand fundamental concepts of probability theory, descriptive statistics, and point estimation. Students apply these concepts to engineering problems. Several Industrial Engineering courses such as Stochastic Operations Research and Simulation require the modeling of uncertainty because of random events occurring in most real-world decision problems. The course STAT 3600 contributes to meeting the professional component by providing methods and techniques for dealing with uncertainty in all its manifestations and; therefore, it provides the foundations for junior level courses.
- Program Outcomes: This course relates to two of the department's stated ABET outcomes, a) an ability to apply knowledge of mathematics, science, and engineering; and b) an ability to design and conduct experiments, as well as analyze and interpret data.

### **Topics to be Covered:**

Probability  
Discrete Random Variables  
Continuous Random Variables  
Continuous Distributions  
Bivariate Distributions  
Normal Distribution  
Functions of Random Variables  
Monte Carlo Simulation  
Point Estimation