



# Engineering and Technology Management

## COURSE SYLLABUS

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**Course Number:** E M 403

**Course Name:** Managing Variability Using Statistics

**Instructor:** Luna Magpili

**email:** [luna.magpili@wsu.edu](mailto:luna.magpili@wsu.edu)

**Semester Credits:** 3

**Prerequisites:** None

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### Course Description and Objectives:

This course gives an introduction to probability and statistics, with emphasis on engineering and management applications, for students with diverse technical backgrounds. Students learn the fundamentals of probabilistic and statistical concepts, methods, and techniques through a balance of theory and application involving engineering decision-making. This course focuses on analyzing and using data to understand situations and processes so decisions can be made under terms of variability and uncertainty. Students learn to read and interpret statistical literature; apply statistical methods in evaluating data; make decisions based on the data and analysis. Emphasis is placed on problem definition, solution, and interpretation of results.

### Course Topics:

- Introduction, Data Summary and Presentation
- Descriptive Statistics
- Random Variables
- Probability Distributions
- Data Gathering and Sampling Distributions
- Parameter Estimation
- Confidence Intervals
- Test of Hypothesis
- Associations and Correlations
- Regression Analysis
- Analysis of Variance
- Special Topics on Application of Statistics in Engineering

### Grading:

Mid-Term Exam: 25%; Homework: 40%; Final Exam: 25%; Attendance/Participation 10%