

COURSE: [Math 211 - Elementary Statistics](#)

INSTRUCTOR: [Dr. Merv Newton](#)

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OFFICE HOURS: Mon, 9 – 10 AM

Tues, 10 – 11 AM

Wed, 11 – 12 AM

Thu, 10 - 11

Fri, 10 - 11

#### MATERIALS:

Text: *Elementary Statistics, Picturing the World*, 4th ed. Larson & Farber.

Scientific calculator with at least one variable statistics (TI-30Xa is recommended)

Bring your text and calculator to class every day.

#### PREREQUISITE:

Math 107 with a C or better or a satisfactory score on the placement test.

#### OVERALL GOAL

This course aims to encourage students to understand basic statistical techniques and to apply them to some issues arising in real life.

#### CONTENT

Descriptive statistics including tables, graphs, measures of centrality and dispersion, percentiles, and z-scores. Elementary probability including discrete and continuous distributions. Inferential statistics including point and interval estimation, parametric tests of hypotheses, simple linear regression and correlation, and some non-parametric tests such as chi-square and sign tests.

Lab work with a statistical computer program.

#### LEARNING OUTCOMES

Upon completion of this course students will be able to:

- Distinguish between populations and samples, between population parameters and sample statistics, and list sampling methods.
- Distinguish between descriptive and inferential statistics.
- Demonstrate descriptive data representations (histograms, stem & leaf plots, boxplots).
- Compute summary statistics including measures of central tendency (mean, median) and of dispersion (variance, standard deviation, percentiles, interquartile range).
- Compute statistics for regression and correlation (correlation coefficient, line of best fit).
- Distinguish between discrete and continuous random variables and their probability distributions.
- Compute statistics and probabilities for the binomial distribution.

- Transform a normally distributed random variable to one with the standard normal distribution, and use its table to compute probabilities.
- Compute confidence intervals for population means or proportions from both large and small samples.
- Apply hypothesis tests for population means or proportions from both large and small samples.
- Apply hypothesis tests for the difference between two sample means or proportions from both large and small samples.
- Apply hypothesis tests for the correlation between two random variables.
- Apply hypothesis tests for differences in means from three or more samples using analysis of variance.
- Apply Chi-square goodness-of-fit tests for categorical data or for contingency tables.
- Apply the Sign test for the median of a population.
- Use a statistical package ([Minitab](#)) to produce summary and descriptive statistics, confidence intervals, or any of the above tests.
- Use a statistical package ([Minitab](#)) to graph dot plots, bar graphs, histograms, box plots, scatter diagrams and regression lines.

#### ASSESSMENT

Your mastery of these learning outcomes will be assessed through test problems and Minitab projects. Although the homework will have a minor role in grade, it is intended to help you learn the material, not to assess your mastery of it.

#### GRADING:

<a href="#">Test 1</a>	September 28	20%
<a href="#">Test 2</a>	October 16	15%
<a href="#">Test 3</a>	November 16	20%
<a href="#">Test 4</a>	December 16 (8:00 AM)*	20%
Minitab assignments		20%
Homework		5%

All tests are open book. You may use your text book and one note card (3 x 5 or 4 x 6) with whatever information you squeeze onto it. You will also need a calculator and two or three pencils. No other materials will be allowed. You must have your materials. **NO SHARING OF TEXT, CALCULATORS, ETC. WILL BE ALLOWED.**

#### **WARNING:**

Open book does NOT mean “Oh, this will be easy, I don’t have to study.” The primary reason for the open book is so that you will have access to the appropriate tables and so that you need not memorize dozens of formulas. If you are going to be successful in this course you **MUST** study well enough to know what formulas and tables are appropriate for each type of problem you encounter.

\*NOTE: Test 4 is during the final exam period, but it will not be a comprehensive final, just a one hour unit test over Chapters 9, 10 and 11.

## HOMWORK:

The [Class Calendar](#), which is available on Blackboard and on my [Web site](#), lists the reading assignments for the day. Those readings are a necessary part of your homework. The calendar also lists the date that the written assignments for those readings are due. Specific problems for each section in the text will be assigned when after the section has been discussed in class. The [Minitab](#) assignments are at the end of each [Minitab Lesson](#). If you know you are going to miss a class, homework for that day should be submitted ahead of time. Late Minitab assignments will only be accepted for documented emergency class absences. **LATE HOMEWORK FROM THE TEXT PROBLEMS WILL NEVER BE ACCEPTED FOR ANY REASON!**

## ATTENDANCE

You are expected to attend every class. The departmental attendance policy states that you are allowed 4 absences for the term. This does not mean 4 plus excused absences, it means 4 absences, period. After that, the 5<sup>th</sup> absences costs 1 point from your term grade, the 6<sup>th</sup> 2 points, the 7<sup>th</sup> 3 points, etc. If you must miss a test for an unavoidable reason, you are expected to take the test **IN ADVANCE** if at all possible.

## SPECIAL NEEDS

It is the policy of Thiel College and its educational programs not to discriminate against qualified students with documented disabilities. Students desiring accommodation for a disability are responsible for providing evidence from a qualified professional confirming the disability and identifying appropriate interventions. This evidence should be taken to the Office for Special Needs AC-126 as early as possible in the semester. The Coordinator of the Office of Special Needs will develop a letter of accommodation to be sent to course instructors and other appropriate offices.

If documentation is already on file, the students with disabilities are responsible for visiting the Office for Special Needs to set up accommodations for EACH semester. They are also responsible for talking to their professors about their needs as early as possible for EACH semester.:

## ACADEMIC INTEGRITY:

The College's Honor Code will be strictly enforced. See the Student Handbook for appropriate definitions and consequences for violations.

Go To: [Course Calendar](#)

[Dr. Newton's home page](#)