

PELLISSIPPI STATE COMMUNITY COLLEGE  
MASTER SYLLABUS

**INTRODUCTION TO STATISTICS  
MATH 2050**

**Class Hours: 2.0**

**Credit Hours: 3.0**

**Laboratory Hours: 2.0**

**Date Revised: Fall 2011**

**Catalog Course Description:**

Descriptive statistics, including bivariate trends, time series, concepts of probability and probability distributions, binomial and normal distributions, linear correlation and regression, estimation and significance tests for means, contingency tables, chi-square tests for goodness of fit and independence. A computer laboratory component is required. atch description in current College catalog

**Entry Level Standards:**

A thorough knowledge of algebraic functions is necessary for entrance to this course. Students should be able to read and write on the college level and reason logically.

**Prerequisites:**

MATH 1830 or MATH 1910

**Co-requisites:**

None

**Textbook(s) and Other Course Materials:**

Textbook:

Larose, Daniel T., *Discovering Statistics* 1st ed: New York, New York, WH Freeman and Sons, 2011

References:

Triola, Mario F. *Elementary Statistics*. 9th ed. Redwood City, CA: The Benjamin/Cummings Publishing Company, Inc., 2003.

Personal Equipment:

According to instructor preference, you are allowed to use a calculator with statistical functions, Excel software, or a combination of the two.

**I. Week/Unit/Topic Basis:**

<b>Week</b>	<b>Topic</b>
1	Intro to statistics, gathering data, graphs and tables for categorical data Chapters 1 and 2
2	Graphs and tables for quantitative data, measures of center. Chapters 2 and 3
3	Measures of variability, grouped data, measures of position, Chebyshev's rule, the empirical rule. Chapter 3

- 4 Five-number summary, quartiles, inter-quartile range, cross-tab tables, bar graphs, correlation. Chapters 3 and 4
- 5 Regression, introduction to probability, sample spaces and combined events, conditional probability. Chapters 4 and 5
- 6 Counting rules, discrete random variables, the binomial probability distribution. Chapters 5 and 6
- 7 Continuous random variables, the normal distributions, the standard normal distribution, applications. Chapter 6
- 8 Introduction to sampling distributions, central limit theorem for means, central limit theorem for populations. Chapter 7
- 9 Introduction to confidence intervals, including 1-sample means intervals, and 1-sample proportion intervals. Chapter 8
- 10 Confidence intervals for variance and standard deviation, sample size estimation, intro to hypothesis testing. Chapters 8 and 9
- 11 Z-tests for population means, and for population proportions using 1 sample, including both the p-value method and the critical value method. Chapter 9
- 12 t-test for population means, chi-square test for population standard deviation, ; Chapters 9 and 10
- 13 Two sample tests, chi-square tests for goodness of fit and for independence. Chapter 11
- 14 Chapter Test and/or Review for Final Exam
- 15 Final Exam

## II. Course Goals\*:

The course will

- A. Demonstrate descriptive methods of statistics, including frequency distribution, measures of central tendency, and measures of variation. VI.1-5
- B. Examine bivariate data, cross-tabulations, sorting, graphics, and covariance and correlation. VI.1-5
- C. Investigate probabilistic concepts. VI.1-5
- D. Explore sampling and sampling distributions. VI.1-5
- E. Master hypothesis testing. VI.1-5
- F. Determine and interpret correlation and regression analysis. VI.1-5
- G. Perform time series analysis. VI.1-5
- H. Apply the most common probability distributions. VI.1-5

\*Roman numerals after course objectives reference goals of the Mathematics program (Career Program Goals and General Education Goals are listed

[http://www.pstcc.edu/departments/curriculum\\_and\\_instruction/syllabi/](http://www.pstcc.edu/departments/curriculum_and_instruction/syllabi/))

### III. Expected Student Learning Outcomes\*:

Students will: be able to:

1. Construct frequency distributions and frequency histograms. A, D
2. Calculate measures of central tendency. A
3. Calculate measures of dispersion. A
4. Construct scatter diagrams. B
5. Calculate correlation coefficients and establish the relative strength of the linear relationships between two variables. B, D, F
6. Construct time series charts and interpret the results. G
7. Calculate probabilities using both the classical and the empirical approaches. C
8. Calculate probabilities based on both the standardized and non-standard normal distributions. D, H
9. Perform hypothesis tests, including, but not restricted to, means testing (both large and small samples), and tests of independence and goodness of fit. D, E, H

\* Capital letters after Expected Student Learning Outcomes reference the course goals listed above.

### IV. Evaluation:

#### A. Testing Procedures:

Students are evaluated on the basis of tests, and at the teacher's discretion, quizzes, homework, computer projects, and case studies. A minimum of four major unit tests and a comprehensive departmental final will be given. All tests will be administered during scheduled lab times.

#### B. Laboratory Expectations:

At least half of all class meetings take place in the mathematics department computer lab. A minimum of ten of these sessions will involve assignments to be turned in and graded, with the lab average making up a minimum of ten percent of the course grade.

#### C. Field Work:

None

#### D. Other Evaluation Methods:

None

#### E. Grading Scale:

93 - 100	A
88 - 92	B+
83 - 87	B

78 - 82	C+
70 - 77	C
60 - 69	D
Below 60	F

## V. Policies:

### A. Attendance Policy:

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of the Learning Division, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of the Learning Division.

### B. Academic Dishonesty:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

- Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
- Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
- Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one's own work.
- Taking an exam for another student.
- Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
- Any of the above occurring within the Web or distance learning environment.

### C. Accommodations for disabilities:

Students who need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127, 132, 134, 135, 131 or by phone: 539-7153 or TTY 694-6429. More information is available at [www.pstcc.edu/departments/swd/](http://www.pstcc.edu/departments/swd/).

### D. Other Policies:

**Make-up Work:** Instructor discretion about make-up tests and/or assignments.

**Cell Phones:** Cell phones are to be either turned off or put on vibration mode while in class. Instructor discretion as to penalty.