

El Paso Community College

Syllabus

Part II

Official Course Description

SUBJECT AREA	<u>Mathematics</u>						
COURSE RUBRIC AND NUMBER	<u>MATH 1342</u>						
COURSE TITLE	<u>Fundamentals of Statistics</u>						
COURSE CREDIT HOURS	<table style="width: 100%; border-collapse: collapse; margin: 0 auto;"> <tr> <td style="width: 33%; text-align: center;"><u>3</u></td> <td style="width: 33%; text-align: center;"><u>3</u></td> <td style="width: 33%; text-align: center;"><u>0</u></td> </tr> <tr> <td style="text-align: center;">Credits</td> <td style="text-align: center;">Lec</td> <td style="text-align: center;">Lab</td> </tr> </table>	<u>3</u>	<u>3</u>	<u>0</u>	Credits	Lec	Lab
<u>3</u>	<u>3</u>	<u>0</u>					
Credits	Lec	Lab					

I. Catalog Description

Provides the collection, analysis, presentation and interpretation of data, and probability. Provides analysis which includes descriptive statistics, correlation and regression, confidence intervals, and hypothesis testing. Recommends the use of appropriate technology. **Prerequisite: MATH 0305 with a “C” or better or by placement exam or NCBM 0105 or NCBM 0142 with a “CR” or better or MATH 0404 or by placement exam. (3:0).**

II. Course Objectives

Upon completion of this course the student will comprehend some of the great ideas of mathematics, and will be able to demonstrate this understanding:

A. Unit I. Introduction to Statistics

1. Discuss the role of statistics.
2. Identify the processes for data collection and data analysis.
3. Describe data using graphical methods.
 - a. For a given set of data, organize and summarize data by constructing various graphs such as line plots, stem and leaf plots, histograms, line graphs, pie charts, frequency polygons, and pictographs.
 - b. Interpret data presented in the various graphs
4. Describe data using numerical methods.
 - a. For a given set of data, determine measures of central tendency such as the mean, median, and mode.
 - b. For a given set of data, determine measures of variation such as standard deviation, range, and outliers.
 - c. For a given set of data, determine measures of position, such as quartiles and percentiles.

B. Unit II. Probability

1. Discuss basic probability concepts.
2. Utilize basic counting principles.
 - a. Use the multiplication principle.
 - b. Use factorial notation to evaluate permutations and combinations.
3. Calculate the classical and empirical probabilities of an event.
4. Solve problems involving probabilities, odds, and expected values.

C. Unit III. Discrete and Normal Probability Distributions

1. Compute discrete probability distributions.
2. Introduce the normal and binomial sampling distributions and find probabilities.

3. Construct confidence intervals for an estimated sample statistic for mean, proportions, variance, and standard deviation.

D. Unit IV. Hypothesis Testing with One and Two Samples

1. Perform hypothesis testing using a single sample for mean, proportions, variance, and standard deviation
2. Compare two populations or treatments using hypothesis testing.
3. Summarize bivariate data.
4. Use simple linear regression and correlation with inference methods.
5. Analyze data using goodness-of-fit tests, independence tests, and analysis of variance (ANOVA).

E. EPCC Core Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate effective written, oral, and/or visual **communication skills**.
2. Apply **critical thinking skills** by engaging in creative thinking, innovation, inquiry, analysis, evaluation, and synthesis of information.
3. Demonstrate **empirical and quantitative skills** by formulating an inquiry and then identifying and following an investigative process using empirical and/or qualitative/quantitative reasoning to satisfy the inquiry.

III. THECB Learning Outcomes (ACGM)

Upon successful completion of this course, students will:

1. Explain the use of data collection and statistics as tools to reach reasonable conclusions.
2. Recognize, examine and interpret the basic principles of describing and presenting data.
3. Compute and interpret empirical and theoretical probabilities using the rules of probabilities and combinatorics.
4. Explain the role of probability in statistics.
5. Examine, analyze and compare various sampling distributions for both discrete and continuous random variables.
6. Describe and compute confidence intervals.
7. Solve linear regression and correlation problems.
8. Perform hypothesis testing using statistical methods.

IV. Evaluation

A. Pre-assessment

Instructors will verify each student's prerequisites during the first week of class; those who do not qualify will be required to withdraw from the course.

B. Challenge Exam

There is no challenge exam for this course.

C. Articulation

Students planning to transfer to a four-year institution to complete an undergraduate degree for teacher certification will need to earn a minimum course grade of C.

D. Graded Assignments

Projects: Individual or group projects may be assigned at the instructor's discretion. These may include, but are not limited to, designing an experiment to test a claim, using technology to do a statistical analysis of specific results of an experiment, exploring teaching methodologies as they pertain to probability and/or statistics, developing hands-on projects, or researching specific topics, at least one.

Exams: There will be at least three in class exams (100 points each) and one required in class comprehensive final exam to evaluate student learning for the course. This exam should include questions that require students to demonstrate mastery of both computational and critical thinking skills.

E. Grading Percentages

Grade percentages for determining the course grade will be determined by the individual instructor. The final exam should count no more than 25% of the overall course grade.

F. Grading Scale

It is suggested that the final grade will be calculated by averaging the seven scores (a possible 700 points divided by 7):	The assigning of a letter grade is based on the following scale:
Exam1: 100 pts	A = 90% and above
Exam 2: 100 pts	B = 80 – 89%
Exam 3: 100 pts	C = 70 – 79 %
Exam4: 100 pts	D = 60 – 69%
HW/Quiz: 100pts	F = Below 60% OR Cheating
Projects: 100 pts	W = Withdraw
Final Exam: 100 pts	I = Incomplete
Total = 700 pts	

Note: I and W grades will be assigned whenever the appropriate assignments and deadlines have been met. To receive an I, the students must have completed at least 80% of the course with at least a 75 average. The proper forms must also be signed by both the student and the instructor before being submitted to the registrar.

V. Disability Statement (Americans with Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCCC catalog and website for additional information.