

**Summer 2015
West Los Angeles Community College
Math 227(Section 4495)
Syllabus**

Course

Title: Statistics, **Course number:** Math 227, **Section: 4495,**

Room: MSA 202, **Time:** 7:00 pm - 9:05 pm, **Days:** MTWTH, **Units:** 4

Instructor

Name: Beyene Bayssa

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Office hours: MTH, 6:15:00 pm – 7:00 pm

Course description

An introductory course in statistics to include: the calculation of basic statistics, frequency distributions and graphs, descriptive measures, introduction to probability, sampling theory, confidence intervals, hypothesis testing, two sample procedures, analysis of variance (ANOVA), regression analysis, categorical data analysis, and nonparametric methods

Prerequisite

Math 125 with grade C or more or equivalent placement.

Course objective

1. Compute the measures of Central Tendency: the mean, mode, median, as well as the quartiles and percentiles of grouped or ungrouped data.
2. Compute the measures of variations, standard deviations, variance, and range of grouped or ungrouped data.
3. Find and exhibit the probability of events and the Z-score of sample data.
4. Identify, demonstrate and apply the use of the Binomial and Normal Distribution in statistical applications.
5. Explain and use the Central Limit Theorem.
6. Make inferences of population parameters.
7. Describe and use the Chi Square distribution.
8. Describe and explain statistical estimation and test of hypotheses.
9. Test hypotheses of population parameters from sample data.
10. Discuss and write a linear model for the relationship between two variables.
11. Apply these concepts to diverse disciplines, i.e., psychology, sociology, political science.

Student Learning Outcome(s)

The following COURSE STUDENT LEARNING OUTCOMES (SLOs) will be evident throughout the course:

- Test hypothesis for sampling proportion, mean and standard deviation
- Given a distribution, determine the probability of an event
- Perform correlation and linear regression analysis.

Demonstrate how this course supports/maps to at least one program and one institutional learning outcome.

1. Program Outcome(s)

The student will demonstrate an appreciation and understanding of mathematics in order to develop creative and logical solutions to various abstract and practical problems.

As a result of learning about the methods of descriptive and inferential statistics, students will analyze and solve abstract and practical problems.

2. Institutional Outcome(s)

The following institutional STUDENT LEARNING OUTCOMES (SLOs) will be evident throughout the course:

- **Critical Thinking:** Analyze problems by differentiating fact from opinions, using evidence, and using sound reasoning to specify multiple solutions and their consequences,
- **Communication:** Effectively communicate thought in a clear, well-organized manner to persuade, inform, and convey ideas in academic, work, family and community settings, and
- **Quantitative Reasoning:** Identify, analyze, and solve problems that are quantitative in nature.
- **Technical Competence:** Utilize the appropriate technology effectively for informational, academic, personal, and professional needs.

Text and required materials.

- **Text:** Statistics informed decisions using Data by Michael Sullivan, III 3rd Edition
- **Calculator:** TI 83 (or TI-83 Plus or the new TI 84 Plus) Calculator is required (The TI 83 has specific statistical functions not found on other graphing calculators). You are expected to bring the calculator to each class

Home work

Home work is given on separate paper. It will be collected on the test day for those sections the test covers and it will be checked for completeness. **No late** home work will be accepted. For every home work please

- Staple
- Write and underline or highlight the **Section number** (example **1.1**, or **1.2..**)
- Write your name (last name first).
- Show all **necessary work**.

Attendance

Attendance is important for a student success. Tardiness and early leaving are distractive and student is required to attend the full scheduled time. Excessive absence (**more than three classes**), excessive tardiness and excessive early leaving can cause exclusion from the class.

Examinations

Tests

Tests will be given as scheduled (will be announced if any change). **No make-up** and early taking of exams is allowed. The lowest score of the four tests due to different reasons including emergency will be dropped on the final grading. No more than one test will be dropped. Also the final will not be dropped. Missed exams will be recorded zero.

Final examination

There will also be a comprehensive final examination on all chapters discussed. It will be given on last day of class 08/6/2015

Grading

Grading consists of

Homework	_____	10%
Tests	_____	60%
Final	_____	30%

Letter grade will be assigned as

- A: 90% - 100%,
- B: 80% - 89% ,
- C: 70% - 79% ,
- D: 60% - 69% ,
- F: 0% - 59%

Student Conduct in class

Any behavior that distracts instructional activity will not be tolerated. Unacceptable behaviors during class times, includes but not limited to tardiness, using electronic devices such as **cellphone** except emergency cases, eating and drinking except water, coming in and out of class many times, making disruptive noise, disrespectful and uncooperativeness. See the college catalog or schedule of classes for more lists of such behaviors. All necessary actions according to rules and regulations of the college will be taken on students with such distractive behavior.

Important dates

Check for important dates such as add and drop dates in the summer 2015 academic calendar. A student should properly enroll in class and also should properly drop the course whenever decided to do so.

Student with Disability

Students with disabilities who need any assistant or accommodations should contact the instructor and the Center for Students with Disabilities, Building 3rd Floor, SSB 320 TeL NO (310)2874450

Academic dishonesty

Violations of Academic integrity of any by a student provide grounds for disciplinary actions by the instructor or by the college. Violation of academic integrity

includes but not limited to cheating on exam and plagiarism. For more information refer to the college catalog.

Disclaimer

Although every effort will be made to adhere to the policies, procedures, and schedules outlined in this syllabus, the instructor reserves the right to revise any information without prior notice

Tentative schedule

The table on the next page indicates day by day activity in class and the test dates. Some adjustment can be made to this syllabus depending on the progress of the course and hence check for any announcement that may be given in class.

Date	Text Section/Activity
WEEK 1	
M(6/15/15)	Class Introduction Chapter one 1.1 Introduction to the Practice of Statistics 1.2 Observational Studies vs. Designed Experiments 1.4 Other Effective Sampling Methods 1.5 Bias in Sampling 1.6 The Design of Experiments
T(6/16/15)	2.1 Organizing Qualitative Data 2.2 Organizing Quantitative Data 2.3 Additional Displays of Quantitative Data 2.4 Graphical Misrepresentations of Data
W(6/17/15)	3.1 Measures of Central Tendency 3.2 Measures of Dispersion
Th(6/18/15)	3.3 Measures of Central Tendency and Dispersion for Grouped Data 3.4 Measures of Position and Outliers
WEEK 2	
M(6/22/15)	3.5 The Five-Number Summary and Boxplots Problem Solving and Review
T(6/23/15)	Problem Solving and Review Test 1 on Chapters 1-3

W(6/24/15)	4.1 Scatter Diagrams and Correlation
	4.2 Least-Squares Regression
TH(6/25/15)	4.3 Diagnostics on the Least-Squares Regression Line 4.4 Contingency tables and Association
WEEK 3	
M(6/29/15)	5.1 Probability Rules 5.2 The Addition Rule and Complements 5.3 Independence and the Multiplication Rule
T(6/30/15)	5.4 Conditional Probability and the General Multiplication Rule 5.5 Counting Techniques

Date	Text Section/Activity
W(7/01/15)	6.1 Discrete Random Variables 6.2 The Binomial Probability Distribution
TH(7/02/15)	7.1 Properties of the Normal Distribution 7.2 Applications of the Normal Distribution
M(7/06/15)	7.3 The application of normal distribution 7.4 The Normal Approximation to the Binomial Probability Distribution Problem solving and review
WEEK FOUR	
T(7/07/15)	Problem Solving and Review Test 2 on Chapter 4-7
W(7/08/15)	8.1 Distribution of the Sample Mean 8.2 Distribution of the Sample Proportion
TH(7/09/15)	9.1: Confidence interval for the population mean: standard deviation σ known
M(7/13/15)	9.2 Confidence interval for the population mean: standard deviation σ unknown 9.3: Confidence interval for the population standard deviation
WEEK FIVE	
T(7/14/15)	10.1 The Language of Hypothesis Testing
W(7/15/15)	10.2 Hypothesis test for a Population Mean when standard deviation σ known
TH(7/16/15)	10.3 Hypothesis test for a Population Mean when standard deviation σ is

Date	Text Section/Activity
W(7/01/15)	6.1 Discrete Random Variables 6.2 The Binomial Probability Distribution
TH(7/02/15)	7.1 Properties of the Normal Distribution 7.2 Applications of the Normal Distribution
	WEEK 4
M(7/06/15)	7.3 The application of normal distribution 7.4 The Normal Approximation to the Binomial Probability Distribution Problem solving and review
T(7/07/15)	Problem Solving and Review Test 2 on Chapter 4-7
W(7/08/15)	8.1 Distribution of the Sample Mean 8.2 Distribution of the Sample Proportion
TH(7/09/15)	9.1:Confidence interval for the population mean: standard deviation σ known
	WEEK 5
M(7/13/15)	9.2 Confidence interval for the population mean: standard deviation σ unknown 9.3:Confidence interval for the population standard deviation
T(7/14/15)	10.1 The Language of Hypothesis Testing
W(7/15/15)	10.2 Hypothesis test for a Population Mean when standard deviation σ known
TH(7/16/15)	10.3 Hypothesis test for a Population Mean when standard deviation σ is unknown
	WEEK 6
M(7/20/15)	10.4 Hypothesis test for a Population proportion 10.5 Hypothesis test for a Population standard deviation Problem solving and Review problems
T(7/21/15)	Problem Solving and Review Exam 3 on chapter 8, 9, 10
W(7/22/15)	11.1 Inference about Two Population Means: Dependent

TH(7/23/15)	11.2 Inference about Two means: Independent
	WEEK 7
M (7/27/15)	11.3 Inference about Two population proportion
T (7/28/15)	12:1. Goodness-of-Fit Test
W (7/29/15)	12.2 Tests for Independence and the Homogeneity of Proportions
TH (7/23/15)	13.1 Comparing Three or More Means (One-Way Analysis of Variance) Problem solving and Review problems
	WEEK 8
M (8/03/15)	Problem solving and Review problems Exam 4 on Chapters 11-13
T (8/04/15)	Nonparametric Test
W (8/05/15)	Final Review
TH 8/06/15)	Final Examination