

## Math 227, Statistics

West Los Angeles College    www.wlac.edu

9000 Overland Ave., Culver City, CA 90230

Section 4500, Fall 2013

Transfer: UC:CSU; Units: 4

Class meets Monday & Wednesday evenings from 7:30–9:35 p.m. in MSA 009

**Instructor**                    Prof. Nancy Foreman

**E-mail**                            foremann@wla.edu

**Office hours**                    6:45–7:10 p.m Tuesday/Thursday in MSB 217 and

7:00–7:25 p.m Monday/Wednesday in MSA 009

Note: if MSA 009 is not available, MSB 217 will be used.

**Prerequisite**                    Mathematics 125 or equivalent, with a grade of 'C' or better, or appropriate placement level demonstrated through math assessment process.

**Textbook**                        *Statistics: Informed Decisions Using Data* (3rd ed.), by Michael Sullivan

**Calculator**                      A graphing calculator is a necessary aid for the course and is required. Use of calculators for statistics will be discussed in class. Supported models include all TI-83, TI-84, all Casio FX9750 and Casio FX9860; other models, provide your own manual. No cell phones, computers, or other communication or internet devices are permitted on exams.

**Course description**    This course is an introduction to probability, measures of central tendency and dispersion, descriptive and inferential statistics including sampling, estimation, hypothesis testing, analysis of variance, chi-square and test, linear correlation and regression analysis.

**Important**                      First class meeting: August 26

**dates**                              Last day to drop without a “W”: Sept. 6

Holiday, No Class: Sept. 2, Nov. 11

Last day to drop with a “W”: Nov. 15

Last class meeting: Wednesday, Dec. 4

**Final Examination: Monday, December 9, 2013 from 7:30- 9:35 p.m.**

**Evaluation**                      5 Exams (100 points each, lowest score dropped)    400 pts.

**is based on**                      In Class Worksheets (15 points each)                    100 pts.

Weekly Quiz (10 pts each)                                    100 pts.

Comprehensive Final Exam                                    200 pts.

Total    800 pts.

**Grading scale**                    720 –800 points                    A

640 –719 pts    B

560 –639 pts    C

480 –559 pts    D

less than 479 pts    F

**Special circumstances** Students with disabilities or those who need accommodation for any reason must communicate with the instructor in a timely manner to ensure their needs are met. Any paperwork needed must be completed in advance.

**Makeups, Late Work, Extra Help** Makeup exams are given only in extraordinary conditions and are greatly discouraged. Any makeup exams administered will be given during instructor's office (half) hours only. No makeups are possible on quizzes. Late worksheets may be submitted on Dec. 9 (Final Exam Night) for partial credit (up to one-half the original point score). The lowest test score, and the lowest quiz score, will be dropped. Plan to attend every class session. If you must miss a class, email [foremann@wlac.edu](mailto:foremann@wlac.edu) in advance. The schedule in this syllabus will let you know what section(s) of the text will be covered that date. Try to read that night's sections on your own and attempt the homework problems. For extra help, you can look for an instructional video at [www.khanacademy.com](http://www.khanacademy.com) or on YouTube. If you can't figure it out on your own, consult a tutor or use the instructor's office hour to get help. The textbook publisher maintains a free online homework site at <http://interactmath.com/home.aspx>; select our textbook from the drop down menu to work problems from the review sections for each chapter.

**Attendance & participation policy** Every student is expected to maintain regular attendance, arriving on time and staying for the full class session. If roll call is missed, the student is marked absent for the night. Every student is required to participate in all class activities, which may include worksheets, group work, or other activities. College policy states that an instructor may drop a student who has missed more than four hours of class, or one week total. While students who do not attend class may be dropped, if you decide that you cannot complete the class, it is YOUR responsibility to drop (withdraw) on or before November 15, 2013. Please consult with me if you are considering dropping the class. I would like to try to help you make a plan to succeed.

**Etiquette & Discipline** Please respect your classmates and the instructor, and refrain from disruptive behaviors such as coming late, leaving early, wandering in and out of class, eating or drinking during class, side conversations, instant messaging, websurfing, etc. If you are in doubt, consider if your behavior is distracting or disruptive to others. If so, please stop. Let us maintain a civil atmosphere conducive to learning and thought. All college rules and regulations will be enforced; see the West Los Angeles College Catalog online at [http://www.wlac.edu/academics/pdf/WLAC\\_12-14Catalog\\_FRONT.pdf](http://www.wlac.edu/academics/pdf/WLAC_12-14Catalog_FRONT.pdf) (starting p. 41).

**Academic dishonesty** Cheating will not be tolerated. Maintain the highest standards of academic honesty. You may NOT give or receive help on tests or quizzes, and you may not turn in someone else's work as your own. If academic dishonesty is detected, a score of zero will be assigned, and the student(s) involved may be reported to the administration.

**How to pass.** Attend class, complete all homework and submit all work on time, stay on top of things and don't fall behind. Practice until you have mastered each new technique. We're not kidding about the 8 hours study time per week (or more, in some cases). No special talent is required, just time, energy and attention to detail.

**Extra Credit:** No extra credit.

**Instructional Methods** This course is taught using a variety of instructional methods which may include but are not limited to lecture, class discussion, small group work, in-class worksheets.

**Homework** Homework and reading are assigned for each covered section. Homework is not collected. Students who wish to pass will complete all homework in a timely fashion. The list is given below. The homework and reading list below is given as a guide. Assignments may be modified as circumstances dictate. The day's schedule and the projected schedule for the next class will be posted on the board along with other important information.

**How to read your statistics book** Reading is assigned for each covered section of the text. Before each class, skim over the sections that will be covered that day. Begin to familiarize yourself with the vocabulary and subject matter before class begins. After the material has been covered in class, re-read as necessary for understanding. If possible, work all homework problems before the next class begins. In any case, follow the reading procedure before each class.

**Homework Set 1** Complete by Sept. 16

Section 1.1: Read pp. 3–11, Work Exercises 1–47 odd, 55, 57, 61  
Section 1.2: Read pp. 15–20, Work Exercises 1–8, 9–21 odd  
Section 1.3: Read pp. 22–27, Work Exercises 1–5, 7–13 odd  
Section 1.4: Read pp. 30–36, Work Exercises 6–10, 11–21 odd, 25, 29, 31, 37  
Section 1.5: Read pp. 38–42, Work Exercises 4, 6, 8–12, 13–17 odd, 21, 23, 28  
Section 1.6: Read pp. 45–53, Work Exercises 1, 3, 7–9, 13, 21, 34

Section 2.1: Read pp. 67–73, Work Exercises 3–6, 8, 13, 17, 23  
Section 2.2: Read pp. 82–93, Work Exercises 1–4, 9–13 odd, 19, 23, 25, 31, 35  
Section 2.3: Read pp. 102–105, Work Exercises 2–4, 7, 9  
Section 2.4: Read pp. 110–115, Work Exercises 1–5, 7(a), 9(ab), 11–13

Section 3.1: Read pp. 129–137, Work Exercises 1–5, 7–13 odd, 25, 31, 37, 41  
Section 3.2: Read pp. 143–153, Work Exercises 1, 2, 4–7, 10, 11–17 odd, 21, 31  
Section 3.3: Read pp. 160–164, Work Exercises 3, 5, 11  
Section 3.4: Read pp. 167–172, Work Exercises 2, 3, 15, 15, 21, 25  
Section 3.5: Read pp. 176–180, Work Exercises 3–9 odd

**Homework Set 2** Complete by Oct. 2

Section 4.1: Read pp. 193–201, Work Exercises 2–4, 7, 8, 9–15 odd, 23–27 odd, 37, 39  
Section 4.2: Read pp. 209–217, Work Exercises 2–4, 6, 8, 9, 11, 17–23 odd  
Section 4.3: Read pp. 223–232, Work Exercises 1–29 odd  
Section 4.4: Read pp. 238–244, Work Exercises 2–4, 5–11 odd

Section 5.1: Read pp. 258–268, Work Exercises 1–6, 11–39 odd, 47–55 odd  
Section 5.2: Read pp. 274–281, Work Exercises 1–4, 5–39 odd, 45  
Section 5.3: Read pp. 286–289, Work Exercises 4–6, 7–27 odd  
Section 5.4: Read pp. 292–298, Work Exercises 3–17 odd, 23–33 odd  
Section 5.5: Read pp. 301–311, Work Exercises 1–25 odd, 31, 41, 43

**Homework Set 3** Complete by Oct. 21

Section 6.1: Read pp. 331–339, Work Exercises 2–4, 7–27 odd

Section 6.2: Read pp. 343–354, Work Exercises 1–27 odd, 35, 37, 43–47 odd

Section 7.1: Read pp. 373–380, Work Exercises 1–33 odd

Section 7.2: Read pp. 385–394, Work Exercises 2, 5–43 odd

Section 7.3: Read pp. 397–401, Work Exercises 3–23 odd

Section 7.4: Read pp. 405–409, Work Exercises 1–7 odd, 11, 13

**Homework Set 4** Complete by Nov. 4

Section 8.1: Read pp. 427–438, Work Exercises 1–23, 27

Section 8.2: Read pp. 442–448, Work Exercises 1–17 odd

Section 9.1: Read pp. 457–467, Work Exercises 1–21 odd, 25, 27, 33, 43, 45

Section 9.2: Read pp. 475–482, Work Exercises 1–19 odd

Section 9.3: Read pp. 488–493, Work Exercises 1–4, 5, 7, 11, 13, 15, 23, 27, 29, 31

**Homework Set 5** Complete by Nov. 25

Section 10.1: Read pp. 515–521, Work Exercises 1–8, 9–37 odd

Section 10.2: Read pp. 523–535, Work Exercises 1–8, 11–25 odd

Section 10.3: Read pp. 541–547, Work Exercises 5–23 odd

Section 10.4: Read pp. 552–558, Work Exercises 1–19 odd

Section 11.1: Read pp. 583–590, Work Exercises 1, 2, 5–13 odd, 17

Section 11.2: Read pp. 595–602, Work Exercises 1–11 odd, 15

Section 11.3: Read pp. 608–614, Work Exercise 5–19 odd

**Homework Set 6** Complete by Dec. 9

Section 12.1: Read pp. 645–651 Work Exercises 1–11 odd, 15

Section 12.2: Read pp. 656–664, Work Exercises 1, 7, 11, 13

Section 13.1: Read pp. 678–688 Work Exercises 1, 2, 5–11 odd, 19

Section 13.2: Read pp. 694–699, Work Exercises 3, 5, 7, 11

Section 13.3: Read pp. 704–699, Work Exercises 3, 7, 9

**Proposed Schedule (Subject to change)**

Week	Monday	Wednesday
I	<b>Aug. 26</b> Chapter 1: Data Collection	<b>Aug. 28</b> Chapter 2: Organizing Data <i>Quiz 1: Basic Math Skills</i>
II	<b>Sept. 2</b> No Class (Labor Day)	<b>Sept. 4</b> Sec. 3.1, 3.2: Mean & St. Deviation <i>Quiz 2: Ch. 2</i>
III	<b>Sept. 9</b> Sec. 3.3, 3.4: Grouped Data, Position	<b>Sept. 11</b> Sec. 3.5: Boxplots, Review <i>Quiz 3: 3.1, 3.2</i>
IV	<b>Sept. 16 Exam 1</b> (covers Chapters 1, 2 and 3)	<b>Sept. 18</b> Sec. 4.1, 4.2: Linear regression
V	<b>Sept. 23</b> Sec. 4.3, 4.4: Diagnostics, Association	<b>Sept. 25</b> Sec. 5.1, 5.2: Basic Probability <i>Quiz 4: 4.1, 4.2</i>
VI	<b>Sept. 30</b> Sec. 5.3, 5.4, 5.5: Conditional Probability, Counting <i>Quiz 5: 5.1, 5.2</i>	<b>Oct. 2 Exam 2</b> (covers Chapters 4 and 5)
VII	<b>Oct. 7</b> Sec. 6.1: Random Variables	<b>Oct. 9</b> Sec. 6.2: Binomial Distribution
VIII	<b>Oct. 14</b> Sec. 7.1, 7.2: Normal Distribution	<b>Oct. 16</b> Sec. 7.3, 7.4: Normal Distribution con't <i>Quiz 6: 6.1, 6.2</i>
IX	<b>Oct. 21 Exam 3</b> (covers Chapters 6 and 7)	<b>Oct. 23</b> 8.1, 8.2: Sampling Distributions and Central Limit Theorem
X	<b>Oct. 28</b> Sec. 9.1, 9.2: Confidence Intervals	<b>Oct. 30</b> Sec. 9.3: Confidence Intervals for Proportions, Review <i>Quiz 7: 8.1, 8.2</i>
XI	<b>Nov. 4 Exam 4</b> (Covers Chapters 8 and 9)	<b>Nov. 6</b> Sec. 10.1, 10.2: Hypothesis Testing
XII	<b>Nov. 11</b> No Class (Veteran's Day)	<b>Nov. 13</b> Sec. 10.3, 10.4: More on Hypothesis Testing; <i>Quiz 8: 10.1, 10.2</i>
XIII	<b>Nov. 18</b> Sec. 11.1, 11.2: Inference on two means (dependent), Inference on two means	<b>Nov. 20</b> 11.3: Inference on two proportions <i>Quiz 9: 10.3, 10.4</i>
XIV	<b>Nov. 25 Exam 5</b> (covers Chapters 10 and 11)	<b>Nov. 27</b> Sec. 12.1, 12.2: Chi-square testing
XV	<b>Dec. 2</b> Sec. 13.1, 13.2, 13.3: One-way ANOVA, Tukey's test, Block Design	<b>Dec. 4</b> Review for Final Exam <i>Quiz 10: 12.1, 12.2</i>
	<b>Dec. 9 FINAL EXAM</b>	

## Institutional SLOs—Student Learning Outcomes

A.) Critical Thinking: Analyze problems by differentiating fact from opinions, using evidence, and using sound reasoning to specify multiple solutions and their consequences.

C.) Quantitative Reasoning: Identify, analyze, and solve problems that are quantitative in nature

F.) Technical Competence: Utilize the appropriate technology effectively for informational, academic, personal, and professional needs.

### Program SLOs

1) Apply quantitative thinking processes using basic mathematical operations to solve common academic, workplace, and family problems. (Theme: mathematical operations)

2) Analyze and interpret spatial and graphic data (schedules, maps, and tables, graphs) to plan and organize daily routines. (Theme: spatial and graphic data).

3) Use mathematical tools essential for analyzing quantitative problems and for producing solutions. (Theme: mathematical tools)

4) Apply advanced mathematical concepts and tools (algebra, calculus) essential in upper division academic work and/or workplace tasks. (Theme: advanced mathematical operations—algebra, calculus)

5) Select appropriate math strategies for solving and handling real life problems involving finance, economics, and family issues. (Theme: mathematical problem-solving)

### Course SLOs

1. Given a set of sample data, perform a Hypothesis Test.

2. Given two sets of sample data, find a confidence interval for the difference of two means or two proportions.

**COURSE OBJECTIVES:** Upon successful completion of this course, the student will be able to...

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.