



Lincoln University

BA 115 – Statistics

COURSE SYLLABUS Spring 2019

- Instructor:** Dr. Gaston Sanchez
Lecture Schedule: Tuesday, 12:00 PM – 2:45 PM
Credits: 3 units / 45 lecture hours
Level: Developed (D)
Office Hours: By appointment
e-mail: gsanchez@lincolnuca.edu
- Textbooks:** “Statistics” by David Freedman, Robert Pisani, and Roger Purves (FPP) Fourth edition, W.W. Norton & Company.
“The Practice of Statistics for Business and Economics” (PSBE) by David Moore, George McCabe, Layth Alwan, Bruce Craig, and William Duckworth. Third edition, W.H. Freeman and Co.
- Prerequisite:** *MATH 10 or MATH 15*
Last Revision: January 4, 2019

COURSE DESCRIPTION

This course is designed for both the business major and for the non-business students without previous knowledge of statistics. Emphasis is on descriptive statistics and inferential statistics with relevant applications to solving problems, hypothesis testing and decision-making. Important statistical models and distributions will be discussed. (3 units) *Prerequisite: MATH 10 or MATH 15*

LEARNING OBJECTIVES

The purpose of this course is to introduce students to the logic, application, and interpretation of the most common statistical techniques used in business and social sciences. This class is designed for those who want to know how to extract meaningful information from numbers, or how to make interpretation of data from newspapers, as well as critical thinking, interpretation, and statistical literacy. The class requires common sense, practical logic, and knowledge of math at the level of intermediate algebra (e.g., the equation of a straight line, plotting points, taking powers and roots, percentages, inequalities). The students will learn the basic concepts and techniques of business statistics and probability, and learn how to apply them. The students will also create mathematical models and build a solid foundation in the principles of statistical thinking using case study and example driven discussions of all basic business statistics topics.

COURSE LEARNING OUTCOMES¹

| | Course LO | Program LO | Institutional LO | Assessment Activities |
|---|--|-------------------|-------------------------|--|
| 1 | Students are expected to learn the basic concepts and techniques of business statistics and probability. The emphasis of the course will be on the application of the statistical techniques. | PLO 1 | ILO 1a, ILO 2a, ILO 3a | Homework, Midterm exam |
| 2 | Students are expected to develop logic, application, and interpretation of the most commonly univariate statistical techniques used in business and social sciences. The class does not require previous knowledge of any complicated mathematical techniques but requires common sense and practical logic. | PLO 2 | ILO 1a, ILO 6a | Homework, Midterm exam, In-class discussions |
| 3 | Confidently communicate using business statistics and mathematics terminology. | PLO 3 | | Homework, midterm and final exams, In-class discussion |
| 4 | Be able to choose an appropriate statistical analysis for the type of data they plan to analyze, select an appropriate model, conduct and interpret the analysis, and write up the results. | PLO 4 | ILO 1a, ILO 2a, ILO 5a | Homework, midterm and final exams, In-class discussion |

INSTRUCTIONAL METHODS

This is a direct classroom instruction course.

The emphasis will be on learning by solving problems. Every student is welcome to participate in classroom activities. Reading and problem solving assignments will be given throughout the course. Homework will be assigned every week. During lectures, students will learn principles and concepts covered in the text as well as in various sources on relevant topics. There may be class discussions and group presentations by students on the project assignments during class.

¹ Detailed description of learning outcomes and information about the assessment procedure are available at the [Center for Teaching and Learning](http://ctl.lincolnuca.edu) website (ctl.lincolnuca.edu).

Assignments and projects require students to actively use resources of the library. Detailed guide to business *resources of the library* as well as the description of Lincoln University approach to *information literacy* are available at the [Center for Teaching and Learning](http://ctl.lincolnuca.edu) website (ctl.lincolnuca.edu).

CLASS ATTENDANCE

Students are expected to attend class on a regular basis. Attendance is crucial to performing well in this course, as some of the material presented may not be found in the textbook. Further, the lecture and classroom demonstrations will emphasize and expand upon important topics found in the textbook. Thus, it is vital that you take thorough notes in class.

ASSIGNMENTS

There will be a weekly homework assignment given out on Tuesday of each week. These assignments will typically consist of some theoretical exercises, conducting analyses on provided data and turning in a results report (write-up) describing the findings, but may include other questions. The purpose of the assignments will be to provide a medium through which you learn the material.

Please NO emailed assignments. No late homework will be accepted!

ACADEMIC HONESTY

Students are welcome to work with other classmates on the homework, but it is expected that each student turns in his/her own, independently written, homework. Cooperation has a limit, however. You should not share your answers directly with other students. Doing so doesn't help them; it just sets them up for trouble on exams. Feel free to discuss the problems with others beforehand, but not the solutions. Please complete your own work and keep it to yourself. If you suspect other people may be plagiarizing you, let me know ASAP.

Any indication that work was directly shared will not be tolerated and will result in a non-passing grade. If you are having trouble with an assignment or studying for an exam, or if you are uncertain about permissible and impermissible conduct or collaboration, please come see me with your questions during lecture.

EXAMS

There will be two exams (one midterm and a final). To assess your learning in this course, exam questions will be derived from the lecture and textbooks. Topics covered in lecture will be of major emphasis on the exam, and should be the focus of your textbook readings, though there will be some test questions found in the assigned readings but not covered in the lecture. Exams may include conceptual or theoretical questions, Excel output interpretations or questions that require simple calculations. On the day of the exam, remember to bring a non-graphing calculator (cell phone calculators are unacceptable). All exams are open books and open notes.

QUIZZES

To encourage attendance and to help students with assessment of their knowledge, there will be a set of unannounced quizzes given at the start of class. They will be based on lecture and any assigned reading. They will not be computational in nature, but rather conceptual questions intended to help students gauge how well they understand the material.

GRADING**Tentative Weights:**

| | |
|----------------------|------|
| Classroom attendance | 10% |
| Homework | 10% |
| Quizzes | 10% |
| Midterm exam(Feb 26) | 30% |
| Final exam (Apr 30) | 40% |
| Total | 100% |

As a **provisional** guideline, grades may be calculated with the following structure:

90%-100%: A

80%-90%: B

70%-80%: C

60%-70%: D

below 60%: F

CLASSROOM POLICY

Please do not use personal computers, iPads or smart phones during the lecture. Please use pen and paper to take your notes. If you need to use a note-taking device, please let me know at the beginning of the course (I will ask you to show me your notes during the semester).

If you do need to text message or receive a call, please take it outside the classroom.

Schedule of topics on next page!

SCHEDULE OF TOPICS (Tentative)

| Week | Topics | Chapters |
|-------------|--|-----------------------------------|
| 1 (1/15) | Review: numbers (fractions and decimals); graphs (scales, coordinates, transformations, distance between points, linear function); algebra (Sigma symbol, square formulas); Excel. | |
| 2 (1/22) | Introduction to statistics, variables, scales, descriptive statistics | FPP ch 3 PSBE ch 1 |
| 3 (1/29) | More descriptive statistics | FPP ch 4 PSBE ch 1.1, 1.2, 1.3 |
| 4 (2/5) | Normal distribution, Scatterplots, Correlation | FPP ch 5, 8 PSBE ch 1.3 |
| 5 (2/12) | Correlation and Regression | FPP ch 9, 10 PSBE ch 2.1, 2.2 |
| 6 (2/19) | More Regression | FPP ch 10, 11, 12 PSBE ch 2 |
| 7 (2/26) | <i>Midterm exam</i> | |
| 8 (3/5) | Introduction to Probability | FPP ch 14, 15 PSBE ch 4 |
| 9 (3/12) | <i>Spring Recess (no classes)</i> | |
| 10 (3/19) | More Probability | FPP ch 16, 17, 18 PSBE ch 5 |
| 11 (3/26) | Sampling distributions | FPP ch 19, 20 PSBE ch 5 |
| 12 (4/2) | Confidence Intervals | FPP ch 21, PSBE ch 6.1 |
| 13 (4/9) | More confidence intervals and test of significance | FPP 23 PSBE ch 6.1 |
| 14 (4/16) | Test of significance for proportions | FPP ch 26 PSBE ch 6.2 |
| 15 (4/23) | Test of significance for means | FPP ch 27 PSBE ch 6.3, 7.1 |
| 16 (4/30) | <i>Final Exam</i> | |

This schedule may be changed during the semester if necessary.

Note: Instructor reserves the right to modify the content of this syllabus.

GOOD LUCK!