**LINCOLN UNIVERSITY**
Spring 2017

**Tuesdays and Thursdays 3:30 pm – 5:15 pm**

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| **COURSE:** | **BA 45 – STATISTICS -** 3 units (30 h of lectures and 30 h of sections) |
| **INSTRUCTOR (P):** | Dr. Mikhail Brodsky, president@lincolnuca.edu, 510-208-2803 |
| **ASSISTANT (A):** | Mr. Mohamed Tailab, mtailab@lincolnucasf.edu, 510-213-4365 |
| **OFFICE HOURS:** | Tue, 3:00 pm – 3:30 pm (instructor in room 203) |
| | Monday, 10:30 am – 11:45 am (assistant in room 407) |
| **TEXT:** | 1. "Statistics" by David Freedman, Robert Pisani, and Roger Purves (FPP). Forth edition, W.W. Norton & Company. ISBN 13-978-0-393-92972-0 |
| **TOOLS:** | Students will need to use a simple calculator during lectures. A laptop with Excel software is recommended for sections. |

**CATALOG DESCRIPTION:**
This course is designed for both the business major and for the non-business student 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, or how to gamble on a roulette table, or how to play on stock market, or just how to choose a bride or groom. Business decision-making will be really easy after it. The class does not require knowledge of any complicated mathematical subject, but requires common sense and practical logic. 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.

**INSTRUCTIONAL METHODS:**
Lecture method is used in combination with the practical use of a calculator, special charts and Excel software to answer application questions in statistics. The emphasis will be on learning by solving problems. Every student is welcome to participate in intensive classroom activities. Reading and problem solving assignments will be made throughout the course.
There will be two different sessions of the class. The first session is presentation of material (lectures) by the instructor/professor (P). Students will learn principles and concepts covered in the text as well as in various sources on relevant topics. The teaching assistant (A) will conduct the second sessions (sections). He will help students to review the material as well as work on cases relevant to the topics.

There may be class discussions and group presentations by students on the project assignments during the sections. Home works will be given and solved during sections.

**REQUIREMENTS:**
All students are required to attend the class. Continuous assessment is emphasized. Students must complete all assignments and take mid-term exam and final exam ON THE DATES DUE. The tests are open book but plagiarism from other students will result in the grade "F".
***No computers or cellular phones will be allowed to use during lectures or tests.***

**GRADING:**

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| Home works | every two weeks at sections | 10% |
| Classroom attendance | lectures and sections | 10% |
| Quizzes | two quizzes at sections | 10% |
| Mid-term exam | March 2 | 30% |
| Final exam | May 2 | 40% |

Grades will be calculated "on the curve" to be at least C (63%) average for the class. **For the total**:
A is 91% and above, A- is 86-90%,
B+ is 81-85%, B is 76-80%, B- is 71-75%,
C+ is 66-70%, C is 61-65%, C- is 56-60%,
D+ is 51-55%, D is 46-50%,
F is 45% and below.

**SPRING 2017 SCHEDULE OF TOPICS**

| Week | Date | Topics | Chapters |
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| 1 | 1/17 A<br><br><br>1/19 P | **Review of math and software tools**: numbers (fractions and decimals); graphs (scales, coordinates, transformations, distant between points, linear function); algebra (Sigma symbol, square formulas); Excel.<br>**Introduction to Statistics, Variables, Scales** | FPP: Ch. 7 1 and 2 reading |
| 2 | 1/24 A<br>1/26 P | **Continue review of math and software tools**<br>**Descriptive Statistics** | FPP: Ch. 3 |
| 3 | 1/31 P | **Continue Descriptive Statistics.** | FPP: Ch.4 |
| | 2/2 A | **Review of Problems:** Descriptive Statistics<br>The average, drawing histogram, the average and the histogram, the standard deviation | |
| 4 | 2/7 P | **Normal Distribution:**<br>The normal curve. The normal approximation for data, percentiles, change of scale | FPP: Ch. 5 |
| | 2/9 A | **Quiz 1 and Solutions** (Descriptive Statistics)<br>**Practice. Normal Distribution:**<br>Finding area under the normal curve, The normal approximation for data, percentiles, change of scale | |
| 5 | 2/14 P | **Correlation**:<br>The scatter diagram, the correlation coefficient | FPP: Ch. 8, 9 |
| | 2/16 A | **Practice: Correlation**<br>Compute the correlation coefficient (r), matching the scatter diagrams with the correlation coefficient, ecological correlations, association is not | |

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| | | causation. | |
| 6 | 2/21 P | **Correlation and Regression:**<br>The concept of regression, the graph of average, the regression method for individuals | FPP:<br>Ch. 10 |
| | 2/23 A | **Practice Midterm. Comprehensive Exercise:**<br>Descriptive Statistics, Normal Distribution, Correlation and Regression. | |
| 7 | 2/28 P | **Solutions of Practice midterm** | Ch. 1-10 |
| | 3/2 A | **Midterm Exam (on 3/2)** | |
| 8 | 3/7 P<br>3/9 P | Solutions for Midterm.<br>**Box Model and Sampling.**<br>**Probability and Random Variables** | FPP:<br>Ch. 16.4,<br>13, 14 |
| 9 | 3/21 A,<br>3/23 A | **Practice: Probability and Random Variables**<br>**Review Exercise 1:** Conditional probability. **Review Exercise 2:** Independence<br>**Review Exercise 3:** Chance processes. **Review Exercise 4:** Box model | |
| 10 | 3/28 P | **Continue Probability.**<br>Probability Histograms, Probability histograms and normal curve | FPP:<br>Ch.16-18 |
| | 3/30 A | **Practice: Law of average and the normal approximation**<br>**Review exercises**: Making a box Model<br>**Review exercises**: The normal approximation for probability | |
| 11 | 4/4 P | **Sampling and Confidence Intervals:**<br>The expected value and standard error, the correlation factor. | FPP:<br>Ch. 20, 21 |
| | 4/6 A | **Quiz 2 and Solutions** (Box Model, Probability)<br>**Practice: Sampling and confidence:**<br>**Review exercises 1**: Sampling<br>**Review exercises 2**: Confidence Intervals, interpreting a confidence | |
| 12 | 4/11 P | **Interference for Percentage**.<br>Continue Confidence intervals,<br>The accuracy of average | FPP:<br>Ch. 21, 23 |
| | 4/13 A | **Practice**: **Interference for Percentage**<br>**Review exercises 1:** The sample average<br>**Review exercises 2:** The standard Error (SE) | |
| 13 | 4/18 P | **Test of Significance:**<br>The null and the alternative, test statistic and significance level. | FPP:<br>Ch. 26 |
| | 4/20 A | **Practice**: **Test of Significance:**<br>**Review exercises 1**: Statistic and significance level<br>**Review exercises 2:** Making a test of significance<br>**Review exercises 3:** Zero-one boxes. | |
| 14 | 4/25 A | **Practice Final**<br>Comprehensive Exercises | |
| | 4/27 P | **Solutions and Discussions** | |
| 15 | 5/2 P | **Final Exam (on 5/2)** | Ch. 13-14,<br>16-18,<br>20-23, 26 |
| | 5/4 A | **Solutions** | |

**This schedule may be changed during the semester if necessary.**