# Capital University of Economics and Business
# Overseas Chinese College
# Course Syllabus

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|---|---|
| **Year and Semester** | 2019 Fall (September 2, 2019 - January 13, 2020) |
| **Course Name** | Statistics Theory |
| **Course Code** | MAT331 |
| **Course Type** | ☐ General Education (Required)　☐ General Education (Elective) |
| | ☐ Professional Course (Required)　☐ Professional Course (Elective) |
| | ☑ Basic Disciplinary Course |
| **Course Credits** | 3 |
| **Course Hours** | 48 |
| **Prerequisites** | Calculus, Linear Algebra, and Probability and Statistics |
| **Instructor** | Prof. Emma Zhu |
| **Contact Information** | Office: C217 |
| | Tele: (010)83951082 |
| | Email: zhuleilei@cueb.edu.cn |
| **Office Hour** | M: 10:00—11:00; T: 10:00—11:00; W: 9:00—11:00; F: 8:00-10:00 |
| **Learning Centre** | W: 18:00—20:00;　　Th: 15:30—17:30 |
| **Grade/Section** | 2017IT/Y03 |
| **Course Time/Place** | M: 8:00—9:50 /5#111; |
| | W: 08:00—08:50 /5#111 |

## Textbook

David R. Anderson, Dennis J. Sweeney, Thomas A. Williams, STATISTICS FOR BUSINESS AND ECONOMICS; 13e, Thomason Learning, ISBN:.

## Reference Book

- M. R. Spiegel. Schaum's outline of theory and problems of probability and statistics. Schaum's outline series. McGraw-Hill, New York, 1975.

- L. Blank. Statistical procedures for engineering, management, and science. McGraw Hill, New York, 1980.

- K. Subrahmaniam. A primer in probability, volume 111 of Statistics: textbooks and monographs. Marcel Dekker, New York, second edition, 1990.

- W. Feller. An introduction to probability theory and its applications. Wiley series in probability and

mathematical statistics. Wiley, New York, third edition, 1967-1968.

- N. C. Giri. Introduction to probability and statistics (in two parts), volume 7 of Statistics: textbooks and monographs. Marcel Dekker, New York, 1974.

- Y. G. Sinay. Probability theory, an introductory course. Springer-Verlag, Berlin; New York, 1992.

## Course Description

An introduction to mathematical statistics that emphasizes the probabilistic foundations required to understand probability models and statistical methods. The purpose of Statistics for Business and Economics is to provide students, primarily in the fields of business administration and economics, with a sound conceptual introduction to the field of statistics and its many applications. The course is applications-oriented, and topics covered will include the, confidence interval, hypotheses testing, analysis of variance and linear regression.

## Student Learning Objectives

After completing this course, students will be able:

- • To provide students with a good understanding sampling process.

- To help students develop the ability to estimate unknown parameters.

- To introduce students to some of procedures of decision making using hypothesis testing.

- To develop the ability and skill of data analysis and model building with regression models.

## Website Source

- Statistics & Probability: http://42explore.com/statistics.htm
- Charles M. Grinstead and J. Laurie Snell's textbook Introduction to Probability: http://www.dartmouth.edu/~chance/teaching_aids/books_articles/probability_book/book.html, an on-line textbook on probability and statistics.
- The Chance Website: http://www.dartmouth.edu/~chance/index.html

The goal of Chance is to make students more informed, critical readers of current news stories that use probability and statistics.

- Math Archives. Probability: http://archives.math.utk.edu/topics/probability.html. Statistics: http://archives.math.utk.edu/topics/statistics.html
- The Probability Web: http://www.mathcs.carleton.edu/probweb/probweb.html

## Teaching Methods

This course consists of lectures, discussions, and individual presentations. Students must be prepared to finish some small questions and small quiz during the class. Homework is assigned sing the Blackboard platform.

## Grade Criterion

| Component | Weight | Description |
|---|---|---|
| Final Exam | 20% | A cumulative final examination will be given based on all of the contents of the class. The exam paper may be composed of multiple-choice questions, short answer questions, essay questions, problems, and preparation of financial statements. Students should rely primarily on homework assignments to give them a sense of what they may see for material on exams. |
| Mid-Term Test | 20% | A cumulative midterm test will be given based on all of the contents that have been taught in class. The test paper may be mainly composed of multiple-choice questions and it should be completed within 15 minutes in class. |
| Homework | 15% | Most of the assigned homework is taken from the Exercises in the textbook. Assignments will be collected at the clearly stated date. Late assignments will not be accepted. The graded assignments will be kept by the tutor for reference and won't be returned to students. |
| Quizzes | 15% | There will be at least 2 quizzes during the semester. Quizzes may or may not be announced in advance. It may also be used as a way to check the attendance. Quizzes will test your knowledge of both concepts and the application of those concepts. |
| Presentation | 10% | The students will be divided into several groups to prepare a presentation. Each student is required to be involved in the presentation. The topics can be selected from the textbook or lectures. Each group need to finish a PPT related to the topic which is given and hand in the related resources to the teacher before the presentation. |
| Participation | 10% | Individuals will be asked to participate individually in a question and answer at least 5 times during the semester. The performances should be counted in their participation. |
| Attendance | 10% | Refer to attendance policy listed below |
| **Total** | 100% | |

## Detailed Grade Computation

|  | Before Midterm | After Midterm |
|---|---|---|
| Attendance | 5% | 5% |
| Participation | 5% | 5% |
| Homework | 5% | 10% |
| Quizzes | 5% | 10% |
| Presentation |  | 10% |
| Midterm test | 20% |  |
| Final exam |  | 20% |
| Total | 40% | 60% |

## Grading Policy

| A+ 97-100 | A 93-96 | A- 90–92 | B+ 87-89 | B 83-86 | B- 80–82 |
|---|---|---|---|---|---|
| C+ 75-79 | C 70-74 | C- 67–69 | D+ 63–66 | D 62-60 | F 0- 59 |

## Exam Schedule

Midterm Test: November 4, 2019

Final Exam: January 2-10, 2020

## Assessment of Student Performance

☞ *Self-Study and Reading ability Practice*

Instructor will give out the chapters or the reference books to read and use class hours to have discussion; students should be able to show a proactive attitude and ability for self-study and reading. Knowledge and oral English will be elements of homework or presentation score.

☞ *Homework*

Students should finish their homework by themselves. Copying from others will be treated as cheating and the homework scores will be lowered. Students should hand in all assignments on time. Late assignments will be accepted at the discretion of the instructor (i.e., when the student was ill or had an excused absence). Late assignments without reasonable proof will be reduced in score by 50%.

☞ *Attendance*

Because the course covers a great deal of material, attending every class session is very important for performing well.

- Being late for 15 minutes or more is considered an absence.
- Five hours or above of unexcused absences will result in the lower level of the final grade by one grade band (e.g. from C − to D +). Any excused absence must be discussed directly with the teacher.
- Absence which is more than 1/3 of the total teaching hours will cause an F (a failing grade) directly.

    but students are welcome to continue attending classes.
- An incomplete grade (I) will be considered in case of medical or family emergencies.

☞ *Participation*

- Students should participate in classes actively. Half of participation grade is determined by their presentation in class. They are encouraged to ask questions relevant to the subject and express their own opinions. Every student should respect the ideas, opinions, and questions of their classmates.
- Students should also use office hours to ask questions or talk with the instructor for good communication and effective learning.
- Frequent visiting the instructor and chatting in English during office hours is highly recommended.
- Any misbehavior and non-class related activities in class will result in the lower level of the participation grade, including ringing cell phones.
- All above behaviors will be solely evaluated by the instructor for scoring.

## Topical Course Outline

| Week Index | Content |
|---|---|
| Week 1 | **Syllabus & Orientation** <br> **Ch8 Interval Estimation** |

| Week 2 | **Ch9 Hypothesis Tests** |
|---|---|
| Week 3 | **Ch10 Inferences About Means & Proportions With Two Populations**<br>**10.1&10.2 Inferences About the Difference Between Two Population Means: Independent Samples** |
| Week 4 | **10.3 Inferences About the Difference Between Two Population Means: Mathced Samples** |
| Week 5 | **National Holiday** |
| Week 6 | **10.4 Inferences About the Difference Between Two Population Proportions** |
| Week 7 | **Ch11 Inferences About   Population Variances** |
| Week 8 | **Ch12 Comparing Multiple Proportions, Tests of Independence and Goodness of Fit**<br><br>**12.1 Testing the Equality of Population Proportions for Three or More Populations**<br>**12.2 Test of Independence**<br>**12.3 Goodness of Fit Test** |
| Week 9 | **Midterm Exam** |
| Week 10 | **Ch13 Experimental Design &ANOVA**<br><br>**13.1-13.5** |
| Week 11 | **Ch14 Simple Linear Regression**<br><br>**14.1-14.3** |
| Week 12 | **Ch14 Simple Linear Regression**<br><br>**14.4-14.5** |
| Week 13 | **Ch14 Simple Linear Regression**<br><br>**14.6, 14.8-14.9**<br><br>**Ch15 Multiple Regression**<br><br>**15.1-15.5** |
| Week 14 | **Ch15 Multiple Regression**<br><br>**15.6-15.9** |
| Week 15 | **Ch16   Regression Analysis: Model Building** |
| Week 16 | **Presentation** |
| Week 17 | **Presentation** |
| Week 18 | **Review and Quiz** |

| Week 19 | **Final Exam** |
|---------|----------------|

*Note: Some chapters or sections may leave for self-study, this is the students' duty to learn and understand, they may also be included in the quizzes or exams.*

*A review in Chinese may be held during L.C. and O.H. in the semester.*

## Teacher's Office Hour

- The instructor's office hour is shown in the front of the office door.
- Students are suggested to use the instructor's office hour and learning center to ask questions or talk with the instructor once at least per week for good communication and effective learning, which is recorded in the students' participation.
- The time can be scheduled by instructors or students, or both.

## Cheating and Plagiarism

Cheating is not tolerated. Any student caught cheating on a quiz; test or exam will be given a mark of zero (0) for the particular work. At the beginning of the semester the definition of plagiarism will be carefully explained, when any thoughts or writings of another person are used, they must be clearly identified (usually one uses quotation marks) and the source notes. **If any student is caught cheating on any homework assignment, the highest score the student can earn in that course is a "C".**

## Important Dates

**Fall Semester, 2019          August 30, 2019— January 10, 2020**

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| Aug.30 | Registration |
| Sep.2 | Classes Begin |
| Sep.7-20 | Freshmen's Military Training |
| Sep.13 | Mid-Autumn Festival (tentative) |
| Sep.23 | Classes Begin（Freshmen） |
| Oct.1 | National Day Holiday (tentative) |
| Oct.28- Nov.1 | Midterm Test |
| Jan.1, 2020 | New Year's Day Holiday (tentative) |
| Jan.1-10 | Final Exam Period |
| Jan.13 | Winter Vacation Begins |

*Note: This syllabus is tentative and may be changed or modified throughout the semester. All students will be notified and a new syllabus will be given.*

**Instructor:   Prof Emma Zhu           Department Head: Prof Jingning Li**

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