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

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| **Year and Semester** | 2018 Fall (September 3, 2018 - January 2, 2019) |
| **Course Name** | Statistical Thinking and Data Analysis |
| **Course Code** | MAT332 |
| **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** | Dr Stewart Dods |
| **Contact Information** | Office: C217 |
| | Tele: (010)83951082 |
| | Email: stewart.dods@cueb.edu.cn |
| **Office Hour** | M: 15:30—16:30; T: 08:00—09:00; T: 15:30—16:30; W: 15:30—16:30 |
| **Learning Centre** | W: 10:00—12:00;      Th: 08:00—10:00 |
| **Grade/Section** | 2018CFA&FISC/Y05 |
| **Course Time/Place** | M: 13:30—15:20 /博学楼 210; |
| | W: 09:00—09:50 /博学楼 210 |

## 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

his 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 |

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| | | 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 5-9, 2018;

Final Exam: January 2-11, 2019

## 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.

☞ *Blackboard* - https://preview-learn.blackboard.com

Homework assessments and course materials are on the Blackboard online education system. Students are allowed one attempt at each test. The deadline for homework is 23:59 pm on Sunday evening. Tests cannot be submitted after this time. Participation on Blackboard will be awarded points if you add a topic and/or respond to Discussion topics. Please respond with polite, intuitive and useful comments, students will earn a point for their participation grade.

## Topical Course Outline

| Week | Date | Topics | Homework |
|------|------|--------|----------|
| 1 | Sep 3 | ● Overview of Syllabus/Setting up Blackboard Accounts<br>● CH8: Interval Estimation | —— |
| | Sep 5 | ● CH8: Interval Estimation | On Blackboard. Due on Sunday Sep 9 23:59PM |
| 2 | Sep 10 | ● CH9: Hypothesis Tests | —— |
| | Sep 12 | ● CH10: Inference about Means and Proportions with Two Populations | On Blackboard. Due on Sunday Sep 16 23:59PM |
| 3 | Sep 17 | ● CH10: Inference about Means and Proportions with Two Populations | —— |
| | Sep 19 | ● CH10: Inference about Means and Proportions with Two Populations | On Blackboard. Due on Sunday Sep 23 23:59PM |

| | Sep. 24 | — (Mid-autumn Festival Holiday) | —— |
|---|---|---|---|
| 4 | Sep. 26 | ● CH11: Inferences about Population Variance | On Blackboard. Due on Sunday Sep 30 23:59PM |
| 5 | Oct. 1 | — (National Day Holiday) | —— |
| | Oct. 2 | — (National Day Holiday) | —— |
| 6 | Oct. 8 | ● CH12: Comparing Multiple Proportions, Test of Independence and Goodness of Fit | —— |
| | Oct. 10 | ● CH12: Comparing Multiple Proportions, Test of Independence and Goodness of Fit | On Blackboard. Due on Sunday Oct 14 23:59PM |
| 7 | Oct. 15 | ● CH13: Experimental Design and Analysis of Variance | —— |
| | Oct. 17 | ● CH13: Experimental Design and Analysis of Variance | On Blackboard. Due on Sunday Oct 21 23:59PM |
| 8 | Oct. 22 | ● CH13: Experimental Design and Analysis of Variance | —— |
| | Oct. 24 | ● CH13: Experimental Design and Analysis of Variance | On Blackboard. Due on Sunday Oct 28 23:59PM |
| 9 | Oct. 29 | ● Quiz 1 | —— |
| | Oct. 31 | ● Quiz Review | Revise for Midterm |
| 10 | Nov. 5 | ● **Midterm Test** | —— |
| | Nov. 7 | ● CH14: Simple Linear Regression | On Blackboard. Due on Sunday Nov 11 23:59PM |
| 11 | Nov. 12 | ● CH14: Simple Linear Regression | |
| | Nov. 14 | ● CH14: Simple Linear Regression | On Blackboard. Due on Sunday Nov 18 23:59PM |
| 12 | Nov. 19 | ● CH15: Multiple Linear Regression | —— |
| | Nov. 21 | ● CH15: Multiple Linear Regression | On Blackboard. Due on Sunday Nov 25 23:59PM |
| 13 | Nov. 26 | ● CH15: Multiple Linear Regression | —— |
| | Nov. 28 | ● CH15: Multiple Linear Regression | On Blackboard. Due on Sunday Dec 2 23:59PM |
| 14 | Dec. 3 | ● CH16: Regression Analysis: Model Building | —— |
| | Dec. 5 | ● CH16: Regression Analysis: Model Building | On Blackboard. Due on Sunday Dec 9 23:59PM |
| 15 | Dec. 10 | ● Presentation (3-4 in a group) Topic: Model building with regression | —— |
| | Dec. 12 | ● Presentation (3-4 in a group) | —— |

| | | Topic: Model building with regression | |
|---|---|---|---|
| 16 | Dec. 17 | ● Presentation (3-4 in a group) <br> Topic: Model building with regression | —— |
| | Dec. 19 | ● Presentation I (3-4 in a group) <br> Topic: Model building with regression | —— |
| 17 | Dec. 24 | ● Quiz 2 | —— |
| | Dec. 26 | ● Quiz Review | —— |
| 18 | Dec. 31 | Final Review | —— |
| | Jan. 2 | —   Exams begin | —— |

*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, 2018 | August 31, 2018— January 13, 2019 |
|---|---|
| Aug. 31 | Registration |
| Sep.3 | Classes Begin |
| Sep.7 - 20 | Freshmen's Military Training |
| Sep.24 | Classes Begin （Freshmen） |
| Sep.24 | Mid-Autumn Festival (tentative) |
| Oct.1 - 5 | National Day Holiday (tentative) |
| Oct. 29 - Nov. 2 | Mid-term Test |
| Jan.1, 2019 | New Year's Day Holiday (tentative) |
| Jan.2-11 | Final Exam Period |
| Jan.14 | 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 Stewart Dods          Department Head: Prof Jingning Li**

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