| Course Title | QUANTITATIVE METHODS | Instructor | CHEN, YING-ERH |
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| Course Class | TLIXM1A<br>MASTER'S PROGRAM, DEPARTMENT OF<br>INSURANCE MANAGEMENT, 1A | Details | ◆ Required<br>◆ One Semester<br>◆ 2 Credits |

### Departmental teaching objectives

Ⅰ. Emphasize on a monographic study on insurance, and enhance professional knowledge of insurance.

Ⅱ. Enhance training for analytical thinking, and strengthen problem-solving and analytical skills.

Ⅲ. Focus on industry-university cooperation, and combine theory and practical issues.

### Departmental core competences

A.  Students will exhibit the ability of risk management and an insurance operation.

B.  Students will exhibit the ability to design insurance products.

C.  Students will exhibit the ability of financial planning for insurance products.

D.  Students will exhibit analytical and problem-solving skills.

E.  Students will exhibit the ability to perform research.

F.  Students will exhibit international perspectives.

| Course Introduction | The purpose of this course is to provide the application of statistical methods for master students. We will review probability and statistics then focus on linear regression with one and multiple regressors, and non-linear regressors. We will introduce quantity software such as SAS. Students are expected to exhibit an understanding of major topics in quantitative methods and develop skills for dealing with quantitative problems. |
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# The Relevance among Teaching Objectives, Objective Levels and Departmental core competences

I.Objective Levels (select applicable ones) :
 (i) Cognitive Domain    : C1-Remembering,   C2-Understanding,   C3-Applying,
                           C4-Analyzing,     C5-Evaluating,      C6-Creating
 (ii) Psychomotor Domain : P1-Imitation,     P2-Mechanism,       P3-Independent Operation,
                           P4-Linked Operation, P5-Automation,   P6-Origination
 (iii) Affective Domain  : A1-Receiving,     A2-Responding,      A3-Valuing,
                           A4-Organizing,    A5-Charaterizing,   A6-Implementing

II.The Relevance among Teaching Objectives, Objective Levels and Departmental core competences :
 (i) Determine the objective level(s) in any one of the three learning domains (cognitive,
     psychomotor, and affective) corresponding to the teaching objective. Each objective should
     correspond to the objective level(s) of ONLY ONE of the three domains.
 (ii) If more than one objective levels are applicable for each learning domain, select the
      highest one only. (For example, if the objective levels for Cognitive Domain include
      C3,C5,and C6, select C6 only and fill it in the boxes below. The same rule applies to
      Psychomotor Domain and Affective Domain.)
 (iii) Determine the Departmental core competences that correspond to each teaching objective.
       Each objective may correspond to one or more Departmental core competences at a time.
       (For example, if one objective corresponds to three Departmental core competences: A,AD,
       and BEF, list all of the three in the box.)

| No. | Teaching Objectives | Relevance | |
| --- | --- | --- | --- |
| | | Objective Levels | Departmental core competences |
| 1 | To introduce the application of statistical methods for master students. | C4 | DE |

## Teaching Objectives, Teaching Methods and Assessment

| No. | Teaching Objectives | Teaching Methods | Assessment |
| --- | --- | --- | --- |
| 1 | To introduce the application of statistical methods for master students. | Lecture, Discussion | Written test, Report, Participation |
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| This course has been designed to cultivate the following essential qualities in TKU students | |
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| Essential Qualities of TKU Students | Description |
| ◇ A global perspective | Helping students develop a broader perspective from which to understand international affairs and global development. |
| ◇ Information literacy | Becoming adept at using information technology and learning the proper way to process information. |
| ◇ A vision for the future | Understanding self-growth, social change, and technological development so as to gain the skills necessary to bring about one's future vision. |
| ◇ Moral integrity | Learning how to interact with others, practicing empathy and caring for others, and constructing moral principles with which to solve ethical problems. |
| ◆ Independent thinking | Encouraging students to keenly observe and seek out the source of their problems, and to think logically and critically. |
| ◇ A cheerful attitude and healthy lifestyle | Raising an awareness of the fine balance between one's body and soul and the environment; helping students live a meaningful life. |
| ◇ A spirit of teamwork and dedication | Improving one's ability to communicate and cooperate so as to integrate resources, collaborate with others, and solve problems. |
| ◇ A sense of aesthetic appreciation | Equipping students with the ability to sense and appreciate aesthetic beauty, to express themselves clearly, and to enjoy the creative process. |

## Course Schedule

| Week | Date | Subject/Topics | Note |
|---|---|---|---|
| 1 | 102/09/16 ~ 102/09/22 | Syllabus overview/Introduction | |
| 2 | 102/09/23 ~ 102/09/29 | Simple Regression Model- Deriving and properties of OLS | |
| 3 | 102/09/30 ~ 102/10/06 | Simple Regression Model- Expected value and variances of the OLS estimators | |
| 4 | 102/10/07 ~ 102/10/13 | Multiple Regression Model- OLS estimates | |
| 5 | 102/10/14 ~ 102/10/20 | Multiple Regression Model- Expected value and variance of the OLS estimators | |
| 6 | 102/10/21 ~ 102/10/27 | Multiple Regression Analysis- Testing hypotheses | |
| 7 | 102/10/28 ~ 102/11/03 | Multiple Regression Analysis- Confidence intervals | |
| 8 | 102/11/04 ~ 102/11/10 | Multiple Regression Analysis- Reporting regression results | |
| 9 | 102/11/11 ~ 102/11/17 | Multiple Regression Analysis- Dummy variables | |
| 10 | 102/11/18 ~ 102/11/24 | Midterm Exam Week | |
| 11 | 102/11/25 ~ 102/12/01 | Multiple Regression Analysis- Dummy variables | |

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|---|---|---|---|
| 12 | 102/12/02～102/12/08 | Heteroskedasticity | |
| 13 | 102/12/09～102/12/15 | Heteroskedasticity | |
| 14 | 102/12/16～102/12/22 | Teacher's report | |
| 15 | 102/12/23～102/12/29 | Presentation | |
| 16 | 102/12/30～103/01/05 | Presentation | |
| 17 | 103/01/06～103/01/12 | Presentation | |
| 18 | 103/01/13～103/01/19 | Final Exam Week | |

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| Requirement | |
| Teaching Facility | Computer, Projector |
| Textbook(s) | Introductory Econometrics: A Modern Approach, Jeffrey M. Wooldridge 5th edition, South-Western, Cengage Learning |
| Reference(s) | Essentials of Econometrics, Damodar N. Gujarati, Dawn C. Porter, 4th edition, The McGraw-Hill Companies |
| Number of Assignment(s) | (Filled in by assignment instructor only) |
| Grading Policy | ◆ Attendance： 5.0 ％ ◆ Mark of Usual： ％ ◆ Midterm Exam： 30.0 ％<br>◆ Final Exam： 35.0 ％<br>◆ Other〈presentation & paper〉：30.0 ％ |
| Note | This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php .<br>※ **Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.** |