

Tamkang University Academic Year 110, 1st Semester Course Syllabus

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| Course Title | TIME SERIES | Instructor | YA-MEI, CHANG |
| Course Class | TLXDM2A MASTER'S PROGRAM IN BIG DATA ANALYTICS AND BUSINESS INTELLIGENCE, 2A | Details | <ul style="list-style-type: none"> ◆ General Course ◆ Selective ◆ One Semester |
| Relevance to SDGs | SDG8 Decent work and economic growth SDG9 Industry, Innovation, and Infrastructure | | |
| Departmental Aim of Education | | | |
| I. Cultivate students with ability to conduct research on big data. II. Cultivate students with ability for computer programming on big data. | | | |
| Subject Departmental core competences | | | |
| A. Ability to conduct research of big data.(ratio:50.00) B. Big data analysis skills.(ratio:30.00) D. Logical thinking ability.(ratio:20.00) | | | |
| Subject Schoolwide essential virtues | | | |
| 2. Information literacy. (ratio:40.00) 3. A vision for the future. (ratio:20.00) 7. A spirit of teamwork and dedication. (ratio:40.00) | | | |
| Course Introduction | An introduction to time series and its application | | |
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The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.

Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.

I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.

II. Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.

III. Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.

| No. | Teaching Objectives | objective methods |
|-----|----------------------------------|-------------------|
| 1 | Time series data | Cognitive |
| 2 | Time series methods | Cognitive |
| 3 | Time series data analysis | Cognitive |
| 4 | Time series software application | Cognitive |

The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment

| No. | Core Competences | Essential Virtues | Teaching Methods | Assessment |
|-----|------------------|-------------------|---------------------|--|
| 1 | ABD | 237 | Lecture, Discussion | Testing, Study Assignments, Report(including oral and written) |
| 2 | ABD | 237 | Lecture, Discussion | Testing, Study Assignments, Report(including oral and written) |
| 3 | ABD | 237 | Lecture, Discussion | Testing, Study Assignments, Report(including oral and written) |
| 4 | ABD | 237 | Lecture, Discussion | Testing, Study Assignments, Report(including oral and written) |

Course Schedule

| Week | Date | Course Contents | Note |
|------|--------------------------|--|------|
| 1 | 110/09/22 ~ 110/09/28 | Chapter 1 Characteristics of time series | |
| 2 | 110/09/29 ~ 110/10/05 | Chapter 2 Time series regression | |
| 3 | 110/10/06 ~ 110/10/12 | Chapter 2 Time series regression | |

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| 4 | 110/10/13 ~ 110/10/19 | Chapter 2 Time series regression | |
| 5 | 110/10/20 ~ 110/10/26 | Chapter 3 ARIMA models | |
| 6 | 110/10/27 ~ 110/11/02 | Chapter 3 ARIMA models | |
| 7 | 110/11/03 ~ 110/11/09 | Chapter 3 ARIMA models | |
| 8 | 110/11/10 ~ 110/11/16 | Chapter 4 Spectral analysis and filtering | |
| 9 | 110/11/17 ~ 110/11/23 | Midterm | |
| 10 | 110/11/24 ~ 110/11/30 | Chapter 4 Spectral analysis and filtering | |
| 11 | 110/12/01 ~ 110/12/07 | Chapter 4 Spectral analysis and filtering | |
| 12 | 110/12/08 ~ 110/12/14 | Chapter 5 Additional time domain topics | |
| 13 | 110/12/15 ~ 110/12/21 | Chapter 5 Additional time domain topics | |
| 14 | 110/12/22 ~ 110/12/28 | Chapter 6 State-space models | |
| 15 | 110/12/29 ~ 111/01/04 | Chapter 6 State-space models | |
| 16 | 111/01/05 ~ 111/01/11 | Chapter 6 State-space models | |
| 17 | 111/01/12 ~ 111/01/18 | Final Report | |
| 18 | 111/01/19 ~ 111/01/25 | Final Report | |
| Requirement | | | |
| Teaching Facility | Computer, Projector | | |
| Textbooks and Teaching Materials | Shumway and Stoffer (2017), Time series analysis and its application: with R examples (4th edition) | | |
| References | | | |
| Number of Assignment(s) | (Filled in by assignment instructor only) | | |
| Grading Policy | ◆ Attendance : 10.0 % ◆ Mark of Usual : 30.0 % ◆ Midterm Exam : 30.0 % ◆ Final Exam : 30.0 % ◆ Other () : % | | |
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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>.

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