



課 綱 Course Outline
應用數學系統計碩士班

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| 中文課程名稱 Course Name in Chinese | 時間序列分析 | | | | |
| 英文課程名稱 Course Name in English | Time Series Analysis | | | | |
| 科目代碼 Course Code | AM_50700 | 班 別 Degree | 碩士班 Master's | | |
| 修別 Type | 選修 Elective | 學分數 Credit(s) | 3.0 | 時 數 Hour(s) | 3.0 |
| 先修課程 Prerequisite | 高等統計學 Advanced statistics | | | | |
| 課程目標 Course Objectives | | | | | |
| 介紹時間序列分析方法及其理論推展 Introduction of time series models and their mathematical basis. | | | | | |
| 系教育目標 Dept.'s Education Objectives | | | | | |
| 1 | 訓練嚴謹思考與推理能力。 To provide a solid training in rigorous thinking and reasoning ability. | | | | |
| 2 | 奠定理論與應用數學的基礎知識。 To establish well-founded background knowledge in pure and applied mathematics. | | | | |
| 3 | 具備跨領域學習能力。 To prepare the students for interdisciplinary study in the future. | | | | |
| 系專業能力 Basic Learning Outcomes | | | | 課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.'s Education Objectives | |
| A | 具備專業機率、統計知識與應用分析能力。 Have well-founded expertise in probability and statistics, and good analytical ability in solving real problems. | | | ● | |
| B | 具備程式設計與統計計算能力。 Have the computer programming and statistical computing skills. | | | ● | |
| C | 具備學習其它學科的能力，以期能邁向跨領域研究。 Be able to study other fields of science so as to conduct interdisciplinary research in the future. | | | ● | |
| 圖示說明Illustration：● 高度相關 Highly correlated ○ 中度相關 Moderately correlated | | | | | |
| 課程大綱 Course Outline | | | | | |

1. Stationary time series
2. Stationary ARMA processes
3. The spectral representation of a stationary process
4. Estimation and Prediction of a stationary process
5. Asymptotic theory
6. ARIMA models for nonstationary time series
7. Multivariate time series
8. Further topics

資源需求評估（師資專長之聘任、儀器設備的配合．．．等）
Resources Required (e.g. qualifications and expertise, instrument and equipment, etc.)

本系專任教師
Faculties of applied math department.

課程要求和教學方式之建議
Course Requirements and Suggested Teaching Methods

課堂講授；討論；作業
Lectures; discussions; assignments.

其他
Miscellaneous

撰寫人：應用數學系 朱至剛
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