



課 綱 Course Outline
應用數學系博士班

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| 中文課程名稱 Course Name in Chinese | 模擬方法 | | | | |
| 英文課程名稱 Course Name in English | Simulation Study | | | | |
| 科目代碼 Course Code | AM_72900 | 班 別 Degree | 博士班 Ph. D. | | |
| 修別 Type | 選修 Elective | 學分數 Credit(s) | 3.0 | 時 數 Hour(s) | 3.0 |
| 先修課程 Prerequisite | 無（限研究生） | | | | |
| 課程目標 Course Objectives | | | | | |
| 學習如何建立模擬系統、資料分析及增加編電腦程式之能力 This course is an introduction to basic concepts of simulation modeling. In which, we use a computer to evaluate a model numerically, and data are gathered in order to estimate the desired true characteristics of the models. | | | | | |
| 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 | 具備專業知識及邏輯推理能力 Have well-founded expertise and be capable of logical reasoning. | | | ○ | |
| B | 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. | | | ○ | |
| C | 具備獨立思考與解決問題的能力。 Be capable of independent thinking and have the problem-solving skills. | | | ● | |

圖示說明Illustration : ● 高度相關 Highly correlated ○ 中度相關 Moderately correlated

課程大綱
Course Outline

In the first part of the course, we will introduce methodologies of creating simulation models for various systems in engineering, management sciences, social sciences and operations research. We then discuss how to determine whether a simulation model is an accurate representation of the actual system being studied, the validation techniques.

Later we move on to talk about statistical analysis of simulation output data, which will greatly enhance our ability in understanding what the output data really tells us.

Then, we conclude the course by discussing a few variance reduction methods. These methods can help us to design better simulation experiments.

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(所)專任或兼任教師

課程要求和教學方式之建議

Course Requirements and Suggested Teaching Methods

A programming language such as C++, Fortran, Pascal.

其他

Miscellaneous

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