



**The University of Sydney**  
**Faculty of Economics and Business**



# Operations Management and Econometrics

[www.econ.usyd.edu.au/ome](http://www.econ.usyd.edu.au/ome)

Graduates with a background in Operations Management and Econometrics are equipped to carry out sophisticated analyses of operational and policy issues in both the public and private sectors.

Econometrics involves the application of mathematical and statistical techniques to the analysis of economic and business data and to the modelling of economic behaviour and business processes.

Operations Management focuses on business processes and asks how can they add value for the customer; how can they be made more efficient; and how can they contribute to competitive success?

The main focal points of undergraduate study in the Discipline are econometric models and methods, statistical modelling, management decision sciences and operations management. At undergraduate level, students can undertake a major either in Econometrics or in Operations Management and Decision Sciences. Honours are also available in both these areas.

The Discipline also offers units and majors in various Masters programs, and students interested in research can undertake a PhD degree. Research students can specialise in areas including financial econometrics, micro-econometric modelling, time series and forecasting, computational statistics, Bayesian econometrics, analysis of panel data, the behaviour of energy markets, scheduling problems and

supply chain management.

The Discipline of Operations Management and Econometrics is a dynamic group of specialists with high-level skills in econometrics, business statistics, operations management and management decision science. As well as developing new methods for the analysis and modelling of economic and business data, members of the Discipline have interests in research areas such as business and economic forecasting, risk in financial markets, wholesale electricity markets, supply chain management and scheduling.

For further information visit the website at [www.econ.usyd.edu.au](http://www.econ.usyd.edu.au) or contact the Student Information Office on telephone +61 2 9351 3076 or send an email to [student@econ.usyd.edu.au](mailto:student@econ.usyd.edu.au)

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Operations Management and Econometrics provide the tools that enable decision makers to reach conclusions based on sound inferences, informed by formal modelling and tested against empirical observation. These tools can be applied to problems as varied as generating forecasts of share price volatility, predicting defaults in financial markets, predicting the impact on greenhouse gas emissions of the trade in carbon dioxide credits, and the analysis of supermarket scanning data.

### Programs of Study

#### Undergraduate:

- Econometrics applies mathematical and statistical techniques to the analysis of business and economic data ([www.econ.usyd.edu.au/currentstudents/undergraduate/majors/econometrics](http://www.econ.usyd.edu.au/currentstudents/undergraduate/majors/econometrics))
- Operations Management and Decision Sciences teaches skills in building models from data and provides training in practical operations management ([www.econ.usyd.edu.au/currentstudents/undergraduate/majors/operations](http://www.econ.usyd.edu.au/currentstudents/undergraduate/majors/operations))

#### Postgraduate:

- Business Decision Sciences major in the Master of Commerce ([www.econ.usyd.edu.au/currentstudents/postgraduate/majors/business\\_decision\\_sciences](http://www.econ.usyd.edu.au/currentstudents/postgraduate/majors/business_decision_sciences))
- Business Statistics major in the Master of Commerce ([www.econ.usyd.edu.au/currentstudents/postgraduate/majors/business\\_statistics](http://www.econ.usyd.edu.au/currentstudents/postgraduate/majors/business_statistics))
- Econometrics major in the Master of Economics ([www.econ.usyd.edu.au/currentstudents/postgraduate/majors/econometrics](http://www.econ.usyd.edu.au/currentstudents/postgraduate/majors/econometrics))

### Research Expertise

#### Micro/Macro and Financial Econometrics:

- Specification and estimation of models for panel data sets of a cross section of economic agents through time
- Pricing models, credit risk models

#### Computational Econometrics:

Developing computationally intensive estimation methodology for econometric and statistical models. This involves the development of computer-intensive algorithms to estimate models of a complexity that was not previously feasible.

#### Data Analysis:

Robust econometric and statistical modelling and estimation to identify trends and other regular patterns in data. Recent and current projects carried out within the Discipline have used data from a variety of subject areas, including health economics, labour economics, finance, energy economics and housing economics. In educational economics there is a project modelling student data to explain students' academic results by their perception of workload, workforce participation, tutorial performance, and other factors.

#### Operations Management:

Current projects relate to: design of performance-based contracts; scheduling problems; global supply chain management; and bidding for work in the Third Party Logistics industry.

One research project uses tools from game theory and optimisation to model the behaviour of participants in electricity markets.

### Careers

There has always been a strong demand for graduates who possess quantitative skills combined with an understanding of economics and/or business. With the ever-increasing amounts of data available to organisations, this demand has strengthened and prospects for students with such skills are excellent. Graduates are in high demand both in government, and in business sectors such as banking, finance, manufacturing and marketing (among others).

#### Career opportunities include:

- Business and Economic Forecaster
- Business Analyst
- Econometrician
- Operations Researcher
- Supply Chain Manager
- Economic Consultant
- Risk Manager – e.g. Credit risk analyst
- Market Researcher
- Banking and insurance industries
- Data Analyst
- Quantitative Analyst