

IB3A7-15 The Practice of Operational Research

20/21

Department

Warwick Business School

Level

Undergraduate Level 3

Module leader

Frances O'Brien

Credit value

15

Module duration

10 weeks

Assessment

20% coursework, 80% exam

Study location

University of Warwick main campus, Coventry

Description

Introductory description

This module covers the craft processes involved in carrying out operational research (OR) studies in organisations. While other modules generally provide specific technical capabilities, the methodology modules supply the general approaches and skills necessary to use these techniques effectively in practical organizational interventions.

[Module web page](#)

Module aims

The overall aims are:

- (i) to provide students with a general understanding of the process of conducting OR studies;
- (ii) to develop in students some of the basic skills required in conducting OR studies.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

The practice of operational research (OR); models and modelling in OR studies; issues in problem structuring and data collection; OR model validation and verification.

Learning outcomes

By the end of the module, students should be able to:

- Understand the nature of OR studies and the practical issues involved in developing OR models, as well as recognise the importance of the problem structuring skills required in conducting OR studies.
- Formulate, test and validate OR models.

Indicative reading list

Daellenbach, H.G. and McNickle D.C. (2005). Management Science: decision making through systems thinking, Basingstoke: Palgrave MacMillan.

Bryson, J., Ackermann, F., Eden, C. and Finn, C. (2004) Visible Thinking: unlocking causal mapping for practical business results, Chichester: Wiley.

Mitchell, G. (1993) The Practice of Operational Research, Chichester: Wiley.

Pidd, M. (2003) Tools for Thinking: modelling in Management Science (2nd ed.), Chichester: Wiley.

Rivett, B.H.P. (1994) The Craft of Decision Modelling, Chichester: Wiley.

Rosenhead, J. and Mingers, J. (2001) Rational Analysis for a Problematic World Revisited: problem structuring methods for complexity, uncertainty and conflict (2nd ed.), Chichester: Wiley.

Subject specific skills

Appreciate a range of modelling approaches and the circumstances in which they might be applied.

Transferable skills

Conduct interviews using problem structuring methods

Study

Study time

| Type | Required |
|---------------|----------------------------|
| Lectures | 10 sessions of 1 hour (7%) |
| Seminars | 8 sessions of 1 hour (5%) |
| Private study | 53 hours (35%) |
| Assessment | 79 hours (53%) |
| Total | 150 hours |

Private study description

Private Study.

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group D5

| | Weighting | Study time |
|---------------------------------|------------------|-------------------|
| Individual Assignment (15 CATS) | 20% | 16 hours |
| Online Examination | 80% | 63 hours |

- Answerbook Green (8 page)
- Students may use a calculator

Feedback on assessment

Feedback via My.WBS.

[Past exam papers for IB3A7](#)

Availability

Courses

This module is Optional for:

- UIBA-MN34 Law and Business Four Year (Qualifying Degree)
 - Year 3 of MN34 Law and Business Studies Four Year (Qualifying Degree)
 - Year 4 of MN34 Law and Business Studies Four Year (Qualifying Degree)
- UECA-3 Undergraduate Economics 3 Year Variants
 - Year 3 of L100 Economics
 - Year 3 of L100 Economics
 - Year 3 of L100 Economics
 - Year 3 of L116 Economics and Industrial Organization
 - Year 3 of L116 Economics and Industrial Organization

- Year 3 of L116 Economics and Industrial Organization
- Year 3 of L116 Economics and Industrial Organization
- UECA-4 Undergraduate Economics 4 Year Variants
 - Year 4 of L103 Economics with Study Abroad
 - Year 4 of LM1H Economics, Politics & International Studies with Study Abroad
 - Year 4 of LM1H Economics, Politics & International Studies with Study Abroad
- UECA-LM1D Undergraduate Economics, Politics and International Studies
 - Year 3 of LM1D Economics, Politics and International Studies
 - Year 3 of LM1D Economics, Politics and International Studies
- Year 3 of UIBA-MN31 Undergraduate Law and Business Studies
- Year 3 of UIBA-MN32 Undergraduate Law and Business Studies
- Year 5 of UIBA-MN37 Undergraduate Law and Business Studies (Qualifying Degree) with Intercalated Year
- UIBA-MN35 Undergraduate Law and Business Studies with Intercalated Year (3+1)
 - Year 3 of MN35 Law and Business Studies with Intercalated Year (3+1)
 - Year 4 of MN35 Law and Business Studies with Intercalated Year (3+1)
- USTA-G300 Undergraduate Master of Mathematics, Operational Research, Statistics and Economics
 - Year 3 of G300 Mathematics, Operational Research, Statistics and Economics
 - Year 4 of G300 Mathematics, Operational Research, Statistics and Economics
- Year 3 of UMAA-GL11 Undergraduate Mathematics and Economics
- USTA-G1G3 Undergraduate Mathematics and Statistics (BSc MMathStat)
 - Year 3 of G1G3 Mathematics and Statistics (BSc MMathStat)
 - Year 4 of G1G3 Mathematics and Statistics (BSc MMathStat)
- Year 4 of USTA-G1G4 Undergraduate Mathematics and Statistics (BSc MMathStat) (with Intercalated Year)

This module is Unusual option for:

- UPHA-V7ML Undergraduate Philosophy, Politics and Economics
 - Year 3 of V7ML Philosophy, Politics and Economics (Tripartite)
 - Year 3 of V7ML Philosophy, Politics and Economics (Tripartite)
 - Year 3 of V7ML Philosophy, Politics and Economics (Tripartite)

This module is Option list A for:

- USTA-Y602 Undergraduate Mathematics, Operational Research, Statistics and Economics
 - Year 3 of Y602 Mathematics, Operational Research, Stats, Economics
 - Year 3 of Y602 Mathematics, Operational Research, Stats, Economics
- Year 4 of USTA-Y603 Undergraduate Mathematics, Operational Research, Statistics, Economics (with Intercalated Year)

This module is Option list B for:

- UMAA-G105 Undergraduate Master of Mathematics (with Intercalated Year)
 - Year 2 of G105 Mathematics (MMath) with Intercalated Year
 - Year 3 of G105 Mathematics (MMath) with Intercalated Year
 - Year 5 of G105 Mathematics (MMath) with Intercalated Year

- UMAA-G100 Undergraduate Mathematics (BSc)
 - Year 2 of G100 Mathematics
 - Year 2 of G100 Mathematics
 - Year 2 of G100 Mathematics
 - Year 3 of G100 Mathematics
 - Year 3 of G100 Mathematics
 - Year 3 of G100 Mathematics
- UMAA-G103 Undergraduate Mathematics (MMath)
 - Year 2 of G100 Mathematics
 - Year 2 of G103 Mathematics (MMath)
 - Year 2 of G103 Mathematics (MMath)
 - Year 3 of G100 Mathematics
 - Year 3 of G103 Mathematics (MMath)
 - Year 3 of G103 Mathematics (MMath)
 - Year 4 of G103 Mathematics (MMath)
 - Year 4 of G103 Mathematics (MMath)
- UMAA-G106 Undergraduate Mathematics (MMath) with Study in Europe
 - Year 2 of G106 Mathematics (MMath) with Study in Europe
 - Year 3 of G106 Mathematics (MMath) with Study in Europe
- USTA-GG14 Undergraduate Mathematics and Statistics (BSc)
 - Year 3 of GG14 Mathematics and Statistics
 - Year 3 of GG14 Mathematics and Statistics
- Year 4 of USTA-GG17 Undergraduate Mathematics and Statistics (with Intercalated Year)
- Year 4 of UMAA-G101 Undergraduate Mathematics with Intercalated Year

This module is Option list C for:

- USTA-G300 Undergraduate Master of Mathematics, Operational Research, Statistics and Economics
 - Year 4 of G30C Master of Maths, Op.Res, Stats & Economics (Operational Research and Statistics Stream)
 - Year 4 of G30C Master of Maths, Op.Res, Stats & Economics (Operational Research and Statistics Stream)
- Year 5 of USTA-G301 Undergraduate Master of Mathematics, Operational Research, Statistics and Economics (with Intercalated)

This module is Option list D for:

- USTA-G300 Undergraduate Master of Mathematics, Operational Research, Statistics and Economics
 - Year 3 of G30C Master of Maths, Op.Res, Stats & Economics (Operational Research and Statistics Stream)
 - Year 3 of G30C Master of Maths, Op.Res, Stats & Economics (Operational Research and Statistics Stream)
- USTA-G301 Undergraduate Master of Mathematics, Operational Research, Statistics and Economics (with Intercalated)
 - Year 3 of G30G Master of Maths, Op.Res, Stats & Economics (Operational Research

and Statistics Stream) Int

- Year 4 of G30G Master of Maths, Op.Res, Stats & Economics (Operational Research and Statistics Stream) Int

This module is Option list G for:

- UPHA-V7ML Undergraduate Philosophy, Politics and Economics
 - Year 2 of V7ML Philosophy, Politics and Economics (Tripartite)
 - Year 2 of V7ML Philosophy, Politics and Economics (Tripartite)
 - Year 2 of V7ML Philosophy, Politics and Economics (Tripartite)