IB320-12 Simulation

20/21

Department
Warwick Business School
Level
Undergraduate Level 3
Module leader
Katy Hoad
Credit value
12
Module duration
10 weeks
Assessment
40% coursework, 60% exam
Study location
University of Warwick main campus, Coventry

Description

Introductory description

Simulation is one of the most commonly used operational research methods for analysing complex operational/ industrial problems. This module will focus on discrete event simulation. Students will learn the theoretical underpinnings of the methods and the range of applications for which they are useful. They will gain practical experience in problem solving using commercial simulation software.

Module aims

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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.

Topics covered will be:

- The discrete-event simulation method
- Software for discrete-event simulation (with use of a specific package e.g. Simul8 or Witness)
- Performing a simulation study (conceptual modelling, data collection and analysis, experimentation, verification and validation)
  The tutorials provide the opportunity for supervised exercises and help students develop their own computer based simulation programmes.

Learning outcomes

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

- Understand the nature and application of discrete-event simulation and know how to experiment with it.
- Work out how to analyse data and present it in an intelligible form.
- understand how to experiment with simulation models to meet objectives

Indicative reading list

- Simulation, The Practice of Model Development and Use, Stewart Robinson, Palgrave Macmillan, 2014.
- Simulation Modeling and Analysis, Avril M Law, McGraw-Hill, 2007.
  Conceptual Modeling for Discrete-Event Simulation, Edited by Stewart Robinson, Roger Brooks, Kathy Kotiadis, Durk-Jouke Van Der Zee, Boca Raton: CRC Press, 2010.
- Simul8 Websites:
  http://www.simul8.com/
  These are the prefered texts as the most suitable for this topic (the subject matters changes little over time).

Subject specific skills

Develop and use a simulation for investigating a problem situation

Transferable skills

Develop a working knowledge of a discrete event simulation software package

Work in groups to solve problems cooperatively.

Communicate effectively

Study

Study time

Type	Required
Lectures	10 sessions of 2 hours (17%)
Supervised practical classes	9 sessions of 1 hour (8%)
Private study	37 hours (31%)
Assessment	54 hours (45%)
Total	120 hours

Private study description

No private study requirements defined for this module.

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 D1

	Weighting	Study time
Group work	40%	22 hours
Online Examination	60%	32 hours
Exam		
~Platforms - AEP		

- Online examination: No Answerbook required

Feedback on assessment

Feedback via my W.B.S

Past exam papers for IB320

Availability

Pre-requisites

Some understanding of statistics to the level of first year undergraduate modules Business Statistics, or Business Analytics is required, plus some ability to use computer software other than word processing.

Courses

This module is Optional for:

- Year 4 of UIBA-N140 Undergraduate International Business
- Year 4 of UIBA-MN32 Undergraduate Law and Business Studies
- UIBA-MN37 Undergraduate Law and Business Studies (Qualifying Degree) with Intercalated Year
    - Year 4 of MN37 Law and Business Studies (Qualifying Degree) with Intercalated Year
    - Year 5 of MN37 Law and Business Studies (Qualifying Degree) with Intercalated Year
- UIBA-MN36 Undergraduate Law and Business Studies with Intercalated Year (4+1)
    - Year 4 of MN36 Law and Business Studies with Intercalated Year (4+1)
    - Year 5 of MN36 Law and Business Studies with Intercalated Year (4+1)
- Year 4 of UMAA-G1N2 Undergraduate Mathematics and Business Studies (with Intercalated Year)
- Year 2 of USTA-G1G3 Undergraduate Mathematics and Statistics (BSc MMathStat)
- USTA-GG14 Undergraduate Mathematics and Statistics (BSc)
    - Year 2 of GG14 Mathematics and Statistics
    - Year 2 of GG14 Mathematics and Statistics
- Year 3 of UPXA-F3N1 Undergraduate Physics and Business Studies

This module is Option list A for:

- Year 3 of UIBA-N201 BSc in Management
- Year 2 of USTA-G300 Undergraduate Master of Mathematics,Operational Research,Statistics and Economics
- USTA-Y602 Undergraduate Mathematics,Operational Research,Statistics and Economics
    - Year 2 of Y602 Mathematics,Operational Research,Stats,Economics
    - Year 2 of Y602 Mathematics,Operational Research,Stats,Economics
- Year 4 of UPXA-F3ND Undergraduate Physics and Business Studies (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 3 of G100 Mathematics
    - Year 3 of G100 Mathematics
    - Year 3 of G100 Mathematics
- UMAA-G103 Undergraduate Mathematics (MMath)
    - 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
    - Year 4 of G106 Mathematics (MMath) with Study in Europe
- Year 4 of UMAA-G101 Undergraduate Mathematics with Intercalated Year