IB9BS-15 Supply Chain Analytics

26/27

Department
Warwick Business School
Level
Taught Postgraduate Level
Module leader
Yidan Xiang
Credit value
15
Module duration
9 weeks
Assessment
15% coursework, 85% exam
Study location
University of Warwick main campus, Coventry

Description

Introductory description

The module provides an introduction to Supply Chain Analytics (SCA), i.e., how analytics and operational research can be used in supply chains. It focuses on both the structural and operational elements of supply chain management: the design of supply networks as well as scheduling, inventory control, quality control and vehicle routing.

Module web page

Module aims

The module seeks to make students aware of the complexities and special issues related to supply chains and provide a basic understanding how these can be tackled.

SCA aims to introduce various (analytical, mathematical and statistical) techniques to analyse supply chain performance and to identify inefficiencies and risk factors in operational, managerial and financial aspects of a supply chain.

Particular aims are:

To provide a holistic strategic view of supply chain management as a source of competitive advantage and identify the underlying dimensions of supply chain strategies.

To examine outsourcing and offshoring
To give students a flavour of various aspects of supply chain analytics (optimization, descriptive and predictive analytics) that can be used to manage complex processes in supply chains.
To make students aware of the complexities of the decision-making process and identify the underlying foundation and role of business analytics in a supply chain process.
To prepare the students for a variety of industrial and academic roles.

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.

Introduction - The Evolution of SCM
Basic supply chain principles, outsourcing, offshoring, push/pull supply chains and supply chain performance
Supply Network Design
Value of Information
Supply Chain Risk Management
Inventory Control
Newsvendor Problem
Scheduling
Vehicle Routing
Quality Control

Learning outcomes

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

- Demonstrate comprehensive understanding of the particular challenges of supply chains
- Demonstrate comprehensive understanding of a range of optimization techniques to solve typical problems in the design and operation of supply chain
- Critically analyse organisations' supply chains, assessing and recognising risk, and the methods available to minimize it
- Critically analyse case studies to propose potential business solutions

Indicative reading list

Reading lists can be found in Talis

Interdisciplinary

This module considers the application of analytics and operational research to supply chains, thus linking the fields of Analytics and Supply Chain Management.

International

There is no overseas/travel element. Supply chains are often global, and we discuss e.g.

offshoring, supply chain resilience and criteria for facility location decisions, but all on a general rather than specific level.

Subject specific skills

Identify the contextual and theoretical setting for the study of SCM and define concepts and methods commonly used in SCM
Evaluate and recommend improvements to the design and operation of a supply chain
Apply optimisation and data analytics to supply chain problems
Demonstrate modelling skills to formally describe and model typical SCM problems

Transferable skills

Communication skills
Team work
Problem solving skills

Study

Study time

Type	Required
Lectures	9 sessions of 1 hour (6%)
Other activity	18 hours (12%)
Private study	74 hours (49%)
Assessment	49 hours (33%)
Total	150 hours

Private study description

Private study to include preparation for lectures

Other activity description

9 x 2 hr F2F workshops

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	Eligible for self-certification
Assessment component			
Other Formal Assessment - Groupwork/ Presesentation Group work (to include presentation, written and numerical elements)	15%	7 hours	No
Reassessment component			
Individual Assignment 1000 words Individual assignment			Yes (extension)
Assessment component			
Centrally-timetabled examination (On-campus)	85%	42 hours	No

- Answerbook Green (8 page)
- Students may use a calculator
- Cambridge Statistical Tables (blue)

Reassessment component is the same

Feedback on assessment

Markers' comments to exam uploaded to my. wbs. Comments on group assignment.

Past exam papers for IB9BS

Availability

Pre-requisites

Mathematical Programming I and II for MMORSE

To take this module, you must have passed:

- All of
  - IB104-12 Mathematical Programming I
  - IB207-12 Mathematical Programming II

Courses

This module is Optional for:

- Year 1 of TIBS-NI01 Business Analytics and Artificial Intelligence
- MMORSE