IB9JV-15 Programming for Data Analytics

26/27

Department
Warwick Business School
Level
Taught Postgraduate Level
Module leader
Zhewei Zhang
Credit value
15
Module duration
10 weeks
Assessment
100% coursework
Study location
University of Warwick main campus, Coventry

Description

Introductory description

Programming for Data Analytics is an advanced data analytics course designed for post-graduate students. It is expected that the students should be proficient in Python programming. Students will learn the full process of conducting data analytics tasks, from data collection to analysis and visualization. Key components include cloud computing, SQL querying, data visualization, data wrangling, machine learning, and recent advances in generative AI for data analytics.
Due to its technical nature, this course will be taught in a combination of online lectures and in-person lecture-workshops. The balance between the two may vary every week. It is essential to attend each lecture and workshop so that students can follow the teaching step by step, practice independently and solve the errors and bugs with the lecturer together.

Module web page

Module aims

The objective of the module is to teach the students to develop a broad set of knowledges and skills for conducting data analytics using Python programming language. Students will learn how to develop Python script to collect, pre-process, analyse the data and present the results.

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.

Get ready for data analytics on cloud
Working with data repositories
Working with public data
Data visualization
Introduction to Pandas and Numpy
Data cleaning and preparation
Data wrangling
Basic machine learning with Scikit-learn
Model selection and improvement
Generative AI and data analytics

Learning outcomes

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

- Demonstrate understanding of principles and processes to clean the data collected online.
- Demonstrate familiarity and understanding of the common models used in data analytics and their implementations using Python.
- Demonstrate familiarity and understanding of major Python libraries used in data science.
- Demonstrate critical capability to understand the problem and design and refine the solutions to the problem.

Indicative reading list

Reading lists can be found in Talis

Subject specific skills

Develop Python script to scrape data publicly available online
Develop Python script to analyse the data and visualize analysis results.
Individually design and implement a functional computer programming solution written in Python, which can collect, analyse the data and present the result to solve business problems

Transferable skills

Numeracy
IT skills

Study

Study time

Type	Required
Lectures	10 sessions of 1 hour (7%)
Practical classes	(0%)
Online learning (scheduled sessions)	(0%)
Other activity	18 hours (12%)
Private study	49 hours (33%)
Assessment	73 hours (49%)
Total	150 hours

Private study description

Private study to include preparation for lectures

Other activity description

9 x 2 hrs workshops

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A5

Assessment component	Weighting	Study time	Eligible for self-certification
Individual Assignment	100%	73 hours	Yes (extension)

Reassessment component is the same

Feedback on assessment

Standard course feedback sheet on each marked assignment or through myWBS

Availability

Pre-requisites

To take this module, you must have passed:

- All of
  - IB96D-15 Programming Solutions for Enterprise

Courses

This module is Optional for:

- Year 1 of TIBS-G5N4 Postgraduate Taught Management of Information Systems and Digital Innovation