



Implementing Data Science Course Descriptor

Course Title	Implementing Data Science	Faculty	EDGE Innovation Unit (London)
Course code	NCHNAP691	Course Leader	Professor Scott Wildman (interim)
Credit points	15	Teaching Period	This course will typically be delivered over a 6-week period.
FHEQ level	6	Date approved	June 2020
Compulsory/Optional	Compulsory for Data Analyst Specialism		
Pre-requisites	None		
Co-requisites	None		

COURSE SUMMARY

This course offers learners an opportunity to learn how to approach data analysis problems in a systematic manner and to learn how to design data analysis pipelines, as well as how to implement them at scale in the context of real-world problems. Data science is at the intersection of statistics, machine learning, and software development. Data analysis problems are solved in a series of datacentric steps: data acquisition, data cleaning, data transformation, data modelling, and data visualization.

COURSE AIMS

- To consolidate learner's knowledge and apply data science thinking, processes and tools to a range of real-world problems.
- To expose learners to real-world data sets and organisation constraints.
- To allow learners to evaluate new real-world tasks and develop solutions.

LEARNING OUTCOMES

On successful completion of the course, learners will be able to:

KNOWLEDGE AND UNDERSTANDING

- K1c Demonstrate a wide understanding of a broad range of data science methods and processes, bringing together techniques from maths, statistics, computer science and analytics.
- K2c Critically understand the problems associated with real-world data and organisational constraints, appreciating the limits, ambiguity and uncertainty of data.

SUBJECT SPECIFIC SKILLS

- S1c Independently problem solve within the data science workflow.
- S2c Design effective data analysis pipelines .

TRANSFERABLE AND PROFESSIONAL SKILLS

- T1ci Demonstrate advanced critical thinking and problem-solving skills .
- T1cii Utilise an advanced level of technical proficiency of written English, while effectively applying scholarly terminology, to critically evaluate, analyse and make judgements and apply these appropriately to a range of diverse contexts.
- T2c Approach problems in a professional, structured manner.
- T3c Effectively communicate to a range of stakeholders.

TEACHING AND LEARNING

This is an e-learning course, taught throughout the year.

This course can be offered as a standalone short course.

Teaching and learning strategies for this course will include:

- On-line learning
- On-line discussion groups
- On-line assessment

Course information and supplementary materials will be available on the College's Virtual Learning Environment (VLE).

Learners are required to attend and participate in all the formal and timetabled sessions for this course. Learners are also expected to manage their self-directed learning and independent study in support of the course.

The course learning and teaching hours will be structured as follows:

- Off-the-job learning and teaching (6 days x 7 hours) = 42 hours
- On-the-job learning (12 days x 7 hours) = 84 hours (e.g. 2 days per week for 6 weeks)

- Private study (4 hours per week) = 24 hours

Total = 150 hours

Workplace assignments (see below) will be completed as part of on-the-job learning.

ASSESSMENT

FORMATIVE

Learners will be formatively assessed during the course by means of set assignments. These will not count towards the final degree but will provide learners with developmental feedback.

SUMMATIVE

Assessment will be in two forms:

AE	Assessment Type	Weighting	Online submission	Duration	Length
1	Written Assignment (workplace dataset)	70%	Yes	-	2,500 words +/- 10%, excluding data tables
2	Presentation (workplace case study)	30%	Yes	30 mins	-

FEEDBACK

Learners will receive formal feedback in a variety of ways: written (via email or VLE correspondence) and indirectly through online discussion groups. Learners will also attend a formal meeting with their Academic Mentor (and for apprentices, including their Line Manager). These bi- or tri-partite reviews will monitor and evaluate the learner's progress.

Feedback is provided on summatively assessed assignments and through generic internal examiners' reports, both of which are posted on the VLE.

INDICATIVE READING

Note: Comprehensive and current reading lists for courses are produced annually in the Course Syllabus or other documentation provided to learners; the indicative reading list provided below is used as part of the approval/modification process only.

BOOKS

- Kelleher, J. D. and Tierney, B., (2018), *Data Science*, Cambridge, Massachusetts: The MIT Press
- Van Emden, J. and Becker, L., (2016), *Presentation Skills for Students*, Basingstoke: Palgrave Macmillan
- Said, A., and Torra, V., (2019), *Data Science in Practice*, Cham: Springer International Publishing: Imprint: Springer

JOURNALS

Learners are encouraged to consult relevant journals on data science.

ELECTRONIC RESOURCES

Learners are encouraged to consult relevant electronic resources on data science.

INDICATIVE TOPICS

- Data science workflow
- Data science in the real-world and organisational objectives
- Real-world data

Title: NCHNAP691 Implementing Data Science					
Approved by: Academic Board					
Location: Academic Handbook/Programme specifications and Handbooks/ Undergraduate Apprenticeship Programmes/BSc (Hons) Digital & Technology Solutions Programme Specification/Course Descriptors					
Version number	Date approved	Date published	Owner	Proposed next review date	Modification (As per AQF4) & category number
2.1	May 2022	May 2022	Scott Wildman	June 2025	Category 1: Corrections/clarifications to documents which do not change approved content.
2.0	January 2022	April 2022	Scott Wildman	June 2025	Category 3: Changes to Learning Outcomes
1.0	June 2020	June 2020	Scott Wildman	June 2025	