Data Science, Data Visualisation and Communication Bootcamp Course Descriptor

Course Title	Data Science, Data Visualisation and Communication Bootcamp	Faculty	EDGE Innovation Unit (London)
Course code	NCHNAP488	Course Leader	Professor Scott Wildman (interim)
Credit points	15	Teaching Period	This course will typically be delivered over a 6-week period.
FHEQ level	4	Date approved	Sep 2021
Compulsory/ Optional	Compulsory	Date modified	
Pre-requisites	None		
Co-requisites	None		

Course Summary

This course is an intensive two-week, face-to-face bootcamp that gives learners hands-on experience of a mini data analysis project aligned to the learners workplace sector. Learners will explore the data science workflow with practical and collaborative tasks. A variety of real-life datasets will be used for analysis and visualisation. Learners will engage in hands-on programming (using languages such as R, MATLAB /or Python), database interrogation, exploratory data analytics and visualisation (using applications such as Tableau). The course explores methods of communication, the digital tools and techniques available to support data visualisation and the impact they have on professional practice.

Course Aims

- To introduce learners to data science and data visualisation techniques.
- For learners to undertake a mini data analysis project using a variety of datasets.
- For learners to work and communicate effectively in a group.

Learning Outcomes

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

Knowledge and Understanding

K1a	Understand and have knowledge of a typical data science workflow and the tools and processes associated with each stage.
K3a	Understand how to store, interrogate and visualise different datasets and data formats.
K4a	Understand the context of data science and how it can influence decision making and improve processes within an organisation.

Subject Specific Skills

S1a	Use programming languages, such as Python, R or MATLAB to perform statistical analysis and solve data science problems.
S3a	Use data visualisation packages such as Tableau to effectively analyse and communicate data.
S4a	Work effectively with others to complete a focused data science project.

Transferable and Professional Skills

T2a	Develop practical/technical skills.
T3a	Present and communicate data.
T3a	Display a developing technical proficiency in written English and an ability to communicate clearly and accurately in structured and coherent pieces of writing.
T4a	Analyse, evaluate and correctly interpret data as part of a team.

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:

- Online learning
- Online discussion groups

- Online assessment

Course information and supplementary materials will be available on the University'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
- One-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	Oral Presentation	40%	Yes	15 minutes	-
2	Project	60%	Yes	Requiring on average 20 – 30 hours to complete	-

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

- Mueller, J., (2019), *Python for data science*, Hoboken, NJ : John Wiley & Sons

- Burstein, L. (2011). *Matlab® in Bioscience and Biotechnology* (1st edition). Woodhead Publishing

Journals

Learners are encouraged to read material from relevant journals on data science, data visualisation and communication as directed by their course leader.

Electronic Resources

Learners are encouraged to consult relevant websites on data science, data visualisation and communication.

Indicative Topics

- Data analysis
- Programming
- Data visualisation and communication

Version History

Title: NCHNAP488 Data Science, Data Visualisation and Communication Course Descriptor					
Approved by: Academic Board					
Location: Academic Handbook/Programme specifications and Handbooks/ Undergraduate Apprenticeship Programmes/BSc (Hons) Bioscience with Digital Technologies Programme Specification/Course Descriptors					
Version number	Date approved	Date published	Owner	Proposed next review date	Modification (As per AQF4) & category number
3.0	October 2022	January 2023	Scott Wildman	September 2026	Category 1: Corrections/clarifications to documents which do not change approved content. Category 3: Changes to Learning Outcomes
2.0	January 2022	April 2022	Scott Wildman	September 2026	Category 3: Changes to Learning Outcomes
1.0	September 2021	September 2021	Scott Wildman	September 2026	