Work-Based Professional Practice A in Data Analytics (Proposal)

Undergraduate

This is a **preview** of the course descriptor for a proposed course.

Proposer

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Summary

This course is work-based and is focused on the real-world application of data analytics in a workplace environment. It includes experiencing how computation, analysis, mathematical modelling and statistics are applied to conduct data analysis studies on real data in a commercial environment. Students who do this course will obtain practical experience in the design, implementation, and evaluation of data analysis approaches.

Course Description

This is a work-based course worth 20-credits. It is not a stand-alone course and can only be delivered as part of the Graduate Apprenticeship BSc Hons in Data Science.

It is delivered over two ten-week professional practice periods in the summer at the end of years 1 and 2 and students are expected to spend around 200 hours in total on this course. This is in addition to work activities the employer will be setting. The SLICC will be planned to cover the group of graduate apprenticeship students working with a specific employer and the work will directly link to their own contexts in the workplace.
The aim of this course is to provide data science graduate apprenticeship students with work-based professional practice in the application of data analysis and statistical techniques. It gives students a practical introduction and understanding of the foundations, concepts and techniques applied to data analytics and provides an opportunity to apply the learning gained in the core courses to address data analysis problems and challenges in the workplace.
The main topics are: the application of data analysis tools and techniques, an introduction to common data quality problems, and the application of statistics. In addition, this course covers the meta skills required to operate in a professional environment including: teamwork, project, problem solving and communication skills.
The year 1 core courses in computing and mathematics are applied to real world data analysis problems and projects. This is further developed in year 2 where knowledge of probability, statistics and computer science are applied to more complex real-world data analysis problems.
Students will be directed in their learning using the Student-Led Individually Created Course (SLICC) approach. They will plan, propose, carry out, reflect on and evaluate a data analysis study from their own work context in data analytics. The SLICC framework requires that students use the generic learning outcomes to articulate their learning in their own defined project, reflect frequently using a blog, and collect and curate evidence of their learning in an e-portfolio. They receive relevant formative feedback on a Midway Reflective Report, which is the same format as the Final Reflective Report, which forms the summative assessment. All this is with the guidance of a professional

practice academic tutor.
The course will encourage appraisal of students¿ own practical experiences and allow them to reflect on their learning in the context of data analytics.

Course Outline

College & School	College of Science and Engineering School of Informatics	**Course Availability**	Not available to visiting students
SCQF Credit Level	SCQF Level 9 (Year 3 Undergraduate)	**Subject Area(s)**	Informatics
SCQF Credit Volume	20	**ECTS Credit Volume**	10

Enrolment Requirements

Pre-Requisites

Graduate apprenticeship students must have completed all year 1 compulsory courses of the Graduate Apprenticeship in Data Science, including:

Introduction to Computation INFR08025
Calculus and its application MATH08058
Informatics 1: Object Oriented Programming INFR08014
Informatics 1: Data Analysis INFR08015
Intro to Linear Algebra MATH08057
Proofs and Problem Solving MATH08059

And all Year 2 compulsory courses;
Informatics 2A: Processing Formal and Natural Languages INFR08008
Several Variable Calculus and Differential Equations MATH08063
Probability MATH08066
Informatics 2C: Introduction to Software Engineering INFR08019
Informatics 2B: Algorithms, Data Structures, Learning INFR08009
Informatics 2D: Reasoning and Agents INFR08010
Statistics MATH08051
Computing and Numerics MATH08059

Commented [MV1]: Pre-requisites – students must have taken these courses, but not necessarily have passed at this point.

Co-Requisites *None*

Prohibited Combinations *None*

Visiting Student Information

Pre-Requisites *None*

As this is just a proposal, there is no delivery information yet. Instead, here are the proposed details related to delivery.

Total contact hours 110

Default delivery period Flexible

Commented [MV2]: This seems a lot of contact hours (what is the direct teaching contact hours via lectures/tutorials?)

Commented [VM3R2]: Tony Venus noted:
As this is WBL we need to fit to the established terminology - 110 was the total of pre WBL preparation and then in company support etc - Is this ok or should we reduce the 'contact' to a more manageable size and make the rest of the time elsewhere or not at all?

Commented [MV4]: As in course B, there isn't a clear delivery period that fits, is flexible sufficient?

Components of Assessment

Written Exam 0 %, Practical Exam 0 %, Coursework 100 %

A SLICC is assessed via three key components, a self-reflective report, an agreed portfolio of outputs and a formative self-assessment.

Self-critical ¿Final Reflective Report¿ (100% weighting) - The reflective report is the key component of your assessment. You are expected to document and demonstrate active self-critical reflection and responses to your learning throughout your experience. It is essential that your report is linked to and draws upon your e-portfolio of evidence of your learning. Maximum word limit is 3000 words.

E-portfolio of evidence - At the proposal approval stage for your SLICC, your tutor/advisor will discuss and agree with you what outputs and information need to be created, collated and submitted in your portfolio. This e-portfolio will support and provide evidence for your learning and development of skills throughout your SLICC. Your portfolio should be constructed throughout the duration of your learning experience, demonstrating evolution, iteration and progress over-time. It must include a regular reflective blog diary. It may contain other evidence, which may take many forms including photographs, documents, reports, feedback, video, podcasts, etc.

Formative Self-Assessment - An important component of your final submission, in addition to your ability to self-critically reflect on your experience, is to demonstrate your understanding of your achievements through graded self-assessment. In your self-assessment you are required to demonstrate the alignment of the grades given by you for each learning outcome to the justification for them, and where this is evidenced within your portfolio.

Exam information

No examination.

Learning Outcomes

On completion of this course, the student will be able to:

1. Demonstrate an understanding of applied data science, and the challenges and wider implications of the contexts in which data analysis problems occur in the workplace.
2. Draw on and apply relevant data analysis approaches, tools and frameworks from their courses in mathematics and computing in different settings in real world situations.
3. Develop and apply skills and attributes to engage effectively on data analysis issues in the workplace, including problem solving, communicating clearly and for reflective thinking.
4. Frame and address data analysis problems, questions and issues as a data analysis study, being aware of the environment and context in which the problem exists.
5. Review, evaluate and reflect upon knowledge, skills and practices in data analytics.

Reading List

Bolton, G. 2010.Reflective Practice: Writing and Professional Development. 3rd Ed. London: Sage

Boud, D., Keogh, R. and Walker, D. 2005.Reflection: Turning Experience into Learning. Oxon: Routledge Falmer

Fook, J. and Gardner, F. 2007.Practising critical reflection : a resource handbook Maidenhead: Open University Press

Kolb D.A. 1984.Experiential learning : experience as the source of learning and development New Jersey: Prentice Hall

Moon, J.A.. (2006). Learning journals: a handbook for reflective practice and professional development (2nd edition). Abingdon: Routledge. Mumford, J. and

Roodhouse, S. (eds.) (2012). Understanding work based learning. Farnham: Gower.

Tarrant, P. (2013). Reflective practice and professional development. London: SAGE

Williams, K., Woolliams, M. and Spiro, J. 2012. *Reflective writing* Basingstoke: Palgrave Macmillan

Additional Information

Graduate Attributes, Personal and Professional Skills	Development of graduate attributes are a key component of a graduate apprenticeship. In this course there is specific reference to the development and application of skills and attributes to engage effectively on data analysis issues in the workplace, including problem solving, communicating clearly and for reflective thinking.
Feedback	Feedback will be provided via the work based learning tutor.
Keywords	Data Science,Graduate Apprenticeship,PwC

The information below is **not displayed** on DRPS.

Organisation and Teaching Load

Contact Hours	110
Marking Scheme	APT UG Honours Marking Scheme
Default Course Mode of Study	Classes & Assessment excl. centrally arranged exam

Fee Code	*Not applicable*
% not taught by this institution	0%
Collaboration Information (School/Institution)	The work-based professional practice A course is based upon two ten-week work-based professional practice sessions delivered during the summer periods at the end of years 1 and 2 in industry (with Price Waterhouse Coopers for academic session 2018/19). T