ANLY08053
Programming for Big Data

Transcript Title	Programming for Big Data		
Full Title	Programming for Big Data		
Attendance	75	Award Area	Analytical Techniques
Coordinator	Trevor Prendergast	Department	Accounting & Business Computin
Official Code	ANLY08053	NFQ Level	08
ECTS Credit	10		

Module Description

Based on an assumption of no prior computing experience, students taking this module will acquire the computer programming skills necessary to analyse and manipulate big data. This module will begin with an introduction to key programming concepts using programming languages designed specifically for data manipulation (e.g. Base SAS or R). Once students have developed a suitable grounding in these skills focus will turn to turn to tools and techniques for handling big data, which in this context refers to datasets that are too large to be handled by the software tools commonly used to analyse and manipulate data within a tolerable elapsed time.

Learning Outcomes

On completion of this module the learner will/should be able to

1. Devise solutions for common data programming problems such as extracting, cleaning, merging, aggregating and integrating datasets.
2. Prepare programmes to analyse and report on the contents of datasets.
3. Describe the characteristics of big data, and contrast the requirements for processing big data with conventional data.
4. Identify and illustrate the challenges of programming for big data, and evaluate contrasting methods for addressing these challenges.
5. Implement solutions to various big data programming problems using a range of state of the art tools and techniques, and evaluate the effectiveness of these solutions.

Teaching and Learning Strategies

This module will be taught in an IT laboratory environment. Students will recieve tuition on the use of various tools and on various Big Data concepts and will then apply this knowledge using a suitable tool(s).

Assessment Strategies

This module will be assessed by a mix of coursework (70%) and a final exam(30%).

Repeat Assessment Procedures

As per school policy.

Module Dependencies

Indicative Syllabus

Introduction to programming for big manipulation and analysis.

Data access programming:

- Data structures for data analytics

Data manipulation programming:

- Extracting, cleaning and aggregating datasets
- Merging and integrating datasets

Data analysis and reporting programming:

- Programming for descriptive statistics
- Generating reports from data

Introduction to programming for big data:

- What is big data?
- How is programming for big data different?

Performing data access, manipulation, analysis and reporting for big data:

- Approaches to handling big data
- Big data programming patterns
- Big data programming tools

Distributed programming paradigms:

- Map, Reduce, and MapReduce
- Distributed programming tools for data storage and data analysis (e.g. Hadoop, Mahoot, Pig)

CourseWork / Assessment Breakdown	
CourseWork / Continuous Assessment	70 %
End of Semester / Year Formal Examination	30 %

Coursework Assessment Breakdown

Description	Outcome Assessed	% of Total	Assessment Week
Coursework	1,2,5	70	OnGoing

End Exam Assessment Breakdown

Description	Outcome Assessed	% of Total	Assessment Week
Final Exam	1,2,3,4,5	30	End of Semester

ACCS Mode Workload

Type	Location	Description	Hours	Frequency	Avg Wkly Wrkld

Total Average Weekly Learner Workload 0.00 Hours

Open Learning Mode Workload

Type	Location	Description	Hours	Frequency	Avg Wkly Wrkld

Total Average Weekly Learner Workload 0.00 Hours

Distance Learning Mode Workload

Type	Location	Description	Hours	Frequency	Avg Wkly Wrkld

Total Average Weekly Learner Workload 0.00 Hours

Part Time Mode Workload

Type	Location	Description	Hours	Frequency	Avg Wkly Wrkld

Total Average Weekly Learner Workload 0.00 Hours

Flexible Mode Workload

Type	Location	Description	Hours	Frequency	Avg Wkly Wrkld

Total Average Weekly Learner Workload 0.00 Hours

Full Time Mode Workload

Type	Location	Description	Hours	Frequency	Avg Wkly Wrkld

Total Average Weekly Learner Workload 0.00 Hours

Online Learning Mode Workload

Type	Location	Description	Hours	Frequency	Avg Wkly Wrkld
Laboratory Practical	Not Specified	Practical Sessions	6	Weekly	6.00
Independent Learning	Not Specified	Independent Learning	10	Weekly	10.00

Total Average Weekly Learner Workload 6.00 Hours

Module Resources

Module Book Resources
None
Module Alternate Book Resources
None
Module Other Resources
None
Module URL's
http://www.sas.com/en_us/resource-center.html

http://support.sas.com/resources/

Additional Information

None

ISBN BookList

Book Details

Venkat Reddy Konasani 2015 *Practical Business Analytics Using SAS: A Hands-on Guide* Apress
ISBN-10 1484200446 ISBN-13 9781484200445

Evan Stubbs 2014 *Big Data, Big Innovation: Enabling Competitive Differentiation through Business Analytics (Wiley and SAS Business Series)* Wiley
ISBN-10 111872464X ISBN-13 9781118724644

Richard Cotton 2013 *Learning R* O'Reilly Media
ISBN-10 1449357105 ISBN-13 9781449357108

Approval Information

School Approval by	Trevor Prendergast on 30-11-2018
Academic Council on	12-12-2018

Programme Membership

Code	Intake Year	Programme Title
AL_SDATA_8JN	201800	Higher Diploma in Science in Data Analytics