ACCG8076

Forensic and Data Analytics

Session 1, Special circumstances 2021

Department of Accounting & Corporate Governance

Contents

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Notice

As part of Phase 3 of our return to campus plan, most units will now run tutorials, seminars and other small group activities on campus, and most will keep an online version available to those students unable to return or those who choose to continue their studies online.

To check the availability of face-to-face activities for your unit, please go to timetable viewer. To check detailed information on unit assessments visit your unit's iLearn space or consult your unit convenor.

General Information

Unit convenor and teaching staff
Kathleen Clough
kathleen.clough@mq.edu.au

Credit points
10

Prerequisites
ACCG6011 or ACCG611 or (admission to MActPrac or MBkgFin or MBusAnalytics or GradCertForAccg or GradDipForAccg or MForAccgFinCri)

Corequisites

Co-badged status

Unit description
In this unit students will be exposed to the theory and application of data analytics skills and techniques in relation to fraud detection and identifying business risks. The unit will introduce students to mechanisms and principles relevant to tracing assets, investigating flow of funds and reconstructing accounting information. Visual and location analytic capabilities that use a variety of tools and techniques, along with external data sets, will be explored. The unit will also equip students with the capacity to appraise applications and strategies to enable collection, assessment, review, production and presentation of unstructured data.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: Evaluate the theory, and principles of application, of data analytics skills and techniques relevant to forensic accounting.

ULO3: Manage and interpret complex or disparate sets of data to underpin business development, interpret risk, understand behavioural patterns, and detect suspicious or irregular behaviour.

ULO2: Investigate applications and strategies, including data mining, to enable collection, assessment, review, production and presentation of unstructured data.

ULO4: Examine issues and key principles of professional digital forensic practice, including chain of custody and best practice procedures.

ULO5: Diagnose and appraise mechanisms to uncover or recover evidence from digital devices to support litigation and investigations.

General Assessment Information

Late Submission(s) of Assessment: Where assessment is to be submitted through Turnitin, late assessment must also, where applicable, be submitted through Turnitin. No extensions will be granted. There will be a deduction of 10% of the total available marks made from the total awarded mark for each 24 hour period or part thereof that the submission is late (for example, 25 hours late in submission incurs a 20% penalty). Late submissions will not be accepted after solutions have been discussed and/or made available. This penalty does not apply for cases in which an application for Special Consideration is made and approved. Note: applications for Special Consideration Policy must be made within 5 (five) business days of the due date and time.

Assessment Tasks

Name	Weighting	Hurdle	Due
Participation	20%	No	Weekly, 11.59PM Sunday
Written Presentation	20%	No	Wednesday, 31st March 2021 (2PM)
Online Test	20%	No	Saturday, 1st May 2021 (10AM)
Critical Essay	40%	No	Wednesday, 26th May 2021 (2PM)

Participation

Assessment Type [1]: Participatory task
Indicative Time on Task [2]: 20 hours
Due: **Weekly, 11.59PM Sunday**
Weighting: **20%**

This assessment involves evidence of preparation for, participation in, and contribution to seminars and online discussion forums.

On successful completion you will be able to:
• Evaluate the theory, and principles of application, of data analytics skills and techniques relevant to forensic accounting.

- Manage and interpret complex or disparate sets of data to underpin business development, interpret risk, understand behavioural patterns, and detect suspicious or irregular behaviour.
- Investigate applications and strategies, including data mining, to enable collection, assessment, review, production and presentation of unstructured data.
- Examine issues and key principles of professional digital forensic practice, including chain of custody and best practice procedures.
- Diagnose and appraise mechanisms to uncover or recover evidence from digital devices to support litigation and investigations.

Written Presentation

Assessment Type [1]: Report
Indicative Time on Task [2]: 18 hours
Due: **Wednesday, 31st March 2021 (2PM)**
Weighting: **20%**

In this assessment students will submit a written presentation that requires a consolidation of the theory, and application of data analytics skills and techniques to enable the assessment, review, and presentation of unstructured data relevant to advance a forensic accounting investigation. A summary report will be required to accompany the presentation.

On successful completion you will be able to:
- Evaluate the theory, and principles of application, of data analytics skills and techniques relevant to forensic accounting.
- Manage and interpret complex or disparate sets of data to underpin business development, interpret risk, understand behavioural patterns, and detect suspicious or irregular behaviour.
- Investigate applications and strategies, including data mining, to enable collection, assessment, review, production and presentation of unstructured data.

Online Test

Assessment Type [1]: Quiz/Test
Indicative Time on Task [2]: 18 hours
Due: **Saturday, 1st May 2021 (10AM)**
Weighting: **20%**

The Online test may include one, or a combination of, the following types of assessment: multiple-choice questions, true/false questions, short answer style questions, problem scenario or evidence-based questions.

On successful completion you will be able to:

- Evaluate the theory, and principles of application, of data analytics skills and techniques relevant to forensic accounting.
- Manage and interpret complex or disparate sets of data to underpin business development, interpret risk, understand behavioural patterns, and detect suspicious or irregular behaviour.
- Investigate applications and strategies, including data mining, to enable collection, assessment, review, production and presentation of unstructured data.
- Examine issues and key principles of professional digital forensic practice, including chain of custody and best practice procedures.
- Diagnose and appraise mechanisms to uncover or recover evidence from digital devices to support litigation and investigations.

Critical Essay

Assessment Type [1]: Essay
Indicative Time on Task [2]: 34 hours
Due: **Wednesday, 26th May 2021 (2PM)**
Weighting: **40%**

In this assessment students will be required to critically reflect on the key issues and principles of professional digital forensic practice in the recovery of digital evidence to support an investigation. The submission should not exceed 2500 words.

On successful completion you will be able to:

- Examine issues and key principles of professional digital forensic practice, including chain of custody and best practice procedures.
- Diagnose and appraise mechanisms to uncover or recover evidence from digital devices to support litigation and investigations.

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[1] If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the Writing Centre for academic skills support.

[2] Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

This is an online unit. Details of assessments and online forums will be available on iLearn.

Unit Schedule

Unit Schedule

WEEK	LEARNING OBJECTIVE	CONTENT	READINGS
1	LO1: Evaluate the theory, and principles of application, of data analytics skills and techniques relevant to forensic accounting	Introduction to Fraud Types of Fraud The Need for Analysis Tools Matrices Link Diagrams Social Network Analysis Analysing Networks	*Forensic Accounting and Fraud Investigation for Non-Experts*, H. Silverstone and M. Sheetz, Chapter 2, Fraud in Society *Forensic Accounting and Fraud Investigation for Non-Experts*, H. Silverstone and M. Sheetz, Chapter 12, Analysis Tools for Investigators
2	LO1: Evaluate the theory, and principles of application, of data analytics skills and techniques relevant to forensic accounting	Introduction to Financial Analysis Key Ratios Data Mining as an Analysis Tool	*Forensic Accounting and Fraud Investigation for Non-Experts*, H. Silverstone and M. Sheetz, Chapter 5, Fundamental Principles of Financial Analysis

3	LO1: Evaluate the theory, and principles of application, of data analytics skills and techniques relevant to forensic accounting	Introduction to Data Mining Data Classification Association Analysis Cluster Analysis Outlier Analysis Application: Data Mining to Detect Money Laundering Tracing	*Statistical Techniques for Forensic Accounting*, S. K. Dutta, Chapter 5, Understanding the Theory and Application of Data Analysis *Financial Investigation and Forensic Accounting*, G. A. Manning, Chapter 14, Accounting and Audit Techniques
4	LO2: Investigate applications and strategies, including data mining, to enable collection, assessment, review, production and presentation of unstructured data	Data Mining Routines Understanding the Integrity of the Data Understanding the Norm of the Data Entity Structures and Search Routines Strategies for Data Mining	*The Fraud Audit: Responding to the Risk of Fraud in Core Business Systems*, L. W. Vona, Chapter 7, Data Mining for Fraud
5	LO2: Investigate applications and strategies, including data mining, to enable collection, assessment, review, production and presentation of unstructured data	Disbursement Fraud Payroll Fraud Fraud Risk Structure Data Analysis Data Mining Planning	*The Fraud Audit: Responding to the Risk of Fraud in Core Business Systems*, L. W. Vona, Chapter 10, Disbursement Fraud *The Fraud Audit: Responding to the Risk of Fraud in Core Business Systems*, L. W. Vona, Chapter 12, Payroll Fraud
6	LO2: Investigate applications and strategies, including data mining, to enable collection, assessment, review, production and presentation of unstructured data	Revenue Misstatement Inventory Fraud Fraud Risk Structure Data Analysis Data Mining Planning	*The Fraud Audit: Responding to the Risk of Fraud in Core Business Systems*, L. W. Vona, Chapter 13, Revenue Misstatement *The Fraud Audit: Responding to the Risk of Fraud in Core Business Systems*, L. W. Vona, Chapter 14, Inventory Fraud

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7	LO3: Manage and interpret complex or disparate sets of data to underpin business development, interpret risk, understand behavioural patterns, and detect suspicious or irregular behaviour	Industry Data Financial Analysis Types of Fraud Revisited Fraud Detection Interpreting Potential Red Flags Professional Scepticism Fraud Triangle Risk Factors Information Gathering Analytical Procedures and Techniques Sampling Theory Statistical Sampling Techniques Non-statistical Sampling Techniques	*Financial Investigation and Forensic Accounting*, G. A. Manning, Chapter 24, Audit Programs *A Guide to Forensic Accounting Investigation*, W. Kenyon and P. D. Tilton, Chapter 13, Potential Red Flags and Fraud Detection Techniques *Statistical Techniques for Forensic Accounting*, S. K. Dutta, Chapter 9, Sampling Theory and Techniques

8	LO3: Manage and interpret complex or disparate sets of data to underpin business development, interpret risk, understand behavioural patterns, and detect suspicious or irregular behaviour	Probability Schematic Representation of Evidence Probative Value of Evidence Constraints and Limitations of Data Analysis Collection of Data Data Analysis Tools Descriptive Statistics Models for Displaying Data Data Analysis Software Benford's Law	*Statistical Techniques for Forensic Accounting*, S. K. Dutta, Chapter 6, Transitioning to Evidence *Forensic Accounting*, R. Rufus, L. Miller and W. Hahn, Chapter 8, Transforming Data into Evidence (Part 1) *Forensic Accounting*, R. Rufus, L. Miller and W. Hahn, Chapter 9, Transforming Data into Evidence (Part 2)
9	LO4: Examine issues and key principles of professional digital forensic practice, including chain of custody and best practice procedures	Critical Steps in Gathering Evidence Chain of Custody Evidence Created Introduction to Digital Forensics	*A Guide to Forensic Accounting Investigation*, W. Kenyon and P. D. Tilton, Chapter 10, Building a Case: Gathering and Documenting Evidence *Essentials of Forensic Accounting*, M. A. Crain and others, Chapter 11, Digital Forensics
10	LO4: Examine issues and key principles of professional digital forensic practice, including chain of custody and best practice procedures	Forensic Soundness Forensic Analysis Fundamentals Crime Reconstruction Networks and the Internet	*Handbook of Digital Forensics and Investigation*, E. Casey, Chapter 1, Introduction

11	LO5: Diagnose and appraise mechanisms to uncover or recover evidence from digital devices to support litigation and investigations	Scientific Method and Digital Forensics Digital Forensic Analysis Data Gathering and Observation Conclusions and Reporting	*Handbook of Digital Forensics and Investigation*, E. Casey, Chapter 2, Forensic Analysis
12	LO5: Diagnose and appraise mechanisms to uncover or recover evidence from digital devices to support litigation and investigations	Introduction to Electronic Discovery Case Management Identification of Electronic Data Forensic Preservation of Data Data Processing Production of Electronic Data	*Handbook of Digital Forensics and Investigation*, E. Casey, Chapter 3, Electronic Discovery
13	Revision		

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy

Students seeking more policy resources can visit Student Policies (https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- Getting help with your assignment
- Workshops
- StudyWise
- Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.