

ACCG8076 Forensic and Data Analytics

Session 1, Intensive attendance, North Ryde 2020

Department of Accounting & Corporate Governance

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General Information

Unit convenor and teaching staff Unit Co-ordinator Kathleen Clough kathleen.clough@mq.edu.au Level 3, 4ER Building, Room 313 Via Appointment

Moderator Rahat Munir rahat.munir@mq.edu.au

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Credit points 10

Prerequisites

ACCG6011 or ACCG611 or (admission to MActPrac or MBkgFin 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.

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

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.

Assessment Tasks

Coronavirus (COVID-19) Update

Assessment details are no longer provided here as a result of changes due to the Coronavirus (COVID-19) pandemic.

Students should consult iLearn for revised unit information.

Find out more about the Coronavirus (COVID-19) and potential impacts on staff and students

Delivery and Resources

Coronavirus (COVID-19) Update

Any references to on-campus delivery below may no longer be relevant due to COVID-19. Please check here for updated delivery information: <u>https://ask.mq.edu.au/account/pub/</u><u>display/unit_status</u>

Delivery

This unit requires intensive attendance, comprising of both online learning and face-to-face seminars at the University's campus.

Face-to-Face Seminars

DATE	ТІМЕ
Saturday, 7th March 2020	9 AM-12 PM, 1 PM-4 PM
Saturday, 21st March 2020	9 AM-12 PM, 1 PM-4 PM
Saturday, 4th April 2020	9 AM-12 PM, 1 PM-4 PM

DATE	ТІМЕ
Saturday, 2nd May 2020	9 AM-12 PM, 1 PM-4 PM

Details of assessments and online discussion forums will be available on iLearn.

Required and Recommended Texts and/or Materials

The unit is based upon a selection of reading materials including text chapters; professional reports; articles. Seminar content and reading materials are set out in the Unit Schedule herewith. Reading material will be accessible on iLearn (via Leganto) from the commencement of Session.

Face-to-face seminars may make use of PowerPoint; overhead projectors; visualisers.

There is a web page for this unit: https://unitguides.mq.edu.au/unit_offerings/112761/unit_guide.

Time Commitment

Students should be ready to allocate at least 150 hours during the session (in total) to ACCG8076. This includes all classes, assessments (estimates for assessment allocation are set out above under "Assessment Tasks"), personal study and other learning activities.

Unit Schedule

Coronavirus (COVID-19) Update

The unit schedule/topics and any references to on-campus delivery below may no longer be relevant due to COVID-19. Please consult <u>iLearn</u> for latest details, and check here for updated delivery information: https://ask.mq.edu.au/account/pub/display/unit_status

WEEK	LEARNING OBJECTIVE	CONTENT	READINGS
Week 1, Commencing 24 th February 2020	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

Week 2, Commencing 2 nd March 2020	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
Face-to-Face Se	minar, Saturday 7 th March 2020 (9 AM – 12 PM, 1 PM – 4	PM)	
This face-to-face	seminar will cover the Learning Objectives, Content and Re	adings as indicated	I in Weeks 1 and 2 above.
Week 3, Commencing 9 th March 2020	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 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
Week 4, Commencing 16 th March 2020	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

This face-to-face seminar will cover the Learning Objectives, Content and Readings as indicated in Weeks 3 and 4 above.

Week 5, Commencing 23 rd March 2020	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
Week 6, Commencing 30 th March 2020	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

This face-to-face seminar will cover the Learning Objectives, Content and Readings as indicated in Weeks 5 and 6 above.

CLASS TEST 20%

Week 7, Commencing 6 th April 2020	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	<i>Financial Investigation and Forensic</i> <i>Accounting</i> , G. A. Manning, Chapter 24, Audit Programs
		Types of Fraud Revisited Fraud Detection	A Guide to Forensic Accounting Investigation, W. Kenyon and P. D. Tilton, Chapter 13, Potential Red Flags and Fraud Detection Techniques
		Interpreting Potential Red Flags	Statistical Techniques for Forensic Accounting, S. K. Dutta, Chapter 9,
		Professional Scepticism Fraud Triangle	Sampling Theory and Techniques
		Risk Factors	
		Information Gathering	
		Analytical Procedures and Techniques	
		Sampling Theory	
		Statistical Sampling Techniques	
		Non-statistical Sampling Techniques	
MID-SEMESTER	R BREAK (13 TH APRIL 2020 TO 26 TH APRIL 2020)		

Week 8, Commencing 27 th April 2020	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	Statistical Techniques for Forensic Accounting, S. K. Dutta, Chapter 6, Transitioning to Evidence
		Probative Value of Evidence	<i>Forensic Accounting</i> , R. Rufus, L. Miller and W. Hahn, Chapter 8, Transforming Data into Evidence (Part 1)
		Constraints and Limitations of Data Analysis	Forensic Accounting, R. Rufus, L. Miller and W. Hahn, Chapter 9, Transforming Data into Evidence (Part 2)
		Collection of Data	
		Data Analysis Tools	
		Descriptive Statistics	
		Models for Displaying Data	
		Data Analysis Software	
		Benford's Law	

Face-to-Face Seminar, Saturday 2nd May 2020 (9 AM – 12 PM, 1 PM – 4 PM)

This face-to-face seminar will cover the Learning Objectives, Content and Readings as indicated in Weeks 7 and 8 above. This seminar will also provide an introduction to the Learning Objectives, Content and Readings covered in Weeks 9 through to 12.

CLASS PRESENTATION 20%

Week 9, Commencing 4 th May 2020	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	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
		Digital Forensics	
Week 10, Commencing 11 th May 2020	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

Week 11, Commencing 18 th May 2020	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
Week 12, Commencing 25 th May 2020	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 Processing Production of Electronic Data	Handbook of Digital Forensics and Investigation, E. Casey, Chapter 3, Electronic Discovery
Week 13, Commencing 1 st June 2020	CRITICAL ESSAY 40% DUE ON TUESDAY 2 nd JUNE 2	2020 (2 PM)	

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.m q.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-centr al). 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 (Note: The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)

Students seeking more policy resources can visit the <u>Student Policy Gateway</u> (https://students.m <u>q.edu.au/support/study/student-policy-gateway</u>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (http s://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/p olicy-central).

Student Code of Conduct

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

Results

Results published on platform other than <u>eStudent</u>, (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 <u>eStudent</u>. For more information visit <u>ask.mq.edu.au</u> 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 <u>http://stu</u> dents.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 <u>http://www.mq.edu.au/about_us/</u>offices_and_units/information_technology/help/.

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

Late Submission(s) of Assessment

Late Submission(s): 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 deration Policy must be made within 5 (five) business days of the due date and time.