



ACCG8076

Forensic and Data Analytics

Session 1, Online-scheduled-weekday 2024

Department of Accounting and Corporate Governance

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General Information

Unit convenor and teaching staff

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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.

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

Name	Weighting	Hurdle	Due
Class Test	20%	No	Week 6
Class Presentation	20%	No	Week 9
Participation	20%	No	Weekly
Critical Essay	40%	No	Week 12

Class Test

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 18 hours

Due: **Week 6**

Weighting: **20%**

The class 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.
- Investigate applications and strategies, including data mining, to enable collection, assessment, review, production and presentation of unstructured data.

Class Presentation

Assessment Type ¹: Presentation

Indicative Time on Task ²: 18 hours

Due: **Week 9**

Weighting: **20%**

In this assessment students will deliver a 10-minute 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.
- Investigate applications and strategies, including data mining, to enable collection, assessment, review, production and presentation of unstructured data.
- Manage and interpret complex or disparate sets of data to underpin business development, interpret risk, understand behavioural patterns, and detect suspicious or irregular behaviour.

Participation

Assessment Type ¹: Participatory task

Indicative Time on Task ²: 20 hours

Due: **Weekly**

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.
- Investigate applications and strategies, including data mining, to enable collection, assessment, review, production and presentation of unstructured data.
- Manage and interpret complex or disparate sets of data to underpin business development, interpret risk, understand behavioural patterns, and detect suspicious or irregular behaviour.
- 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: **Week 12**

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.

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

Delivery

This is an online unit. 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 from text chapters. Reading material will be accessible via iLearn from the commencement of Session.

Seminars may make use of PowerPoint and videos.

Unit Schedule

Week	Learning Objective	Content
1	LO1: Evaluate the theory, and principles of application, of data analytics skills and techniques relevant to forensic accounting	This week covers fundamental principles of financial analysis and emphasizes the importance of due diligence, explores the reasons for conducting financial analysis, discusses trust considerations, highlights additional factors, addresses financial analysis for non-experts, and concludes with a forward-looking perspective.
2	LO1: Evaluate the theory, and principles of application, of data analytics skills and techniques relevant to forensic accounting	This week explores Analysis Tools for Investigators, beginning with an introduction. It delves into the reasons for using analysis tools, covering associational and temporal analysis, and concludes with a summarizing perspective.

3	LO1: Evaluate the theory, and principles of application, of data analytics skills and techniques relevant to forensic accounting	This week explores Data-Driven Fraud Detection and covers errors and frauds, the data analysis process, software tools, data access, analysis techniques, outlier investigation, stratification, summarization, real-time analysis, and the analysis of financial statements.
4	LO2: Investigate applications and strategies, including data mining, to enable collection, assessment, review, production and presentation of unstructured data	This week explores Cash Receipts and Other Asset Misappropriations and covers skimming schemes for cash and receivables, cash larceny schemes, noncash misappropriation schemes, concealing inventory shrinkage, and methods for preventing and detecting noncash thefts concealed by fraudulent support.
5	LO2: Investigate applications and strategies, including data mining, to enable collection, assessment, review, production and presentation of unstructured data	This week explores Cash Disbursement Schemes and covers billing, check tampering, payroll, expense reimbursement, and register disbursement schemes—providing insights into fraudulent practices and strategies for prevention and detection.
WEEK 6: Class Test 20%		
6	LO2: Investigate applications and strategies, including data mining, to enable collection, assessment, review, production and presentation of unstructured data	This week explores Financial Statement Fraud and covers the who, why, and how of financial reporting fraud, the intersection of accounting principles and fraud, various fraudulent financial statement schemes, the role of the capital forum, methods for detecting such schemes, and strategies for deterring financial statement fraud.
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	This week explores Fraud Detection: Red Flags and Targeted Risk Assessment and includes insights into corporate governance and fraud, the process of fraud detection, and the significance of targeted fraud risk assessment, especially in a digital environment.
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	This week explores Evidence-Based Fraud Examinations and covers the essentials of fraud examinations—addressing who, what, where, when, how, and why. It emphasizes organizing evidence, documenting work product, and explores various sources specific to the act, concealment, and conversion in fraud cases.
WEEK 9: Class Presentation 20%		
9	LO4: Examine issues and key principles of professional digital forensic practice, including chain of custody and best practice procedures	This week explores the Legal, Regulatory, and Professional Environment and begins with an introduction and covers the rights of individuals, probable cause, rules of evidence, the criminal justice and civil justice systems. It also addresses basic accounting principles, the regulatory system, and the role of corporate governance.
10	LO4: Examine issues and key principles of professional digital forensic practice, including chain of custody and best practice procedures	This week explores Using Information Technology for Fraud Examination and Financial Forensics and explores the digital environment, digital evidence, detection, and examination in digital spaces. It also includes a discussion on the role of graphics and graphics software, as well as the use of case management software.
11	LO5: Diagnose and appraise mechanisms to uncover or recover evidence from digital devices to support litigation and investigations	This week explores essential topics in this overview: Introduction sets the stage, emphasizing Forensic Soundness, delving into Forensic Analysis Fundamentals, unravelling Crime Reconstruction intricacies, and navigating the complexities of Networks and the Internet.
WEEK 12: Critical Essay 40%		

12	LO5: Diagnose and appraise mechanisms to uncover or recover evidence from digital devices to support litigation and investigations	This week explores Forensic Analysis with an overview covering the application of the scientific method to digital forensics. It also includes an exploration of uses, data gathering, hypothesis formation, evaluation, and the crucial aspects of drawing conclusions and reporting.
13	Revision and Feedback	

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](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](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](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 \(https://policies.mq.edu.au\)](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

Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing an](#)

[d maths support](#), [academic skills development](#) and [wellbeing consultations](#).

Student Support

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

The Writing Centre

[The Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the 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

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)
- [Student Advocacy](#) provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

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.

Changes since First Published

Date	Description
15/02/2024	Mapping of LO to assessments

Unit information based on version 2024.04 of the [Handbook](#)