School of Education

EDUC6351: Data Mining for School Leaders
Online
Semester 1 - 2024

THE UNIVERSITY OF
NEWCASTLE
AUSTRALIA

COURSE OUTLINE

OVERVIEW

Course Description
With increasing pressure on school leaders to draw upon research and evidence in their decision-making, the need for effective management and critical engagement with school-based and system-wide data has become imperative. This course aims to assist school leaders in managing and mining data to make evidence-based decisions.

Contact Hours
Online
Integrated Learning Session

Online
26 hour(s) per Term Full Term

Unit Weighting
10

Workload
Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

CONTACTS

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SYLLABUS

Course Content

Indicative course content:
- Contemporary Context of Performance-Based Leadership in Schools
- Reliability and Validity of Data
- Issues related to School-Based Data
- Issues related to System-Wide Data
- Data Mining Strategies
- Knowledge Management Principles
- Evidence-Based Decision-Making

Course Learning Outcomes

On successful completion of this course, students will be able to:

1. Understanding and analyse school-based and system-wide data;

2. Apply data mining and/or knowledge management strategies to a real-world case; and

3. Link data mining and analysis to strategic decision-making.

Course Materials

Required Reading:
- Readings provided via canvas, inclusive of library links

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	26 Feb	Introduction: VAM debate as archetype	Weekly recorded lecture presentations will be scheduled at a time to be determined – inclusive of Q/A interactions for those who attend	
2	4 Mar	Starting from the end: Value-Added Analysis	Reading group questions – Value-add models	
3	11 Mar	What policy actors are advocating	Reading group questions – Application of value-add models	
4	18 Mar	Casual logic	Reading group questions – Causal logic and research	Assessment 1: due 11.59pm 24 March
5	25 Mar	The standard error	Data engagement – Standard error spreadsheet	
6	1 Apr	Professional learning communities	Reading group questions – Fostering professional learning communities	
7	8 Apr	Validity and reliability + How we measure things	Data engagement – Covariance and Correlation	
		Mid Term Break		
		Mid Term Break		
8	29 Apr	Data mining / storytelling	Data engagement – Using NAPLAN data in Excel	
9	6 May	Excel skills for data mining	Assessment briefing / questions	Assessment 2: due 11.59pm 12 May
10	13 May	Triangulation - Measurement systems (non-technical mediation)	Data interpretation	
11	20 May	Data types and visualisation	Assessment briefing	
12	27 May	Representing relationships	Assessment questions	
13	3 Jun	Reporting standards	Assessment questions	Assessment 3: due 11.59pm 9 June
		Examination Period		
		Examination Period		

ASSESSMENTS

This course has three assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Literature Review	11.59pm 24 March 2024	Individual	30%	1
2	Case Study	11.59pm 12 May 2024	Individual	30%	1, 2
3	Real-Life Data Set Analysis	11.59pm 9 June 2024	Individual	40%	1, 2, 3

Late Submissions
The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Literature Review

Assessment Type	Literature Review
Purpose	The purpose of Assessment 1 is to consider the advantages and limitations of value added measures in the assessment of school effectiveness.
Description	Assessment 1 involves looking at five research articles on the use of value added in a succinct review.
	The emphasis is on your ability to find relevant articles, briefly explain their relevance to your context and show your understanding of the concepts of value added in analysis and reporting on school effectiveness.
Weighting	30%
Length	1,500 words or equivalent
Due Date	11.59pm 24 March 2024
Submission Method	Online
Assessment Criteria	Quality of selection of literature (5 marks) Quality of summary (5 marks) Quality of analysis of relevant research literature (20 marks)
Return Method **Feedback Provided**	Online Online

Assessment 2 - Case Study

Assessment Type	Case Study / Problem Based Learning
Purpose	Reporting on value added in educational contexts
Description	The purpose of this task is to give students the challenge of analysing and reporting school performance data that is directly relevant to their current work. This involves analysing a data set as a worked example to demonstrate how value added concepts can be used and reported in school effectiveness and school improvement research.
	What is required is a brief description of the data set in tabulated or graphical form or both, and details of how you would report on this data to a defined audience.
	The word limit is very approximate to allow for the use of appropriate graphical material.
Weighting	30%
Length	1,500 words or equivalent
Due Date	11.59pm 12 May 2024
Submission Method	Online
Assessment Criteria	Quality of presenting and reporting data in graphical and/or tabulated form to a specified audience (10 marks) Quality of analysis of data to inform improvement efforts (10 marks) Quality of the Integration of Parts A and B (10 marks)
Return Method	Online

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Assessment 3 - Real-Life Data Set Analysis

Assessment Type	Project
Purpose	The purpose of this task is to give students the challenge of analysing and reporting school performance data that is directly relevant to their current work.
Description	Students are to select a data set to analyse, ideally drawn from their own current workplace, and report on to demonstrate their understanding of evidence-based practice in education.
Weighting	40%
Length	2000-2500 words or equivalent
Due Date	11.59pm 9 June 2024
Submission Method	Online
Assessment Criteria	1. Identification and general coverage of issues (5 marks) 2. Background, relevance and use of literature to support the issues addressed and approach taken (5 marks) 3. Selection of method and depth of analysis (15 marks) 4. Depth and Coherence of reporting (15 marks)
Return Method	Online

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Communication Methods

Communication methods used in this course include:

- Canvas Course Site: Students will receive communications via the posting of content or announcements on the Canvas course site.
- Email: Students will receive communications via their student email account.

Oral Interviews (Vivas)   As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the Oral Examination (viva) Procedure. In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the Student Conduct Rule.

Academic Misconduct   All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. Please see the Student Academic Integrity Policy for more information.

Adverse Circumstances   The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where:
1.   the assessment item is a major assessment item; or
2.   the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system;
3.   you are requesting a change of placement; or
4.   the course has a compulsory attendance requirement.
Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure.

Important Policy Information   The 'HELP for Students' tab in UoNline contains important information that all students should be familiar with, including various systems, policies and procedures.

EDUC6351 Assessment rubrics

Assessment 1

Criteria	Ratings			Pts
This criterion is linked to a learning outcome Quality of selection of literature	**5 Pts** **Full marks** Literature selected is related to the outcome of interest, relevant to the purposed of diagnostic analysis of schools and forms a coherent set of articles (ie they are related to each other in a coherent fashion)		**0 Pts** **No marks**	5 pts
This criterion is linked to a learning outcome Quality of summary	**5 Pts** **Full marks** Summaries of the articles are accurate and reasonably comprehensive		**0 Pts** **No marks**	5 pts
This criterion is linked to a learning outcome Quality of analysis of relevant research literature	**20 Pts** **Full marks** Analysis of the literature relates to the main concepts of the course, demonstrating an understanding of different data purposes, different forms of quantitative comparisons (status v. growth), and how data relates to causal inferences required in organisational improvement. Weakness of and disputes with (and between) articles are analysed well.		**0 Pts** **No marks**	20 pts
Total points: 30				

Assessment 2

Criteria	Ratings			Pts
This criterion is linked to a learning outcome Quality of presenting and reporting data in graphical and/or tabulated form to a specified audience	**10 Pts** **Full marks** Main conclusions of the analysis are well supported. Main points are presented using narrated graphical or tabulated results in a manner appropriate to the specified audience. Issues of uncertainty in the data analysis are overtly addressed and appropriately taken into account.		**0 Pts** **No marks**	10 pts
This criterion is linked to a learning outcome Quality of analysis of data to inform improvement efforts	**10 Pts** **Full marks** Main conclusions of the analysis are clearly linked to organisational performance improvements in an appropriate manner. Questions of interpretation and plausible implications are addressed overtly. Directions for confirming interpretations are considered.		**0 Pts** **No marks**	10 pts
This criterion is linked to a learning outcome The Quality of the Integration of Task 1 into this analysis	**10 Pts** **Full marks** Analysis demonstrated the main concerns raised in the reviewed literature from Task 1, and the main concepts of the course (statistical significances, error, status v. gain comparisons, causal inferences).		**0 Pts** **No marks**	10 pts
Total points: 30				

Assessment 3

Criteria	Ratings			Pts
This criterion is linked to a learning outcome Identification and general coverage of issues	**5 Pts** **Full marks** Analysis of data is directly relevant to the identified issues selected as the goals of the strategic plan. Questions of validity, applicability and uncertainty explicitly addressed correctly.		**0 Pts** **No marks**	5 pts
This criterion is linked to a learning outcome Background, relevance and use of literature to support the issues addressed and approach taken	**5 Pts** **Full marks** Research base of the analysis clearly articulated, well-structured and appropriate. Competing research, direct relevance to issues raised in the plan, and limits of what the research can say explicitly addressed correctly.		**0 Pts** **No marks**	5 pts
This criterion is linked to a learning outcome Selection of method and depth of analysis	**15 Pts** **Full marks** Methods of data collection, selection and analysis directly analysed and defended. Validity, applicability and uncertainty addressed in depth through completion of (or discussion of) validation checks, triangulation, participant inclusivity.		**0 Pts** **No marks**	15 pts
This criterion is linked to a learning outcome Depth and Coherence of reporting	**15 Pts** **Full marks** Chosen strategic plan identifies goals, timelines, actors, audiences, processes and addressed the internationals standards of education evaluation in a clear and persuasive manner.		**0 Pts** **No marks**	15 pts

Total points: 40