

Course Outline

Title: DATA MINING

Code: ITECH3604

Formerly: CP766

Faculty / Portfolio: Faculty of Science

Program Level:

	AQF Level of Program					
	5	6	7	8	9	10
Level						
Introductory						
Intermediate						
Advanced			✓			

Pre-requisites: (At least 8 computing or mathematics courses)

Co-requisites: Nil

Exclusions: (CP766)

Progress Units: 15

ASCED Code: 020119

Learning Outcomes:

Knowledge:

- K1.** Interpret the steps involved in the automated discovery of knowledge from data;
- K2.** Calculate difficulties related to the selection, pre-processing and transformation phases and identify techniques used to enhance KDD in these phases;
- K3.** Apply the theoretical basis of machine learning and association rule algorithms used in data mining;
- K4.** Relate basic warehousing issues and architectures to data mining;
- K5.** Adapt approaches to the presentation of data visually to enhance insight.

Skills:

- S1.** Construct pre-processing and transformation policies on sample data;
- S2.** Manipulate industry standard data mining software to extract knowledge from sample data.

Application of knowledge and skills:

- A1.** Show initiative and judgment in the application of data mining algorithms to unique and various contexts;
- A2.** Demonstrate responsibility to research and interpret appropriate developments in data mining;
- A3.** Interpret results obtained from data mining exercises and adapt pre-processing to

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improve knowledge extraction;

- A4.** Summarise results of data mining processes to clearly relate the knowledge extracted from sample data.

Values and Graduate Attributes:

Values:

- V1.** Maintain ethical behaviour including honesty and integrity in the conduct and reporting of data mining;
- V2.** Show respect for individuals` privacy.

Graduate Attributes:

Attribute	Brief Description	Focus
Continuous Learning	Utilising a PBL approach facilitated by the use of contemporary industry based case studies students will continue to develop their knowledge and skills.	High
Self Reliance	Students will participate in a self-directed and collaborative learning environment to develop their theoretical and technical expertise the area of data mining.	High
Engaged Citizenship	Students will develop an understanding of the importance of data mining and the impact that it may have on decision making within industry.	Low
Social Responsibility	Students will appreciate the need to maintain ethical behaviour including honesty and integrity in the conduct and reporting of data mining, along with developing respect for individuals` privacy.	Low

Content:

The emergence of very large databases in recent years is consistent with economic, social and legal changes associated with the emergence of an information based society. As this trend continues, the need to discover knowledge from databases automatically becomes pivotal. This subject introduces data warehousing and examines all phases of the knowledge discovery from databases (KDD) process with particular emphasis on data mining. Data mining methods drawn from artificial intelligence, statistics and mathematics will be introduced.

Assessment:

Learning Outcomes Assessed	Assessment Task	Assessment Type	Weighting
S1, S2, A1, A2, A3	Practical experience in KDD using concepts from lectures and software tools introduced in Laboratory classes	Practical Project	30% - 50%
K1, K2, K3, K4, K5, S1, A4	Critically appraise theoretical aspects of the unit	Examination(s)	50% - 70%

Adopted Reference Style:

APA

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Presentation of Academic Work:

<https://federation.edu.au/students/assistance-support-and-services/academic-support/general-guide-for-the-presentation-of-academic-work>