School of Information and Physical Sciences

COURSE OUTLINE

OVERVIEW

Course Description

Business intelligence (BI) refers to the technologies, applications and practices needed for the collection, integration, analysis, and presentation of business information. This course provides an overview of BI and demonstrates how it facilitates effective implementation of organisational strategies through better business decision making.

Assumed Knowledge

COMP1140 Databases and Information Management SENG1110 Object Oriented Programming; Or INFT1004 Introduction to Programming; Or Equivalent

Contact Hours

Singapore PSB
Computer Lab
Face to Face On Campus
2 hour(s) per week(s) for Full Term starting Week 2

Lecture
Face to Face On Campus
2 hour(s) per week(s) for Full Term starting Week 1

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

Course Coordinator	**Singapore PSB** Dr Marcella Papini Marcella.Papini@newcastle.edu.au +61 2 4055 1932 Consultation: By appointment only
Teaching Staff	Other teaching staff will be advised on the course Canvas site.
School Office	**School of Information and Physical Sciences** SR233 Social Sciences Building Callaghan CESE-SIPS-Admin@newcastle.edu.au +61 2 4921 5513 9am-5pm (Mon-Fri)

SYLLABUS

Course Content

- Information value, classification of types and sources of value, and types of processing that can add value to corporate data sources.
- The nature and role of business intelligence in contributing to the delivery of business value and competitive advantage in modern organisations.
- The relationship of the business intelligence environment, in particular data warehousing and data mining, to different organisational contexts.
- The data integration process, data profiling, data cleansing and data enhancement, and their contribution to adding value to data.
- Data warehouse design; star schemas, redundancy, data distribution and security issues.
- Adding value to data; knowledge discovery, and data mining.
- Introduction of new material on the use of the data analysis tool Power BI

Course Learning Outcomes

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

1. Describe the concepts and components of Business Intelligence (BI).

2. Critically evaluate use of BI for supporting decision making in an organisation.

3. Understand and use the technologies and tools that make up BI (e.g. Data warehousing, Data reporting and use of Online analytical processing (OLAP)).

4. Understand and design the technological architecture that underpins BI systems.

5. Plan the implementation of a BI system.

Course Materials

Required Text:

- Sharda, Delen & Turban, Business Intelligence: A Managerial Approach, Global edition (2018). ISBN-13: 978-1-292-22054-3

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	4 Sep	Business Intelligence, Analytics and Decision Support Overview; and Course Introduction	Text: Read Chapter 1 and week 1 readings	
2	11 Sep	Decision Making and Analytics Overview: Foundations and Technologies for Decision Making	Text: Read Chapter 2 and Week 2 Reading	
3	18 Sep	Descriptive Analytics: Data Warehousing	Text: Read Chapter 3 and Week 3 Reading	
4	25 Sep	Descriptive Analytics: Big Data	Text: Read Chapter 13 and Week 4 Reading	Quiz One 5% (Weeks 1, 2, 3)
5	2 Oct	Descriptive Analytics: Business Reporting, Visual Analytics and Performance Management	Text: Read Chapter 4 and Week 5 Reading	
6	9 Oct	Predictive Analytics: Data Mining	Text: Read Chapter 5 and Week 6 Reading	
		Mid term break		
7	23 Oct	Predictive Analytics: Predictive Modelling Techniques	Text: Read Chapter 6 and Week 7 Reading	Assignment One and Presentation (20%)
8	30 Oct	Predictive Analytics: Predictive Modelling Techniques continued Text Analytics, Text Mining and Sentiment Analysis	Convolutional Neural Networks (CNNs) readings Text: Read Chapter 7 and Week 8 Reading	Quiz Two 5% (Weeks 4, 5, 6)
9	6 Nov	Predictive Analytics: Web Analysis, Web Mining and Social Analytics	Text: Read Chapter 8 and Week 9 Reading	
10	13 Nov	Prescriptive Analytics: Model-Based Decision Making and Decision Support and Expert Systems	Text: Read Chapters 9 and 11 and Week 10 Reading	
11	20 Nov	Prescriptive Analytics: Knowledge Management and Collaborative Systems	Text: Read Chapter 12 and Week 11 Reading	Quiz Three 5% (Weeks 7, 8, 9, 10)
12	27 Nov	Course Review	Text: Week 12 Reading	Assignment Two and Presentation (30%)
13	4 Dec		Study Break	
		Examination Period		35% Formal Exam in examination period (date to be announced)

ASSESSMENTS

This course has 3 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Assignment	In week 7 and week 12 – Presentation in labs, with the report due 9 am on the day of the presentation.	Group	50%	1, 2, 3, 4, 5
2	Class Quizzes	Weeks 4, 8 and 11 – in labs.	Individual	15%	1, 2, 4
3	Examination	In the Trimester 3 formal examination period.	Individual	35%	1, 2, 3, 4, 5

| **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 - Assignment

Assessment Type	Practical Demonstration
Purpose	The assignments will provide experience in obtaining and analysing client requirements, in the use of business intelligence techniques to provide business value to client data, and the professional expectations in the preparation and presentation of a report to a client.
Description	Each assignment will be a group submission both online and as a written report in the class. Each assignment also includes a group presentation that will be delivered by each team in their lab class. Team members may receive individual marks based on their contribution to the team assignment report and presentation.
Weighting	50%
Due Date	In week 7 and week 12 – Presentation in labs, with the report due 9 am on the day of the presentation.
Submission Method	In Class
Assessment Criteria	See Canvas
Return Method	In Class
Feedback Provided	In Class

Assessment 2 - Class Quizzes

Assessment Type	Quiz
Purpose	The class quizzes promote progressive learning of theoretical concepts presented in lectures. They provide progressive feedback of progress to students.
Description	There are 3 class quizzes, consisting of multiple-choice questions. They are worth 5% and each will be done in the lab class in weeks 4, 8 and 11.
Weighting	15%
Due Date	Weeks 4, 8 and 11 – in labs.
Submission Method	In Class
Assessment Criteria	See Canvas
Return Method	Online
Feedback Provided	Online - Feedback will be provided in Canvas

Assessment 3 - Examination

Assessment Type	Formal Examination
Purpose	This will assess the knowledge of individual students regarding the theoretical knowledge and its application covered in the course.
Description	A formal closed book examination held in the semester 2 examination period.
Weighting	35%
Due Date	In the Trimester 3 formal examination period.
Submission Method	Formal Exam
Assessment Criteria	Marks per question provided on the exam paper.
Return Method	Not Returned
Feedback Provided	No Feedback

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	Excellent standard indicating a very high level of knowledge

	(D)	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.

Attendance

*Skills are those identified for the purposes of assessment task(s).
Attendance/participation will be recorded in the following components:
- Computer Lab (Method of recording: In-class)

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.
- Face to Face: Communication will be provided via face to face meetings or supervision.
Students should check their university emails and Blackboard at least twice each week.

Course Evaluation

Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.

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. For the Student Academic Integrity Policy, refer to https://policies.newcastle.edu.au/document/view-current.php?id=35

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 available at:
https://policies.newcastle.edu.au/document/view-current.php?id=236

GRADUATE PROFILE STATEMENTS

The following table illustrates how this course contributes towards building the skills students will need to work in their profession.

Level of capability

- Level 1 indicates an introduction to a topic at a university level
- Levels 2 and 3 indicate progressive reinforcement of that topic
- Level 4 indicates skills commensurate with a graduate – entry to professional practice
- Level 5 indicates highly specialist or professional ability

	University of Newcastle Bachelor of Information Technology Graduate Profile Statement	Taught	Practised	Assessed	Level of capability
1	Demonstrate a comprehensive understanding of the discipline of information technologies with an emphasis on net-centric applications, information management, and user requirements for ethical professional practice.	X	X	X	2
2	Apply critical reasoning and systems thinking to understand and support the operation and constraints of contemporary enterprises and their dynamic environment.	X	X	X	3
3	Work independently and collaboratively to locate, manage and organise information and resources and apply evidence-based methodologies to create, modify and maintain designs and design solutions.	X	X	X	2
4	Use creativity, problem solving skills, project management skills and technical expertise to analyse, interpret, evaluate and generate solutions to complex technical and organisational problems.	X	X	X	3
5	Demonstrate professional judgement and responsibility by communicating information technology principles, practices, standards to specialist and non-specialist audience clearly and persuasively.	X	X	X	3

This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.