Australian School of Business

School of Information Systems, Technology and Management

INFS5991
BUSINESS INTELLIGENCE METHODS

Course Outline
Semester 1, 2014

Part A: Course-Specific Information

Please consult Part B for key information on ASB policies (including those on plagiarism and special consideration), student responsibilities and student support services.

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PART A: COURSE-SPECIFIC INFORMATION

1 STAFF CONTACT DETAILS

	Name	Office	Email:	Telephone	Consultation
Lecturer-in-Charge (LIC)	Zixiu Guo	QUAD 2108	z.guo@unsw.edu.au	9385 7174	Wed: 9:30-11:30
Tutor	Vincent Pang	QUAD 2112	vincent.pang@unsw.edu.au	93857835	By Appointment

2 COURSE DETAILS

2.1 Teaching Times and Locations

At the time of publication of this course outline the teaching times and locations are as follows:

Component	Day	Time	Location	Duration
Lectures	Tuesday	18-20	MatSc G10	Week 1 – Week 12
Labs	Tuesday	17-18 20-21	TBA	Week 2 – Week 13

For latest information about seminar locations see:
http://www.timetable.unsw.edu.au/current/INFS5991.html.

2.2 Units of Credit

The course is worth 6 units of credit.

There is no parallel teaching in this course.

2.3 Summary of Course

Today's organisations operate on global scale and are inundated with a huge volume of data from multiple sources. Managers recognise the need to learn more about how to gather and manage the right data, turn it into new insights, and translate those insights into effective frontline action in order to have a better understanding of business performance and gain competitive advantage. Business intelligence (BI) is a broad category of applications, technologies, and processes for gathering, storing, accessing, and analysing data to help business users make better decisions and take the right actions.

This course introduces the technological and managerial issues related to BI, including BI framework, methodologies, techniques, tools, and management practices used to monitor and manage an enterprise's business performance and support strategic decision-making. Case studies describing organisational experiences with BI

implementation and applications will be discussed. The course has a technical component in which students gain practical knowledge and experience in the data analytics.

2.4 Course Aims and Relationship to Other Courses

This course aims to expose students to BI's technologies, data analytics skills, and management practices that many organisations are applying in order to improve business performance, to make better fact-based decisions, and to take right actions needed to succeed. Emphasis is placed on learning not only technical and analytical skills, but also how to put business analytics into work and get the most value from large amount of data. This course will also help you to refine your communication skills, analytical thinking skills, and group work skills, and assist you in the development of your research skills.

INFS5991 is one of the elective courses for students wishing to complete Master of Information Systems Management, Master of Accounting and Business Information Technology, or a major in Enterprise Systems and Business Design within the MCom and provides students with knowledge of analytics, technical, and managerial aspects of business intelligence

2.5 Student Learning Outcomes

The Course Learning Outcomes are what you should be able to DO by the end of this course if you participate fully in learning activities and successfully complete the assessment items.

By the end of this course, you should be able to:

- Identify and discuss the role of data in supporting management decision-making and gain competitive advantage.
- Discuss and evaluate different BI framework, techniques and tools used in gathering, analysing, and managing data.
- Evaluate and use appropriate data mining and text mining algorithms and techniques and apply them with leading business intelligence tools to support decision making.
- Articulate examples of how businesses are using business intelligence tools to enhance competitiveness and profitability.
- Discuss the challenges and critical successful factors associated with implementing business intelligence and their impacts on organisations
- Research the trends of business intelligence tools and practices in industry
- Enhance communication, research, analytics, and collaboration skills.

The Learning Outcomes in this course also help you to achieve some of the overall Program Learning Goals and Outcomes for all postgraduate coursework students in the ASB. Program Learning Goals are what we want you to BE or HAVE by the time you successfully complete your degree (e.g. 'be an effective team player'). You demonstrate this by achieving specific Program Learning Outcomes - what you are able to DO by the end of your degree (e.g. 'participate collaboratively and responsibly in teams').

ASB Postgraduate Coursework Program Learning Goals and Outcomes

1. Knowledge: Our graduates will have current disciplinary or interdisciplinary knowledge applicable in local and global contexts.

You should be able to identify and apply current knowledge of disciplinary or interdisciplinary theory and professional practice to business in local and global environments.

2. Critical thinking and problem solving: Our graduates will have critical thinking and problem solving skills applicable to business and management practice or issues.

You should be able to identify, research and analyse complex issues and problems in business and/or management, and propose appropriate and well-justified solutions.

3. Communication: Our graduates will be effective communicators in professional contexts.

You should be able to:

a. Produce written documents that communicate complex disciplinary ideas and information effectively for the intended audience and purpose, and
b. Produce oral presentations that communicate complex disciplinary ideas and information effectively for the intended audience and purpose.

4. Teamwork: Our graduates will be effective team participants.

You should be able to participate collaboratively and responsibly in teams, and reflect on your own teamwork, and on the team's processes and ability to achieve outcomes.

5. Ethical, social and environmental responsibility: Our graduates will have a sound awareness of ethical, social, cultural and environmental implications of business issues and practice.

You should be able to:

a. Identify and assess ethical, environmental and/or sustainability considerations in business decision-making and practice, and
b. Consider social and cultural implications of business and /or management practice.

For more information on the Postgraduate Coursework Program Learning Goals and Outcomes, see Part B of the course outline.

The following table shows how your Course Learning Outcomes relate to the overall Program Learning Goals and Outcomes, and indicates where these are assessed (they may also be developed in tutorials and other activities):

Program Learning Goals and Outcomes		**Course Learning Outcomes**	**Course Assessment Item**
This course helps you to achieve the following learning goals for all ASB postgraduate coursework students:		*On successful completion of the course, you should be able to:*	*This learning outcome will be assessed in the following items:*
1	Knowledge	• Identify and discuss the role of data in supporting management decision-making and gain competitive advantage. • Discuss and evaluate BI framework, techniques	• Lab • Quiz • Group Assignment • Exam

		and tools used in gathering, analysing, and managing data. • Evaluate and use appropriate data mining and text mining algorithms and techniques and apply them with leading business intelligence tools to support decision making. • Articulate examples of how businesses are using business intelligence tools to enhance competitiveness and profitability. • Discuss the challenges and critical successful factors associated with implementing business intelligence and their impacts on organisations. • Research the trends of business intelligence tools and practices in industry.	
2	Critical thinking and problem solving	• Evaluate and use appropriate data mining and text mining algorithms and techniques and apply them with leading business intelligence tools to support decision making. • Articulate examples of how businesses are using business intelligence tools to enhance competitiveness and profitability. • Discuss the challenges and critical successful factors associated with implementing business intelligence and their impacts on organisations. • Research the trends of business intelligence tools and practices in industry.	• Lab • Case Presentation • Group Assignment • Exam
3a	Written communication	• Enhance communication, research, analytics, and collaboration skills.	• Lab • Group Assignment
3b	Oral communication	• Enhance communication, research, analytics, and collaboration skills.	• Lab • Case Presentation • Group Assignment

4	Teamwork	• Enhance communication, research, analytics, and collaboration skills.	• Group Assignment
5a.	Ethical, environmental and sustainability responsibility	Not specifically addressed in this course.	
5b.	Social and cultural awareness	• Discuss the challenges and critical successful factors associated with implementing business intelligence and their impacts on organisations.	• Exam

3 LEARNING AND TEACHING ACTIVITIES

3.1 Approach to Learning and Teaching in the Course

This course is developed and delivered within the context of the following learning and teaching philosophy.

In addition to students learning the fundamental content of the course, the course is designed to foster critical thinking and to facilitate the acquisition of life-long learning skills. The course and its delivery are designed with a view to assisting the development of problem solving skills.

The role of the convenor of a course is to facilitate learning. It is recognised that students are individuals who bring a diverse range of experiences, interests and abilities and that these aspects of the students will influence their own learning. The responsibility for learning lies with the students. The role of the convenor then, is to provide the environment within which students can participate and contribute, interact and experiment while adding to their own skills and knowledge. An important element of such an environment is that students are encouraged to engage in cooperative learning in an enjoyable setting.

Within the context of this philosophy students will be encouraged to participate, reflect on the material and to engage in meaningful debate with respect to the topics covered. It is essential that students prepare prior to lectures/labs so that they are in a position to contribute to the class discussions. One of the interesting aspects of information and communication technology studies is that there is rarely, if ever, one irrefutable correct answer to a problem - often the only answer is ‘depends’. Students are encouraged to investigate and explore the contexts within which certain courses of action are preferable to others and to consider the situation where the best technical solution may not necessarily be the best solution given the constraints of the case at hand.

Accordingly, assessment is weighted toward informed, reasoned and well argued personal opinion based on the contextual factors and constraints in the various scenarios presented and is not based on the acquisition of knowledge alone.

3.2 Learning Activities and Teaching Strategies

The course involves three key components in your learning – the lecture, the workshop and your private study.

Since this course is arranged for postgraduate students**, each lecture** is organised as a seminar, and not as a series of lectures. This approach assumes that the lecturer and students can work together in a collaborative fashion. To achieve this goal, each week's seminar is designed in a mixed format of lectures, case discussion, or research paper discussion.

The role of the lecturer in this environment is to establish a framework and put together a set of materials for discussion, and to create the conditions suitable for learning. The underlying assumption is that we are all co-producers in learning.

The purpose of the Labs is to give you an opportunity to have basic hands-on experience and practical proficiency by using various BI tools, such as SAS Enterprise Miner.

A major aim of tertiary institutions is the development of self-management skills. Thus, your self-directed private study is the most important component of this course. To assist your study each week has a "Reading List. These readings are required readings for you to get engaged into the classroom discussion. In addition, private study also includes reading more widely. The relevant material can be sourced from books, journals and the Internet and will enable you to acquire a better understanding of the course. The readings, self assessment exercises and your own topic summaries form the basis of an excellent private study regime. Keeping up to date is very important and each week builds on the prior weeks so it is important that you get your study regime organised quickly.

3.3 Forming a Group

You are required to form a group of 4 members to complete your group assignments. The groups have to be formed at the end of WEEK SEVEN. Try to create a good mix of people based on background and experiences. Your group must be self-managing. Each group needs to have a leader. Turn in a group list that includes all members' name, student ID, email address, and indicating the leader. You are required to keep your group meeting minutes for peer evaluation and project management purpose.

3.4 Peer Evaluation

All members of the group are expected to participate equally in all group activities. To ensure that this occurs, a peer evaluation form will be distributed near the end of each group assignment. Each student will be asked to rate the effort of each of the other group members in completing the assignments. These quantitative rating results will be used in the determination of the final mark of each student in a group. If there are arguments about the contribution evaluation, an open discussion between students about relative contribution will be held in the lecturer's presence. **In order to**

encourage your participation, questions derived from your group assignment may be assessed in the final examination.

4 ASSESSMENT

4.1 Formal Requirements

To receive a pass grade in this course, you must meet ALL of the following criteria:

- Attain an overall mark of at least 50%.
- Attend at least 80% of all scheduled classes.
- Attain a satisfactory performance in each component of the course. A mark of 45% or higher is normally regarded as satisfactory.
- Attain a mark of at least 45% in the final exam
- In the case of peer assessed group work, the mark assigned to each member of the group may be scaled based on peer assessment of each member's contribution to the task.

The School reserves the right to scale final marks to a mean of 60%.

It should be noted that group members are expected to work in a harmonious and professional fashion which includes adequate management of non-performing members.

4.2 Assessment Details

Assessment Task	Weighting	Length	Mode	Due Date
Lab Participation and Exercises	15%	Refer to specification	Individual	Weeks 2 to 13
Case Presentation	5%	Refer to Week 1 Lecture Note	Individual	Week 3
Quiz	10%	1 hour	Individual	Week 8
Group Assignment	30%	Refer to specification	Group	(1) Group Report: 5pm 23rd May 2014 (2) Group Presentation Slides: 5pm 26th May 2014
Final Exam	40%	2 hours	Individual	University Exam Period
Total	100%			

4.2.1 Lab Participation and Exercises

This assessment has been designed to develop your appreciation of BI tools in business environments. It will also improve your hands-on experience, communication skills, and independent working skills, time management and personal organization.

Students are expected to work individually to complete a set of lab exercises in order for them to experience data mining and text mining process and learn skills of creating highly accurate predictive and descriptive models based on large volumes of data from across the enterprise. Students are expected to complete their hands-on tasks and exercises at the end of each lab. The marking scheme is available on the course website.

Your tutor is responsible for all lab sections. Students with problems regarding the labs should always refer to their tutor first.

4.2.2 Group Assignment

The assessment in BI has a strong component in researching current BI issues and trends. This group based research report is designed to improve and test your professional competencies for effective work in organisations in terms of researching, analysing, writing, presenting and working collaboratively.

In this assignment you are being asked to work in a group of 4 members to provide an in-depth understanding of an important emerging trend in the area of business intelligence. At least **TEN** peer reviewed articles are referenced.

Then in weeks 12/13, each group is required to give a 30-minute presentation including 5 minutes for Q&A. Each group member is also required to provide a 500-600 word reflective note regarding this group work.

This assignment is a group work and worth 30% of your overall marks. The report should not exceed 3,000 words. The due date for the report is at the end of week 11, and the due date for group presentation slides is at the beginning of week 12. The detailed requirement will be available on the course website.

4.2.3 Final Examination

A final examination worth 40% of the overall marks will be run during the examination period. The final examination will cover ALL TOPICS in this course. Further details of this exam will be provided in lecture revision section.

The aim of the final examination is to enable you to demonstrate to the examiner that you have achieved all the learning outcomes for this course and that you have achieved a level of competency regarding Business Intelligence topics, as well as the capacity to use the competency to apply it analytically and critically in an organisational environment.

4.3 Assessment Format and Assignment Submission Procedure

Individual and group assignments are to be submitted as a soft copy online, and as a hard copy (with signed UNSW cover sheet). Assignments will be screened with plagiarism-detecting software. Information about the format and marking criteria for all assessable work is contained in the requirements for each assignment, which will be made available on the course website. The cover page is required for all submissions.

ALL group members are required to sign the submission document. An individual peer evaluation form is required for all group assignments.

Students are required to keep a copy for all assignments submitted and keep the marked assignments.

4.4 Late Submission

Late submission of an assignment is not desirable. Assignments are to be submitted on—or better before—the due date. The late submission of assignments carries a penalty of 10% of the awarded marks for that assignment per day of lateness (including weekends and public holidays) unless an extension of time has been granted by the Lecturer-in-Charge. An extension of time to complete an assignment may be granted by the Lecturer-in-charge in case of misadventure or illness.

Applications for an extension should be made to the Lecturer-in-Charge by email or in person before the due date. You will be required to substantiate your application with appropriate evidence such as medical certificates, accident reports etc. Please note that workload, work commitments and computer failures are usually considered insufficient grounds for an extension.

Quality Assurance
The ASB is actively monitoring student learning and quality of the student experience in all its programs. A random selection of completed assessment tasks may be used for quality assurance, such as to determine the extent to which program learning goals are being achieved. The information is required for accreditation purposes, and aggregated findings will be used to inform changes aimed at improving the quality of ASB programs. All material used for such processes will be treated as confidential.

5 COURSE RESOURCES

5.1 Course Website

The website for this course is on UNSW Moodle at:
https://moodle.telt.unsw.edu.au/login/index.php

5.2 Textbook

The textbooks for this course are:

(1) Business Intelligence: A Managerial Approach: International Edition, 2nd edition, by: Efraim Turban, Ramesh Shadra, Dursun Delen, and David King; Pearson Publishing, 2011. ISBN 10: 0-13-247882-X; ISBN 13: 978-13-247882-3
(2) Analytics at Work: Smarter Decisions, Better Results; by Thomas H. Davenport, Jeanne G. Harris, Robert Morison; Harvard Business Press, 2010. ISBN: 1422177696; ISBN-13: 978-1-4221-7769-3 (e-book is available at Harvard Business Review: http://hbr.org/product/analytics-at-work-smarter-decisions-better-results/an/12167E-KND-ENG)

You will require unimpeded access to the text throughout the course. **You will need to bring the text to the weekly lectures.**

Students should note that they are expected to read more widely than the prescribed text - other material will be recommended from time to time throughout the semester.

5.3 Additional Readings

Most weeks will involve one or more articles from academic journals, professional journals and other sources. Some of these readings are considered essential and form a key component of the course. Other readings are considered optional and are made available for those who wish to read a little further on the topic at hand.

Both the essential and optional readings are listed on the topic pages on the course website and weekly lecture notes. Each reading is available electronically and can be accessed and downloaded from the relevant journal on the 'electronic journals' function the UNSW library Sirius system. (http://sirius.library.unsw.edu.au/).

The readings from the textbooks and essential readings are considered examinable.

6 COURSE EVALUATION AND DEVELOPMENT

Each year feedback is sought from students and other stakeholders about the courses offered in the School and continual improvements are made based on this feedback. UNSW's Course and Teaching Evaluation and Improvement (CATEI) Process is one of the ways in which student evaluative feedback is gathered. In this course, we will seek your feedback through end of semester CATEI evaluations.

7 COURSE SCHEDULE

Week	Lecture Topic*	Lab	References**
Week 1 4 March	Class Introduction and Overview	No lab	• (1) Chap 1 • Additional readings
Week 2 11 March	Guest Lecture: High-Performance Analytics & Information Management	Lab 1	
Week 3 18 March	1) Case Presentation 2) Data Warehousing (self study)	Lab 2	• (1) Chap 2 • Additional readings
Week 4 25 March	Data Mining (1)	Lab 3	• (1) Chap 4 • Additional readings
Week 5 1 April	Data Mining (2)	Lab 4	• (1) Chap 4 • Additional readings
Week 6 8 April	Text Mining	Lab 5	• (1) Chap 5 • Additional readings

Week 7 15 April	Mid-Semester Exam	Lab 6	
Week 8 29 April	Business Performance Management	Lab 7	• (1) Chap 3 • Additional readings
Week 9 6 May	Put Analytics to Work (1)	Lab 8	• (2) • Additional Readings
Week 10 13 May	Put Analytics to Work (2)	Lab 9	• (2) • Additional Readings
Week 11 20 May	How does BI support Competitive Intelligence?	Lab 10	• (1) Chap 6 • (2) • Additional readings
Week 12 27 May	Exam Revision and Group Project Presentation	Group Presentation	
Week 13 3 June	Group Project Presentation	Group Presentation	

*Lectures are subject to alteration and not all materials in chapters listed will be covered.

**: (1) refer to the first textbook and (2) refers to the second textbook. Apart from chapters listed here, additional readings published on the web are also required.