



Business School

**School of Information Systems, Technology  
and Management**

Never Stand Still

Business School

# **INFS5991 BUSINESS INTELLIGENCE METHODS**

## **Course Outline Semester 1, 2015**

### **Part A: Course-Specific Information**

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

# Table of Contents

<b>PART A: COURSE-SPECIFIC INFORMATION</b>	<b>1</b>
<b>1 STAFF CONTACT DETAILS</b>	<b>1</b>
<b>2 COURSE DETAILS</b>	<b>1</b>
2.1 Teaching Times and Locations	1
2.2 Units of Credit	1
2.3 Summary of Course	1
2.4 Course Aims and Relationship to Other Courses	2
2.5 Student Learning Outcomes	2
<b>3 LEARNING AND TEACHING ACTIVITIES</b>	<b>4</b>
3.1 Learning Activities and Teaching Strategies	4
3.2 Forming a Group	5
3.3 Peer Evaluation	5
<b>4 ASSESSMENT</b>	<b>5</b>
4.1 Formal Requirements	5
4.2 Assessment Details	5
4.3 Assessment Format and Assignment Submission Procedure	7
4.4 Late Submission	7
<b>5 COURSE RESOURCES</b>	<b>7</b>
5.1 Course Website	7
5.2 Textbook	7
5.3 Additional Readings	8
<b>6 COURSE EVALUATION AND DEVELOPMENT</b>	<b>8</b>
<b>7 COURSE SCHEDULE</b>	<b>9</b>

## PART A: COURSE-SPECIFIC INFORMATION

### 1 STAFF CONTACT DETAILS

	Name	Office	Email:	Telephone
Lecturer-in-Charge (LIC)	Zixiu Guo	QUAD 2108	<a href="mailto:z.guo@unsw.edu.au">z.guo@unsw.edu.au</a>	9385 7174
Tutor	Vincent Pang	QUAD 2112	<a href="mailto:vincent.pang@unsw.edu.au">vincent.pang@unsw.edu.au</a>	9385 7835

Zixiu's consultation time is on Monday from 9:30-11:30am or 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	Monday	18-20	Law 303	Week 1 – Week 12
Labs	Monday	20-21	Mat 211	Week 1 – Week 12

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 and analytics (BI/BA) 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/BA, 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/BA 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/BA'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 gaining 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 Business School. 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').

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
<i>This course helps you to achieve the following learning goals for all Business postgraduate coursework students:</i>		<i>On successful completion of the course, you should be able to:</i>	<i>This learning outcome will be assessed in the following items:</i>
1	Knowledge	<ul style="list-style-type: none"> <li>Identify and discuss the role of data in supporting management decision-making and gaining competitive advantage.</li> <li>Discuss and evaluate BI framework, techniques and tools used in gathering, analysing, and managing data.</li> <li>Evaluate and use appropriate data mining and text mining algorithms and techniques and apply them with leading business intelligence tools to support decision making.</li> <li>Articulate examples of how businesses are using business intelligence tools to enhance competitiveness and profitability.</li> <li>Discuss the challenges and critical successful factors associated with implementing business intelligence and their impacts on organisations.</li> <li>Research the trends of business intelligence tools and practices in industry.</li> </ul>	<ul style="list-style-type: none"> <li>Lab</li> <li>Mid-term exam</li> <li>Group Assignment</li> <li>Exam</li> </ul>
2	Critical thinking and problem solving	<ul style="list-style-type: none"> <li>Evaluate and use appropriate data mining and text mining algorithms and techniques and apply them with leading business intelligence tools to support decision making.</li> <li>Articulate examples of how businesses are using business intelligence tools to enhance competitiveness and profitability.</li> <li>Discuss the challenges and critical successful factors associated with implementing business intelligence and their impacts on organisations.</li> <li>Research the trends of business intelligence tools and practices in industry.</li> </ul>	<ul style="list-style-type: none"> <li>Lab</li> <li>Case Presentation</li> <li>Group Assignment</li> <li>Exam</li> </ul>

3a	Written communication	<ul style="list-style-type: none"> <li>Enhance communication, research, analytics, and collaboration skills.</li> </ul>	<ul style="list-style-type: none"> <li>Lab</li> <li>Group Assignment</li> </ul>
3b	Oral communication	<ul style="list-style-type: none"> <li>Enhance communication, research, analytics, and collaboration skills.</li> </ul>	<ul style="list-style-type: none"> <li>Lab</li> <li>Case Presentation</li> <li>Group Assignment</li> </ul>
4	Teamwork	<ul style="list-style-type: none"> <li>Enhance communication, research, analytics, and collaboration skills.</li> </ul>	<ul style="list-style-type: none"> <li>Group Assignment</li> </ul>
5a	Ethical, environmental and sustainability responsibility	Not specifically addressed in this course.	
5b	Social and cultural awareness	<ul style="list-style-type: none"> <li>Discuss the challenges and critical successful factors associated with implementing business intelligence and their impacts on organisations.</li> </ul>	<ul style="list-style-type: none"> <li>Exam</li> </ul>

### 3 LEARNING AND TEACHING ACTIVITIES

#### 3.1 Learning Activities and Teaching Strategies

The course involves three key components in your learning – the lecture, the lab, 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, guest lectures, and case 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.

### 3.2 Forming a Group

You are required to form a group of 3-4 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.

### 3.3 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 group member in completing the assignments. This quantitative rating result 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 which will be available online in Week One	Individual	Weeks 1 to 12

Case Presentation	5%	Refer to Week 1 Lecture Note	Individual	Week 3
Mid-term Exam	10%	1 hour	Individual	Week 7
Group Assignment	30%	Refer to specification which will be available online in Week Five.	Group	(1) Group Report: 5pm 22 <sup>rd</sup> May 2015 (2) Group Presentation Slides: 10am 25 <sup>th</sup> May 2015 (3) Personal Reflection: 5pm 29 <sup>th</sup> May 2015
Final Exam	40%	2 hours	Individual	University Exam Period
Total	100%			

### Lab Participation and Exercises

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

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.

### Group Assignment

The assessment in BI/BA has a strong component in researching current BI/BA 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 3-4 members to provide an in-depth understanding of an important emerging trend in the area of BI/BA. Then in weeks 12, each group is required to give a 30-minute presentation. Each group member is also required to provide a 500-600 word reflective note regarding this group work. The detailed requirement will be available on the course website.

### 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

All assignments are to be submitted as a soft copy via course website Assignment Submission System. 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 Business School 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 Business School 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>

Textbook

The textbooks for this course are:

- (1) *Business Intelligence: A Managerial Approach: International Edition, 2<sup>nd</sup> 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.

## 5.2 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 2 March	Class Introduction and Overview	Lab 1	<ul style="list-style-type: none"> <li>• (1) Chap 1</li> <li>• Additional readings</li> </ul>
Week 2 9 March	Guest Lecture: High-Performance Analytics & Information Management	Lab 2	<ul style="list-style-type: none"> <li>• Additional readings</li> </ul>
Week 3 16 March	1) Case Presentation 2) Data Warehousing	Case Presentation	<ul style="list-style-type: none"> <li>• (1) Chap 2</li> <li>• Additional readings</li> </ul>
Week 4 23 March	Data Mining (1)	Lab 3	<ul style="list-style-type: none"> <li>• (1) Chap 4</li> <li>• Additional readings</li> </ul>
Week 5 30 March	Data Mining (2)	Lab 4	<ul style="list-style-type: none"> <li>• (1) Chap 4</li> <li>• Additional readings</li> </ul>
Mid-Semester Break			
Week 6 13 April	Text and Web Analytics	Lab 5	<ul style="list-style-type: none"> <li>• (1) Chap 5</li> <li>• Additional readings</li> </ul>
Week 7 20 April	Mid-Semester Exam	Lab 6	
Week 8 27 April	Put Analytics to Work (1)	Lab 7	<ul style="list-style-type: none"> <li>• (2)</li> <li>• Additional Readings</li> </ul>
Week 9 4 May	Put Analytics to Work (2)	Lab 8	<ul style="list-style-type: none"> <li>• (2)</li> <li>• Additional Readings</li> </ul>
Week 10 11 May	Visual Analytics	Lab 9	<ul style="list-style-type: none"> <li>• (1) Chap 3</li> <li>• Additional readings</li> </ul>
Week 11 18 May	Business Analytics: Emerging Trends and Future Impacts	Lab 10	<ul style="list-style-type: none"> <li>• (1) Chap 6</li> <li>• (2)</li> <li>• Additional readings</li> </ul>
Week 12 25 May	Exam Revision and Group Project Presentation	Group Presentation	

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

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