UNSW Business School

School of Information Systems & Technology Management

INFS3603
INTRODUCTION TO BUSINESS ANALYTICS

Course Outline
Semester 1, 2017

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

PART A: COURSE-SPECIFIC INFORMATION 1

1 STAFF CONTACT DETAILS 1

2 COURSE DETAILS 1

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

3 LEARNING AND TEACHING ACTIVITIES 6

3.1 Learning Activities and Teaching Strategies 6
3.2 Forming a Group 6
3.3 Peer Evaluation 6

4 ASSESSMENT 7

4.1 Formal Requirements 7
4.2 Assessment Details 7
4.3 Assessment Format and Assignment Submission Procedure 9
4.4 Late Submission 10

5 COURSE RESOURCES 10

5.1 Course Website 10
5.2 Textbooks 10
5.3 Additional Readings 11

6 COURSE EVALUATION AND DEVELOPMENT 11

7 COURSE SCHEDULE 12

PART A: COURSE-SPECIFIC INFORMATION

1 STAFF CONTACT DETAILS

Position	Name	Office	Email:	Telephone
Lecturer-in-Charge (LIC)	Zixiu Guo	QUAD 2108	z.guo@unsw.edu.au	9385 7174
Tutor	Vincent Pang	QUAD 2112	vincent.pang@unsw.edu.au	9385 7835
Tutor	Helen Zheng			

Zixiu's consultation time is on Tuesday from 2:30-4:30pm 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	Wednesday	9-10	Macauley Theatre	Week 1 – Week 12
Workshops/Labs	Wednesday Wednesday Wednesday Thursday Thursday	10-12 14-16 16-18 13-15 15-17	QUAD G021 QUAD G021 QUAD G021 QUAD 2082 QUAD 2082	Week 2 – Week 13

For latest information about course lecture, workshops/labs locations see: http://www.timetable.unsw.edu.au/current/INFS3603.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

This is a level 3 Information Systems (IS) course and a foundational course in Business Analytics (BA). This course provides students an understanding of business needs and technology trends driving investment in business analytics and big data technologies. The course also presents the fundamentals of implementing and managing business analytics in organisations. In lectures, students will learn business analytics methods and tools as well as the challenges associated with implementing business analytics projects. Through real-world case studies, students will develop their understanding of the

applications of business analytics as well as the social and ethical implications of business analytics. Students will also improve their critical thinking, problem solving, research, communication, and team-working skills through their workshops and group assignments.

Topics that are covered in this course include: decision making process; business analytics concepts, methods, and frameworks; frameworks for putting analytics to work; the governance, oversight and business value gained from business analytics within organisations; ethical and social implications of business analytics; and future directions for business analytics.

The pre-requisite for this course is INFS1602 or enrolled in program 3959, plus minimal of 72 UoC.

2.4 Course Aims and Relationship to Other Courses

This course aims to expose students to BA technologies, data analytics skills and management practices that organisations are applying to make better evidence-based decisions in order to succeed in a hyper-competitive business environment. Emphasis is placed on learning technical and analytical skills, as well as the practical application of business analytics to derive value from large datasets. This course will also help students refine their communication skills, analytical thinking skills, group work skills and assist them in the development of research skills.

INFS3603 is a core course for students wishing to complete a major in Information Systems within the BCom and provides students with knowledge of analytics, technical, and managerial aspects of business analytics.

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:

- Critically evaluate the role of data in supporting management decision-making and gaining competitive advantage.
- Discuss and evaluate Business Analytics framework, techniques and tools used in gathering, analysing and managing data and apply them to enhance decision making.
- Investigate the challenges, critical factors and organisational impacts associated with being business analytically capable.
- Research the emerging trends of business analytics tools and practices in industry.
- Demonstrate 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 undergraduate 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 Undergraduate Program Learning Goals and Outcomes, see Part B of the course outline.

Business Undergraduate Program Learning Goals and Outcomes

1. Knowledge: **Our graduates will have in-depth disciplinary knowledge applicable in local and global contexts.**
You should be able to select and apply disciplinary knowledge to business situations in a local and global environment**.**

2. Critical thinking and problem solving: Our graduates will be critical thinkers and effective problem solvers.
You should be able to identify and research issues in business situations, analyse the issues, and propose appropriate and well-justified solutions.

3. Communication: Our graduates will be effective professional communicators.
You should be able to:

- **a.** Prepare written documents that are clear and concise, using appropriate style and presentation for the intended audience, purpose and context, and
- **b.** Prepare and deliver oral presentations that are clear, focused, well-structured, and delivered in a professional manner.

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 the ethical, social, cultural and environmental implications of business practice.
You should be able to:

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

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 labs 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 Business undergraduate students:	*On successful completion of the course, you should be able to:*	*This learning outcome will be assessed in the following items:*

1	Knowledge	• Critically evaluate the role of data in supporting management decision-making and gaining competitive advantage. • Discuss and evaluate Business Analytics framework, techniques and tools used in gathering, analysing and managing data and apply them to enhance decision making. • Investigate the challenges, critical factors and organisational impacts associated with being business analytically capable. • Research the emerging trends of business analytics tools and practices in industry. • Demonstrate communication, research, analytics and collaboration skills.	• Workshop/Lab • Mid-term exam • Group Assignment • Exam
2	Critical thinking and problem solving	• Critically evaluate the role of data in supporting management decision-making and gaining competitive advantage. • Discuss and evaluate Business Analytics framework, techniques and tools used in gathering, analysing and managing data and apply them to enhance decision making. • Investigate the challenges, critical factors and organisational impacts associated with being business analytically capable. • Research the emerging trends of business analytics tools and practices in industry. • Demonstrate communication, research, analytics and collaboration skills.	• Workshop/Lab • Group Assignment • Exam
3a	Written communication	• Critically evaluate the role of data in supporting management decision-making and gaining competitive advantage. • Discuss and evaluate Business Analytics framework, techniques and tools used in gathering, analysing and managing data and apply them to enhance decision making. • Investigate the challenges, critical factors and organisational impacts associated with being business analytically capable. • Research the emerging trends of business analytics tools and practices in industry.	• Workshop/Lab • Group Assignment

		• Demonstrate communication, research, analytics and collaboration skills.	
3b	Oral communication	• Critically evaluate the role of data in supporting management decision-making and gaining competitive advantage. • Discuss and evaluate Business Analytics framework, techniques and tools used in gathering, analysing and managing data and apply them to enhance decision making. • Demonstrate communication, research, analytics and collaboration skills.	• Workshop/Lab • Group Assignment
4	Teamwork	• Research the emerging trends of business analytics tools and practices in industry. • Demonstrate 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	• Critically evaluate the role of data in supporting management decision-making and gaining competitive advantage. • Discuss and evaluate Business Analytics framework, techniques and tools used in gathering, analysing and managing data and apply them to enhance decision making. • Investigate the challenges, critical factors and organisational impacts associated with being business analytically capable.	• Exam

3 LEARNING AND TEACHING ACTIVITIES

3.1 Learning Activities and Teaching Strategies

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

Since this course is arranged for senior undergraduate 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, workshops or labs.

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.

It is essential in a seminar-based course such as this for both students and lecturer to participate equally to the discussion. It is assumed that students will have read and thought about the assigned materials ***before*** each lecture and workshops, and come prepared to contribute to the class discussion, in particular during workshop discussion sessions. Students will also be given an opportunity to have basic hands-on experience and practical exposure by using various BA tools, such as SAS Enterprise Miner, Text Miner, and Visual Analytics during the lab sessions.

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 lecture and workshop 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, assessment exercises, homework, 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 5 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 group assignment. Each student will be asked to rate the effort of each group member in completing the assignment. 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
Workshop/lab Participation and Exercise	25%	Refer to specification which will be available online in Week One	Individual	Ongoing assessment
Mid-Term Exam	10%	1 hour	Individual	Week 7 lecture time
Group Assignment	25%	Refer to specification which will be available online in Week Seven.	Group	(1) Group Report: 5pm 26th May 2017 (2) Group Project Presentation: Week 13 workshop (3) Personal Reflection: 5pm 2nd June 2017
Final Exam	40%	2 hours	Individual	University Exam Period
Total	100%			

Workshop/Lab Participation and Exercises

Running a course with a workshop component means that students are expected to participate and contribute equally to the discussion. Apart from being assessed in completing assigned homework, you will also be assessed in class discussion activities.

Such contribution to class discussion will be assessed based on the quality of your answers to the questions and comments you made, and willingness to participate. The lab part participation is based on how well you develop your appreciation of BA tools in business environments. Students are expected to work individually to complete a set of lab exercises in order for them to experience data mining, text mining, and visual analytics process and appreciate skills required for creating highly accurate predictive and descriptive models based on large volumes of data from across the enterprise.

This assessment has been designed to develop your critical thinking, researching, communication skills, as well as to improve your hands-on experience. Each student is assigned 15 marks for the workshop participation/exercise and 10 marks for the lab participation/exercise. However, they are graded based on the following guidelines:

Marks Guide (based on 10 points)

Mark	Guide
0	Below 80% of attendance as required by school
1-3	Has satisfied the attendance requirement but has not contributed to class activities, not completed homework.
3.5-5	Has satisfied the attendance requirement, completed the homework, participated in team activities during class and contributed to class discussion.
5.5-7.5	Has satisfied the attendance requirement, completed the homework at good quality, has participated in team activities during class and contributed to class discussion in relevant and constructive ways.
7.5-10	Has satisfied all of the above and demonstrated excellence in their contribution to the dynamics of the course.

The purpose of the workshop/lab participation/exercise mark is to encourage a high level of participation in the course as high levels of participation greatly assist individual students in their understanding the material and its application. It also provides the opportunity to learn from others experience and it makes the course even more enjoyable and worthwhile.

This is an individual level ongoing weekly assessment starting from week two to week 13 (inclusive). Your tutors are responsible for all workshop and lab sessions. Students with problems regarding the workshops and labs should always refer to their tutors first.

Group Assignment
The assessment in BA has a strong component in researching current 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 5 members to provide an in-depth understanding of an important emerging trend in the area of BA. Then in weeks 13, each group is required to give a 20-minute presentation during your workshop session. Each group member is also required to provide a 700-800 word reflective note regarding this group work. The detailed requirement will be available on the course website in Week Seven.

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 Analytics 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.

5.2 Textbooks

The textbooks for this course are:

(1) *Business Intelligence: A Managerial Perspective on Analytics*: International Edition, 3rd edition, by: Ramesh Shadra, Dursun Delen, and Efraim Turban; Pearson Publishing, 2014. ISBN 10: 1-292-00487-8; ISBN 13: 978-1-292-00487-7.

(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.

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 myExperience survey is one of the ways in which student evaluative feedback is gathered. In this course, we will seek your feedback through end of semester myExperience survey.

7 COURSE SCHEDULE

Week	Lecture Topic*	Workshop / Lab*	References**
Week 1 27 Feb	Introduction to the Course and Software		• Additional readings
Week 2 6 March	An Overview of Business Intelligence, Analytics, and Decision Support	Workshop 1	• (1) Chap 1, Chap 6.1-6.3 • Additional readings
Week 3 13 March	Guest Lecture	Lab 1	• Additional readings
Week 4 20 March	Visual Analytics	Lab 2	• (1) Chap 3 • Additional readings
Week 5 27 March	Data Mining (1)	Workshop 2	• (1) Chap 4 • Additional readings
Week 6 3 April	Data Mining (2)	Workshop 3	• (1) Chap 4 • Additional readings
Week 7 10 April	Mid-Semester Exam	Workshop 4	
Mid-semester break: Friday 14 – Saturday 22 April inclusive			
Week 8 24 April	Text and Web Analytics	Workshop 5	• (1) Chap 5 • Additional readings
Week 9 1 May	Put Analytics to Work (1)	Lab 3	• (2) • Additional Readings
Week 10 8 May	Put Analytics to Work (2)	Lab 4	• (2) • Additional Readings
Week 11 15 May	Business Analytics: Emerging Trends and Future Impacts	Lab 5	• (1) Chap 7 • Additional readings
Week 12 22 May	Course Summary and Revision	Lab 6	
Week 13 29 May	No LECTURE	Group Project Presentation	

*Lectures/workshops/labs 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.