

**Business Intelligence Systems PG (7156)**

**Unit Outline – Semester 1 2009**

**Faculty of Information Sciences and Engineering  
University of Canberra**

*Australian Government Higher Education (CRICOS)  
Registered Provider number: #00212K*

This Unit Outline must be read in conjunction with:

- a) *Studying at the University of Canberra: A Guide to Policies and Procedures*, which sets out University-wide policies and procedures, including information on matters such as plagiarism, grade descriptors, moderation, feedback and deferred exams, and is available at <http://www.canberra.edu.au/student-services>
- b) *Guide to Student Services at the University of Canberra*, and is available at <http://www.canberra.edu.au/student-services>
- c) Any additional information specified in section 6f.

**1: General Information**

**1a Unit title: Business Intelligence Systems**

**1b Unit number: 7156**

**1c Semester and year offered: Semester 1, 2009**

**1d Credit point value: 3**

**1e Unit level: UG**

**1f Unit Convener: Dr Masoud Mohammadian**

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## 2: Academic Content

### 2a Unit description and learning outcomes

**Syllabus:** This unit examines how decision-making in organisations can be supported by information systems that draw their data and information from internal sources (warehouses, databases, performance monitoring, exceptions alerts, executive information systems) and external sources (information services, environment scanning, etc). The techniques and technologies for intelligence analysis and visualization are examined with an emphasis on new and emerging technologies such as data mining and agents. Students are also introduced to a range of research methods suitable for information systems professionals.

**Learning Outcomes:** On successful completion of this unit, students will be able to demonstrate an understanding of organisational decision-making and to design business intelligence systems. An appreciation of research methods will also be gained.

This unit primarily addresses the UC graduate attributes on Communication which are stated in the following terms.

Graduates are expected to be able to:

- express knowledge, ideas and opinions in their professional field, both orally and in written form, with confidence and clarity;
- present arguments and ideas effectively;
- actively listen and respond to the ideas of other people;
- create and present new ideas.

Graduates are expected to be able to select and use appropriate information and communication technology to retrieve, manipulate and present information:

- identify problems and analyse the main features of problems relevant to their professional field;
- apply appropriate problem solving processes, arguments, critical and creative thinking;
- take responsibility for carrying out agreed tasks;
- be aware of the different roles and responsibilities of group members;
- respect the rights of others irrespective of their cultural background, race or gender.
- have the ability to initiate new ideas, implement decisions and cope with uncertainty; and
- be able to function in a multi-cultural or global environment.
- act responsibly, ethically and with integrity in the context of their profession and their obligations to society; and
- appreciate the social and cultural context of their profession.
- have an understanding of how to apply their knowledge and abilities to many different contexts and fields.
- have confidence to challenge existing ideas;
- value and respect differing views.

### 2b Prerequisites and/or co-requisites

Database Design G, Designing Human-Computer Interaction G and Systems Analysis and Modelling G. (**Assumed Knowledge:** Information Systems in Organisations G and Professional Practice in IT G or equivalent.)

## 3: Delivery of Unit and Timetable

### 3a Delivery mode

This unit will be delivered in traditional mode – that is on campus in standard semesters with weekly lectures and tutorials. This unit involves lectures, tutorials and laboratory work, as well as considerable self learning from other sources such as internet. The lectures are mainly intended to give an overview of relevant issues related to a particular topic being discussed. This means that students are expected to undertake independent work in relation to lecture topics and tutorial/laboratory materials. Without this reading and tutorial/laboratory work students will find it difficult to understand the unit content and thus to pass the unit. The unit may also draw on practical experience from invited lecturers and occasional films to supplement the lecture material.

Tutorial/laboratory materials will generally be designed to supplement and reinforce concepts developed in the lecture program. Tutorial questions (to be prepared by students before coming to the class) and other tutorial material will generally be made available on the unit website at least one week before tutorials. Students will benefit considerably from preparing for these activities. All the unit material will be made available on the unit website of this unit. You are expected to reference the unit's website on a regular basis to check for recent handouts and to get any "news" updates.

### 3b Schedule of topics/lectures/tutorials/practicals/field classes by week

The unit convener will make reasonable efforts to announce any changes on the unit website: <http://learnonline.canberra.edu.au/Minor> variations to the lecture topic sequence may occur.

Week	Activity
1	Unit Outline, Introduction to the Unit, Importance of BIS, Decision Support Systems, support technologies, A frame work for decision support – Chapter 1 text book
2	Decision-making systems modeling and support, Phases of decision making and how decisions are supported, knowledge management systems, intelligent systems and intelligent decision support systems, agents systems and hybrid systems for intelligent business support Case study and applications – Chapter 2 and 3 text book
3	<b>Public Holiday</b>
4	Business Intelligence, Decision support systems & Intelligent decision making – Modelling, analysis and simulation for intelligent business, Management support systems modelling, Decision analysis, Decision tables, Decision trees – Data Mining, Visual interactive modelling, Visual interactive simulation, Visual interactive modeling for intelligent decision making, mathematical programming and optimization for intelligent business and decision making , Multiple goal sensitive analysis, Model base management – Chapter 3 and 4 text book – Data Mining Handouts
5	Business intelligence, Data warehousing, Nature and source of data, Data Collection Problems and quality, The Web/Internet and commercial database services, Database management systems for decision support systems and business intelligence, Data marts – Chapter 5 text book - <b>Due date for Assignment 1 Part 1</b>
6	Business intelligence, Business analytics, Data acquisition, Data mining, Online analytical processing (OLAP), Data visualization, Data warehousing and OLAP case study – Chapter 5 text
7	Decision support system development, Traditional development life cycle and

	alternative development methodology, Decision support systems levels, tools and platforms - Chapter 6 text - <b>Due date for Assignment 2 Part 1</b>
<b>8 &amp; 9</b> (class free)	<b>Break Period</b>
<b>10</b>	<b>Public Holiday</b>
<b>11</b>	Intelligent decision support system Development continued, Decision support systems and end users, Intelligent systems for business intelligence – Chapter 7 text
<b>12</b>	Intelligent systems for business intelligence, Knowledge acquisition, representation and reasoning, concept of knowledge engineering, methods for knowledge acquisition, automated knowledge acquisition, knowledge verification and validation, Representation of knowledge, – Chapter 10 and 11 - <b>Due date for Assignment 1 Part 2</b>
<b>13</b>	Inferencing with uncertainty, Knowledge acquisition and Internet, Knowledge acquisition, representation and reasoning – Chapter 12 text
<b>14</b>	Advanced intelligent Systems, Role of Case-based reasoning and Artificial Intelligence in Business Intelligence, Intelligent Systems over Internet, Web-based Intelligent Systems, Intelligent Agents Chapter 12 and 13 text - <b>Due date for Assignment 2 Part 2</b>
<b>15</b>	Review of topics from week 1 to 15

#### **4: Unit Resources**

##### **4a Lists of required texts/readings**

**Text Book** – Turban E., Aronson J. E., Liang T-P., (2006) “*Decision Support Systems and Intelligent Systems* (8<sup>th</sup> edition)” Prentice Hall, ISBN: 9780131580176 (Copies of the text book are available from the bookshop at the University of Canberra Bookshop.)

Additional reading may be assigned during the semester. Check the website: <http://learnonline.canberra.edu.au/> - for updates and information.

##### **4b Materials and equipment**

**Internet** – this unit has a web site where you will access any lecture outlines and handouts. You should access this site on a regular periodic basis to keep up to date and obtain unit materials and information. <http://learnonline.canberra.edu.au/>.

**Tools** – this unit may use Microsoft’s Office tools and Microsoft’s SQL Server 2000 running under the Windows 2000 as well as a Web browser (suggest Internet Explorer 5 and above) and other specialise tools that are available from Building 11 laboratories.

##### **4c Unit website**

You should access this site on a regular periodic basis to keep up to date and obtain unit materials and information. <http://learnonline.canberra.edu.au/>.

#### **5: Assessment**

## 5a Assessment overview

Assessment Item (including exams held in the exam period)	Due Date of Assignments	Weighting (total to equal 100%)
<b>Assignment 1</b>	Assignment 1 Part 1 Tuesday Week 6 Assignment 1 Part 2 Tuesday Week 12	15%
<b>Assignment 2</b>	Due date for Assignment 2 Part 1 Friday Week 10 and for Assignment 2 Part 2 Week 14	25%
<b>One final examination</b>	During the examination period set by the University of Canberra	60%

## 5b Details of each assessment item

### Assignment 1 – Exercises

Assignment 1 consists of two parts. Each part consists of questions from the materials covered in the lectures. Responses to each question of the exercise paper is to be not more than 2 pages in total, and must be submitted by the designated times. You must submit your printed answers (by placing them in the lecturer's mailbox in building 11 level A mailbox number 107) on or before the scheduled date/time. Note particularly that e-mailed exercises are not accepted. Students are strongly urged to keep photocopies of all assignments, and back-up copies of all computer files. Loss of material will not reflect well on your result in this unit. Marks for questions will generally be allocated as follows: unattributed quotations direct from the textbook or other source i.e. plagiarism- no marks, and see the special note on plagiarism at the end of this document; attributed quotations direct from the text with a few connecting phrases - a maximum of half marks; answers in your own words (which must include references to relevant sections of the text or other sources if you wish) - potentially full marks.

### Assignment 2 - Business Intelligence Project

This assignment has two parts. Students will work in groups of 3-5 on a project investigating a given project related to the topic of business intelligence and decision making. Each group will give a presentation of their findings and will present a final report at the end of the semester. Deliverables for this project and further details concerning submission of work will be given in the Project handout that will be distributed separately.

Students are strongly urged to keep photocopies of all assignments, and back-up copies of all computer files. Loss of material will not reflect well on your result in this unit.

### Exam

Use of dictionaries in an examination

Use of dictionaries in an examination is allowed. Students are asked to consult Part 2 of the subject outline for details of Academic Board policy on the use of dictionaries in an examination.

### **Use of calculators in an examination**

Calculators will not be permitted during the examination.

### **Referencing requirements**

In all submitted written work, we prefer that you use the author-date (or 'Harvard') system. The University of Canberra library has user notes for referencing print and electronic documents

[http://www.canberra.edu.au/library/research-gateway/research\\_help/citation-guide](http://www.canberra.edu.au/library/research-gateway/research_help/citation-guide)

Students may be required to submit text-based assignments electronically to be checked for matching text. If so, instructions on how to do this and information about the process will be made available in conjunction with such assessment items.

### **School/subject policy on re-submissions, late penalties, absences etc.**

If you are unable to submit an assignment by the deadline because of illness or misadventure, you must provide documented evidence (eg a medical certificate) to the subject convener or the subject moderator **before** the due date.

If you submit an unacceptable assignment, you may be given the opportunity to re-submit. Late and resubmitted assignments may not count fully towards the determination of your grade.

### **Student responsibility in relation to assessment**

If there is any doubt with regard to the requirements of any particular assignments or assessment procedure, the onus for clarifying the issue rests with the student who should contact the subject convener about the matter.

### **5c Special assessment requirements**

You need to satisfy the following conditions to pass this unit:

- Students must achieve at least 50% of combined total of the available marks of the two assignments
- Students must achieve at least 50% of the total of the available marks of the exam in order to be eligible to pass the unit.

Grades will be awarded as follows:

<b>Grade</b>	<b>Total Marks</b>
HD	85-100 and Exam $\geq$ 85%
DI	75-84 and Exam $\geq$ 75%
CR	65-74 and Exam $\geq$ 65%
P	50-64 and Exam $\geq$ 50%
Fail	0-49

In the case of any assignment that places you in jeopardy of a Fail in the whole unit moderation procedures will be used.

All assignments are due on the designated date as listed on that assignment. Late submission of assignments will attract a penalty of 10% of the total assignment mark per day. In case of illness, misadventure, unavoidable commitments, or special condition, students should contact the unit convener as soon as possible. Without special conditions, no assignment will be accepted after the deadline.

If there is any doubt with regard to the requirements of any particular assignment or assessment procedure, the onus for clarifying the issue rests with the student who should contact the lecturer about the matter. Tutors will also be happy to assist in this regard.

#### **5d Supplementary assessment**

There will not be any supplementary assessment for this subject.

#### **5e Text-matching software**

Students may be required to submit text-based assignments electronically to be checked for matching text. If so, instructions on how to do this and information about the process will be made available with the first of any such assessment items.

### **6: Student Responsibility**

#### **6a Workload**

The amount of time you will need to spend on study in this Unit will depend on a number of factors including your prior knowledge, learning skill level and learning style. Nevertheless, in planning your time commitments you should note that for a 3cp Unit the total notional workload over the fifteen week semester is assumed to be 150 hours or an average of 10 hours per week. These hours include time spent in classes. The total workload for Units of different credit point value should vary proportionally. For example, for a 6cp Unit the total notional workload over a fifteen week semester is assumed to be 300 hours or an average of 20 hours per week.

#### **6b Special needs**

Students who need assistance in undertaking the unit because of disability or other circumstances should inform their Unit Convener or the Disabilities Office as soon as possible so the necessary arrangements can be made.

#### **6c Attendance requirements**

Students are advised to attend the lecture, tutorial and laboratory sessions.

#### **6d Required IT skills**

Please refer to section 4b.

#### **6e Costs**

There are no additional costs associated with this subject. Students are however required to print their own lecture notes, assignments and materials available on this subject website.

#### **6f Additional information**

Announcements made on the subject website are deemed, within two working days, to be made to the whole group.

## **7: Student Feedback**

All students enrolled in this Unit will have an opportunity to provide anonymous feedback on the Unit at the end of the Semester via the Unit Satisfaction Survey which will be presented to you on OSIS. Your lecturer or tutor may also invite you to provide more detailed feedback through an anonymous questionnaire administered through the University's Centre for the Enhancement of Learning Teaching and Scholarship (CELTS).

## **8: Authority of this Unit Outline**

Any change to the information contained in Section 2 (Academic content), Section 3 (Delivery of Unit and timetable) and Section 5 (Assessment) of this document, will only be made by the Unit Convener if the written agreement of staff and a majority of students has been obtained; and if written advice of the change is then forwarded to each student enrolled in the Unit at their registered term address. Any individual student who believes him/herself to be disadvantaged by a change is encouraged to discuss the matter with the Unit Convener.