Course Description

Data analytics develops new insights and understanding of business performance by continuous iterative examination of large data sets pertaining to past business performance and events using big data analytics software applications. This course aims to equip students with business analytics skills to analyse accounting data to address accounting-related problems. The course is made up of two major parts: (1) technical details of business analytics and big data statistical methods (weeks 2-7); (2) applications of business analytics and big data statistical methods to address accounting-related problems (weeks 8-13). Overall, in the course, students are expected to obtain an overall understanding of different types of data analytics methods, including the classes of algorithms used for these methods, and how to apply these methods to analyse accounting-related problems. Students also obtain an understanding of the use of software tools and applications for accounting-related big data mining and analysis in business analytics.
COURSE OVERVIEW

Course Learning Outcomes

Upon successful completion of the requirements for this course, students will be able to:

- Identify useful sources of data in firms that help accountants’ decision-making.
- Understand concepts, as well as algorithms, of typical data analytics methods.
- Learn from business case studies to gain an understanding of the opportunities and challenges brought by business analytics and big data.
- Use analytics techniques to interpret accounting data, analyse business environments, and develop solutions for authentic (real world and ill-defined) problems in accounting processes.
- Interpret and effectively communicate the findings of business analytics to both specialists and non-specialists.
- Demonstrate an advanced understanding of contemporary body of knowledge of business analytics and big data to accountants’ work in professional contexts.

Research-Led Teaching

This course aims to prepare students to be a junior “researcher”. To achieve this aim, we adopt a research-led teaching approach, which reflects and makes use of the lecturer’s disciplinary research to benefit student learning and outcomes.

The following activities help achieve the above aim.

- The tutorials emphasise problem solving. Students will be given a set of business cases and/or industry problems.
- Students will be assigned a group project using data analytics skills to process firms’ datasets and come up with business recommendations. In doing so, students will acquire critical analysis, teamwork and communication skills.

Staff Feedback

Students will be given feedback in various ways in this course, including verbal or written feedback on the return of assessment tasks, during class discussion, or during consultation with lecturers and tutors.

Student Feedback

All CBE courses are evaluated using Student Experience of Learning and Teaching (SELT) surveys, administered by Planning and Statistical Services at the ANU. These surveys are offered online, and students will be notified via email to their ANU address when surveys are available in each course. Feedback is used for course development so please take the time to respond thoughtfully. Course feedback is anonymous and provides the Colleges, University Education Committee and Academic Board with opportunities to recognise excellent teaching and to improve courses across the university. For more information on student surveys at ANU and reports on feedback provided on ANU courses, visit http://unistats.anu.edu.au/surveys/seft/students/ and http://unistats.anu.edu.au/surveys/seft/results/learning/
Examination material or equipment

Details regarding materials and equipment that is permitted in an examination room can be found on the ANU website:
http://www.anu.edu.au/students/program-administration/assessments-exams/examination-conduct

Information regarding permitted examination materials for the course will be available on the examination timetable website when the examination timetable is released:
http://timetable.anu.edu.au/

COURSE SCHEDULE

<table>
<thead>
<tr>
<th>Week</th>
<th>Summary of Activities/Topic</th>
<th>Readings</th>
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<tbody>
<tr>
<td>3</td>
<td>An Overview of Data Mining and Big Data Technology</td>
<td>Olson and Shi (2005) Chapters 1, 2 and 4, Minelli (2012) Chapter 3</td>
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<td>4</td>
<td>Database Support to Data Mining, Data Warehouse and Data Visualization</td>
<td>Olson and Shi (2005) Chapter 3</td>
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<tr>
<td>5</td>
<td>Data mining: Rule Induction, Decision Tree, Cluster analysis and K-nearest neighbor (kNN)</td>
<td>Olson and Shi (2005) Chapters 5-6, 7, and 8</td>
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<td>6</td>
<td>Linear Programming for Optimization</td>
<td>Olson and Shi (2005) Chapter 9</td>
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<tr>
<td>7</td>
<td>MID-TERM EXAMINATION [15%] SCOPE: WEEK 1- WEEK 5  Mid-Semester Break</td>
<td>Online articles and case studies</td>
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<tr>
<td>8</td>
<td>Business analytics and big data for retailing operations</td>
<td>Online articles and case studies</td>
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<tr>
<td>9</td>
<td>Business analytics and big data for manufacturing companies</td>
<td>Online articles and case studies</td>
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<tr>
<td>10</td>
<td>Business analytics and big data for investment</td>
<td>Online articles and case studies</td>
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<tr>
<td>11</td>
<td>Business analytics and big data applications in professional services firms</td>
<td>Online articles, and/or guest presentations</td>
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<tr>
<td>12</td>
<td>CFO trends and organisational challenges</td>
<td>Online articles from Forbes and CFO.com</td>
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<tr>
<td>13</td>
<td>Ethics related to business analytics and course revision</td>
<td>Olson and Shi (2005) Chapter 13</td>
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## COURSE ASSESSMENT

<table>
<thead>
<tr>
<th>Title</th>
<th>Value</th>
<th>Due Date</th>
<th>Linked Learning Outcomes</th>
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| Class presentation | 10%   |          | • Learn from business case studies to gain an understanding of the opportunities and challenges brought by business analytics and big data.  
• Demonstrate an advanced understanding of contemporary body of knowledge of business analytics and big data to accountants' work in professional contexts |
| Mid-Term Exam      | 15%   |          | • Identify useful sources of data in firms that help accountants' decision-making.  
• Understand concepts, as well as algorithms, of typical data analytics methods.  
• Use analytics techniques to interpret accounting data, analyse business environments, and develop solutions for authentic (real world and ill-defined) problems in accounting processes. |
| Group Assignment   | 20%   | Week 10  | • Learn from business case studies to gain an understanding of the opportunities and challenges brought by business analytics and big data.  
• Interpret and effectively communicate the findings of business analytics to both specialists and non-specialists.  
• Demonstrate an advanced understanding of contemporary body of knowledge of business analytics and big data to accountants' work in professional contexts |
| Final Exam         | 55%   |          | • Identify useful sources of data in firms that help accountants' decision-making.  
• Understand concepts, as well as algorithms, of typical data analytics methods.  
• Use analytics techniques to interpret accounting data, analyse business environments, and develop solutions for authentic (real world and ill-defined) problems in accounting processes.  
• Interpret and effectively communicate the findings of business analytics to both specialists and non-specialists.  
• Demonstrate an advanced understanding of contemporary body of knowledge of business analytics and big data to accountants' work in professional contexts |
Assessment: Group Assignment
Details of Task: to be announced in Week 3

Assignment Submission

The ANU is using Turnitin to enhance student citation and referencing techniques, and to assess assignment submissions as a component of the University's approach to managing Academic Integrity. For additional information regarding Turnitin please visit ANU Online.

Online submission: Assignments are submitted using Turnitin in the course Wattle site. You will be required to electronically sign a declaration as part of the submission of your assignment. Please keep a copy of the assignment for your records.

Extensions and Penalties

No submission of assessment tasks without an extension after the due date will be permitted. If an assessment task is not submitted by the due date, a mark of 0 will be awarded.

Returning Assignments

Collect the graded assignments from the Student Office, Hanna Neumann Building 2nd Floor Room 2037.

Examinations

It is a compulsory, closed-book examination.

Scaling

Your final mark for the course will be based on the raw marks allocated for each assignment or examination. However, your final mark may not be the same number as produced by that formula, as marks may be scaled. Any scaling applied will preserve the rank order of raw marks (i.e. if your raw mark exceeds that of another student, then your scaled mark will exceed or equal the scaled mark of that student), and may be either up or down.

Referencing Requirements

Refer to: https://academicskills.anu.edu.au/resources/handouts/referencing-style-guides

READING LISTS

Texts and Other Reading

Reading material will come from a variety of sources. We will use textbooks for core foundation and background material, and research and practitioner literature for grounding in breakthrough topics. The foundation texts are:


COMMUNICATION

Email

If necessary, the lecturers and tutors for this course will contact students on their official ANU student email address. Information about your enrolment and fees from the Registrar and Student Services' office will also be sent to this email address.

Announcements

Students are expected to check the Wattle site for announcements about this course, e.g. changes to timetables or notifications of cancellations. Notifications of emergency cancellations of lectures or tutorials will be posted on the door of the relevant room.

Course URLs

More information about this course may be found on:

• Programs and Courses (http://programsandcourses.anu.edu.au/2016/course/BUSN8102)

• the College of Business and Economics website (https://www.cbe.anu.edu.au/students/student-information/college-courses/) and

• Wattle (https://wattle.anu.edu.au), the University's online learning environment. Log on to Wattle using your student number and your ISIS password.

POLICIES

The University offers a number of support services for students. Information on these is available online from http://www.anu.edu.au/students/get-involved

ANU has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University’s academic standards, and implement them. You can find the University’s education policies and an explanatory glossary at: http://policies.anu.edu.au/

Students are expected to have read the Academic Misconduct Rules 2014 before the commencement of their course.

Other key policies include:

• Student Assessment (Coursework) Policy (https://policies.anu.edu.au/ppl/document/ANUP_004603)
- Student Assessment (Coursework) Procedure
- Student Surveys and Evaluations
- Copyright (http://copyright.anu.edu.au/)