SCIE913: Fundamentals of Science data and IT

Subject Outline
Autumn 2016
On Campus
Wollongong

Subject Information
Credit Points: 6
Pre-requisite(s): Nil
Co-requisite(s): Nil
Restrictions: Nil
Contact Hours: 8 hours per week

Subject Contacts
Subject Coordinator/Lecturer

<table>
<thead>
<tr>
<th>Name</th>
<th>Dr Katarina Mikac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Building 41, Room 173</td>
</tr>
<tr>
<td>Telephone</td>
<td>61 2 4221 3307</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:katarina_mikac@uow.edu.au">katarina_mikac@uow.edu.au</a></td>
</tr>
<tr>
<td>Consultation mode</td>
<td>Email for appointment</td>
</tr>
</tbody>
</table>

Project Supervisor

It is the responsibility of the student to identify a suitable research supervisor and project to be undertaken as the core component of this subject. Students should contact the subject coordinator in the first instance for advice, and then consult various potential supervisors for an outline of projects that are on offer. Prospective students are encouraged to discuss possible projects with a range of potential supervisors before deciding on a project. A useful starting point is the school website which outlines the research interests of all members of academic staff. A project and supervisor must be agreed with the subject coordinator no later than the first week of the session in which the project is to be undertaken. Supervision of a project will depend in part on the availability of resources.

Student Support and Advice

For general enquiries please contact StudentHub 41:

Location: 41.138B
Telephone: 61 2 4221 3492
Email: smah-students@uow.edu.au
Student Consultation and Communication

University staff receive many emails each day. In order to enable them to respond to your emails appropriately and in a timely fashion, students are asked to observe basic requirements of professional communication:

**Consider what the communication is about**
- Is your question addressed elsewhere (e.g. in the subject outline or, on the eLearning site)?
- Is it something that is better discussed in person or by telephone? This may be the case if your query requires a lengthy response or a dialogue in order to address. If so, see consultation times above and/or schedule an appointment.
- Are you addressing your request to the most appropriate person?

**Specific email subject title to enable easy identification of issue**
- Identify the subject code of the subject you are enquiring about (as staff may be involved in more than one subject) put this in the email subject heading. Add a brief, specific query reference after the subject code where appropriate.

**Professional courtesy**
- Address the staff member appropriately by name (and formal title if you do not yet know them).
- Use full words (avoid ‘text-speak’ abbreviations), correct grammar and correct spelling.
- Be respectful and courteous.
- Allow 3 – 4 working days for a response before following up. If the matter is legitimately urgent, you may wish to try telephoning the staff member (and leaving a voicemail message if necessary) or inquiring at the School Office.
- Please ensure that you include your *full name and student number* and identify your practical class or tutorial group in your email so that staff know who they are communicating with and can follow-up personally where appropriate.
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Section A: General Information

Subject Learning Outcomes

On completion of this subject, students should be able to:

1. Identify and manipulate data relevant to discipline major (e.g. Biotechnology, Chemistry or Geology).
2. Efficiently summarise scientific data in a written and graphical format.
3. Competently use basic data storage, manipulation and analysis software such as Microsoft Excel.
4. Analyse data sets provided to write statistical based laboratory reports.
5. Effectively paraphrase and summarise information published in academic science press.
6. Discuss topics (in class and online).
7. Identify questions and collaborate with others to interpret a scientific issue/question and plan and document an investigation in the style of a scientific report.

Subject Description

This subject aims to ensure that all students entering the Master of Science are aware of, and have opportunity to develop competency and skills in descriptive and inferential data analysis and data manipulation that are necessary for successful engagement in science subjects at UOW. Students will explore and analyse scientific data fundamental to understanding how scientific data and information are generated and translated into peer reviewed scientific journal articles, conference presentations and Government/industry reports. Data analysis in science draws upon the use and understanding of data analysis and manipulation software and also incorporates the use of scientific language (spoken and written) skills learnt in SCIE911, Fundamental of Communicating the Sciences. Scientific reports in this subject will be based on data sets used in class. The emphasis is on the development of practical skills in finding, using and re-purposing various types of scientific data, in using academic English and in teamwork, as well as on understanding the design and marking criteria of assessment tasks encountered throughout the degree program.

eLearning Space

This subject has materials and activities available via eLearning. To access eLearning you must have a UOW user account name and password, and be enrolled in the subject. eLearning is accessed via SOLS (student online services). Log on to SOLS and then click on the eLearning link in the menu column. For information regarding the eLearning spaces please use the following link:

http://uowblogs.com/moodlelab/files/2013/05/Moodle_StudentGuide-1petpo7.pdf

Lecture, Tutorial, Laboratory Times

All timetable information is subject to variation. Check latest timetabling information on the 'Current Student' webpage on UOW website or log into SOLS to view your personal timetable prior to attending classes.


Timetable information can be accessed from


Key University Dates can be accessed from

Readings, References and Materials

Textbooks
Nil

Prescribed Readings (includes eReadings)
The following readings are prescribed for this subject, but students are not expected to purchase these. They are available to students through the library on the subjects eLearning site.

- A detailed description of Nadjunuga, including its cultural and environmental significance: http://www.nadjunuga.com/

Materials
Scientific calculators required
Lab coats
Sturdy shoes for field work

Recommended Readings
The following references complement the prescribed readings and textbooks:


Recommended readings are not intended as an exhaustive list, students should use the Library catalogue and databases to locate additional resources.

Recent Changes to this Subject
Nil

Laboratory Safety Guidelines
The rules below are general rules that are required in laboratories.

- Before commencing your project you are to ensure that you understand specific procedures for the laboratory in which you work.
- You will need to fill out a risk assessment form before commencing any experiments (confer with your laboratory supervisor).
- Never use any equipment or attempt any experiment without checking the safety implications with your laboratory supervisor or experienced delegated laboratory worker.
- Undergraduate students are not permitted to work after hours unless there is appropriate approval and supervision.

Fieldwork Safety and Guidelines
As in the laboratory and in lecture, there are safety considerations when doing work in the field. The Faculty of Science has put out a document entitled “Fieldwork Safety Guidelines and Procedures”, which you should read this document before undertaking any fieldwork http://staff.uow.edu.au/ohs/workingsafely/fieldwork/index.html.
### Schedule of Learning *

<table>
<thead>
<tr>
<th>Week</th>
<th>Week Commencing</th>
<th>Lecture</th>
<th>Tutorial</th>
<th>Demonstration/Lab</th>
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<tbody>
<tr>
<td>1</td>
<td>29/02/2016</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>07/03/2016</td>
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<tr>
<td>3</td>
<td>14/03/2016</td>
<td></td>
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<tr>
<td>4</td>
<td>21/03/2016</td>
<td></td>
<td>Field Class (Cambewarra Mountain Nature Reserve)</td>
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<tr>
<td>5</td>
<td>28/03/2016</td>
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<tr>
<td>6</td>
<td>04/04/2016</td>
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<td>7</td>
<td>11/04/2016</td>
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<tr>
<td>8</td>
<td>18/04/2016</td>
<td></td>
<td>Field Class (Cambewarra Mountain Nature Reserve)</td>
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<tr>
<td></td>
<td>Mid-Session Recess 25th April-29th April</td>
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<td></td>
</tr>
<tr>
<td>9</td>
<td>02/05/2016</td>
<td>Descriptive Statistics &amp; Hypothesis testing</td>
<td>Computer based analyses of field collected data</td>
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<tr>
<td>10</td>
<td>09/05/2016</td>
<td>t-test &amp; ANOVA</td>
<td>Computer based analyses of field collected data</td>
<td></td>
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<tr>
<td>11</td>
<td>16/05/2016</td>
<td>Correlation &amp; Regression</td>
<td>Computer based analyses of field collected data</td>
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<tr>
<td>12</td>
<td>23/05/2016</td>
<td>Scientific Report Writing</td>
<td>Computer based analyses of field collected data</td>
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<td>13</td>
<td>30/05/2016</td>
<td>Presentation skills &amp; other forms of scientific communication</td>
<td>Computer based analyses of field collected data</td>
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<td></td>
<td>Study Recess 6th June-10th June</td>
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<td></td>
<td>UOW Exam Period 11th June-23 June</td>
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</table>

*The above timetable should be used as a guide only, as it is subject to change. Students will be advised of any changes as they become known.*
Section B: Assessment

Assessment Summary

<table>
<thead>
<tr>
<th>Assessment Item</th>
<th>Form of Assessment</th>
<th>Due Date</th>
<th>Return/Feedback Due dates</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment 1</td>
<td>Statistical laboratory reports</td>
<td>Week 9, Week 10, Week 11</td>
<td>Within 14 days from date of submission</td>
<td>60%</td>
</tr>
<tr>
<td>Assessment 2</td>
<td>Group Literature Critique (written and oral)</td>
<td>Exam week 2</td>
<td>Within 14 days from date of submission</td>
<td>20%</td>
</tr>
<tr>
<td>Assessment 3</td>
<td>Quiz</td>
<td>Week 13</td>
<td>Within 14 days from date of submission</td>
<td>20%</td>
</tr>
</tbody>
</table>

Total Marks 100%

Details of Assessment Tasks

Assessment tasks will be marked using explicit criteria that will be provided to students prior to submission.

**Assessment 1**
- **Statistical laboratory reports**
- **Due date**: Week 9, Week 10, Week 11
- **Weighting**: 60%
- **Submission**: Submit an electronic copy of your assignment via upload to eLearning
- **Type of Collaboration**: Individual Assessment
- **Length**: Assignment details will be handed out in class
- **Details**: Assignment details will be handed out in class
- **Style and format**: Report
- **Subject Learning Outcomes**: 1-7
- **Marking Criteria**: Assessment tasks will be marked using explicit criteria that will be provided to students prior to submission.

**Assessment 2**
- **Group Literature Critique (written and oral)**
- **Due date**: Exam week 2
- **Weighting**: 20%
- **Submission**: Submit an electronic copy of your assignment via upload to eLearning
- **Type of Collaboration**: Group Project
- **Length**: 15 minute presentation, 500 word critique.
- **Details**: This assignment task is done in groups of two only.
- **Style and format**: Presentation & Report
- **Subject Learning Outcomes**: 5, 6, 7
- **Marking Criteria**: Assessment tasks will be marked using explicit criteria that will be provided to students prior to submission.
Assessment 1 | Quiz
---|---
Due date | Week 13
Weighting | 20%
Submission | Submit an electronic copy of your assignment via upload to eLearning
Type of Collaboration | Individual Assessment
Length | 1 hours
Details | online
Style and format | online
Subject Learning Outcomes | 2, 3, 4
Marking Criteria | Assessment tasks will be marked using explicit criteria that will be provided to students prior to submission.

Minimum Requirements for a Pass in this Subject
To receive a clear pass in this subject a total mark of 50% or more must be achieved. In addition, failure to meet any of the minimum performance requirements is grounds for awarding a Technical Fail (TF) in the subject, even where total marks accumulated are greater than 50%.

- pass all assessment tasks

Minimum Student Attendance and Participation
It is expected that students will allocate 12 hours per week to this subject, including any required class attendance, completion of prescribed readings and assessment tasks.

Student attendance at tutorials, practicals, seminars and/or simulations is compulsory and students must attend at least 100% of classes. Absences will require the submission of an application for Academic Consideration via SOLS and the presentation of suitable documentation, for example a Medical Certificate, to Student Central as soon as practical. For further details about applying for academic consideration visit the Student Central webpage:

Scaling
Scaling may occur in this subject at the end of session by the Unit Assessment Committee and/or Faculty Assessment Committee (FAC). Marks will only be scaled to ensure fairness/parity of marking across groups of students. Scaling will not affect any individual student's rank order within their cohort. For more information refer to Assessment Guidelines – Scaling:

Late Submission
Late submission of an assessment task without an approved extension of the deadline is not acceptable. If you are unable to submit an assessment due to extenuating circumstances (e.g. medical grounds or compassionate grounds), you can make an application of academic consideration. Not all circumstances qualify for academic consideration. For further details about applying for academic consideration visit the Student Central webpage:

Late Submission Penalty – at 5%
Late submission of an assessment task without an approved extension of the deadline is not acceptable. Marks will be deducted for late submission at the rate of 5% of the total possible marks for that particular assessment task per day. This means that if a piece of work is marked out of 100, then the late penalty will be 5 marks per day (5% of 100 possible marks per day). The formula for calculating the late penalty is: the total possible marks x 0.05 x number of days late. For the purposes of this policy a weekend (Saturday and Sunday) will be regarded as two days.
For example:

- Student A submits an assignment which is marked out of 100. The assignment is submitted 7 days late. This means that a late penalty of 35 marks will apply \((100 \times 0.05 \times 7)\). The assignment is marked as per normal out of 100 and is given a mark of 85/100, and then the late penalty is applied. The result is that the student receives a final mark of 50/100 for the assignment \((85 \text{ (original mark)} - 35 \text{ marks (late penalty)} = 50/100 \text{ (final mark)})\).

- Student B submits a report which is marked out of 20. The report is submitted three days late. This means that a late penalty of 3 marks will apply \((20 \times 0.05 \times 3)\). The report is marked as per normal out of 20 and is given a mark of 17/20, and then the late penalty is applied. The result is that the student receives a final mark of 14/20 for the report \((17 \text{ (original mark)} - 3 \text{ marks (late penalty)} = 14/20 \text{ (final mark)})\).

No marks will be awarded for work submitted either after the assessment has been returned to the students or more than two weeks after the due date, whichever is the sooner. This does not apply to situations where a particular assessment task is undertaken by students at different times throughout the session, but where the assessment is based on experiments or case studies specific to a student. In this case no marks will be awarded for work submitted more than two weeks after the due date.

Notwithstanding this, students must complete all assessment tasks to a satisfactory standard and submit them, regardless of lateness or loss of marks, where submission is a condition of satisfactorily completing the subject.

Supplementary Assessments
Supplementary assessment may be offered to students whose performance in this subject is close to that required to pass the subject, and are otherwise identified as meriting an offer of a supplementary assessment. The precise form of supplementary assessment will be determined at the time the offer of a supplementary assessment is made.

Students can log on to SOLS and click on the link titled “Supplementary Assessment” to view any applicable offers or use the following link;

System of Referencing Used for Written Work
The Author-Date (Harvard) referencing system should, unless otherwise specified for a particular assessment (check Details of Assessment Tasks), be utilised. A summary of the Harvard system can be accessed on the Library website at;

*Students should refer to Author Guidelines in the Journal ‘Wildlife Research’ for specific formatting of reference.s

Use of Internet Sources
Students are able to use the Internet to access the most current information on relevant topics and information. Internet sources should only be used after careful critical analysis of the currency of the information, the role and standing of the sponsoring institution, reputation and credentials of the author, the clarity of the information and the extent to which the information can be supported or ratified by other authoritative sources.

Plagiarism
The full policy on Academic Integrity and Plagiarism is found in the Policy Directory on the UOW website.

*The University's Academic Integrity and Plagiarism Policy, Faculty Handbooks and subject guides clearly set out the University's expectation that students submit only their own original work for assessment and avoid plagiarising the work of others or cheating. Re-using any of your own work
(either in part or in full) which you have submitted previously for assessment is not permitted without appropriate acknowledgement. Plagiarism can be detected and has led to students being expelled from the University.

The use by students of any website that provides access to essays or other assessment items (sometimes marketed as ‘resources’), is extremely unwise. Students who provide an assessment item (or provide access to an assessment item) to others, either directly or indirectly (for example by uploading an assessment item to a website) are considered by the university to be intentionally or recklessly helping other students to cheat. This is considered academic misconduct and students place themselves at risk of being expelled from the University."

**Submission of Assessments**

Refer to the submission requirements under the details of the individual assessments. Students should ensure that they receive a receipt acknowledging submission. Students will be required to produce this in the event that an assessment task is considered to be lost. Students are also expected to keep a copy of all their submitted assessments in the event that re-submission is required.

**Assessment Return**

Students will be notified when they can collect or view their marked assessment. In accordance with University Policy marked assessments will usually only be held for 21 days after the declaration of marks for that assessment.
Section C: General Advice

Students should refer to the Faculty of Science, Medicine and Health website for information on policies, learning and support services and other general advice.

University Policies

Students should be familiar with the following University policies:

a. Code of Practice – Teaching and Assessment

b. Student Charter

c. Academic Integrity and Plagiarism Policy

d. Student Academic Consideration Policy

e. Course Progress Policy

f. Graduate Qualities Policy

g. Academic Complaints Policy (Coursework and Honours Students)

h. Policy and Guidelines on Non-Discriminatory Language Practice and Presentation

i. Workplace Health and Safety, where relevant

j. Intellectual Property Policy

k. Animal Research Guidelines, where relevant

Student Support Services and Facilities

Students can access information on student support services and facilities at the following link. This includes information on “Academic Support”, “Starting at University”, “Help at University” as well as information and support on “Career’s and Jobs”. [http://www.uow.edu.au/student/services/index.html]

Student Etiquette

Guidelines on the use of email to contact teaching staff, mobile phone use in class and information on the university guide to eLearning ‘Netiquette’ can be found at [http://www.uow.edu.au/student/elearning/netiquette/index.html]

Version Control Table

<table>
<thead>
<tr>
<th>Version Control</th>
<th>Release Date</th>
<th>Author/Reviewer</th>
<th>Approved By</th>
<th>Amendment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20151201</td>
<td>Dr Katarina Mikac – Subject Coordinator</td>
<td>Mrs Sonia Losinno – ADE Nominee</td>
<td>FINAL SCIE913 Autumn 2016 Subject Outline</td>
</tr>
</tbody>
</table>