Unit Outline

REHT5004 Fundamentals of Research Data Analysis in Speech Pathology
Semester 1, 2016

Unit study package code: REHT5004
Mode of study: Internal
Tuition pattern summary: Note: For any specific variations to this tuition pattern and for precise
information refer to the Learning Activities section.
Lecture: 1 x 1.5 Hours Weekly
Computer Laboratory: 1 x 1.5 Hours Weekly
Science Laboratory: 3 x 2 Hours Semester
This unit does not have a fieldwork component.

Credit Value: 25.0
Pre-requisite units: Nil
Co-requisite units: Nil
Anti-requisite units: Nil
Result type: Grade/Mark
Approved incidental fees: Information about approved incidental fees can be obtained from our website.
Visit fees.curtin.edu.au/incidental_fees.cfm for details.

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Acknowledgement of Country
We respectfully acknowledge the Indigenous Elders, custodians, their descendants and kin of this land past and present.

Syllabus
This unit introduces to experimental and quasi-experimental design and analysis in speech pathology research. Students will undertake measurement in human communication sciences, including acoustic analysis of speech.

Introduction
Welcome to Fundamentals of Research Data Analysis in Speech Pathology (REHT5004). This is a key ‘research methods’ unit that you will take in your degree. In this unit we will examine how psychologists and speech pathologists know the things they claim to know (including how they assess the efficacy of their techniques and treatments), and begin evaluating the evidence on which these claims are based.

In the computer laboratories you develop important skills in quantitative data analysis using the statistical package SPSS. The speech science laboratories introduce you to methods of collecting clinically relevant data on a client with computer-based instrumentation, including the acoustic analysis of voice and speech. The speech science component focuses on what to measure in order to collect clinically relevant data for analysis, while the research methods component (lectures and computer labs) focuses on experimental methods of investigation in psychology and speech pathology and how to analyse data for quality evidence within these sciences. Although we will cover many different topics along the way, this unit is ultimately about developing your scientific literacy, and equipping you with fundamental, clinically relevant tools and knowledge needed to be able to sort science from pseudoscience; to discriminate between sense and nonsense; and to follow evidence-based practice within the field of speech pathology.

This unit runs in an integrated fashion with the research methods unit Psychological Science Experimental Methods for Psychology and Speech Pathology second year undergraduate students. Although you attend the same lectures and have the same series of computer labs as the undergraduate students, you receive additional specialist classes in speech science. The research methods and speech science components of the unit come together in your major assignment, the acoustic analysis research report.
Unit Learning Outcomes

All graduates of Curtin University achieve a set of nine graduate attributes during their course of study. These tell an employer that, through your studies, you have acquired discipline knowledge and a range of other skills and attributes which employers say would be useful in a professional setting. Each unit in your course addresses the graduate attributes through a clearly identified set of learning outcomes. They form a vital part in the process referred to as assurance of learning. The learning outcomes tell you what you are expected to know, understand or be able to do in order to be successful in this unit. Each assessment for this unit is carefully designed to test your achievement of one or more of the unit learning outcomes. On successfully completing all of the assessments you will have achieved all of these learning outcomes.

Your course has been designed so that on graduating we can say you will have achieved all of Curtin’s Graduate Attributes through the assurance of learning process in each unit.

<table>
<thead>
<tr>
<th>On successful completion of this unit students can:</th>
<th>Graduate Attributes addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Plan and defend experiments/quasi-experiments for clinical research scenarios</td>
<td></td>
</tr>
<tr>
<td>2. Develop experimental/quasi-experimental research questions and hypotheses</td>
<td></td>
</tr>
<tr>
<td>3. Interpret and analyse results from experimental and quasi-experimental speech</td>
<td></td>
</tr>
<tr>
<td>pathology research</td>
<td></td>
</tr>
<tr>
<td>4. Select appropriate and valid measures, collect data and interpret findings to examine</td>
<td></td>
</tr>
<tr>
<td>the behavioural, physiological and acoustic correlates of human communication</td>
<td></td>
</tr>
</tbody>
</table>

Curtin’s Graduate Attributes

- **Apply discipline knowledge**
- **Thinking skills** (use analytical skills to solve problems)
- **Information skills** (confidence to investigate new ideas)
- **Communication skills**
- **Technology skills**
- **Learning how to learn** (apply principles learnt to new situations) (confidence to tackle unfamiliar problems)
- **International perspective** (value the perspectives of others)
- **Cultural understanding** (value the perspectives of others)
- **Professional Skills** (work independently and as a team) (plan own work)

Find out more about Curtin’s Graduate attributes at the Office of Teaching & Learning website: [ctl.curtin.edu.au](http://ctl.curtin.edu.au)
Learning Activities

Each week, students are expected to participate in one 1.5 hour computer laboratory PLUS engage with approximately 1.5 hours of lecture content and associated activities (e.g., readings and revision questions). In addition, there will be 3 weeks where students will participate in a 2 hour speech science laboratory for which there will be associated reading. The lectures will usually be available on the Echo/iLecture system within 24 hours of the scheduled session (8am Thursday in 210:101). The computer and speech science lab classes will be held in 401.151.

The lecture content and computer laboratory activities are tightly linked. Students who do not keep up with the lecture content will not be able to fully participate in labs. Furthermore, each lab builds on skills developed in those preceding it. Students who choose to skip labs (and do not complete the relevant remedial work) will soon find themselves confused and unable to 'keep up'.

If you ever need to miss your own laboratory class for reasons beyond your control, please email the unit coordinator, and arrange to ‘sit-in’ on a different class.

Please don’t underestimate the value of regular class attendance. Coming to classes provides you with opportunities to interact with other students around shared goals, and to talk to your lecturers and tutors about assignments and other study issues. It also forces you to set aside regular times each week to focus your mind on research methods and related topics. Years of research in the areas of learning and memory have taught us that regular, spaced study (i.e., several short study sessions each week) is far more productive than occasional ‘cram sessions’ (see almost any introductory psychology textbook for the evidence). It is also far less onerous!

It is anticipated that, on average, you will spend 8-10 hours per week on Fundamentals of Research Data Analysis in Speech Pathology.

Learning Resources

Essential texts

The required textbook(s) for this unit are:

  Note that if you purchase Coolican from the Co-op bookstore, you should receive a free copy of the eBook version. I am not sure if this deal is available from other book shops.
  (ISBN/ISSN: 978-1-4441-7011-5)

Other resources

  (ISBN/ISSN: 978-1-4338-0561-5)

Notes for the Acoustic Analysis Workshop and Speech Science Lectures will be provided via Blackboard.
Assessment

Assessment schedule

<table>
<thead>
<tr>
<th>Task</th>
<th>Value %</th>
<th>Date Due</th>
<th>Unit Learning Outcome(s) Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Plan</td>
<td>30 percent</td>
<td>Week: 9, Day: Tuesday 26th April, Time: 4.30 pm</td>
<td>1,2</td>
</tr>
<tr>
<td>Acoustic analysis research report</td>
<td>40 percent</td>
<td>Week: 13, Day: Tuesday 24th May, Time: 4.30 pm</td>
<td>2,3</td>
</tr>
<tr>
<td>Examination</td>
<td>30 percent</td>
<td>Week: 16-17, Day: TBA, Time: TBA</td>
<td>1,3,4</td>
</tr>
</tbody>
</table>

Detailed information on assessment tasks

1. The requirements for the Research Plan will be made available on Blackboard, and will be discussed in lectures and computer labs.

2. The requirements for the Acoustic Analysis Research Report will be made available on Blackboard, and will be discussed in lectures and computer labs. The report will be based on content that is covered in the speech science laboratory classes.

3. The Examination will be scheduled during the official university examination fortnight. It will be a 2-hour closed book exam focussing primarily on material covered in the second half of the semester. It will also contain a question based on the speech science component of the course. The exam format will be discussed in more detail in the final lecture.

Pass requirements

In order to pass this unit you must:

1. Complete and submit ALL pieces of assessment.
2. Obtain an overall mark of 50% or higher.

Fair assessment through moderation

Moderation describes a quality assurance process to ensure that assessments are appropriate to the learning outcomes, and that student work is evaluated consistently by assessors. Minimum standards for the moderation of assessment are described in the Assessment and Student Progression Manual, available from policies.curtin.edu.au/policies/teachingandlearning.cfm

Late assessment policy

This ensures that the requirements for submission of assignments and other work to be assessed are fair, transparent, equitable, and that penalties are consistently applied.

1. All assessments students are required to submit will have a due date and time specified on this Unit Outline.
2. Students will be penalised by a deduction of ten percent per calendar day for a late assessment submission (eg a mark equivalent to 10% of the total allocated for the assessment will be deducted from the marked value for every day that the assessment is late). This means that an assessment worth 20 marks will have two
marks deducted per calendar day late. Hence if it was handed in three calendar days late and given a mark of 16/20, the student would receive 10/20. An assessment more than seven calendar days overdue will not be marked and will receive a mark of 0.

Assessment extension

A student unable to complete an assessment task by/on the original published date/time (eg examinations, tests) or due date/time (eg assignments) must apply for an assessment extension using the Assessment Extension form (available from the Forms page at students.curtin.edu.au/administration/) as prescribed by the Academic Registrar. It is the responsibility of the student to demonstrate and provide evidence for exceptional circumstances beyond the student’s control that prevent them from completing/submitting the assessment task.

The student will be expected to lodge the form and supporting documentation with the unit coordinator before the assessment date/time or due date/time. An application may be accepted up to five working days after the date or due date of the assessment task where the student is able to provide an acceptable explanation as to why he or she was not able to submit the application prior to the assessment date. An application for an assessment extension will not be accepted after the date of the Board of Examiners’ meeting.

Please Note: Applications for extension should be submitted to the Teaching Support Officer (see details on page 1 of the unit outline), rather than the unit coordinator, as specified above.

If the circumstances for your extension application are likely to impact on multiple units, please also make an appointment to see the course coordinator (Michelle Quail: m.quail@curtin.edu.au).

Deferred assessments

If your results show that you have been granted a deferred assessment you should immediately check your OASIS email for details.

Deferred examinations/tests will be held from 19/07/2016 to 20/07/2016. Notification to students will be made after the Board of Examiners’ meeting via the Official Communications Channel (OCC) in OASIS.

Supplementary assessments

Supplementary assessments, if granted by the Board of Examiners, will have a due date or be held between 19/07/2016 and 20/07/2016. Notification to students will be made after the Board of Examiners’ meeting via the Official Communications Channel (OCC) in OASIS.

It is the responsibility of students to be available to complete the requirements of a supplementary assessment. If your results show that you have been granted a supplementary assessment you should immediately check your OASIS email for details.

Referencing style

The referencing style for this unit is APA 6th Ed.

More information can be found on this style from the Library web site: http://libguides.library.curtin.edu.au/referencing.

Copyright

© Curtin University. The course material for this unit is provided to you for your own research and study only. It is subject to copyright. It is a copyright infringement to make this material available on third party websites.

Academic Integrity (including plagiarism and cheating)

Any conduct by a student that is dishonest or unfair in connection with any academic work is considered to be academic misconduct. Plagiarism and cheating are serious offences that will be investigated and may result in penalties such as reduced or zero grades, annulled units or even termination from the course.

Plagiarism occurs when work or property of another person is presented as one’s own, without appropriate acknowledgement or referencing. Submitting work which has been produced by someone else (e.g. allowing or
contracting another person to do the work for which you claim authorship) is also plagiarism. Submitted work is subjected to a plagiarism detection process, which may include the use of text matching systems or interviews with students to determine authorship.

Cheating includes (but is not limited to) asking or paying someone to complete an assessment task for you or any use of unauthorised materials or assistance during an examination or test.

From Semester 1, 2016, all incoming coursework students are required to complete Curtin’s Academic Integrity Program (AIP). If a student does not pass the program by the end of their first study period of enrolment at Curtin, their marks will be withheld until they pass. More information about the AIP can be found at: https://academicintegrity.curtin.edu.au/students/AIP.cfm

Refer to the Academic Integrity tab in Blackboard or academicintegrity.curtin.edu.au for more information, including student guidelines for avoiding plagiarism.

Information and Communications Technology (ICT) Expectations

Curtin students are expected to have reliable internet access in order to connect to OASIS email and learning systems such as Blackboard and Library Services.

You may also require a computer or mobile device for preparing and submitting your work.

For general ICT assistance, in the first instance please contact OASIS Student Support: oasisapps.curtin.edu.au/help/general/support.cfm

For specific assistance with any of the items listed below, please contact The Learning Centre: life.curtin.edu.au/learning-support/learning_centre.htm

- Using Blackboard, the I Drive and Back-Up files
- Introduction to PowerPoint, Word and Excel

Additional information

Enrolment

It is your responsibility to ensure that your enrolment is correct - you can check your enrolment through the eStudent option on OASIS, where you can also print an Enrolment Advice.

Student Rights and Responsibilities

It is the responsibility of every student to be aware of all relevant legislation, policies and procedures relating to their rights and responsibilities as a student. These include:

- the Student Charter
- the University’s Guiding Ethical Principles
- the University’s policy and statements on plagiarism and academic integrity
- copyright principles and responsibilities
- the University’s policies on appropriate use of software and computer facilities

Information on all these things is available through the University’s “Student Rights and Responsibilities” website at: students.curtin.edu.au/rights.
Student Equity

There are a number of factors that might disadvantage some students from participating in their studies or assessments to the best of their ability, under standard conditions. These factors may include a disability or medical condition (e.g. mental illness, chronic illness, physical or sensory disability, learning disability), significant family responsibilities, pregnancy, religious practices, living in a remote location or another reason. If you believe you may be unfairly disadvantaged on these or other grounds please contact Student Equity at eesi@curtin.edu.au or go to http://eesj.curtin.edu.au/student_equity/index.cfm for more information.

You can also contact Counselling and Disability services: http://www.disability.curtin.edu.au or the Multi-faith services: http://life.curtin.edu.au/health-and-wellbeing/about_multifaith_services.htm for further information.

It is important to note that the staff of the university may not be able to meet your needs if they are not informed of your individual circumstances so please get in touch with the appropriate service if you require assistance. For general wellbeing concerns or advice please contact Curtin's Student Wellbeing Advisory Service at: http://life.curtin.edu.au/health-and-wellbeing/student_wellbeing_service.htm

Recent unit changes

Students are encouraged to provide unit feedback through eVALUate, Curtin's online student feedback system. For more information about eVALUate, please refer to evaluate.curtin.edu.au/info/.

To view previous student feedback about this unit, search for the Unit Summary Report at https://evaluate.curtin.edu.au/student/unit_search.cfm. See https://evaluate.curtin.edu.au/info/dates.cfm to find out when you can eVALUate this unit.

Recent changes to this unit include:

1. The adoption of a new textbook (Coolican) that (a) is cheaper and more student friendly; and (b) provides a better match to the content of this unit than the textbooks used in previous years.
2. A move from fortnightly 2-hour computer labs to weekly 1.5-hour labs, to provide students with more time for the development of practical skills.
3. A move from 2-hour to 1.5-hour weekly lectures, and the adoption of an audience response system. These changes go some (small) way toward acknowledging research demonstrating that students cannot concentrate effectively on complex and abstract subject matter for long stretches of time.
4. Introduction of an Acoustic Analysis Workshop to give students some basic understanding of acoustics leading into the speech science laboratories.
5. The introduction of UniPASS.
Program Calendar

Program Calendar – Semester 1 2016

<table>
<thead>
<tr>
<th>Week</th>
<th>Begin Date</th>
<th>Lecture</th>
<th>Computer Lab Mon</th>
<th>Speech Science Lab Thurs</th>
<th>Assessment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>22 February</td>
<td>Orientation Week</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>29 February</td>
<td>The Scientific Method</td>
<td>Acoustics Workshop</td>
<td>Audio Recording &amp; Respiration (Class 1)</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>7 March</td>
<td>Methods and Ethics</td>
<td>Intro to SPSS 1</td>
<td>Audio Recording &amp; Respiration (Class 2)</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>14 March</td>
<td>Experimental Design 1</td>
<td>Intro to SPSS 2</td>
<td>Analysing Voice (Class 1)</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>21 March</td>
<td>Experimental Design 2</td>
<td>Applied Exp Design 1</td>
<td>Analysing Voice (Class 2)</td>
<td></td>
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<tr>
<td>5.</td>
<td>28 March</td>
<td>Tuition Free Week</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6.</td>
<td>4 April</td>
<td>Intro to NHST</td>
<td>Applied Exp Design 2</td>
<td>Articulation &amp; Resonance (Class 1)</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>11 April</td>
<td>Practical Significance and Power</td>
<td>Independent Samples t-Test</td>
<td>Articulation &amp; Resonance (Class 2)</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>18 April</td>
<td>Tuition Free Week</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>25 April</td>
<td>Non-Parametric Alternatives</td>
<td>Paired Samples t-Testa</td>
<td></td>
<td>26 April – Assignment Due</td>
</tr>
<tr>
<td>10.</td>
<td>2 May</td>
<td>Writing an APA Style Report</td>
<td>Research Report Data Analysis 1</td>
<td></td>
<td></td>
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<tr>
<td>11.</td>
<td>9 May</td>
<td>Comparing 3+ Independent Groups</td>
<td>Research Report Data Analysis 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>16 May</td>
<td>Introducing a 2nd IV</td>
<td>One Way ANOVA</td>
<td></td>
<td>24 May – Report Due</td>
</tr>
<tr>
<td>13.</td>
<td>23 May</td>
<td>Accounting for Individual Differences</td>
<td>Factorial ANOVA</td>
<td></td>
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<tr>
<td>14.</td>
<td>30 May</td>
<td>Revision</td>
<td>RM ANOVA</td>
<td></td>
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<tr>
<td>15.</td>
<td>6 June</td>
<td>Study Week</td>
<td></td>
<td></td>
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<tr>
<td>16.</td>
<td>13 June</td>
<td>Examinations</td>
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<td></td>
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<tr>
<td>17.</td>
<td>20 June</td>
<td>Examinations</td>
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</tbody>
</table>

*Due to the ANZAC day public holiday, this laboratory will be delivered online.

NOTE: Computer Lab classes linked to the Lectures scheduled for Monday start in Week 2 (and finish in Week 14). In week 1, however, there is an acoustic analysis workshop to provide an introduction to PRAAT acoustic analysis software as preparation for the Speech Science Labs. Students registered for Speech Science Lab Class 1 will attend the Speech Science lab in Week 1 on Thursday (10.00 am to 12.00 pm), and in alternating weeks. Students registered for Speech Science Lab Class 2 will attend the Speech Science lab in Week 2 and alternating weeks.