Brigham Young University

COMD 600  Research Design  (3 cr)

Fall 2010

Instructor: Richard W. Harris, Ph.D.; 131 TLRB
Email: richard_harris@byu.edu
Office Hours: 11-12 MWF or by appointment
Class time: 8-9:15 MW, 125 TLRB

And inasmuch as they sought wisdom they might be instructed.
Doctrine & Covenants 1:26

Click here for the course syllabus as a Microsoft Word file

Thesis forms, templates and examples
Guidelines for Preparing Theses
MS Word Template Word 97
MS Word Template Word 2007
Grad School Thesis Format Form 11 – Minimum standards
Grad School Thesis Format Form 11b
Grad School Form 12a
Grad School Forms Web Page

Course Description
This course is designed to make clear the philosophical and logical foundations of scientific reasoning based on the principles of empiricism, operationism, causality, and probability theory. Students will learn about the principles underlying quantitative and qualitative research designs and the types of statistical methods appropriate for the analysis of different kinds of data. Projects are incorporated that facilitate skillful reading and comprehension of scientific literature and the ability to formulate a well-founded research proposal.

Course Philosophy
In this course, we will survey the fundamental methods of clinical research and statistical measurement as well as the scientific principles upon which such methods are based. Central to the organization of the course is the instructor’s belief that the term “science,” especially in the clinical realm, is best conceived as a verb that signifies a set of specified operations used for problem solving, decision making, and communicating knowledge in a manner that can be objectively evaluated by others. As a noun, the concept of “science” can be intimidating, if not shrouded in mystery. As a verb, it is understood to be merely a set of systematic mental observations and relevant tools for their expression that culminate in an evolving body of facts.
Course Texts

Other Learning Materials
The course will involve additional readings, Internet-based tutorials, creation of figures and tables and other exercises.

Course Web site: [comd.byu.edu/rh/600.htm](http://comd.byu.edu/rh/600.htm)

Reference Books.  The library contains many texts and reference works on statistics and research design which discuss concepts to be covered in this course. You may feel a need for additional information, or you might want alternate descriptions to those given in the assigned texts or in lecture. The HBLL first floor's BF section has psych research methods texts and the 2nd floor's QA section covers statistics and computer science.

Other Resources
You will be required to submit your sample prospectus for this class in printed and electronic format. This is designed to help you prepare your thesis for Electronic Submission to the Graduate School at the completion of your graduate studies. Please refer to the Electronic Thesis and Dissertation web pages on the following web site:
[http://etd.byu.edu/](http://etd.byu.edu/)

Purdue University Online Writing Lab (OWL) APA Formatting and Style Guide: [http://owl.english.purdue.edu/owl/resource/560/01/](http://owl.english.purdue.edu/owl/resource/560/01/)


Course Goals
Students in audiology and speech language pathology need to know how to measure and describe behavior, avoiding pitfalls invalidating measurement. Second, they need to know how to objectively read the literature to access new knowledge throughout their professional careers. Both of these needs are critical to successful research (and successful clinical practice).
In this class we address these needs by studying research methods. Students will learn principles of research design and how to apply the scientific method to clinical assessment and intervention. We will take a “practical” approach to do this, focusing heavily on the thesis that each of you must complete for your master's degree.

**Prerequisites to this Course**

The prerequisites to this course are Math 110 and Stat 222. Although we will review some of the material covered in these courses, a basic understanding of statistics will be assumed.

**Concepts to be Studied in this Course**

The nature of graduate study; characteristics of a strong graduate program
Planning feasible research studies
Reviewing the literature
Components of research articles and theses: overview
  - Introduction section
  - Review of literature section (appendix to thesis)
  - Method section
  - Results section
  - Discussion section
Selecting a research question
Scientific method, types of research
Terms, concepts, and research methods
Research design, group and single subject
The editorial review & publication process
Ethics in research
APA style
Statistics: basic notions
  - statistical methods commonly used in ASLP research
  - looking for differences
  - looking for relationships
  - non-parametric statistics in ASLP research & clinical work
  - other statistical methods in ASLP research
  - characteristics of good data analysis

**Examinations**

The midterm and final examination will be take home. The midterm and final exams will consist of questions on reading assignments from the class text, from the APA Style Manual, Grad Handbook and Graduate School guidelines, statistical assignments, tables, and figures etc. You will have 1 week to complete the midterm. More details to be provided in class.

**Quizzes**

There will be 4 unannounced quizzes on reading assignments. Each quiz will be worth 25 points.

**Chapter Reading Assignments**
At the end of each chapter in the textbook there are supplemental readings and study questions. You need to select two of the study questions for detailed answer from each chapter in the textbook. Read the assigned reading and then prepare a well written answer to the study question. These will be due one each week starting with Chapter 1 due during the week of September 13, 2010. Assignments will be due the first day of class during each week with one study question due each week. Each study question answer is worth 15 points. Depending on progress through the syllabus the beginning due date of September 13th may change by one week. You will be notified of any change in due date in class.

**Review of the Literature/Prospectus**

The final two requirements will be to 1) write a research prospectus and 2) submit it to me electronically and in printed form (more details provided in class). This prospectus should be very similar to a research publication (minus results and discussion). More details to be given in class. The prospectus will have several dates where you will have to submit portions of the prospectus. These dates will be announced in class.

A prospectus is a research thesis proposal. There is no guarantee that you will actually be able to use the prospectus that you write. That decision will be up to your chair person. The prospectus will be graded on:

**Writing style (20):** Is your proposal well written? Is it easy to read? Is it written in a formal writing style? Are words spelled correctly, sentences well-formed, etc.

**Impact (10):** Do you make a compelling case that your study should be done? You should make sure you explain yourself well enough so that an "intelligent but uneducated" reader can see why you would want to do your study.

**Literature Review (20):** Although the amount of literature cited will vary from idea to idea, you should remember that a strong literature review is impressive. A limited, or dated review may cost you points. Does your review have an organizational plan? You are not limited to the methods discussed in class. If you do not use a method suggested in class, however, it is up to you to make it work.

**Research Design(20):** Do you present a well thought out plan for conducting your study. This will include methods for selecting subjects, procedures, and all other aspects of "how" you will carry out your study. If it is not clear how you will do what you propose you will be in serious trouble. If you don't have a feeling for how much detail is enough, you should err on the side of "too much."

**APA style (20):** You must follow APA guidelines in your proposal. You will lose one point per APA style violation. Repeated violations of the same APA rule will not count against your grade.

**Literature search (5):** You will need to turn in a copy of the reference list you created in your library literature search. Your computer print out will be fine, however, if you want to put your reference list on a separate sheet of paper that will also be acceptable. It is very difficult to say how many sources should be found on any given topic (we will discuss this in detail in class). However, keep in mind that if you have a very short list (say under 10) you may lose points.

The prospectus you submit is to be 100% your work.
Late Work
Unless you have permission from the instructor for late submission (due to illness or other emergency situations) you will be penalized for a late written assignment by subtracting 5 percentage points from its score for each day late. Unexcused late examinations are not allowed and will be given a score of 0.

Class Participation
I expect attendance and class participation. Much of what we'll do in class involves discussion of the readings, ideas, etc., and you will need to be present and prepared to contribute to the class. If you have more than one unexcused absence during the semester you will lose 5 points per missed class period. If you are significantly late you may also lose points. If you have unusual circumstances that make it difficult to attend class you should let me know (e.g., serious illness, etc.). The university is concerned about contagious illness this upcoming year and has requested that anyone who is ill should NOT come to class until they are over their illness. I will work with you should you become ill.

If you are having difficulty in the course, you should meet with me immediately to go over your class and reading notes and to get direction for supplemental readings.

Grading Procedure

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
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<tbody>
<tr>
<td>A</td>
<td>94-100</td>
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<tr>
<td>A-</td>
<td>90-93.9</td>
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<tr>
<td>B+</td>
<td>87-89.9</td>
</tr>
<tr>
<td>B</td>
<td>84-86.9</td>
</tr>
<tr>
<td>B-</td>
<td>80-83.9</td>
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<tr>
<td>C+</td>
<td>77-79.9</td>
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<tr>
<td>C</td>
<td>74-76.9</td>
</tr>
<tr>
<td>C-</td>
<td>70-73.9</td>
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<tr>
<td>D+</td>
<td>67-69.9</td>
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<tr>
<td>D</td>
<td>64-66.9</td>
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<tr>
<td>D-</td>
<td>60-63.9</td>
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<tr>
<td>E</td>
<td>&lt;60</td>
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</tbody>
</table>

There are a total of 1000 points available. I will calculate your final percentage using 1000 as the highest possible score. The grading scale I will use at the end of the semester is listed above. No extra credit is possible.
Incomplete grades will only be given when serious circumstances (health, family tragedy, etc.) arise after the final drop deadline and persist through the final exam date. You should come and talk to me immediately if you need to take an incomplete. Work schedule, child-care problems, or commuting difficulties are not acceptable reasons for missing exams/classes or receiving an Incomplete.
Course Timetable

The following pages contain:

**The COURSE SCHEDULE OVERVIEW for the semester (1 page)**
This overview indicates the topics and textbook chapters to be addressed during each week of the semester. *Note: This schedule is subject to change*
### COURSE SCHEDULE (OVERVIEW)

***Schedule subject to revision***

<table>
<thead>
<tr>
<th>Week</th>
<th>Session Nos.</th>
<th>Date/s</th>
<th>Topic</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I</td>
<td>Aug 30/</td>
<td>Course Introduction/Microsoft Word</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Sep 1</td>
<td></td>
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<tr>
<td>2</td>
<td></td>
<td>6/8</td>
<td>APA</td>
<td>APA</td>
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<tr>
<td>3</td>
<td></td>
<td>13/15</td>
<td>APA</td>
<td>APA</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>20/22</td>
<td>Research &amp; Practice in Communicative Disorders</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>27/29</td>
<td>The Introduction Section of the Research Article</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Oct 4/6</td>
<td>Research Strategies in Communicative Disorders</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>11/13</td>
<td>Research Design in Communication Disorders</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>18/20</td>
<td>MIDTERM EXAMINATION (18 due 25) The Method Section of the Research Article</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>25/27</td>
<td>Prospectus Presentations</td>
<td></td>
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<tr>
<td>10</td>
<td></td>
<td>Nov 1/3</td>
<td>The Results Section of the Research Article</td>
<td>6</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>8/10</td>
<td>The Results Section of the Research Article</td>
<td>6</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>15/17</td>
<td>The Results Section of the Research Article</td>
<td>6</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>29/Dec 1</td>
<td>The Discussion and Conclusions Section of the Research Article</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>6/8</td>
<td>Evaluating Treatment Efficacy Research</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Objective</td>
<td>Assessment</td>
<td>Feedback</td>
<td>ASHA CAA Standard*</td>
<td>DOMSE Conceptual Framework*</td>
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<td>1. The student will be able to write a research proposal</td>
<td>1a. Topic approval. 1b. Outline approval. 1c. Reference approval. 1d. Writing Center review. 1e. Draft 1 peer review. 1f. Draft 2 review. 1g. Final paper grade.</td>
<td>Written comments on items 1a through 1f and a final grade on 1g.</td>
<td>III-F III-G IV-B</td>
<td>CF-1 CF-2</td>
</tr>
<tr>
<td>2. The student will understand the theory and foundations of research methodology</td>
<td>2a. On-line quizzes. 2b. Interim written exams. 2c. Final examination.</td>
<td>Class review of items 2a and 2b. Return of item 2c with comment and instructor meeting with student.</td>
<td>III-E III-F</td>
<td>CF-1 CF-2</td>
</tr>
</tbody>
</table>

*More detail is available regarding these standards at: [http://www.byu.edu/aslp/](http://www.byu.edu/aslp/)

David O. McKay School of Education (DOMSE) Conceptual Framework (required by the DOMSE):

- **CF-1** Embrace and apply the moral dimensions of teaching.
  - Practicing nurturing pedagogy
  - Providing access to knowledge
  - Enculturating for democracy
  - Ensuring responsible stewardship of the schools
- **CF-2** Demonstrate academic excellence.
- **CF-3** Model Collaboration.
- **CF-4** Act with Social Competence.

Council on Academic Accreditation Standard (CAA):

- **Standard III-B** The applicant must demonstrate knowledge of the nature of basic human communication and swallowing process, including their biological, neurological, acoustic, psychological, developmental, linguistic and cultural bases.
- **Standard III-C** The applicant must demonstrate knowledge of the nature of speech, language, hearing, and communication disorders and differences and swallowing disorders, including the etiologies, characteristics, anatomical/physiological, acoustic, psychological, developmental, and linguistic and cultural correlates.
- **Standard III-D** The applicant must possess knowledge of the principles and methods of prevention, assessment, and intervention for people with communication and swallowing disorders, including consideration of anatomical/physiological, psychological, developmental, and linguistic and cultural correlates of the disorders.
- **Standard III- E** The applicant must demonstrate knowledge of standards of ethical conduct.
- **Standard III- F** The applicant must demonstrate knowledge of processes used in research and the integration of research principles into evidence-based clinical practice.
- **Standard III- G** The applicant must demonstrate knowledge of contemporary professional issues.
- **Standard IV-A** The applicant must complete a curriculum of academic and clinical education that follows an appropriate sequence of learning sufficient to achieve the skills outcomes in Standard IV-G.

**Standard IV-B** The applicant must possess skill in oral and written or other forms of communication sufficient for entry into professional practice.