MEASUREMENT IN HEALTH RESEARCH  
SPPH 510

Spring, 2015  
Monday 9:00 am to 12:00 pm  
B138  
Office hours: By appointments

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Course Overview

This course will introduce the students to methods used to assess the validity and reliability of questionnaires. As part of this class students will be provided with ample computer applications. The course format includes a combination of lectures, class discussions, computer labs, assignments, and a final take home exam. PREREQUISITE: HCEP 400 or SPPH 400 or permission of instructor.

The objectives of this course are to:
1. Become familiar with Measurement Theories and their utilities to assess the psychometric properties of questionnaires (including both classical and advanced methods);
2. Be able to conduct an item analysis using classical test theory (Cronbach Alpha) and learn the concepts used with more advanced psychometric methods (Item Response Theory (IRT));
3. Learn to assess both consistency and agreement of scores using the intraclass correlation;
4. Understand the link between the intraclass correlation, Cronbach Alpha and Generalizability Theory;
5. Become familiar with the concepts of Factor Analysis and learn to apply both Exploratory and Confirmatory Factor Analyses to examine the psychometric properties of a questionnaire; and
6. Get a basic introduction of IRT and Rasch analysis.

Textbooks


Software (required)

Evaluation

1. Assignments given at regular intervals  
   65%

2. Take home exam  
   The take home exam will be a secondary data analysis integrating knowledge gained in the assignments (further details provided in early March).  
   35%

3. Class participation expected
Important
All assignments and the take home exam must be completed successfully to obtain a passing grade. Late assignments will not be accepted without prior arrangement. Extensions will be considered pending extenuating circumstances and with documented evidence of extenuating circumstances (medical certificates, etc.). Late assignments and exam will be penalized - 10% deduction for each day past the due date. Printed copies of the assignments are due at the beginning of each class – unless otherwise instructed.

Plagiarism is a serious academic misconduct at UBC with penalties associated with it. Please refer to the Academic Integrity Resources Centre at UBC to avoid plagiarism.

Posting questions
All questions related to the assignments and exam should be posted on the UBC Connect website so that all students can see the questions. Questions will typically be answered around noon on Friday and Wednesday, unless specified otherwise. Emails will be answered only during UBC business hours.

Supplemental readings (articles available on UBC connect)
Other relevant textbooks


Interesting websites

Factor analysis website (R.J. Rummel): [http://www.hawaii.edu/powerkills/UFA.HTM](http://www.hawaii.edu/powerkills/UFA.HTM)
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<tr>
<th>Date</th>
<th>Description</th>
<th>Readings</th>
<th>Supplemental reading (articles / books)</th>
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<tr>
<td>January 12</td>
<td>Questionnaires&lt;br&gt;• Survey development&lt;br&gt;• Item development (brief overview)&lt;br&gt;• Scaling the responses&lt;br&gt;• Items to scales</td>
<td>Konicki Di lorio (2005) – Chapters 4,5,6, &amp; 7&lt;br&gt;Streiner &amp; Norman (2008) - Chapters 4 and 5 (77 – 83)</td>
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<td>January 19</td>
<td>Basic statistical concepts&lt;br&gt;• Review of main concepts&lt;br&gt;• Introduction to STATA</td>
<td>Konicki Di lorio (2005) – Chapter 8</td>
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<td>February 2</td>
<td>STATA application</td>
<td>Konicki Di lorio (2005) – Chapter 10 (pages 193-199)</td>
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<td>February 9</td>
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<td>February 16</td>
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<td>March 9</td>
<td>STATA application</td>
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<td>March 30</td>
<td>Item Response Theory (IRT)/ Rasch</td>
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