INSTRUCTOR: Geoff Norman  
Building T-13  
(905) 525-9140 ext 22119  
e mail: norman@mcmaster.ca  

Kevin Eva  
Building T-13  
ext. 27241  
e-mail: evakw@mcmaster.ca  

Times: Mon/Thurs 12:30-1:20; Tues 1:30-2:20  
Place: MDGC 1010  

OBJECTIVES  
The course is designed to introduce students to basic concepts in the measurement of subjective states: attitudes, feelings, perceptions, function, beliefs or achievements. Topics are based on areas of importance in the design, development and validation of an instrument. In particular, considerable attention will paid to concepts of reliability, validity and generalizability as they apply to instrument design.  

CURRICULUM  
Below is the approximate schedule. Inevitably we will not adhere rigorously to the schedule, so you cannot interpret the weeks as anything but an approximation; However, we will follow the sequence outlined.  

Week  
1  
REVIEW OF STATISTICAL METHODS - ANOVA, Regression, Factor Analysis  
Readings  
- PDQ Statistics (Norman/Streiner, Decker 1986)  
(Chapters 5,6,15) in Health Sciences Bookstore  
- or any other stats book  

2  
DEVISING THE ITEMS  
Readings  
- Chapter 3 - Devising the Items
3 **SCALING RESPONSES**

Readings  
- Chapter 4 - Scaling Responses  
- Chapter 6 - Biases in Responding

4 **SELECTING ITEMS, ITEM ANALYSIS**

Readings  
- Chapter 5 - Selecting the Items  
- Chapter 7 - From Items to Scales

5 **RELIABILITY**

Readings  
- Chapter 8 - Reliability

Supplemental  
- Mitchell SK. Interobserver Agreement, Reliability, Generalizability, Psych Bull 86, 376-390, 1979

6 **GENERALIZABILITY THEORY**

Readings  
- Chapter 9 - Generalizability Theory

7 **VALIDITY**

Readings  
- Chapter 10 - Validity

8 **MEASURING CHANGE**

Readings  
- Chapter 11 - Measuring Change

9 **ADMINISTRATION, RESPONSE RATES, ETC**

Readings  
- Chapter 13 - Methods of Administration

**READINGS**

The readings for the course are based on the "Health Measurement Scales: A Practical Guide", by Streiner/Norman, available in the Health Sciences bookstore. This will be supplemented by additional readings handed out in class, and supplemental textbooks.
EVALUATION

The emphasis of the course is on principles of measurement, and not on applications (e.g. IQ testing). However, your successful mastery of the course materials is evidenced by your ability to apply these principles to a problem area. Consequently, the final assignment for the course reflects the application of these principles to a domain of measurement. This can occur in two ways:

a) You can choose to conduct a literature review of an area of measurement, which can range from, for example, IQ tests to the measurement of health status in arthritis patients. The general approach would be to consider the existing and available instruments in terms of the evidence of reliability and validity, and to come to some conclusion about strategies and approaches.

This is only a general strategy. For some areas (like IQ in particular) the domain is too broad to approach this way, and you will have to choose a narrower question (e.g. the evidence for cultural bias in IQ testing).

b) You can choose to devise your own scale, to measure something of your own. The basic characteristic to be assessed can be a serious or as frivolous as you like (e.g. everything from learning styles to beer tasting). If you choose this route, you will be expected to devise a questionnaire and do some formal reliability and validity testing. Sample sizes are not important, nor is the choice of subjects, but it is important that you actually gather data and analyse it appropriately.

You can report the results of your efforts in either two ways as well:

a) A presentation in class, of about 15 minute duration, in one of the last 2-3 class periods. If a large number of students take this option, I reserve the right to select students who will present.

B) A hand-in assignment of 10-20 pages, double spaced. This will be copied and distributed to other students, and marked by the instructor and T/A.

There will be three other methods of evaluation:

1) 2 assignments related to the final assignment, which will be handed out during the course, usually with a one to two week deadline.

2) A brief in-class midterm examination

3) A final two-hour multiple choice and short answer examination. This will cover the entire course, and the mark will be computed by taking a combination of right and wrong answers (R - W/4).
Overall course grade will be computed as:

\[(\text{Final exam} \times 40\%) + (\text{Midterm} \times 10\%) + (\text{Project} \times 30\%) + (\text{Assignments} \times 20\%) = \text{Total}\]

All grades will initially be on a 100 point scale, these will then be averaged and converted to letter grades using the conversion scale given in the Undergraduate calendar.

Assignments must be submitted when due. Dates for the midterm tests and due dates for the assignments will be announced in class, and every effort will be made to accommodate individual circumstances. Any request for extension should be discussed (preferably in advance) with the professor. Unless there are extenuating circumstances (as judged by the professor), marks will be deducted for late assignments.

Grades will be assigned according to the following conventional scheme:

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100</td>
<td>A+</td>
</tr>
<tr>
<td>85-59</td>
<td>A</td>
</tr>
<tr>
<td>80-84</td>
<td>A-</td>
</tr>
<tr>
<td>77-79</td>
<td>B+</td>
</tr>
<tr>
<td>73-76</td>
<td>B</td>
</tr>
<tr>
<td>70-72</td>
<td>B-</td>
</tr>
<tr>
<td>67-69</td>
<td>C+</td>
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<tr>
<td>63-66</td>
<td>C</td>
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<tr>
<td>60-62</td>
<td>C-</td>
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<tr>
<td>57-59</td>
<td>D+</td>
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<td>D</td>
</tr>
<tr>
<td>50-52</td>
<td>D-</td>
</tr>
<tr>
<td>0-49</td>
<td>Fail</td>
</tr>
</tbody>
</table>

The instructors reserve the right to adjust final marks up or down based on the performance of the class as a whole.

**Academic Dishonesty**

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, located at [http://www.mcmaster.ca/senate/academic/ac_integrity.htm](http://www.mcmaster.ca/senate/academic/ac_integrity.htm)

The following illustrates only three forms of academic dishonesty:
1. Plagiarism, e.g. the submission of work that is not one’s own or for which other credit has been obtained.

2. Improper collaboration in group work.

   In this course, while students may work together on assignments, each student must have his/her own data base and must conduct his/her own analyses and writeups.

3. Copying or using unauthorized aids in tests and examinations.

   In this course, any equations and tables needed in exams will be provided. Any calculator can be brought into the exams. No other resources are allowed.