Description of the measurement course:

With the medical advances that have extended survival in many diseases, health outcome measures (e.g., health status and health-related quality of life) have become important indicators to assess patient’s health beyond laboratory and clinical indicators. Measuring and Analyzing Health Outcomes course is a 3-credit course designed to offer students a background in and understanding of the importance of measurement issues in clinical and outcomes research. This course is designed for students who are pursuing career in the areas of community and clinical epidemiology, health education and behavior, and health services and outcomes research.

This course will introduce measurement methods currently used in the setting of population health sciences and clinical research. Specifically, the design of course will provide students the basic knowledge of health outcomes measure and practical skills in selecting appropriate measures for their own research. This course covers the topics of classical test theory and modern test theory, and their applications to population health sciences and clinical research. The principles of clinimetrics and psychometrics will be introduced, such as reliability, validity, and responsiveness. Data types corresponding to
measurements will be emphasized in the context of statistical analysis. The assessment tools will be compared, especially the generic and disease-specific instruments. Clinical meanings and interpretations for measurement results will be illustrated.

**Course objective:**
The objectives of this course are to help students be familiar with the basic concepts of health outcomes measurement:

- Overview of health outcomes measurement, conceptual framework of measurement, and basic measurement theory (classical test theory, item response theory, and generalizability theory);
- Type of measurement tools (health profile and health utility) and appropriate selection for use;
- Scale design using qualitative methods (focus group and cognitive debriefing);
- Psychometric methods for instrument assessment (reliability, validity, and responsiveness);
- Instrument development and refinement (design a new instrument, shorten an extant instrument, and adapt existing multi-instruments);
- Cross-cultural translation and validation;
- Issues of data analysis (incomplete data, longitudinal data, sample size);
- Issues of instrument administration (proxy-/self-report, administration mode, factors causing measurement bias);
- Outcome measures on special populations (children/adolescent, HIV/AIDS, and cancer) and practical design issues (data collection methods, maximizing and calculating response rates, estimating costs, and reporting issues).

**Course format:**
This course is offered using the lecture format.

**Textbooks/readings for sequence:**

**Basic**

**Advanced**

**Others**
• Reading also will be assigned from the scientific literature and other outcomes measurement and clinical textbooks to address specific measurement issues.

Grading:
Grades will be based on the completion of 1) reaction comments – 20%, 2) research protocol – 30%, 3) project presentation – 30%, and 4) class participation – 20%.

• Reaction comments:
Students must read the assigned readings prior to attending each class session, and submit one single-spaced page (12 points in size) of reactions, thoughts, comments and/or questions (note, not a summary of the readings) on the main issues raised in the readings. Weekly assignment is due via email to Instructor Dr. I-Chan Huang and copy Teaching Assistant Kelly Kenzik by 8:00am the day of each class session. Students need to focus on 1) conceptual and methodological implications of the readings, 2) what has been learned from each reading and its implications to student’s area of research, and 3) what it is not clear and the need for further discussion.

• Research protocol and project presentation:
Each student will prepare for a research protocol based on his/her research interests and addressing the following issues: 1) **background of this “measurement” project** (including importance of a research issue, uniqueness of the target population, and specific research questions), 2) **content and domains of the measurements relevant to the research questions**, 3) **systematic review of the existing instruments and identify the methodological flaw**, 4) **specific instruments that will be developed and/or validated to address the research questions** (including conceptual framework, measurement module [new instrument, adopted instruments, or combination of different instruments], format, mode of administration, etc), 5) **specific strategies to evaluate measurement properties of the instrument** (including using classical test theory versus item response theory to evaluate reliability, validity, responsiveness, etc), and 6) **the final product of the instrument** (including content of specific items, response format, and user guide for scoring and interpretation). A final research protocol (10 double-spaced pages and 12 points in size) is due via email to Instructor Dr. I-Chan Huang and copy Teaching Assistant Kelly Kenzik at 11:59pm on December 6, 2012.

Each student is asked to present the research protocol for 25 minutes (including 20 minutes presentations and 5 minutes Q&A). The content of the presentation needs to include the following sections: 1) background, 2) conceptual framework, 3) study population and data collection method, 4) instrument development process, 5) instrument validation methods, and sample items of the instrument.

Students will receive feedback based on the presentation. Students should incorporate the feedback into the process of protocol development.
• Class discussion:
Each student will be assigned to initiate the discussion for one to three class
sessions. You must be prepared to “jump start” the discussion (e.g. present
discussion questions). All students must participate in each class discussion.
Grades will be assigned as follows:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Grade Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>95-100</td>
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<tr>
<td>A-</td>
<td>90-94</td>
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<tr>
<td>B+</td>
<td>87-89</td>
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<tr>
<td>B</td>
<td>83-86</td>
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<tr>
<td>B-</td>
<td>80-82</td>
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<tr>
<td>C+</td>
<td>77-79</td>
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<td>C</td>
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<td>C-</td>
<td>70-72</td>
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<td>D+</td>
<td>67-69</td>
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<td>D</td>
<td>63-66</td>
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<td>D-</td>
<td>60-62</td>
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<td>E</td>
<td>59 and below</td>
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Dates and topics:

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 24</td>
<td>Overview of health outcomes measurement – definition and conceptual framework</td>
</tr>
<tr>
<td>August 31</td>
<td>Measurement theory and type of health outcomes instrument</td>
</tr>
<tr>
<td>September 7</td>
<td>Instrument development (1) – focus group and cognitive debriefing</td>
</tr>
<tr>
<td>September 14</td>
<td>Instrument development (2) – design at item and scale levels</td>
</tr>
<tr>
<td>September 21</td>
<td>Measurement methods (1) – classical test theory</td>
</tr>
<tr>
<td>September 28</td>
<td>Case study (1) – Mplus, factor analysis, and KidCare project</td>
</tr>
<tr>
<td>October 5</td>
<td>Measurement methods (2) – response shift and responsiveness</td>
</tr>
<tr>
<td>October 12</td>
<td>Measurement methods (3) – item response theory</td>
</tr>
<tr>
<td>October 19</td>
<td>1. Factors influencing patient-reported outcomes measurement</td>
</tr>
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<td></td>
<td>2. Cross-cultural instrument translation and validation</td>
</tr>
<tr>
<td>October 26</td>
<td>Case study (2) – PARSACLE, item bank development, and St. Jude Childhood Cancer project</td>
</tr>
<tr>
<td>November 02</td>
<td>1. Guest speaker – Dr. Scott Gilbert</td>
</tr>
<tr>
<td></td>
<td>2. TA’s section</td>
</tr>
<tr>
<td>November 09</td>
<td>Homecoming holiday – No class</td>
</tr>
<tr>
<td>November 16</td>
<td>1. Application in clinical/health services research and future direction</td>
</tr>
<tr>
<td></td>
<td>2. Student presentation (1)</td>
</tr>
<tr>
<td>November 23</td>
<td>Thanksgiving holiday – No class</td>
</tr>
<tr>
<td>November 30</td>
<td>Student presentation (2)</td>
</tr>
</tbody>
</table>
Course Outlines:

**August 24** Overview of health outcomes measurement – definition and conceptual framework

Reading:

**August 31** Measurement theory and type of health outcomes instrument

Reading:

**September 7** Instrument development (1) – focus group and cognitive debriefing

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Reading:

October 12  Measurement methods (3) – item response theory

Reading:
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1. Factors influencing patient-reported outcomes measurement  
2. Cross-cultural instrument translation and validation

Reading:  

October 26  
Case study (2) – PARSCALE, item bank development, and St. Jude Childhood Cancer project

Reading: TBA

October 02  
1. Guest speaker – Dr. Scott Gilbert (Department of Urology, UF College of Medicine)  
2. TA’s section

Reading: TBA

October 09  
Thanksgiving holiday – No class

November 16  
1. Application in clinical/health services research and future direction  
2. Student presentation (1)

Reading:  
November 23 Thanksgiving holiday – No class

December 06 Student presentation (2)

Reading: No assignment

CLASS ATTENDANCE
Class attendance is mandatory. Excused absences follow the criteria of the UFL Graduate Catalogue (e.g., illness, serious family emergency, military obligations, religious holidays), and should be communicated to the instructor prior to the missed class day when possible. UFL rules require attendance during the first two course sessions, and students also must attend all course sessions of student presentations for this class. Missing more than three scheduled sessions will result in a failure. Regardless of attendance, students are responsible for all material presented in class and meeting the scheduled due dates for class assignments. Finally, students should read the assigned readings prior to the class meetings, and be prepared to discuss the material for each session.

WebCT
Course information, readings, and grades are available on WebCT Vista at http://lss.at.ufl.edu/. You must have a Gatorlink account to log on. To use the system, please make sure to:

• Check if your browser settings are properly configured. Use the “WebCT Browser Tuneup” link from the main page under “WebCT Resources”
• Disable pop-up blockers. Vista takes advantage of pop-up windows to deliver content.
• Make sure that the Java system on your computer is from Sun Microsystems. Vista does not use Java from Microsoft. Without Java, certain tools in Vista will not function correctly. You can do a check on your Java status from the main page under “WebCT Resources.”
• Have Adobe Acrobat Reader installed.

STUDENTS WITH DISABILITIES
Students requiring accommodations must first register with the Dean of Students' Office. The Dean of Students' Office will provide documentation to the student who must then provide this documentation to the faculty member when requesting accommodation. The
College is committed to providing reasonable accommodations to assist students in their coursework.

**ACADEMIC INTEGRITY**
Each student is bound by the academic honesty guidelines of the University and the student conduct code printed in the Student Guide and on the University website. The Honor Code states: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.” Cheating or plagiarism in any form is unacceptable and inexcusable behavior.

**POLICY ON STYLE FOR CITATION AND PLAGIARISM**
The two key purposes of citation are to 1) give appropriate credit to the authors of information, research findings, and/or ideas (and avoid plagiarism) and 2) facilitate access by your readers to the sources you use in your research.

**Quotations:** When directly quoting an outside source, the borrowed text, regardless of the amount, must be surrounded by quotation marks or block quoted. Quoted text over two lines in length should be single-spaced and indented beyond the normal margins. Every quote must include a source—the author, title, volume, page numbers, etc.—whether an internal reference, footnote, or endnote is used in conjunction with a bibliography page.

**Paraphrasing or Citing an Idea:** When summarizing an outside source in your own words or citing another person’s ideas, quotation marks are not necessary, but the source must be included. This includes, but is not confined to, personal communications from other students, faculty members, experts in the field, summarized ideas from published or unpublished resource, and primary methods derived from published or unpublished sources. Use the general concept of “when in doubt – cite.”

Plagiarism is a serious violation of the academic honesty policy of the College. If a student plagiarizes others’ material or ideas, he or she may receive an “E” in the course. The faculty member may also recommend further sanctions to the Dean, per College disciplinary action policy. Generally speaking, the three keys of acceptable citation practice are: 1) thoroughness, 2) accuracy, and 3) consistency. In other words, be sure to fully cite all sources used (thoroughness), be accurate in the citation information provided, and be consistent in the citation style you adopt. All references should include the following elements: 1) last names along with first and middle initials; 2) full title of reference; 3) name of journal or book; 4) publication city, publisher, volume, and date; and 5) page numbers referenced. When citing information from the Internet, include the WWW address at the end, with the “access date” (i.e., when you obtained the information), just as you would list the document number and date for all public documents. When citing ideas or words from an individual that are not published, you can write “personal communication” along with the person’s name and date of communication.