Patient-reported outcomes (PROs) are any report of health status that comes directly from the patient, without interpretation of the patient’s response by a clinician or anyone else. PROs include, but not limited to, health-related quality of life, symptom burden, functional status, and satisfaction with care. PROs are becoming increasingly important as a primary or secondary outcome to measure in clinical trials and comparative effectiveness research studies. In addition, PROs are starting to be routinely collected in healthcare delivery settings to enhance patient-doctor communication and decision making. This course will provide a comprehensive overview of the PRO measurement and research field. This includes an in-depth review of how to select a high quality measure of a PRO and how to design and evaluate a PRO questionnaire. The course will provide best practices and real case examples for including PROs in clinical research and healthcare delivery settings. The course is open to doctoral and masters students, including students from the Schools of: Public Health, Medicine, Nursing, Pharmacy, Psychology (within Arts and Sciences), Dentistry, and Information and Library Science.

Students will develop and leave the course with a tangible product that will serve as a springboard to the next stage in their careers, be it additional class work, dissertation, or entering (or returning to) the professional job market. Students will lead class discussions of current issues in PRO research, meet and interact with care providers and researchers, and develop and present a term paper focusing on a major issue in PRO measurement and research that may serve as the basis of a future work report, manuscript, or grant application.
## Learning Objectives and Competencies

<table>
<thead>
<tr>
<th>Course Learning Objective</th>
<th>Doctoral-level Competencies</th>
<th>Masters-level Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Build understanding of the fundamental principles, concepts and models of PROs including health-related quality of life.</td>
<td>1,2,3,4,8,9,10</td>
<td>2,3,6,9,11</td>
</tr>
<tr>
<td>2 Develop and apply skills using qualitative methods such as focus groups and cognitive interviewing to evaluating a PRO measure.</td>
<td>1,2,3,4,6,8,9,10</td>
<td>2,12</td>
</tr>
<tr>
<td>3 Develop and apply skills using quantitative methods for evaluating the psychometric properties of a PRO measure.</td>
<td>1,2,3,4,6,7,8,9,10</td>
<td>2,3</td>
</tr>
<tr>
<td>4 Build knowledge on the principles and best practices for integrating PROs in observational studies, population surveillance, and clinical trials.</td>
<td>1,2,3,4,5,6,8,9,10</td>
<td>2,3,9,10,12,14,23</td>
</tr>
<tr>
<td>5 Build knowledge on the principles and best practices for integrating PROs in healthcare delivery settings.</td>
<td>1,2,3,4,5,6,7,8,9,10</td>
<td>2,3,4,9,10,12,14,15,22,23</td>
</tr>
<tr>
<td>6 Understand the role of patient engagement as both co-investigators and research participants.</td>
<td>1,2,3,4,8,9,10</td>
<td>2,9,14</td>
</tr>
<tr>
<td>7 Develop and practice skills in research by reviewing and synthesizing literature, leading topic-focused discussion, developing a research proposal or manuscript draft, and presenting it in a small group forum.</td>
<td>3,5,6,7,8,9,10,11,12,13,15</td>
<td>1,2,3,5,11,12,13,18,19,21,25</td>
</tr>
</tbody>
</table>

### HPM Core Competencies (Doctoral Level)

1. Understand critical issues
2. Develop expertise in a substantive area
3. Review and synthesize a body of research literature
4. Identify, apply theoretical knowledge / conceptual models
5. Develop hypotheses that can be tested in research
6. Select appropriate research designs and methodologies
7. Understand and apply analytical strategies
8. Identify ethical implications of research methods
9. Interpret and explain the results of research
10. Critically evaluate articles from scholarly journals and research presentations
11. Write articles for submission to scholarly journals
12. Understand grant writing process / write proposals
13. Make oral presentations to scientific audiences
14. Participate in teaching a course
15. Explain research to various audiences.

### HPM Core Competencies (Masters Level)

1. Accountability
2. Achievement
3. Analytical Thinking
4. Change Management
5. Communication Skills
6. Community and Public Health Orientation
7. Financial Skills
8. Human Resource Management
9. Information Seeking
10. Information Technology
11. Initiative
12. Innovative Thinking
13. Interpersonal Awareness and Emotional Intelligence
14. Organizational Awareness
15. Performance Measurement
16. Political Savvy
17. Process Management and Organization Design
18. Professionalism
19. Project Management
20. Reputation Management
21. Self-Confidence
22. Strategic Orientation
23. Systems Thinking
24. Talent Development
25. Team Dynamics
**Resources**

**Articles:**

Most assigned readings are available electronically via Health Sciences Library website:

[http://www.hsl.unc.edu/](http://www.hsl.unc.edu/)

**Books:**

There is no required book for class, however there are a few good books out there to reinforce understanding of the topics covered in class:


**Websites:**

**Measures and Measure Databases**

MAPI’s Patient-Reported Outcome and Quality of Life Instruments Database (PROQOLID):


NCI’s Grid-Enabled Measures Database:

[https://www.gem-beta.org/](https://www.gem-beta.org/)

AHRQ’s Consumer Assessment of Healthcare Providers and Systems (CAHPS)


AHRQ’s CAHPS Item Set for Children with Chronic Conditions

NIH’s HealthMeasures website (PROMIS, NIH Toolbox, Neuro-QOL, ASCQ-Me):

http://www.healthmeasures.net/

Rehabilitation Measures Database

http://www.rehabmeasures.org/

Medication Non-adherence Scale (by Corrine Voils)

http://sites.duke.edu/corrinevoils/

RTI & UNC’s Patient-Centered Communication in Cancer Care (PCC-Ca) Measures


**PRO Organizations**

Patient-Centered Outcomes Research Institute (PCORI):

http://www.pcori.org/

International Society for Quality of Life Research (ISOQOL):

http://www.isoqol.org/

International Society for Pharmacoeconomics and Outcomes Research (ISPOR):

http://www.ispor.org/

**Research Projects / Consortia**

GeneQoL Consortium: Genetic Research into Quality of Life:

http://www.geneqol-consortium.org/

Critical Path Institute’s Patient-Reported Outcome (PRO) Consortium:

http://c-path.org/PRO.cfm

Center for Disease Control and Prevention: Health-Related Quality of Life (HRQOL)

http://www.cdc.gov/hrqol/

http://www.cdc.gov/hrqol/HRQOLdata/index.html

Allows visitors to view HRQOL trend data for the entire United States and individual states overall, by gender, age group, race/ethnicity, and by measure and year.
**PRO Guidance**

CMTP’s Effectiveness Guidance Document on Recommendations for Incorporating Patient-Reported Outcomes in Clinical Comparative Effectiveness Research (CER) in Adult Oncology


COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN)


Institute of Medicine (IOM) report on Capturing Social and Behavioral Domains and Measures in Electronic Health Records: Phase 2


ISOQOL-NCI Sponsored Webinars: *Best Practices for Integrating Patient Reported Outcomes in Oncology Clinical Trials*


PlainLanguage.gov: to promote the use of plain language for all government communications.


Webinar on Item Response Theory modeling (by Dr. Karon Cook) – 5-part series starting with:

[https://www.youtube.com/watch?v=SrdblMYq8M&list=PLJNUIJnElUzDmrIPunMyF3tTvIHb65wNb](https://www.youtube.com/watch?v=SrdblMYq8M&list=PLJNUIJnElUzDmrIPunMyF3tTvIHb65wNb)

**Publicly Available Datasets:**

CMS’ Medicare Health Outcomes Survey (MHOS)


NCI & CMS’ SEER-MHOS Linked Database


NCI & CMS’ SEER-CAHPS Linked Database

[https://healthcaredelivery.cancer.gov/seer-cahps/](https://healthcaredelivery.cancer.gov/seer-cahps/)

CDC’s National Health Interview Survey (NHIS)

[http://www.cdc.gov/nchs/nhis.htm](http://www.cdc.gov/nchs/nhis.htm)
CDC’s Behavioral Risk Factor Surveillance System (BRFSS)

http://www.cdc.gov/brfss/

NCI’s Health Information National Trends Survey (HINTS)

http://hints.cancer.gov/

**Key Regulatory Documents:**

FDA’s Guidance for Industry: Patient-Reported Outcomes Measures: Use in Medical Product Development to Support Labeling Claims:


FDA’s Guidance for Industry: Qualification Process for Drug Development Tools:


Clinical Outcome Assessment Qualification Program

Requirements and Expectations

**Class preparation and participation:**

Attendance in class is mandatory for each class session. In the event of a truly extraordinary circumstance, attendance may be excused if brought to the instructor’s attention in advance. All students are expected to do the pre-reading required for each class and to come to class prepared to actively participate in class discussions. Class participation is worth 25% of the final grade, and will be evaluated in a summary measure based on the Evaluation Method noted below. Beyond attending class, participating fully in the discussions will count towards achieving the full score for this requirement.

Phones, Laptops, tablets: Please turn off cell phones in class. Laptops may be used in class only for taking notes and for looking up information relevant to the topic being discussed – email programs, facebook, games, twitter, instagram, etc. will not be accessed during class. Violations of this rule will affect your participation grade.

Percentage of final grade: **25%**.

**Group Assignment**

Students will work in groups of 4 or less on an evaluation of an existing PRO measure of uncertainty in medical care. Students will be expected to work on the project both in and outside class. The project will reinforce the student’s skills in evaluating and revising a questionnaire. More information will be provided in class. Each group will present their results on Feb 28 (subject to change).

Percentage of final grade: **10% (peer grading)**
Individual Assignments:

**Article Discussion.**

Each student will identify an article from the literature related to PRO measurement and research, and lead a twenty to twenty-five minute class discussion of the article during the semester. The article should be relatively recent (e.g., past 5 years), but I would prefer you to select a good quality (i.e., interesting, controversial) article over one that is just recent. Approximately 10-15 minutes of the time should be left to moderating a discussion of the article with the class, including providing lead questions for discussion.

Presentation date: Students will notify Bryce of their top 3 dates to present an article in priority order. I will do my best but can’t guarantee a spot. If you need to switch a day, please arrange on your own with another student to switch; however, please notify Bryce of the change.

Please submit the full citation and pdf of article to Bryce at least 2 weeks prior to your presentation date. **Make sure you read the article before sending the information to Bryce.**

All students are expected to read and be prepared to discuss the student article on day of class presentation.

Presenters should treat this presentation as if they were presenting at a scientific conference.
Guidance for structuring the article discussion.

The following is a widely-used format for structuring journal article discussions, and is encouraged for discussion of articles in this class. Please note that all students will have read your paper before class; thus, you don’t need to go into deep detail on methods.

1. Overview. (Consider one PP slide per bullet point below)
   - What is the overall study question/issue?
     i. There may be multiple questions/issues, though there is typically a primary one.
     ii. A brief background to the issue is important for understanding the context of this article, its relevance, and implications.
   - What methods were used to answer the question / address the issue?
   - What are the major results, as the author reported them?
   - What are the conclusions and implications of findings?

2. Evaluation and Discussion
   Note: The evaluation and discussion is both a presentation and an interactive discussion – it is appropriate to solicit the feedback of others in the class; for example, if they agree or disagree, or have particular perspectives on the matter, particularly with regard to the conclusions, implications, and future research points.
   - Address the strengths and limitations of the study, including (as appropriate):
     i. Study design appropriate for the study question?
        1. Strengths/weaknesses of study design (e.g., qualitative and/or quantitative approach; randomized double blind control trial; case-control; etc.)
        2. Groups treated equally/appropriately during study
     ii. Results
        1. Significant? (In the statistical or clinically-relevant sense)
        2. Important? (In the substantial or meaningful sense)
     iii. Conclusions / Implications
        1. Justified?
        2. Actionable (e.g., can inform the "Why?" of an issue [vs. just being descriptive or oriented toward "What?"]
           , or contribute to an intervention to change research or outcomes?)
   - Take home message (****very important to address this)
     i. This is the focal point of the discussion. What do you think about the article? What is the big take home message? What are next steps or research gaps? Are the authors on-track or off-base? What do we learn from this, in terms of what was right/good, what was wrong/off-target?
   - Guidance for future research. (****very important to address this)
     i. This may come through discussion, above, but I would like to emphasize it as a meaningful take-away from the article in and of itself. As researchers and practitioners, how is our research (or our colleagues’ research, if this isn’t exactly our personal research focus area) informed by this work?

Percentage of final grade: 20%.
**Term Paper.**

The purpose of the term paper is three-fold:

1. To provide you a forum to focus on an element of PRO measurement and/or research that is of greatest interest to you,
2. To help cement what you have learned in the class through (near) real-world application, and
3. To allow you to develop a tangible product that may serve as the basis for the next steps in your career, such as
   a. A manuscript for publication,
   b. Basis for your dissertation research.
   c. A draft PRO questionnaire for a study.
   d. A grant proposal for a K-award or other investigator-initiated funding,
   e. An interview and job talk for an academic or practice-related position in cancer care quality, or
   f. All of the above.

There are three components to the term paper assignment:

a. The term paper topic and overview (1 page) will be proposed and submitted at the beginning of class 4 (please make sure your name is on the page). This will insure that students are actively engaged in thoughtful preparation and work on the term paper, and allow timely feedback to shape the completion of the term paper. You must respond to any questions or comments I raise and seek comment or changes. You must get final confirmation from me before grade can be determined.

b. The final term paper will be in the format of a manuscript (1. Introduction, 2. Methods, 3. Results, 4. Conclusions) or portions of a grant application (A. Overview and specific Aims, B. Background, C. Preliminary studies [if appropriate], and D. Proposed methods.) The term paper is due on the First Day of Exams for the University, according to the University Registrar's calendar. It will be at maximum 15 pages in length excluding citations (line-spacing exactly 2.0 (double-spaced), 1" margins, 11 point TNR or Arial font). Citations are required, but do not fall within the page constraints.

c. The term paper presentation will be approximately 10 minutes in length plus approximately 5 minutes for Q&A, and will occur on one of the last two days of the class. It will be an oral, PowerPoint-aided presentation, in which the student stands to present (as if in a scientific conference). The presentation format will be variable, but should generally be structured as a professional presentation of research, or the synthesized motivation for a research agenda (e.g., literature review or grant proposal development). Given the short length, hit on the major issues (Overall study questions/objectives/goals; methods used to address question/objective/goals; results; overall conclusions**; take home message**)

A goal of the class is for you to complete the class with momentum toward your next set of academic/professional activities, be it publishing a paper or submitting a grant application. Accordingly, you are encouraged to select a topic that you may be interested in developing further, or may be working on in another class, in order to gain synergy and develop products that may be of a higher caliber than if you were to address them independently.
For example, if you are taking a research methods class and are working on data, you may approach this as an opportunity to review and synthesize the literature supporting your analysis. An idea may be to approach the data as a pilot analysis for a grant application, in which your methods/data would be presented in Section C of a grant proposal, and this class could provide the forum for an extensive literature review and synthesis to comprise Sections A and B.

It is important that a topic or issue be explicitly identified and evaluated. That is, this is not to be a "book report," rather, your topic should be developed following the guidelines outlined in the Evaluation section, below. Guidance for the presentation of the article discussion (above) may also be informative in terms of providing a structure, and insight regarding emphasis.

While this synergy is encouraged, it is not acceptable to turn in the exact same product for credit in two separate classes (or one you submitted to a prior class).

To minimize uncertainty, it is encouraged to work with the instructor to select a topic and touch base periodically regarding progress, to obtain guidance for an effective end-product.

It is important that the central focus of this paper is to be on patient-reported outcomes measurement and/or research. In other words, it is incumbent upon the student to successfully make the case for how or why their topic is related to the course topic. Also, please make sure you are not duplicating what may have been recently published in the field.

Percentage of final grade: Term paper topic and overview: 5%.
Percentage of final grade: Final Term Paper: 30%.
Percentage of final grade: Term Paper Presentation: 10%.

Exams:

There are no written mid-term or final examinations for this course. There may be a pop-quiz if it is felt by the instructor that students are not doing the readings. Grades on the pop-quizzes will count in the participation grade.
**Student Evaluation**

Work will be evaluated, given a letter grade, and returned to you as soon as possible. Your assignments will be graded on the following criteria: organization, responsiveness, use of readings, and synthesis of ideas, as follows:

<table>
<thead>
<tr>
<th>CRITERION</th>
<th>RANGE OF PERFORMANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ORGANIZATION</strong></td>
<td></td>
</tr>
<tr>
<td>Organization and</td>
<td>Marginal (L)</td>
</tr>
<tr>
<td>presentation of</td>
<td>Difficult to follow. Sequence hard to see.</td>
</tr>
<tr>
<td>ideas.</td>
<td>Good (P)</td>
</tr>
<tr>
<td></td>
<td>Clear, crisp logical response.</td>
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<tr>
<td></td>
<td>Excellent (H)</td>
</tr>
<tr>
<td></td>
<td>Innovative organization. Use of charts, diagrams, and other materials where appropriate.</td>
</tr>
<tr>
<td><strong>RESPONSIVENESS</strong></td>
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<tr>
<td>Responsiveness to</td>
<td>Tendency to take a tangent.</td>
</tr>
<tr>
<td>questions/issues.</td>
<td>Generally on track. Understands key principles and interprets appropriately within the assignment.</td>
</tr>
<tr>
<td></td>
<td>Interprets questions, innovates and explicitly responds to them. Clearly states assumptions underlying position.</td>
</tr>
<tr>
<td><strong>USE OF READINGS</strong></td>
<td></td>
</tr>
<tr>
<td>Evidence of</td>
<td>Little or no mention of ideas from readings.</td>
</tr>
<tr>
<td>awareness of key</td>
<td>Mentions key ideas or thoughts from core readings.</td>
</tr>
<tr>
<td>ideas or facts</td>
<td>Discusses and critically analyzes ideas and theories as applied to assignment. Integrates optional/ recommended readings. (Uses appropriate outside citations to support analysis.)</td>
</tr>
<tr>
<td>brought out in</td>
<td></td>
</tr>
<tr>
<td>readings</td>
<td></td>
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<tr>
<td><strong>INTEGRATION</strong></td>
<td></td>
</tr>
<tr>
<td>Integration of</td>
<td>Repetition or summarization of articles with little or no application.</td>
</tr>
<tr>
<td>ideas; models,</td>
<td>Straightforward, factual response.</td>
</tr>
<tr>
<td>thought based on</td>
<td></td>
</tr>
<tr>
<td>readings and/or</td>
<td>Builds, innovative, and relates concepts from several articles to make a point or establish a position.</td>
</tr>
<tr>
<td>assignment;</td>
<td></td>
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<tr>
<td>evidence of</td>
<td></td>
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<tr>
<td>synthesis, new</td>
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<tr>
<td>perspective,</td>
<td></td>
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<tr>
<td>unifying concepts.</td>
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</tbody>
</table>

Letter grades will be assigned for all assignments, and numerically averaged using the values here:

<table>
<thead>
<tr>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter</td>
</tr>
<tr>
<td>H</td>
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<tr>
<td>H-</td>
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<td>P+</td>
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<td>Grade</td>
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<td>L</td>
</tr>
<tr>
<td>L-</td>
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<tr>
<td>F</td>
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</tbody>
</table>

The expectation is that most students will receive a “P” grade. Truly exceptional work may result in a grade of “H”.

**UNC Honor Code**

The principles of academic honesty, integrity, and responsible citizenship govern the performance of all academic work and student conduct at the University as they have during the long life of this institution. Your acceptance of enrollment in the University presupposes a commitment to the principles embodied in the Code of Student Conduct and a respect for this most significant Carolina tradition. Your reward is in the practice of these principles.

Your participation in this course comes with the expectation that your work will be completed in full observance of the Honor Code. Academic dishonesty in any form is unacceptable, because any breach in academic integrity, however small, strikes destructively at the University's life and work.

If you have any questions about your responsibility or the responsibility of faculty members under the Honor Code, please consult with someone in either the Office of the Student Attorney General (966-4084) or the Office of the Dean of Students (966-4042).

Read “The Instrument of Student Judicial Governance” ([http://instrument.unc.edu](http://instrument.unc.edu)).

**Recognizing, Valuing, and Encouraging Diversity**

Promoting and valuing diversity in the classroom enriches learning and broadens everyone’s perspectives. Inclusion and tolerance can lead to respect for others and their opinions and is critical to maximizing the learning that we expect in this program. This may challenge our own closely held ideas and personal comfort zones. The results, however, create a sense of community and promote excellence in the learning environment. Diversity includes consideration of (1) the variety of life experiences others have had, and (2) factors related to “diversity of presence,” including, among others, age, economic circumstances, ethnic identification, disability, gender, geographic origin, race, religion, sexual orientation, social position. This class will follow principles of inclusion, respect, tolerance, and acceptance that support the values of diversity.
Disability Accommodation

UNC-CH supports all reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability, or a pregnancy complication resulting in difficulties with accessing learning opportunities.

All accommodations are coordinated through the UNC Office of Accessibility Resources & Services (ARS), [http://accessibility.unc.edu](http://accessibility.unc.edu); phone 919-962-8300 or email accessibility@unc.edu. Students must document/register their need for accommodations with ARS before any accommodations can be implemented.

Course Evaluation

HPM participates in the UNC-CH’s online course evaluation system. Your responses will be anonymous, with feedback provided in the aggregate. Open-ended comments will be shared with instructors, but not identified with individual students. Your participation in course evaluation is an expectation, since providing constructive feedback is a professional obligation. Feedback is critical, moreover, to improving the quality of our courses, as well as for instructor assessment.
# Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic:</th>
<th>Course Overview and Introduction to “Patient-Reported Outcomes Measurement and Application in Healthcare Research and Practice”</th>
</tr>
</thead>
</table>

## Module: Design and Evaluation of a PRO Measure

<table>
<thead>
<tr>
<th>2 Jan. 24</th>
<th>Topic:</th>
<th>Steps to Design and Evaluate a PRO Measure</th>
</tr>
</thead>
</table>
|          | Assignment due before class: | Submit to Bryce via email (bbreeve@email.unc.edu) prior to start of class a ½ page (in Word) narrative bio (program, education, background, research interests, favorite fun things/hobby) and a picture (head shot) of yourself. Please put your picture in the Word document.  
Registered students: Submit to Bryce your top 3 preferred dates for student article presentation  
<table>
<thead>
<tr>
<th>3 Jan 31</th>
<th>Topic: Qualitative Methods to Develop and Evaluate a PRO Measure</th>
</tr>
</thead>
</table>
| Guest Speaker: | Antonia Bennett, PhD  
Research Assistant Professor, HPM |
| Students Presenting | • Jordy Laks  
• Jenny Spencer  
| PRO Measurement project | • Bryce give overview  
• Meet in teams |

<table>
<thead>
<tr>
<th>4 Feb 7</th>
<th>Topic: Quantitative Methods to Evaluate a PRO Measure (Part 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment due:</td>
<td>• Submit to Bryce by email (<a href="mailto:bbreeve@email.unc.edu">bbreeve@email.unc.edu</a>) before start of class your one page term paper topic overview.</td>
</tr>
<tr>
<td>PRO Measurement project</td>
<td>• Meet in teams</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5 Feb 14</th>
<th>Topic: Quantitative Methods to Evaluate a PRO Measure (Part 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Readings:</td>
<td>• Edelen MO, Reeve BB. Applying item response theory (IRT) modeling to questionnaire development, evaluation, and refinement. Quality of Life</td>
</tr>
<tr>
<td>-----------------------------</td>
<td></td>
</tr>
<tr>
<td>In Table 1, the order of the first row for the IRT and RMT were switched by mistake.</td>
<td></td>
</tr>
<tr>
<td>View IRT webinars by Karon Cook (see page 5 of syllabus for link)</td>
<td></td>
</tr>
</tbody>
</table>

**Assignment due:**

- Go to PROMIS website ([http://www.NIHpromis.org](http://www.NIHpromis.org)), click on tab “PROMIS For You” at top, then click on menu item, “PROMIS Demo”. **Click on “Try a demonstration of the PROMIS CAT” and then select 3 or more domains and complete questionnaire. What do you think of measure and summary?**

**Students Presenting**

- Will Bayliss
- Gracelyn Cruden

**PRO Measurement project**

- Meet in teams

---

<table>
<thead>
<tr>
<th>6 Feb 21</th>
<th>Topic:</th>
<th>Methodological Issues in PRO Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guest Speaker:</td>
<td>Antonia Bennett, PhD</td>
<td></td>
</tr>
<tr>
<td>Research Assistant Professor, HPM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students Presenting</td>
<td>Effie Wei</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Everett Young</td>
<td></td>
</tr>
</tbody>
</table>
## Module: PROs in Clinical Research (Observational Studies, Comparative Effectiveness Research, Clinical Trials, Population Surveillance)

<table>
<thead>
<tr>
<th>7 Feb 28</th>
<th>Topic:</th>
<th>Best practices for integrating PROs in clinical research (Part 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRO Measurement project</strong></td>
<td></td>
<td><strong>Present findings</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8 Mar 7</th>
<th>Topic:</th>
<th>Best practices for integrating PROs in clinical research (Part 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students Presenting</strong></td>
<td></td>
<td><strong>Anagha Gogate</strong>&lt;br&gt;<strong>Herodes Guzman</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9 Mar 21</th>
<th>Topic:</th>
<th>PRO Research in a Regulatory Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Guest Speaker:</strong></td>
<td>Wen-Hung Chen, PhD&lt;br&gt;Social Science Analyst, Food and Drug Administration (FDA)&lt;br&gt;Lori McLeod, PhD&lt;br&gt;Director of Psychometrics, RTI Health Solutions</td>
<td></td>
</tr>
<tr>
<td><strong>Students Presenting</strong></td>
<td></td>
<td><strong>Alecia Slade</strong>&lt;br&gt;<strong>Chris Iskander</strong></td>
</tr>
</tbody>
</table>
# Module: PROs for Improving Quality of Care

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic:</th>
<th>Best practices for integrating PROs in healthcare delivery settings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10 Mar 28</strong></td>
<td><strong>Topic:</strong></td>
<td><strong>Best practices for integrating PROs in healthcare delivery settings</strong></td>
</tr>
</tbody>
</table>
| **Students Presenting:** | • Eric Tran  
• Alex Gertner |

| **11 Apr 4** | **Topic:** | Using PROs as performance measures for assessing quality of care. |
| **Guest Speaker:** | **Ethan Basch, MD, MSc**  
**Director, Cancer Outcomes Research Program**  
**Professor, School of Medicine and School of Public Health, UNC**  
**Angela Stover, PhD**  
**Post-Doc, Cancer Outcomes Research Program** |
| **Students Presenting (2-3:15):** | • Neela Kumar  
• Garrett Thompson |

| **12 Apr 11** | **Topic:** | Best practices for integrating PROs in healthcare delivery settings (II) |
# Student Project Presentations

<table>
<thead>
<tr>
<th>Date</th>
<th>Student Project Presentations (15 minutes total per person)</th>
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</thead>
</table>
| 13 Apr 18 | 1.  
|         | 2.  
|         | 3.  
|         | 4.  
|         | 5.  
|         | 6.  
|         | 7.  |
| 14 Apr 25 | 1.  
|          | 2.  
|          | 3.  
|          | 4.  
|          | 5.  
|          | 6.  
|          | 7.  |