PHCY 5144 Patient Reported Outcomes
2 Credit Hours

Background
Patient-reported outcomes (PROs) refer to various methods used to capture the patient perspective, and may include symptoms, functioning, health-related quality of life (HRQOL), or patient-perceived health status. These measures provide important information that is increasingly being used to inform health care decision-making.

Course Description
This course is designed to provide an overview of methods pertaining to the development and evaluation of PROs and the role they play in regulatory, reimbursement, and market access decisions.

Course Purpose
The purpose of this course is to provide an understanding of both the design and application of PROs with respect to drug approval and health technology assessment.

Place and Time of Class Sessions
This course will be taught primarily in a synchronous fashion. Virtual classroom sessions will be held live each week on Sunday afternoon from 3:00pm to 5:00pm Wyoming time. Students will be responsible for completing course materials as their time permits, each week, during the 5 weeks of the course, with quizzes and exams being administered on weekends. Discussion board sessions will be held around the clock during the course. Students are expected to actively participate in discussion board on a regular basis. Questions regarding course content should be posted to the discussion board to allow access by all students to the discussion of this course material.

Course Faculty and Office Hours
Course Coordinator:
Kristin Khalaf Gillard, PharmD, PhD
Email: kkhalaf@uwyo.edu
Office Hours: by appointment

Course Objectives
Upon successful completion of this course, the student will be able to:
1. Understand how PROs fit into the context of clinical outcome assessments (COAs) from a regulatory perspective
2. List and define the different types of PROs, and select the most appropriate PRO to use for different research objectives
3. Describe the standard process by which PRO measures are developed and evaluated, and critically evaluate the measurement properties of a PRO
4. Understand the concept of utility, methods to elicit patient preferences, and the role of preference indices in health technology assessment
5. Describe the steps involved in cross-culturally adapting existing PRO measures
6. Interpret and critically analyze published outcomes research

Course Learning Resources:

- Required textbook:
  - Streiner David L, Norman Geoffery R, Cairney J. Health Measurement Scales: A Practical Guide to Their Development and Use. 5th Edition. Oxford University Press, 2015.
- Additional assigned reading material (reading and/or video) will be provided on a weekly basis
- Additional recommended textbook (not required; will post individual chapters online as per reading list):
  - DeVellis RF. Scale Development: Theory and Applications. Fourth Edition. Sage Publications, Los Angeles CA, 2017.

Course Structure & Outline

Live online virtual classes will be held each week for 5 weeks using the virtual classroom (via Zoom). Class will be held on April 15 (week 1), April 22 (week 2), April 29 (week 3), May 6 (week 4), and May 13 (week 5). Class attendance is mandatory. Homework will be assigned following weeks 1, 2, and 4. A midterm examination will be administered following week 3. The final exam will be due on May 15 by midnight.

Evaluation Techniques:

Class participation (including discussion boards)		50 points
Homework Assignment 1		10 points
Homework Assignment 2		10 points
Homework Assignment 3		10 points
Midterm Exam		30 points
Final Exam		50 points
	Total Points	160 points

Grading:

A: 90.0 – 100.0
B: 80.0 – 89.9
C: 70.0 – 79.9
D: 60.0 – 69.9
F: <60.0

Class Attendance Policy

Students must attend all five (5) classes, and productively participate in discussion board. Each student is expected to initiate one original thread per week and one responsive thread that follows the original thread posted by another student. All threads, whether original or responsive, must relate directly to the course material for that week, and must indicate reflective consideration of the material.

Quiz/Exam Policy

Inquiries regarding exams should be directed to the course coordinator, preferably prior to the assessment, and always within a week following the assessment.

Re-Grading Policy
Requests for a re-grade of an examination, quiz, assignment, or in-class preparedness/participation points, must be requested within 2 business days of the return of the examination, quiz, or assignment. If the 2 business day period elapses and the student does not realize this, the request for a re-grade will NOT be considered. All requests for re-grading must be made in a written statement to the course coordinator and must be supported by appropriate justification (required textbooks, reading assignments, lecture citations). A request for re-grading is a re-evaluation of your work and has the potential to increase or decrease your grade when your work is reconsidered.

Make-up Quiz/Exam Policy
Students who are not excused from a missed quiz or exam will receive a grade of zero on that missed assessment. Any student who misses quizzes and/or exams of a sufficient number that indicate the student has not completed enough coursework to achieve the objectives of the course will be given an incomplete (I) grade for the course.

Policy on Old Quizzes and Assignments
Be advised that exams are an official University document, and not a public record, and therefore may not be communicated, copied or reproduced by any means, either in whole or in part, or shared with others in any form. Violators will be subject to discipline.

Academic Dishonesty Statement:
The University of Wyoming is built upon a strong foundation of integrity, respect and trust. All members of the university community have a responsibility to be honest and the right to expect honesty from others. Any form of academic dishonesty is unacceptable to our community and will not be tolerated. Teachers and students should report suspected violations of standards of academic honesty to the instructor, department head, or dean. Other University regulations can be found at:
http://uwadmnweb.uwyo.edu/legal/universityregulations.htm

Disability Support Statement:
The University of Wyoming is an affirmative action/equal opportunity educator and employer. If you have a physical, learning, or psychological disability and require accommodations, please let the instructor know as soon as possible. You will need to register with, and provide documentation of your disability to University Disability Support Services (UDSS) in SEO, room 330 Knight Hall. The University Disability Support Services website, which may be found at:
http://uwadmnweb.uwyo.edu/udss/facultyandstaff/tipsforteaching.asp or you may contact UDSS for more information at (307) 766-6189, TTY: (307) 766-3073.

Course Schedule, Required Readings, and Assignments

Class will begin on April 15 and end on May 13. The final examination will be due by midnight on May 15 (final grades are due by noon on May 17).

Week (Date)	Topic and Readings	Assignment
1 (April 15)	**Topics:** • **Course Introduction** • **Overview of Clinical Outcomes Assessments** • **Patient-reported Outcomes: Basic Concepts** *Required Readings:* – Waltman MK, et al. Clinical Outcome Assessments: Conceptual Foundation – Report of the ISPOR Clinical Outcomes Assessment – Emerging Good Practices for Outcomes Research Task Force. *Value in Health* 2015;18:741-752. – Streiner & Norman Chapter 1-2 – Lower SK. Part 2. The meaning of measure: accuracy and precision (pg. 11-15). Matter and measure. http://www.sfu.ca/person/lower/TUTORIALS/matmeas/ – Chapter 8: Measurement in the Broader Research Context (p. 233-246) from DeVellis RF. *Scale Development: Theory and Applications. Fourth Edition*. Sage Publications 2017. Thousand Oaks, CA. *Supplemental:* – FDA Clinical Outcome Assessment Qualification Program. Access at: http://www.fda.gov/Drugs/DevelopmentApprovalProcess/DrugDevelopmentToolsQualificationProgram/ucm284077.htm. – COA Compendium (Pilot Version 1). FDA, February 2016. – Wilson KA, Dowling AJ, et al. Perception of quality of life by patients, partners and treating physicians. *Quality of Life Research* 2000; 9(9): 1041-1052.	Homework 1 Assigned (Due April 21)
2 (April 22)	**Topics:** • **Validity** • **Qualitative Research Methods for Developing PROs**	Homework 2 Assigned (Due April 28)

	Readings: - Streiner & Norman. Chapters 3, 4, 5, & 6 - Chapter 4: Validity (p. 83-103) from DeVellis RF. *Scale Development: Theory and Applications. Fourth Edition*. Sage Publications 2017. Thousand Oaks, CA. - United States Department of Health and Human Services Food and Drug Administration. Guidance for Industry Patient-Reported Outcome Measures: Use in Medical Product Development to Support Labeling Claims. 2009. *Conceptual framework of a PRO instrument* (pp. 7-18). - Patrick DL, Burke LB, Gwaltney CJ, et al. Content Validity – Establishing and reporting the evidence in newly developed patient-reported outcomes (PRO) instruments for medical product evaluation: ISPOR PRO good research practices task force report: Part 1 – eliciting concepts for a new PRO instrument. Value Health. 2011;14:967-977. - Patrick DL, Burke LB, Gwaltney CJ, et al. Content Validity – Establishing and reporting the evidence in newly developed patient-reported outcomes (PRO) instruments for medical product evaluation: ISPOR PRO good research practices task force report: Part 2 – assessing respondent understanding. Value Health. 2011;14:978-988. - Lasch KE, Marqui P, Vigneux M, et al. PRO development: rigorous qualitative research as the crucial foundation. Qual Life Res. 2010;19:1087-1096. - Kennedy TJT & Lingard LA. Making sense of grounded theory in medical education. Med Educ. 2006;40:101-108. *Supplemental:* - Nitko AJ (2001). Chapter 3: Validity of Assessment Results. In *Educational assessment of students (5th ed.) pp. 33-58*. Upper Saddle River, N.J.: Merrill-Prentice Hall. - Sireci SG (2009). Chapter 2: Packing and unpacking sources of validity evidence: history repeats itself again. In *The Concept of Validity: Revisions, New Directions, and Applications*, pp. 19-37. Charlotte, NC. Information Age Publishing. - Streiner & Norman Chapter 10, Chapter 5 pp. 79-80 (Face Validity)	

	- Chapter 6: Designing Questions to be Good Measures from Fowler FJ. *Survey Research Methods. Fourth Edition*. Sage Publications 2009. Thousand Oaks, CA. - Brod M, Tesler LE, Christensen TL. Qualitative research and content validity: developing best practices based on science and experience. Qual Life Res. 2009;18:1263-1278. - Chapter 7: Evaluating Survey Questions and Instruments from Fowler FJ. *Survey Research Methods. Fourth Edition*. Sage Publications 2009. Thousand Oaks, CA. - Wagner TH, Patrick DL, Bavendam MLl, Martin ML, Buesching DP. Quality of life of persons with urinary incontinence: development of a new measure. Urology. 1996;47:67-72.	
3 (April 29)	**<u>Topics:</u>** • **Introduction to measurement** • **Quantitative Evaluation of PROs** *Readings:* - Chapter 1: Overview (p. 1-21) from DeVellis RF. *Scale Development: Theory and Applications. Fourth Edition*. Sage Publications 2017. Thousand Oaks, CA. - Chapter 2: Understanding the Latent Variable (p. 23-37) from DeVellis RF. *Scale Development: Theory and Applications. Fourth Edition*. Sage Publications 2017. Thousand Oaks, CA. - Streiner & Norman Chapter 8, Chapter 12 "Introduction to Item Response Theory" and "Problems with Classical Test Theory" (p. 273-275)_ - Cappelleri J, Lundy JJ, Hays R. Overview of Classical Test Theory and Item Response Theory for Quantitative Assessment of Items in Developing Patient-reported Outcomes Measures. Clinical Therapeutics 2014;36(5):648-662. - Chapter 6: Factor Analysis (p. 153-204) from DeVellis RF. *Scale Development: Theory and Applications. Fourth Edition*. Sage Publications 2017. Thousand Oaks, CA. - Fabrigar LR, Wegener DT. Evaluating the use of Exploratory Factor Analysis in Psychological Research. Psychological Methods 1999;4(3):272-299. - Chapter 7: An Overview of Item Response Theory (p. 205-231) from DeVellis RF. *Scale Development: Theory and Applications. Fourth Edition*. Sage Publications 2017. Thousand Oaks, CA.	Online Midterm is LIVE from Friday, May 4 noon until Sunday, May 6 3pm

	Supplemental: - Chapter 2: A Review of Basic Statistical Concepts (Sections 2.1 to 2.11, pg. 6-42) from Allen MJ and Yen WM. *Introduction to Measurement Theory*. Waveland Press 2002. Long Grove, Illinois. - Chapter 3: Reliability (p. 39-82) from DeVellis RF. *Scale Development: Theory and Applications. Fourth Edition*. Sage Publications 2017. Thousand Oaks, CA. - Streiner & Norman Chapter 9 - Chapter 4: Reliability (p. 84-112) from Anastasi A, Urbina S. Pscychological Testing. Seventh Edition. Prentice Hall. Upper Saddle River, NJ. - McGraw KO, Wong SP. Forming Inferences About Some Intraclass Correlation Coefficients. Psychological Methods 1996;1(1): 30-46. - Sijtsma K. On the use, misuse, and very limited usefulness of Cronbach's alpha. Psychometrika 2009;74(1):107-120. - Hambleton RK. Emergence of Item Response Modeling in Instrument Development and Data Analysis. Medical Care 2000;38(9):1160-1165. - Hays RD, Morales LS, Reise SP. Item Response Theory and Health Outcomes Measurement in the 21st Century. Medical Care 2000;38(9):1128-1142. - Streiner & Norman Chapter 12	
4 (May 6)	**<u>Topics:</u>** • **Measurement wrap-up** • **Regulatory considerations for the use of PROs in clinical development** *Readings:* - United States Department of Health and Human Services Food and Drug Administration. Guidance for Industry Patient-Reported Outcome Measures: Use in Medical Product Development to Support Labeling Claims. 2009. (pp. 1-20, up to Section F) - Rothman M, Burke L, Erickson P, et al. Use of Existing PRO Instruments and their Modification: The ISPOR Good Research Practices for Evaluating and Documenting Content Validity for the Use of Existing Instruments and their Modification PRO Task Force Report. Value in Health 2009;12(8):1075-1083.	Homework 3 Assigned (Due May 12)

	- United States Department of Health and Human Services Food and Drug Administration. Guidance for Industry Patient-Reported Outcome Measures: Use in Medical Product Development to Support Labeling Claims. 2009. (pp. 22-25, Section IV, Part A through Part E) - McLeod L, Coon CD, Martin SA, et al. Interpreting Patient-reported Outcome Results: US FDA Guidance and Emerging Methods. Expert Rev Pharmacoecon Outcomes Res. 2011;11(2):163-169. - Rutherford C, Nixon J, Brown JM. Using mixed methods to select optimal mode of administration for a patient-reported outcome instrument for people with pressure ulcers. BMC Medical Research Methodology 2014;14(22): 1-8. - Hobart J, Cano S, Baron R, et al. Achieving Valid Patient-reported Outcomes Measurement: a Lesson Learned from Fatigue in Multiple Sclerosis. Multiple Sclerosis Journal 2013;19(3):1773-1783.	
5 (May 13)	**<u>Topics:</u>** • **Electronic PROs, Special Populations (e.g., children, oncology), Translation and Cultural Adaptation; FDA Drug Development Tool Qualification Program, EMEA PRO Guidance** • **Utilities: Preference Elicitation Methods and Applications** • **Wrap-up** *Readings:* - United States Department of Health and Human Services Food and Drug Administration. Guidance for Industry Patient-Reported Outcome Measures: Use in Medical Product Development to Support Labeling Claims. 2009. (pp. 20-21, Section F Instrument Modification through Section G PRO Instruments Intended for Specific Populations; pg. 26-30 Section F Specific Concerns when Using Electronic PRO Instruments) - Coons SJ, Gwaltney CJ, Hays RD, et al. Recommendations on Evidence Needed to Support Measurement Equivalence between Electronic and Paper-Based PRO Measures: ISPOR ePRO Good Research Practices Task Force Report. Value in Health 2009;12(4):419-429.	Final Exam Due May 15 (midnight)

	- Wild D, Grove A, Martin M. Principles of Good Practice for the Translation and Cultural Adaptation Process for PRO Measures: Report of the ISPOR Task Force for Translation and Cultural Adaptation. Value in Health 2005;8(2): 94-104. - Hao Y, Krohe M, Yaworsky A, et al. Clinical Trial PRO Data: Going Beyond the Label in Oncology. Clinical Therapeutics 2016;38(4):811-820. - United States Department of Health and Human Services Food and Drug Administration. Guidance for Industry Patient-Reported Outcome Measures: Use in Medical Product Development to Support Labeling Claims. 2009. (pp. 30-39, Glossary and Appendix) - Coons SJ, Kothari S, Monz BU, Burke LB. The PRO Consortium: Filling Measurement Gaps for PRO Endpoints to Support Labeling Claims. Clinical Pharmacy and Therapeutics 2011;90(5):743-748. - Garza AG, Wyrwich KW. Commentary: Health Utility Measures and the Standard Gamble. Acad Emerg Med 2003;10(4):360-363. - Sinnot PL, Joyce VR, Barnett PG. Guidebook: Preference Measurement in Economic Analysis. Health Economics Resource Center 2007, pg. 1-57. *Supplemental:* - Zbrozek A, Hebert J, Gogates G, et al. Validation of Electronic Systems to Collect PRO Data – Recommendations for Clinical Trial Teams: Report of the ISPOR ePRO Systems Validation Good Research Practices Task Force. Value in Health 2013;16:480-489. - Gnanasakathy A, DeMuro C, Clark M, et al. PRO Labeling for Products Approved by the Office of Hematology and Oncology Products of the US Food and Drug Administration (2010-2014). Journal of Clinical Oncology. 2016;34(16):1928-1934. - European Medicines Agency. Committee for Medicinal Products for Human Use. Reflection Paper on the Use of HRQL Measures in the Evaluation of Medicinal Products. July 2005. - Woosley RL. The Critical Path Institute's Approach to Precompetitive Sharing and Advanced Regulatory Science. Clinical Pharmacy and Therapeutics 2010;87(5):530-533.	

	- COA FAQs. Access at: http://www.fda.gov/Drugs/DevelopmentApprovalProcess/DrugDevelopmentToolsQualificationProgram/ucm370261.htm - Ferguson BM, Keown PA. An Introduction to Utility Measurement in Health Care. Infection Control and Hospital Epidemiology 1995;16(4):240-247.	