**EDP 381C (10770): Research Design and Methods for Psychology and Education**
**Fall 2016, Tues/Thur, 12:30 - 2:00 pm**
**SZB 435**

Instructor: James E. Pustejovsky (pronounced "PUHS-tea-UV-ski")
Email: pusto@austin.utexas.edu
Phone: 512-471-0683
Office hours: Mondays, 1:00-3:00 pm or by appointment
Office: SZB 538 D

Teaching assistant:
Email:
Office hours:
Office hours location:

## Course Description

This course will introduce essential concepts and methods used in quantitative empirical research in the fields of education and psychology, in order to prepare students both to be informed consumers of research and to conduct empirical research of their own. The course is organized around four main themes: measurement, populations and sampling, experimental causal research, and quasi-experimental causal research. On each theme, we will read relevant theoretical and methodological literature, discuss empirical research in light of those concepts, and develop research proposals using the methods that we discuss. Throughout, emphasis will be placed on building intuition and heuristics regarding research designs and methods.

## Learning Goals

By the end of this course, you should be able to…
- Identify and describe the important operational features of different types of research designs (e.g., surveys, randomized experiments, quasi-experimental designs).
- Identify major strengths and weaknesses of different research designs.
- Critique the design of published studies that use quantitative, empirical research methods in terms of construct validity, internal validity, and external validity.
- Formulate clear, well-motivated research questions.
- Construct proposals for empirical research studies using a variety of different research designs.

## Pre-Requisites

- EDP 380P Measurement & Evaluation or equivalent training
- EDP 382K Correlation & Regression or equivalent training (or prior consent of the instructor)

**Readings**

- Required text: Remler, D. K. & Van Ryzin, G. G. (2015). *Research Methods in Practice: Strategies for Description and Causation*. Thousand Oaks, CA: Sage Publications.
- Further readings posted on Canvas.
- Recommended text: Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston, MA: Houghton, Mifflin and Company.

**Assignments**

There will be several short (3-5 page) writing assignments given over the course of the semester. You are expected to complete these assignments individually. Each assignment will involve writing either A) a brief "sketch" of a research proposal or B) one component of a research proposal.

**Research Proposals**

It is impossible to learn how to ride a bicycle only by reading about how to pedal and balance. Similarly, one of the best ways—if not the only way—to learn how to design empirical research studies is through practicing. Therefore, a major component of this course involves developing two realistic research proposals that use the methods and tools covered under each theme of the course. For each proposal, you will develop an initial draft, submit it for feedback from your peers, and then revise and resubmit final drafts. ***Only the final drafts of the proposals will be graded***. You are encouraged (though not required) to work on each project in a group of up to four students; all students in the group will receive the same grade on the project.

**Writing**

It is expected that individual assignments and research proposals will be well composed, following the style and tone of an academic paper. Students who need assistance with their writing are encouraged to seek help from the Sanger Learning Center (http://www.utexas.edu/ugs/slc/grad), which offers free tutoring services for graduate students.

Students will need to cite other scholarly work in your assignments, following APA6 format. I highly recommend using reference management software such as Microsoft EndNote, Zotero, or Mendeley. Software like this will make it much easier to format your citations and reference lists.

**Article Presentations**

Over the course of the semester, we will read and discuss a number of empirical research articles that use the designs discussed in each section of the course. Students will work in pairs to present and lead discussion of one article. The presentation should cover: 1) the motivation for the research, 2) the main research question(s), 3) relevant details about how the research was carried out, 4) a succinct summary of the results, and 5) implications of the findings. Through discussion, the class will then identify major design features and critiques of the research

**Evaluation**

- Proposals (40%). There will be two proposals. Each proposal has two due-dates: one for a draft that will be distributed for peer feedback and a second for a final draft. Late submissions on the first draft will lose the benefit of peer review, and will lead to final drafts being marked down 20% per day. Late submissions on the final draft will be marked down 20% per day.
- Peer reviews (8%). Students' reviews of their peers' proposals will be evaluated for thoroughness, relevance, and constructiveness. Late submissions will not be accepted.
- Assignments (40%). Approximately four individual writing assignments will be given over the course of the semester.
- Article presentation and discussion (6%). Each student will sign up to present and lead discussion of one article over the course of the semester.
- Class participation (6%). Students are expected to attend each class meeting and to be informed, active participants in class discussions. Besides asking and answering questions during class discussions, other modes of participation include coming to office hours to discuss the course material (but not to discuss grades). Class participation will be evaluated based on the instructor's global impression over the entire semester.

A tentative rubric for assignment of final grades is listed below. ***The instructor reserves the right to modify this rubric.*** Square brackets correspond to ≤ or ≥; rounded parentheses correspond to < or >.

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|-----|-----------|-----|-----------|
| A   | [90, 100] | C+  | [74, 77)  |
| A-  | [87, 90)  | C   | [70, 74)  |
| B+  | [84, 87)  | C-  | [67, 70)  |
| B   | [80, 84)  | D   | [60, 67)  |
| B-  | [77, 80)  | F   | [0, 60)   |

**Attendance**

Students are responsible for all of the material presented during class meetings. If a student must miss a class, it is their responsibility to obtain and thoroughly review notes or summaries of the material that they missed. Frequent or unexcused absences will adversely affect a student's participation grade.

**Academic Integrity**

Following the University's honor code, students are expected to maintain absolute integrity and a high standard of individual honor in scholastic work. All assignments (projects and presentations) must be completed with the utmost honesty, which includes acknowledging the contributions of other sources to your scholastic efforts; avoiding plagiarism; and completing assignments independently unless expressly authorized otherwise. *Assignments containing any plagiarized material will not be accepted.*

**Carrying of Handguns**

Students in this class should be aware of the following university policies:
- Individuals who hold a license to carry are eligible to carry a concealed handgun on campus, including in most outdoor areas, buildings and spaces that are accessible to the public, and in classrooms.
- It is the responsibility of concealed-carry license holders to carry their handguns on or about their person at all times while on campus. Open carry is NOT permitted, meaning that a license holder may not carry a partially or wholly visible handgun on campus premises or on any university driveway, street, sidewalk or walkway, parking lot, parking garage, or other parking area.

**ADA Accommodations**

The University of Texas at Austin provides upon request appropriate accommodations for qualified students with disabilities. For more information, please contact the Office of the Dean of Students at 471-6259, 471-4671 TTY.

**Religious Holidays**

By UT Austin policy, students must notify the instructor of a pending absence due to religious observance at least fourteen days in advance.  If the student must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, the student will be given an opportunity to complete the missed work within a reasonable time after the absence, with no penalty.

**Emergency Evacuation Policy**

Occupants of buildings on the UT Austin campus are required to evacuate and assemble outside when a fire alarm is activated or an announcement is made.  Please be aware of the following policies regarding evacuation:
- Familiarize yourself with all exit doors of the classroom and the building. Remember that the nearest exit door may not be the one you used when you entered the building.
- If you require assistance to evacuate, inform the instructor in writing during the first week of class.
- In the event of an evacuation, follow the instructions of the instructor.

- Do not re-enter a building unless you're given instructions by the Austin Fire Department, the UT Austin Police Department, or the Fire Prevention Services office.

**Tentative Schedule and Readings**

*Introduction*

8/25 - Types of research questions
- Remler & Van Ryzin (2015), Chp. 1.

8/30 - Posing research questions
- Remler & Van Ryzin (2015), Chp. 2.

9/1 - Reading, summarizing, and critiquing research
- Chiu, A. W., et al. (2013). Effectiveness of modular CBT for child anxiety in elementary schools. *School Psychology Quarterly, 28*(2), 141–153.
- Grissom, J. A., & Redding, C. (2016). Discretion and Disproportionality: Explaining the Underrepresentation of High-Achieving Students of Color in Gifted Programs. *AERA Open*, *2*(1), 1–25. doi:10.1177/2332858415622175
- Engel, M., & Jacob, B. A. (2011). New Evidence on Teacher Labor Supply. *American Educational Research Journal*, *51*(1), 36–72. doi:10.3102/0002831213503031

9/6 - The validity typology, construct validity
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston, MA: Houghton, Mifflin and Company. Chps. 2-3.

*Measurement*

9/8 - Reliability and validity
- Remler & Van Ryzin (2015), Chp. 4.

9/13 - Questionnaire design
- Remler & Van Ryzin (2015), Chp. 7.
- Schwarz, N. (1999). Self-reports: How the questions shape the answers. *American Psychologist*, *54*(2), 93–105.

9/15 - More design issues in descriptive and associational research
- Desimone, L. M., Smith, T. M., & Frisvold, D. E. (2010). Survey Measures of Classroom Instruction: Comparing Student and Teacher Reports. *Educational Policy*, *24*(2), 267–329. doi:10.1177/0895904808330173
- Robinson-Cimpian, J. P. (2014). Inaccurate Estimation of Disparities Due to Mischievous Responders Several Suggestions to Assess Conclusions. *Educational Researcher,* 0013189X14534297. doi:10.3102/0013189X14534297

*Populations and sampling*

9/20 - External validity, probability sampling
- Remler & Van Ryzin (2015), Chp. 5.

9/22 – Stratification
- Groves, et al. (2009). *Survey Methodology*. Chps. 1 & 4.

9/27 – Multi-stage (cluster) sampling
- Curran, F. C., & Kellogg, A. T. (2016). Understanding Science Achievement Gaps by Race/Ethnicity and Gender in Kindergarten and First Grade. *Educational Researcher, 45*(5), 273–282. doi:10.3102/0013189X16656611

9/29 – Non-probability sampling

10/4 – Secondary data analysis
- Remler & Van Ryzin (2015), Chp 6.
- Warren, J. R., Hoffman, E., & Andrew, M. (2014). Patterns and trends in grade retention rates in the United States, 1995-2010. Educational Researcher, 43(9), 433–443.

10/6 - Missing data
- Baraldi, A. N., & Enders, C. K. (2010). An introduction to modern missing data analyses. Journal of School Psychology, 48(1), 5–37.
- Cantor et al. (2015). Report on the AAU Campus Climate Survey on Sexual Assault and Sexual Misconduct. Read Section 2 (Methodology) and Appendix 4 (Non-response bias analysis).

10/11 – Discussion of descriptive research projects

*Causal research: Quasi-experiments*

10/13 – Experimental and quasi-expeirmental designs
- Remler & Van Ryzin (2015), Chp. 11.

10/18 - Statistical adjustment
- Remler & Van Ryzin (2015), Chp. 12-13.

10/20 – Matching
- Wu, W., West, S. G., & Hughes, J. N. (2010). Effect of Grade Retention in First Grade on Psychosocial Outcomes. *Journal of Educational Psychology, 102*(1), 135–152. doi:10.1037/a0016664

10/25 - Interrupted time series
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston, MA: Houghton, Mifflin and Company. ***Read pp. 171-206.***
- Remler & Van Ryzin (2015), Chp. 15.

10/27 - Regression discontinuities
- Baker, S. K., Smolkowski, K., Chaparro, E. A., Smith, J. L. M., & Fien, H. (2015). Using Regression Discontinuity to Test the Impact of a Tier 2 Reading Intervention in First Grade. Journal of Research on Educational Effectiveness, 8(2), 218–244. doi:10.1080/19345747.2014.909548
- Bloom, H. S. (2012). Modern regression discontinuity analysis. *Journal of Research on Educational Effectiveness, 5*(1), 43–82.

11/1 - Single-case designs
- Horner, R. H., & Odom, S. L. (2014). Constructing single-case research designs: Logic and options. In T. R. Kratochwill & J. R. Levin (Eds.), Single-Case Intervention Research: Methodological and Statistical Advances (pp. 53–90). Washington, DC: American Psychological Association.
- Kamps, D., et al. (2011). Class-Wide Function-Related Intervention Teams: Effects of group contingency programs in urban classrooms. *Journal of Positive Behavior Interventions, 13*(3), 154–167.
- Ross, S. W., & Horner, R. H. (2009). Bully prevention in positive behavior support. *Journal of Applied Behavior Analysis, 42*(4), 747–59.

*Causal research: Randomized experiments*

11/3 - Simple randomized experiments
- Beaumont, R., & Sofronoff, K. (2008). A multi-component social skills intervention for children with Asperger syndrome: Detective Training Program. *Journal of Child Psychology and Psychiatry, 49*(7), 743-753.

11/8 - Theory of randomized experiments, design choices
- Remler & Van Ryzin (2015), Chp. 14.

11/10 - Block-randomization and covariate adjustment
- Ramani, G. B., & Siegler, R. S. (2008). Promoting broad and stable improvements in low-income children's numerical knowledge through playing number board games. *Child Development, 79*(2), 375–394.

11/15 – Power analysis

11/17 - Cluster-randomized designs
- Bloom, H. S. (2005). Randomizing groups to evaluate place-based programs. In H. S. Bloom (Ed.), *Learning More from Social Experiments: Evolving Analytic Approaches* (pp. 115–172). New York, NY: Russell Sage Foundation. ***Read pp. 115-134 and 141-157.***
- Early, D., Berg, J. K., Alicea, S., Si, Y., Aber, J. L., Ryan, R. M., & Deci, E. L. (2015). The Impact of Every Classroom, Every Day on High School Student Achievement: Results From a School-Randomized Trial. *Journal of Research on Educational Effectiveness.* doi:10.1080/19345747.2015.1055638

11/22 - Field issues: compliance, fidelity, and attrition
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston, MA: Houghton, Mifflin and Company. Chp. 10, pp. 314-340.

11/29 - Some examples of experiments
- Landa, R. J., Holman, K. C., O'Neill, A. H., & Stuart, E. A. (2011). Intervention targeting development of socially synchronous engagement in toddlers with autism spectrum disorder: A randomized controlled trial. *Journal of Child Psychology and Psychiatry, and Allied Disciplines, 52*(1), 13–21.
- Logue, Alexandra W; Watanabe-Rose, Mari; Douglas, D. (2015). Should Students Assessed as Needing Remedial Mathematics Take College-Level Quantitative Courses Instead? A Randomized Controlled Trial. doi:10.3102/0162373716649056

12/1 – Discussion of causal research projects