

Research Methods in Social and Organizational Psychology

PSYC 737

Spring 2020

Syllabus

Professor: James A. Grand
Course Time: Thursday 2:00-4:30pm
Location: 1103 Biology-Psychology
Office: 3147A Biology-Psychology
Office Hours: By appointment
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phone: xxxxxxxxxx

Course Description

Psychological science is built upon systematic efforts to identify, understand, and explain phenomena involving human affect, behavior, and cognition in terms of cause-effect relations. Social and organizational psychology tends to emphasize how interactions among intrapersonal, interpersonal, and environmental processes/factors contribute to these relations. Advancing scientific understanding of these phenomena necessitates conducting rigorous research that contributes to accurate knowledge. Arguably the most significant choices relevant to achieving this goal concern *research design* (the methods used to gather and examine observations) and *measurement* (the processes/techniques by which observations are assessed, quantified, and documented). The purpose of this course is to help you develop an understanding of theory, practice, and techniques relevant to research design and measurement.

This class is a participative seminar; a self-guided learning experience. You should not approach this class as one in which the professor makes all the decisions about what content is most important or how that content applies to your independent research. My role will be to facilitate and participate in the learning process by serving as a resource and guide. I expect you to fulfill a similar role: your task is to contribute to the learning experience through discussion of course readings, completion of homework and exercises, and actively sharing your questions and reactions during our meetings. In addition, a key goal of this class is to make significant progress developing your Master's thesis proposal; ideally, you should aim to have the critical hypotheses and methodology for your thesis completed by the end of this course.

Course Objectives

The overarching goal for this course is to develop expertise in the development, production, and evaluation of rigorous psychological research.

By the end of this course, you should be able to:

1. Understand the connections between theory, methods, and the advancement of knowledge
2. Understand the strengths and limitations of different research designs and methodologies
3. Understand the fundamentals of validity, reliability, and generalizability and how to conduct quantitative analyses related to evaluating the psychometric quality of psychological measures
4. Use your knowledge of research design and measurement to critically evaluate research and develop your own research

Course Management

I will use Canvas (www.elms.umd.edu) to post all the materials and grades for the course. Unless otherwise instructed, you will upload all documents that you are required to turn into me using Canvas as well. If you have any troubles accessing this space, please let me know ASAP.

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Evaluation and Course Requirements

1. *Class Engagement & Preparation (20%)*

Active participation and preparation is a key component of the learning experience in this course—you need to acquire content, make sense of it, and then be prepared to contribute to the sensemaking of all members in the course. Students are expected to attend every class meeting, read all assigned materials prior to class, and actively discuss and critically decompose the focal topic. The structure for most class meetings will typically involve the following:

- a. Guided lecture and discussion of the day's topic
- b. Student-led discussion of articles and/or exercises relating to the topic of the day
- c. Student presentations on special topics and/or progress on research proposals

It is not important every comment you make be a deep insight or ground-breaking revelation; what is important is that you come to class prepared and attempt to make consistent contributions to our collective learning. This evaluation criterion will be used to capture your engagement in active, high-quality participation and critical evaluation of primary topics in the class.

2. *Homework & Assignments (15%)*

Throughout the course, you will be asked to complete a variety of exercises related to the course content. The purpose of these assignments is for you to practice applying the content and ideas covered in the course and begin to develop competence participating in these aspects of the research process. In some cases, we may begin and complete portions of the exercise during class; in other cases, you will be required to complete the assignment entirely outside of class. This evaluation criterion will be used to assess the development of your knowledge and skills in conducting, evaluating, and interpreting psychological research.

3. *Research Proposal (45%)*

You will produce a written research proposal for this class. Details on the structure and requirements for the paper are provided on the next page. The purpose of this proposal is to give you an opportunity to develop an original research idea on a topic of interest. This evaluation criterion captures your ability to develop independence and expertise as a researcher, as well as demonstrate your capacity to integrate knowledge and theory from psychological sciences into your domain of expertise.

4. *Final Exam (20%)*

There will be one exam for the class held during the final exam period of the fall semester (specific date TBD). The exam will consist of short-answer/essay questions on the three main topic areas of the course (philosophy of science, psychometrics, and research design). Unless otherwise specified, the exam will be administered as a take-home exam. The exam is to be completed individually, but you may use your notes and articles from class to answer the questions. This evaluation criterion reflects your understanding of the knowledge you have learned in the course as well as your capacity to coherently and competently explain fundamental concepts.

Research Proposal

The written paper for this class will require you to develop an independent research proposal on a topic of personal interest. ***Ideally, this paper would serve as the foundation for your Master's thesis proposal.*** Consequently, I strongly suggest you select a focus for the paper that is related to your main interests and use this as an opportunity to develop the theoretical rationale and methods you will use to support and collect data for your thesis research.

Your final paper should be written as a research proposal and include the following:

- An introduction that describes the focal topic of the research, its relevance/significance, and a (brief) review of the relevant research literature.

- One or more testable hypotheses or research questions. This section should provide definitions of the key constructs, describe the model/hypotheses you intend to test, and summarize theory/rationale supporting your hypotheses from the relevant research literature.
- A proposed methods section for conducting a study to test the proposed hypotheses. This section should provide a description of the participants you intend to include in the study, the study procedures, and (ideally) the measures you will use to collect observations.
- A hypothetical discussion section that (a) summarizes implications from the study if results *were* consistent with the predictions and if the results *were not* consistent with the predictions, and (b) discusses potential threats to validity that your study may face.

There are no requirements/limitations on the length of the paper, though I anticipate that papers will likely be in the neighborhood of 20 double-spaced pages of text (not including references). The paper should conform to APA guidelines for formatting and construction.

From today, you have 14 weeks to complete the paper. Major deadlines related to the project are listed below; adhering to these is required and should help keep you on track. A significant focus of this course is the development of your proposal, and we will devote in-class time to discussing your papers.

- **Week 5 (Feb 25):** A two-page summary of your focal research idea is due and will be turned in through Canvas. One page should summarize the idea and 1-2 hypotheses or specific research questions, while the second page should describe a potential research design and data collection strategy. Everyone needs to be prepared to comment and provide constructive feedback on their classmates' proposals.
- **Week 12 (Apr 16):** A preliminary draft of your proposal is due and will be turned in through Canvas. This draft should include a literature review, final hypotheses, and a proposed method section. The literature review needs to justify why your study is important and why your hypotheses are reasonable. You must describe your methodology with sufficient information so that it can be carried out by your colleagues after only reading your proposal. Study the structure of published research articles in top tier journals to learn the accepted structure of technical articles. The draft should be approximately 12 to 15 pages of text (not counting references).
- **Week 15 (May 7):** The final draft of your proposal is due and will be turned in through Canvas. This version should be the final complete version and include all sections of the proposal (introduction, hypotheses, methods, and discussion). You should be prepared to present and discuss your final research proposal in class on May 7.

Course Rules and Policies

Class Attendance and Make-up Policy:

Documented attendance records will not be taken for this course; however, all students are expected to attend every class session and failure to attend to class will influence your participation grade.

Policies for missing or late assessments in this class are as follows:

1. *Homework assignments*—Students will not be allowed to make-up missed or late assignments UNLESS prior permission has been obtained. Permission may only be granted for those who contact the instructor PRIOR to the scheduled date.
2. *Research Proposal*—The review paper is considered a “major scheduled grading event” as defined by the University of Maryland. In this case, you may turn in the paper late, but 5% will be deducted from the final grade for each day late UNLESS arrangements have been made PRIOR to the scheduled due date.
3. *Final Exam*—The final exam is considered a “major scheduled grading event” as defined by the University of Maryland. In this case, extensions or make-up exams will only be permitted if the student provides documentation of a university approved excuse for absences or an arrangement has been made with the instructor PRIOR to the scheduled due date.

Academic Honesty:

Unless authorized by me, all assessments (including the homework assignments, research proposal, and final exam) must represent each student's own knowledge and ideas in his/her own words. Students who violate the University of Maryland's rules and policies may receive a penalty to their grade, including but not limited to a failing grade on the assignment or in the course.

Overview of Topics (Subject to change)

| Week | Date | Topic | Unit |
|------|-------------|--|--|
| 1. | 1/30 | Course Overview & Syllabus | |
| 2. | 2/6 | Philosophy of Science and Inferential Reasoning | Inquiry, Causality, & Research Fundamentals |
| 3. | 2/13 | Generating Research Questions, Theories, & Hypotheses | |
| 4. | 2/20 | Research Ethics & Robust science / Writing & Reviewing Research | |
| 5. | 2/27 | Measurement Concepts & Construction DUE 2/25: Two-page summary of research idea | |
| 6. | 3/5 | Classical Test Theory & Item Analysis | Measurement Theory & Psychometrics |
| 7. | 3/12 | Reliability & Generalizability Theory | |
| 8. | 3/19 | <i>NO CLASS – Spring Break</i> | |
| 9. | 3/31 | Validity / Factor Analysis | |
| 10. | 4/2 | Item Response Theory | |
| 11. | 4/9 | Randomized Designs | Research Design & Data Collection Methods |
| 12. | 4/14 | Non-randomized Designs <i>CLASS MEETING ON TUES (4/14)</i> DUE 4/16: First draft of paper | |
| 13. | 4/23 | Qualitative & Observational Research <i>NO CLASS MEETING THIS WEEK</i> | |
| 14. | 4/30 | Big Data & Computational Methods | |
| 15. | 5/7 | Final paper discussion & presentation DUE 5/7: Final draft of paper | |
| 16. | Finals Week | Final exam | |

Reading List

1. **Course Overview and Syllabus**

No Readings

2. **Philosophy of Science and Inferential Reasoning**

Godfrey-Smith (2003) – Chapters 1-6

Minnameier, G. (2010). The logicity of abduction, deduction, and induction. In M. Bergman, S. Paavola, A.-V. Pietarinen, & H. Rydenfelt (Eds.), *Ideas in action: Proceedings of the Applying Peirce Conference* (pp. 239-251). Helsinki, Finland: Nordic Pragmatism Network.

[Optional] Bamberger, P.A. (2018). AMD—Clarifying what we are about and where we are going. *Academy of Management Discoveries*, 4, 1-10.

3. **Developing Research Questions, Theories, & Hypotheses**

Martin, J. (1982). A garbage can model of the research process. In J. E. McGrath, J. Martin, & R. A. Kulka (Eds.), *Judgment calls in research* (pp. 17-40). Beverly Hills, CA: Sage.

Meehl, P.E. (1967). Theory-testing in psychology and physics: A methodological paradox. *Philosophy of Science*, 34, 103-115.

Edwards, J.R., & Berry, J.W. (2010). The presence of something or the absence of nothing: Increasing theoretical precision in management research. *Organizational Research Methods*, 13, 668-689.

Sutton, R.I. & Staw, B.M. (1995). What theory is not. *Administrative Science Quarterly*, 40, 371-384.

Siddaway, A.P., Wood, A.M., & Hedges, L.V. (2019). How to do a systematic review: A best practice guide for conducting and reporting narrative reviews, meta-analyses, and meta-syntheses. *Annual Review of Psychology*, 70, 747-770.

4. **Research Ethics & Robust Science**

Fried, A.L. (2012). Ethics in psychological research: Guidelines and regulations. In H. Cooper (Ed.) *The APA Handbook of Research Methods in Psychology. Vol 1: Foundation, Planning, Measures and Psychometrics* (pp. 55-73). Washington, DC: American Psychological Association.

Lowman, R.L. (Ed.). (1998). *The ethical practice of psychology in organizations*. (Cases: 13, 17, 18, 20, 21, 23, 29, 30, 31, 33, 38, 44). Washington, DC: American Psychological Association.

Grand, J.A., Rogelberg, S.G., Allen, T.D., Landis, R.S., Reynolds, D., Scott, J.C., Tonidandel, S., & Truxillo, D.M. (2018). A systems-based approach to fostering robust science in industrial-organizational psychology. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, 11, 4-42.

Writing & Reviewing Research

NOTE: The readings below are offered as references for participating in the academic publication process. There is no magic formula/recipe for writing or reviewing research, but there are some common themes. Thus, you should approach these readings as examples rather than de facto procedures for writing and reviewing academic research.

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Reply letters for Grand, J.A. (2017). Brain drain? An examination of stereotype threat effects on knowledge acquisition and organizational effectiveness. *Journal of Applied Psychology*, 102, 115-150.

- These can be accessed at <https://osf.io/twf97/>, navigating to the Files page, and looking under the "Manuscript documents" folder. There are three reply letters corresponding with each of the three revisions to manuscript.

Bem, D. (2003). Writing the empirical journal article. In J.M. Darlye, M.P. Zanna, & H.L. Roediger (Eds.). *The Compleat Academic: A practical guide for the beginning social scientists*. Washington DC: American Psychological Association.

Campion, M.A. (1993). Article review checklist: A criterion checklist for reviewing research articles in applied psychology. *Personnel Psychology*, 46, 705-718.

Zahra, S.A. & Neubaum, D.O. (2006). Revising to be published: Building trust to win the acceptance of journal editors and reviewers. In Y. Baruch, S.E. Sullivan, & H.N. Schepmyer (Eds.), *Winning reviews: A guide for evaluating scholarly writing* (pp. 205-223).

Feldman, D.C. (2006). Communicating more effectively with editors: Strategies for authors and reviewers. In Y. Baruch, S.E. Sullivan & H.N. Schepmyer (Eds.), *Winning reviews: A guide for evaluating scholarly writing* (pp. 236-250).

5. **Measurement Concepts & Construction**

Borsboom, D., Mellenbergh, G.J., & van Heerden, J. (2003). The theoretical status of latent variables. *Psychological Review*, 110, 203-219.

Dawis, R. (1987). Scale construction. *Journal of Counseling Psychology*, 34, 481-489.

Simms, L.J. (2008). Classical and modern methods of psychological scale construction. *Social and Personality Psychology Compass*, 2, 414-433.

Hinkin, T.R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, 1, 104-121.

Drasgow, F., Chernyshenko, O.S., & Stark, S. (2010). 75 years after Likert: Thurstone was right! *Industrial and Organizational Psychology*, 3, 465-476.

Molenaar, P.C.M. (2004). A manifesto on psychology as idiographic science: Bringing the person back into scientific psychology, this time forever. *Measurement*, 2, 201-218.

[Optional] Reckase, M.D. (1996). Test construction in the 1990s: Recent approaches every psychologist should know. *Psychological Assessment*, 8, 354-359.

[Optional] Friedman, H.H., & Amoo, T. (1999). Rating the ratings scales. *Journal of Marketing Management*, 9, 114-123.

6. **Classical Test Theory & Item Analysis**

Traub, R.E. (1994). The basic theory. *Reliability for the Social Sciences: Theory and Applications*. (pp. 18-37). Thousand Oaks, CA: SAGE.

Lumsden, J. (1976). Test theory. *Annual Review of Psychology*, 27, 251-280.

Ellis, B.B., & Mead, A.D. (2002). Item analysis: Theory and practice using classical and modern test theory. In S.G. Rogelberg (Ed.), *Handbook of research methods in industrial and organizational psychology* (pp. 324-343). Oxford, UK: Blackwell Publishers.

7. **Reliability / Generalizability Theory**

Shrout, P.E & Lane, S.P. (2012). Reliability. In H. Cooper (Ed.), *The APA Handbook of Research Methods in Psychology. Vol 1: Foundation, Planning, Measures and Psychometrics* (pp. 643-660). Washington, DC: American Psychological Association.

Cortina, J. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology, 78*, 98-104.

Cho, E., & Kim, S. (2015). Cronbach's coefficient alpha: Well known but poorly understood. *Organizational Research Methods, 18*, 207-230

Gao, X., & Harris, D.J. (2012). Generalizability theory. In H. Cooper (Ed.), *The APA Handbook of Research Methods in Psychology. Vol 1: Foundation, Planning, Measures and Psychometrics* (pp. 661-681). Washington, DC: American Psychological Association.

McGraw, K.O., & Wong, S.P. (1996). Forming inferences about some intraclass correlation coefficients. *Psychological Methods, 1*, 30-46.

[Optional] James, L.R., Demaree, R.G., & Wolf, G. (1984). Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology, 69*, 85-98.

8. ***NO CLASS – Spring Break***

9. **Validity / Factor Analysis**

Hanges, P.J. & Wang, M. (2012). Seeking the holy grail in organizational science: Uncovering causality through research design. In S.W.J. Kozlowski (Ed.), *The Oxford Handbook of Organizational Psychology* (pp. 79-116). New York: Oxford University Press.

Grimm, K.J., & Widaman, K.F. (2012). Construct validity. In H. Cooper (Ed.), *The APA Handbook of Research Methods in Psychology. Vol 1: Foundation, Planning, Measures and Psychometrics* (pp. 621-642). Washington, DC: American Psychological Association.

Borsboom, D., Mellenbergh, G.J., & van Heerden, J. (2004). The concept of validity. *Psychological Review, 111*, 1061-1071.

Podsakoff, P.M., MacKenzie, S.B., & Podsakoff, N.P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63*, 539-569.

[Optional] Vandenberg, R.J., & Lance, C.E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods, 3*, 4-70.

10. **Item Response Theory**

Harvey, R.J., & Hammer, A.L. (1999). Item response theory. *The Counseling Psychologist*, 27, 353-383.

Embretson, S.E. (1996). The new rules of measurement. *Psychological Assessment*, 8, 341-349.

Hambleton, R.K., & Jones, R.W. (1993). Comparison of classical test theory and item response theory and their applications to test development. *Educational Measurement: Issues and Practice*, 12, 38-47.

[Optional] Tay, L., Meade, A.W., & Cao, M. (2015). An overview and practical guide to IRT measurement equivalence analysis. *Organizational Research Methods*, 18, 3-46.

11. **Randomized Designs**

Shadish, Cook, & Campbell (2002) – Chapters 1-3, 8

McGrath, J.E. (1982). Dilemmatics: The study of research choices and dilemmas. In J.E. McGrath, J. Martin, & R.A. Kulka (eds.), *Judgment calls in research* (pp. 69-102). Beverly Hills, CA: Sage.

Spencer, S.J., Zanna, M.P., & Fong, G.T. (2005). Establishing a causal chain: Why experiments are often more effective than mediational analyses in examining psychological processes. *Journal of Personality and Social Psychology*, 89, 845-851.

12. **Non-randomized Designs**

Shadish, Cook, & Campbell (2002) – Chapters 4-5

Grant, A.M., & Wall, T.D., (2009). The neglected science and art of quasi-experimentation: Why-to, When-to, and How-to advice for organizational researchers. *Organizational Research Methods*, 12, 653-686.

Krosnick, J.A. (1999). Survey methods. *Annual Review of Psychology*, 50, 537-567.

[Optional] Newman, D. A. (2014). Missing data: Five practical guidelines. *Organizational Research Methods*, 17, 372-411.

13. **Qualitative & Observational Research**

Gephart, R.P., Jr. (2014). Doing research with words: Qualitative methodologies and Industrial/Organizational Psychology. In J.M. Cortina & R.S. Landis (Eds.), *Modern research methods for the study of behavior in organizations* (pp. 265-317). New York, NY: Routledge.

Locke, K. (2002). The grounded theory approach to qualitative research. In F. Drasgow & N. Schmitt (Eds.), *Measuring and analyzing behavior in organizations: Advances in measurement and data analysis* (pp. 17-43). San Francisco: Jossey-Bass.

Islam, G. (2015). Practitioners as theorists: Para-ethnography and the collaborative study of contemporary organizations. *Organizational Research Methods*, 18, 231-251.

Bakeman, R. (2000). Behavioral observation and coding. In H.T. Reis & C.M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp. 138-159). Cambridge, UK: Cambridge University Press.

14. **Big Data & Computational Methods**

Oswald, F.L., Behrend, T.S., Putka, D.J., & Sinar, E. (2020). Big data in Industrial-Organizational Psychology and Human Resource Management: Forward progress for organizational research and practice. *Annual Review of Organizational Psychology and Organizational Behavior*, 7, 505-533.

Stanton, J.M. (2014). Data mining: A practical introduction for organizational researchers. In J.M. Cortina & R.S. Landis (Eds.), *Modern research methods for the study of behavior in organizations* (pp. 199-230). New York, NY: Routledge.

Coveney, P.V., Dougherty, E.R., & Highfield, R.R. (2016). Big data need big theory too. *Philosophical Transactions of the Royal Society A: Mathematical, Physical, and Engineering Sciences*, 374(2080), 20160153.

Kozlowski, S.W.J., Chao, G.T., Grand, J.A., Braun, M.T., & Kuljanin, G. (2013). Advancing multilevel research design: Capturing the dynamics of emergence. *Organizational Research Methods*, 16, 581-615.

Davis, J.P., Eisenhardt, K.M., & Bingham, C.B. (2007). Developing theory through simulation methods. *Academy of Management Review*, 32, 480-499.

15. **Final paper discussion & presentation**

No Readings

16. **Final Exam**

Date of final exam: _____