

<b>Professor:</b>	Carey K. Morewedge Department of Marketing Boston University, School of Management 595 Commonwealth Ave. Office #651 Boston, MA 02215 morewedg@bu.edu
<b>Time:</b>	Tuesdays, 9:30am - 12:15am
<b>Location:</b>	Questrom/Harri Room 658 (595 Commonwealth Ave.)

### Course Description

This course provides an introduction to research methodology applicable to marketing and other related experimental social sciences. The course will survey the major research methodologies used in marketing, organizational behavior, psychology, and behavioral economics. It will focus on both theoretical and practical considerations of research methods. This is not a statistics course. The purpose of the course is to give you the background to choose the methods that are most appropriate for your area of study, help you anticipate the shortcomings and problems you will encounter executing your chosen methodologies, and to defend your methodological choices against criticism in your interactions with investigators from allied and not-so-allied disciplines.

### Your performance will be evaluated as follows:

- 1) Participation (36% of class grade)
- 2) Exercises (24% of class grade)
- 3) Final Exam (40% of class grade)

### Participation (36% of class grade)

As a student in this class you are expected to attend all class meetings and to conduct yourself in a professional manner. Important aspects of professionalism include arriving to class on time, abiding by the course policies, and completing the readings in advance of every class meeting. You must notify me in advance if you cannot attend a class for medical or professional reasons (e.g., you are attending or presenting at a conference).

All students are expected to contribute to all class discussions. Your participation will be evaluated on the quality of your contributions and insights. Contributions to class discussions should raise relevant points and move the conversation forward. Comments should be constructive and thoughtful. Simply talking in a way that does not contribute to the topic under discussion does not represent a contribution to class discussion. You should certainly feel free to question what other students or I say or the conclusions we draw. Your criticisms, questions, and suggestions are positive contributions to class discussions, especially when you can offer evidence from research or your own experience that can help inform the discussion.

### **Exercises (24%)**

**There is an exercise due at the beginning of each class.** Please hand in a printed copy. These are related directly to class discussions. I use them to determine your understanding of course concepts, and the level at which to deliver the course. You never need to write more than a page, but late exercises will not count toward your grade (each exercise is worth 2 points).

### **Final Exam (40%): Tuesday, April 30<sup>th</sup>, 2019.**

Your final exam will be a general / comprehensive style test in which you will be asked to design various kinds of experiments, questions, and tests to demonstrate your understanding of course concepts and the methods we will discuss in depth. It is to take place in class. You will have 2.5 hours to answer 3-5 multi-part short essay questions on your laptop. The exam is open book, but all answers must be your own. Think of this as practice for your comprehensive exams.

Plagiarism or cheating on the exam will result in a failing grade in the course and a letter to your Dean of Students.

### **Course Readings**

Please do the required readings in the order listed. Recommended readings and examples are provided in case you would like to learn more about a topic for your own personal development.

**PDFs of all required readings will be uploaded to a Dropbox folder.**

There are two textbooks we will use more than once in the course. I think both are worth purchasing to have as a reference.

Reis, H. T., & Judd, C. M. (2014). *Handbook of research methods in social and personality psychology*, 2<sup>nd</sup> Edition (pp. 11-26). New York, NY: Cambridge University Press.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston, MA: Houghton Mifflin.

### **Directions**

The class is located on the 6<sup>th</sup> floor of the Questrom School of Business at 595 Commonwealth Ave., Boston MA 02215. The Questrom School of Business is located directly across from the Blandford stop on the 'B' branch of the Green Line. This stop is the first above ground after Kenmore Square. Passengers on other Green Line branches should transfer to a westbound 'B' train or walk from Kenmore Station. Street parking is available on Commonwealth Ave. and Bay State Road. There is also a BU paid parking lot at the corner of Deerfield St. and Commonwealth Ave.

**COURSE SCHEDULE**

<i>DATE</i>	<i>TOPIC</i>
01/21/2019	1. Improving the replicability of experiments ( <b>bring your laptop to class</b> )
01/28/2019	2. Internal validity
02/04/2019	3. Effects, power, and effect sizes ( <b>bring your laptop to class</b> )
02/11/2019	4. Experimental design & issues
02/18/2019	<b>No class</b> (Monday schedule)
02/25/2019	5. Quasi-experimental design & issues
03/03/2019	6. Process testing: Moderation, mediation, vs. moderated mediation
03/10/2019	<b>No class</b> (BU Spring break)
03/17/2019	<b>No class</b> (Harvard Spring break); <b>Read Krosnick &amp; Presser</b>
03/24/2019	7. Advantages and weaknesses of laboratory vs. field
03/31/2019	8. Question design
04/07/2019	9. Scale design
04/14/2019	10. Sample diversity and universal truths
04/21/2019	11. Incentive
04/28/2019	<b>FINAL EXAM</b> (bring your laptop to class).

**Week 1 | January 21<sup>nd</sup>, 2020***Open science: Why is it important?*

**Note: Please bring your laptop to class.** We will make researcher accounts on **OSF.io** and learn how to share stimuli, data, and preregister an experiment on **AsPredicted.org**.

**Exercise**

Answer the following two questions:

1. How do you think we should interpret the findings of earlier research that incorporated some of the problematic research practices that are identified in these articles?
2. What does it mean to you if a paper is not replicated? What kind of replication (conceptual, direct) do you think should be taken as evidence in support/refutation of a previously published work?

**Readings**

Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science*, 349(6251), aac4716.

Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2011). False-Positive Psychology: Undisclosed Flexibility in Data Collection and Analysis Allows Presenting Anything as Significant. *Psychological Science*, 22(11), 1359-1366.

Kerr, N. L. (1998). HARKing: Hypothesizing after the results are known. *Personality and Social Psychology Review*, 2, 196-217.

Silberzahn, R., Uhlmann, E. L., Martin, D. P., Anselmi, P., Aust, F., Awtrey, E., ... & Carlsson, R. (2018). Many analysts, one data set: Making transparent how variations in analytic choices affect results. *Advances in Methods and Practices in Psychological Science*, 1(3), 337-356.

Munafò, M. R., Nosek, B. A., Bishop, D. V., Button, K. S., Chambers, C. D., Du Sert, N. P., ... & Ioannidis, J. P. (2017). A manifesto for reproducible science. *Nature Human Behaviour*, 1(1), 0021.

**Recommended readings:**

Lindsay, D. S. (2015). Replication in psychological science.

Bem, D. (1987). Writing the empirical journal article. *The compleat academic: A practical guide for the beginning social scientist*, 171.

- *This is actually representative of the pre-2010 perspective, and serves as a useful context from which to evaluate the later work.*

Chandler, J. et al. (2016). Response to comment on "Estimating the Reproducibility of Psychological Science". <http://science.sciencemag.org/content/351/6277/1037.3>

Gilbert, D. T., King, G., Pettigrew, S., & Wilson, T. D. (2016). Comment on "Estimating the reproducibility of psychological science". *Science*, 351(6277), 1037-1037.

- There are two more rounds of this in the "recommended readings" if it would interest you.

Gilbert, D.T. et al. (2016). More on "Estimating the Reproducibility of Psychological Science." [http://projects.iq.harvard.edu/files/psychology-replications/files/gkpw\\_post\\_publication\\_response.pdf](http://projects.iq.harvard.edu/files/psychology-replications/files/gkpw_post_publication_response.pdf)

Bollen, K., Cacioppo, J. T., Kaplan, R. M., Krosnick, J. A., & Olds, J. L. (2015). Social, behavioral, and economic sciences perspectives on robust and reliable science: Report of the Subcommittee on Replicability in Science, Advisory Committee to the National Science Foundation Directorate for Social, Behavioral, and Economic Sciences. Retrieved from the National Science Foundation Web site: [www.nsf.gov/sbe/AC\\_Materials/SBE\\_Robust\\_and\\_Reliable\\_Research\\_Report.pdf](http://www.nsf.gov/sbe/AC_Materials/SBE_Robust_and_Reliable_Research_Report.pdf).

Fanelli, D., Costas, R., & Ioannidis, J. P. (2019). Meta-assessment of bias in science. *Proceedings of the National Academy of Sciences*, 201618569.

## **Week 2 | January 28<sup>th</sup>, 2020**

*Validity: Is your experiment a valid test of your theory?*

### **Exercise**

Find an article that you like, and critically assess the potential threats to its internal validity.

### **Readings**

Meehl, P. E. (1990). Why summaries of research on psychological theories are often uninterpretable. *Psychological Reports*, 66(1), 195-244.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). Statistical conclusion validity and internal validity. *Experimental and quasi-experimental designs for generalized causal inference*. (Chapter 2, pp. 33-64). Boston, MA: Houghton Mifflin.

### Week 3 | February 4<sup>th</sup>, 2020

*Effects: What do they mean? When are they real? Samples, power, and effect sizes.*

Bring your laptop today, and please download and install G\*Power before you come to class. It's free at: <http://www.gpower.hhu.de/>

#### Exercise

Pick one article. It could be your own recent work, or a favorite article.

1. Identify the effect size in a critical study and explain what you think it means. What does it reveal about the finding or the world?
2. Report whether you believe the experiments were sufficiently powered given the effect sizes you/they found. Be prepared to discuss your example in class.

#### Readings

Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, 155-159.

Borenstein, M. (2012). Effect size estimation. In H. Cooper, P. Camic, D. Long, A. T. Panter, D. Rindskopf & K. Sher (Eds.), *APA handbook of research methods in psychology* (Vol. 3, 131-146). Washington, DC: APA Books.

Schönbrodt, F. D., & Perugini, M. (2013). At what sample size do correlations stabilize?. *Journal of Research in Personality*, 47(5), 609-612.

Simonsohn, U. (2015). Small telescopes: Detectability and the evaluation of replication results. *Psychological Science*, 26(5), 559-569.

Prentice, D.A., & Miller, D.T. (1992). When small effects are impressive. *Psychological Bulletin*, 112, 160-164.

Mayr, S., Erdfelder, E., Buchner, A., & Faul, F. (2007). A short tutorial of GPower. *Tutorials in Quantitative Methods for Psychology*, 3(2), 51-59.

#### Recommended readings

Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: a practical primer for t-tests and ANOVAs. *Frontiers in psychology*, 4.

Rosenthal, R., & Rubin, D. B. (1982). A simple, general purpose display of magnitude of experimental effect. *Journal of Educational Psychology*, 74, 166-169.

<http://datacolada.org/2015/02/09/33-the-effect-size-does-not-exist/>

<http://datacolada.org/2014/05/01/20-we-cannot-afford-to-study-effect-size-in-the-lab/>

<http://datacolada.org/2014/04/04/18-mturk-vs-the-lab-either-way-we-need-big-samples/>

**Week 4 | February 11<sup>th</sup>, 2020**

*Experimental designs & issues*

**Exercise**

Design an experiment to test a hypothesis. It should have two factors, each with two levels, and use an interaction to test a theory you generated against an alternative theory.

**Readings**

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). Randomized experiments: Rationale, designs, and conditions conducive to doing them. *Experimental and quasi-experimental designs for generalized causal inference*. (Chapter 8, pp. 246-278). Boston, MA: Houghton Mifflin.

Platt, J. R. (1964). Strong inference. *Science*, 146(3642), 347-353.

Nieuwenhuis, S., Forstmann, B. U., & Wagenmakers, E. J. (2011). Erroneous analyses of interactions in neuroscience: a problem of significance. *Nature neuroscience*, 14(9), 1105-1107.

**Recommended:**

Smith, E. R. (2014). Research design. In H. T. Reis & C. M. Judd (eds.), *Handbook of research methods in social and personality psychology*, 2<sup>nd</sup> Edition (pp. 27-48). New York, NY: Cambridge University Press.

Halford, G. S., Baker, R., McCredden, J. E., & Bain, J. D. (2005). How many variables can humans process?. *Psychological Science*, 16(1), 70-76.

**Week 5 | February 25<sup>th</sup>, 2020**

*Quasi-experimental designs & issues*

**Exercise**

Design two different kinds of quasi-experiments testing the same theory, and explain how your designs address confounds to the tests of your theory.

**Readings**

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). Quasi-experiments that either lack a control group or lack pretest observations on the outcome. *Experimental and quasi-experimental designs for generalized causal inference*. (Chapter 4, pp. 103-134).

Gupta, S. K. (2011). Intention-to-treat concept: a review. *Perspectives in clinical research*, 2(3), 109-112.

Westfall, J., & Yarkoni, T. (2016). Statistically controlling for confounding constructs is harder than you think. *PloS one*, 11(3), e0152719.

**Recommended readings**

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). Quasi-experimental designs that use both control groups and pretests. *Experimental and quasi-experimental designs for generalized causal inference*. (Chapter 5, pp. 135-170). Boston, MA: Houghton Mifflin.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). Regression discontinuity designs. *Experimental and quasi-experimental designs for generalized causal inference*. (Chapter 7). Boston, MA: Houghton Mifflin.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). Quasi-experiments: Interrupted time-series designs. *Experimental and quasi-experimental designs for generalized causal inference*. (Chapter 6, pp. 171-206). Boston, MA: Houghton Mifflin.



**Week 6 | March 3<sup>rd</sup>, 2020**

*Process and testing it: Moderation, mediation, and moderated mediation*

**Exercise**

In less than one single-spaced page, propose three experiments testing the same process theory:

1. One experiment testing your process via moderation.
2. One experiment testing your process via mediation.
3. One experiment testing your process via moderated mediation.

**Readings**

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 51(6), 1173-1182.

MacKinnon, D. P., Cheong, J., & Pirlott, A. G. (2012). Statistical mediation analysis. In H. Cooper, P. Camic, D. Long, A. T. Panter, D. Rindskopf & K. Sher (Eds.), *APA handbook of research methods in psychology* (Vol. 2, pp. 313-331). Washington, DC: APA Books.

Zhao, X., Lynch, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37(2), 197-206.

**Recommended resources / readings**

<http://afhayes.com/introduction-to-mediation-moderation-and-conditional-process-analysis.html>

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(6), 845-851.

**Week 7 | March 24<sup>th</sup>, 2020**

*Advantages and weaknesses of laboratory versus field*

**Exercise**

Take a theory that you might actually examine in grad school and describe what aspects of it that you could only test in the lab, what aspects of it you could only test in the field, and what aspects could be tested in the lab and field in an equally valid fashion.

**Readings**

Falk, A., & Heckman, J. J. (2009). Lab experiments are a major source of knowledge in the social sciences. *Science*, 326(5952), 535-538.

Mook, D. G. (1983). In defense of external invalidity. *American Psychologist*, 38, 379-387.

Mitchell, G. (2012). Revisiting truth or triviality: The external validity of research in the psychological laboratory. *Perspectives on Psychological Science*, 7(2), 109-117.

Paluck, E. L., & Cialdini, R. B. (2014). Field research methods. In H. T. Reis & C. M. Judd (eds.), *Handbook of research methods in social and personality psychology*, 2<sup>nd</sup> Edition (pp. 81-97). New York, NY: Cambridge University Press.

**Recommended**

Levitt, S. D., & List, J. A. (2007). What do laboratory experiments measuring social preferences reveal about the real world?. *The Journal of Economic Perspectives*, 153-174.

Rosenthal, R., & Rosnow, R. L. (1991). Subject-experimenter artifacts and their control. *Essentials of behavioral research: Methods and data analysis* (pp. 110-134). McGraw-Hill.

**Week 8 | March 31<sup>st</sup>, 2020**

*Question design: What do self-reports mean?*

**Exercise**

Take a scale you recently used, or was in an article that you admire. Write it down, and then generate a new version, one that would produce qualitatively different results and one that would produce. Discuss whether both versions are equally valid (i.e., old and new).

**Readings**

Schwarz, N. (1999). Self-reports: how the questions shape the answers. *American Psychologist*, 54(2), 93-105.

Schwarz, N., & Strack, F. (1999). Reports of subjective well-being: Judgmental processes and their methodological implications. *Well-being: The foundations of hedonic psychology*, Chapter 7, 61-84.

McGraw, A. P., Larsen, J. T., Kahneman, D., & Schkade, D. (2010). Comparing gains and losses. *Psychological Science*, 21(10), 1438-1445.

Bartoshuk, L. (2014). The measurement of pleasure and pain. *Perspectives on Psychological Science*, 9(1), 91-93.

**YOU SHOULD DEFINITELY READ THIS DURING THE BREAK.**

Krosnick, J. A., & Presser, S. (2010). Question and questionnaire design. In P. V. Marsden and J. D. Wright (Eds.), *Handbook of survey design* (pp. 263-313). Bingley, UK: Emerald Group Publishing.

**Recommended**

Grice, H. P. (1970; 1975). Logic and conversation. *Syntax and Semantics*, 3, 41-58.

Kahneman, D., & Miller, D. T. (1986). Norm theory: Comparing reality to its alternatives. *Psychological Review*, 93(2), 136.

## Week 9 | April 7<sup>th</sup>, 2020

*Scale Design: Does your scale measure anything (reliability)? Does it measure what you think it's measuring (construct validity)?*

### Exercise

Identify an article in which a scale you admire has been developed, and explain how the authors established its reliability, construct validity, and discriminant validity. Or point out how they missed this in its development.

### Reading

John, O. P., & Benet-Martinez, V. (2014). Measurement: Reliability, construct validation, and scale construction. In H. T. Reis & C. M. Judd (eds.), *Handbook of research methods in social and personality psychology*, 2<sup>nd</sup> Edition (pp. 473-504). New York, NY: Cambridge University Press.

Scopelliti, I., Morewedge, C. K., McCormick, E., Min, H. L., Lebrecht, S., & Kassam, K. S. (2015). Bias blind spot: Structure, measurement, and consequences. *Management Science*, 61(10), 2468-2486.

### Recommended Reading

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56(2), 81-106.

Hayes, H., & Embretson, S. E. (2012). Psychological measurement: Scaling and analysis. H. Cooper (ed.), *APA Handbook of Research Methods in Psychology: Vol. 1. Foundations, Planning, Measures, and Psychometrics*, (pp. 163-179).

Widaman, K. F., & Grimm, K. J. (2014). Advanced psychometrics: Confirmatory factor analysis, item response theory, and the study of measurement invariance. *Handbook of research methods in social and personality psychology*, 2<sup>nd</sup> Edition (pp. 534-570). New York, NY: Cambridge University Press.

**Week 10 | April 14<sup>th</sup>, 2020**

*Diversity of participant samples and universal truths*

**Exercise**

Examine a recent paper you admire. Identify the problems their sampling methods were subject to, and any safeguards the authors employed.

**Reading**

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world?. *Behavioral and brain sciences*, 33(2-3), 61-83.

Lee, J. C., Hall, D. L., & Wood, W. (2018). Experiential or Material Purchases? Social Class Determines Purchase Happiness. *Psychological Science*, 29(7), 1031-1039.

Stewart, N., Chandler, J., & Paolacci, G. (2019). Crowdsourcing samples in cognitive science. *Trends in Cognitive Sciences*, 21(10), 736-748.

Oppenheimer, D. M., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting satisficing to increase statistical power. *Journal of Experimental Social Psychology*, 45(4), 867-872.

**Recommended**

Chandler, J., Paolacci, G., Peer, E., Mueller, P., & Ratliff, K. A. (2015). Using nonnaive participants can reduce effect sizes. *Psychological Science*, 26(7), 1131-1139.

Frank, R. H., Gilovich, T., & Regan, D. T. (1993). Does studying economics inhibit cooperation?. *The Journal of Economic Perspectives*, 7(2), 159-171.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world?. *Behavioral and Brain Sciences*, 33(2-3), 61-83.

Stewart, N., Ungemach, C., Harris, A. J., Bartels, D. M., Newell, B. R., Paolacci, G., & Chandler, J. (2015). The average laboratory samples a population of 7,300 Amazon Mechanical Turk workers. *Judgment and Decision Making*, 10(5), 479.

**Week 11 | April 21<sup>th</sup>, 2020**

*Incentives*

**Exercise**

Identify a recent experiment of yours or paper that you admire that did not use incentives, and discuss why or why the results would not change if the participants were incentivized.

**Readings**

Ariely, D., & Norton, M. I. (2007). Psychology and experimental economics: A gap in abstraction. *Current Directions in Psychological Science*, 16(6), 336-339.

Gneezy, U., Meier, S., & Rey-Biel, P. (2011). When and why incentives (don't) work to modify behavior. *The Journal of Economic Perspectives*, 191-209.

Becker, G. M., DeGroot, M. H., & Marschak, J. (1964). Measuring utility by a single-response sequential method. *Systems Research and Behavioral Science*, 9(3), 226-232.

Camerer, C. F., & Hogarth, R. M. (1999). The effects of financial incentives in experiments: A review and capital-labor-production framework. *Journal of risk and uncertainty*, 19(1-3), 7-42.