BUSMGT 8241 – Spring 2021 – Experimental Methods

ELLIOT BENDOLY, Ph.D., Management Sciences
JAMES HILL, Ph.D., Management Sciences

EMAIL bendoly.2@.osu.edu, hill.249@osu.edu
ROOM Fisher Hall 600

OFFICE PHONE (614) 688-1841
OFFICE HOURS By Appointment

SEMINAR DESCRIPTION & PROCESS

The intent of this seminar is to acquaint Ph.D. students to a range of contemporary empirical works in the domain of Behavioral Operations, as well as to the variety of experimental methods brought to bear in this domain. The course will be split into four modules (thirteen full weeks of meetings), each with assigned readings that students must read in advance of each class. Students should be prepared to discuss research questions, theory, methods and findings during each class session. The assigned readings will be made available, typically at least one week in advance.

To prepare for discussion, students are expected to read all weekly-assigned material in advance. In some cases (marked [+] in the schedule), summaries per article assigned are due the day in advance. Guidance on these write-ups are provided in this document. The intention of these write-ups is to facilitate discussion as a group, and engrain key knowledge in advance of the two key presentations of the term (for details on these see the schedule that follows).

GRADING

20% Published Research Paper write-ups
(due 5pm before the discussion date, if assigned)

20% In-class participation in discussions and review of write-ups

30% Mid-term Experimental Topic Pitch
(due the day prior to class; presentations in class)

30% Final Presentations on Experimental Design
(slides due prior to class last class, with 30-min live presentations in class that day)

SCHEDULE and ASSIGNED READINGS
Weeks with [+] have the additional expectation of article summaries, submitted prior to class.

MODULE I: INTRODUCTION [2 weeks]

Week 1 (Jan 13} {Hill} – Behavioral Decision Theory
Controlled Behavioral experiments are Valuable

(a) Slovic, P., Fischhoff, B., Lichtenstein, S. 1977. Behavioral decision theory. *Annual review of psychology*, *28*(1), 1-39.
(b) Simon, H. A. 1979. Rational decision making in business organizations. *The American economic review*, *69*(4), 493-513.
(c) Bendoly, E., Donohue, K., Schultz, K. L. 2006. Behavior in operations management: Assessing recent findings and revisiting old assumptions. *Journal of operations management*, *24*(6), 737-752.
(d) Gino, F., Pisano, G. 2008. Toward a theory of behavioral operations. *Manufacturing & Service Operations Management*, *10*(4), 676-691.

Week 2 (Jan 20) {Bendoly} – Key Concepts and Elements in Experimental Designs
Treatments vs control groups; Treatment Effects vs. Demand Effects

(a) Manthei, K., Sliwka, D. 2019. Multitasking and Subjective Performance Evaluations: Theory and Evidence from a Field Experiment in a Bank. *Management Science* 65(12), 5861-5883.
(b) Chuang, H., Rogelio, O., Sheng, L. 2016. On-Shelf Availability, Retail Performance, and External Audits: A Field Experiment. *Production and Operations Management* 25(5), 935-951.
(c) Bachrach, D.G., Powell, B.C., Bendoly, E., Richey, R.G. 2006. Organizational Citizenship Behavior and Performance Evaluations: Exploring the Impact of Task Interdependent. *Journal of Applied Psychology*. 91(1). 193–20.
(d) Mummolo, J. and Peterson, E., 2019. Demand effects in survey experiments: An empirical assessment. American Political Science Review, 113(2), 517-529.

Assigned Sections of the Following Papers:

(e) *[From beginning of article up through and including All of Section 2.1]:* Eckerd, S., DuHadway, S., Kauffman, L., Carter, C., Bendoly, E. 2021. On making experimental design choices: Discussions on the use and challenges of demand effects, incentives, deception, samples, and vignettes. *Journal of Operations Management*, Forthcoming
(f) *[Only Section 2.3]* Lonati, S., Quiroga, B., Zehnder, C. and Antonakis, J., 2018. On doing relevant and rigorous experiments: Review and recommendations. *Journal of Operations Management*, 64, 19-40.

MODULE II: DESIGN OPTIONS [6 weeks]

[+] Week 3 (Jan 27} {Hill} – Studies of Rational (modelled) Decision-making
Prospect Theory; fairness; framing

(a) Kahneman, D. and Tversky, A. 1979. Prospect theory: An analysis of decision under risk. Econometrica, 47(2), 263-292.
(b) Kahneman, D., Knetsch, J. L., Thaler, R. H. 1986. Fairness and the assumptions of economics. *Journal of Business*, S285-S300.
(c) Hossain, T., List, J. A. 2012. The behaviorist visits the factory: Increasing productivity using simple framing manipulations. *Management Science*, *58*(12), 2151-2167.

Week 4/5 combined in one day session (Feb 3)

First-half 9-1:20 {Bendoly} – Vignettes Studies

(a) Rungtusanatham, M., Wallin, C. and Eckerd, S., 2011. The vignette in a scenario-based role-playing experiment. *Journal of Supply Chain Management,* 47(3), 9-16.

Assigned Sections of the Following Papers:

(b) *[Only section 2.5]* Eckerd, S., DuHadway, S., Kauffman, L., Carter, C., Bendoly, E. 2020. On making experimental design choices: Discussions on the use and challenges of demand effects, incentives, deception, samples, and vignettes. *Journal of Operations Management*, Forthcoming

(c) *[Only Section 2.2]* Lonati, S., Quiroga, B., Zehnder, C. and Antonakis, J., 2018. On doing relevant and rigorous experiments: Review and recommendations. *Journal of Operations Management*, 64, 19-40.

Second-half 9-1:20 {Hill} – Intro to Discrete Choice Experiments

Discrete Choice Experiments; Introduction to stated preference models; Choosing a choice model

(a) Kjær, T. (2005). A review of the discrete choice experiment-with emphasis on its application in health care.

Assigned Chapter of the Following Book

(b) Louviere, J. J., Hensher, D. A., & Swait, J. D. (2000). *Stated choice methods: analysis and applications*. Cambridge university press. (Chapter 2)

Week 6 (Feb 10) {Hill} – Underlying Behavioral Decision Frameworks for Choice Models

Setting out the underlying behavioral decision framework; Behavioral outputs of choice models

(a) Kjær, T. 2005. A review of the discrete choice experiment-with emphasis on its application in health care.

(b) Louviere, J. J., Islam, T., Wasi, N., Street, D., Burgess, L. 2008. Designing discrete choice experiments: do optimal designs come at a price? *Journal of Consumer Research*, *35*(2), 360-375.

(c) Liu, N., Finkelstein, S. R., Kruk, M. E., Rosenthal, D. 2018. When waiting to see a doctor is less irritating: Understanding patient preferences and choice behavior in appointment scheduling. *Management Science*, *64*(5), 1975-1996.

Week 7 (Feb 17) {Bendoly} – Time & Motion Studies

(a) Bendoly, E., Swink, M., & Simpson, W. P. 2014. Prioritizing and Monitoring Concurrent Project Work: Effects on Switching Behavior. *Production and Operations Management*, 23, 5, 847-860.

(b) Sommer, S., Bendoly, E., Kavadias, S. 2020. How do you search for the best alternative? Experimental evidence on search strategies to solve complex problems. *Management Science*.

(c) Bendoly, E. 2013. Real-time feedback and booking behavior in the hospitality industry: Moderating the balance between imperfect judgment and imperfect prescription. *Journal of Operations Management*, 31, 62-71.

Instructional Break Feb 23-24

Week 8 (Mar 3) - Student Experimental Topic Pitch
Students are asked to take a research study that they read about in one of the Fall term seminars and argue for the value of a controlled experiment to fill in some of the gaps/test underlying assumptions/advance understanding. Critical is a making an argument based on the limits of that study, and the surrounding literature, for the need of a controlled experiment; As well as the selection of either a rational-modeling study, vignette-based, discrete choice or time & motion type study. Or some combination there in, based on discussions so far.

MODULE III: DESIGN DETAIL [3 weeks]

Week 9 (Mar 10) {Bendoly} – The Role and Proper use of Incentives and Deception
The Role and Proper Use of Deception + The Role and Proper Use of Use of Incentives

(a) Sommer, S., Bendoly, E., Kavadias, S. (2020). How do you search for the best alternative? Experimental evidence on search strategies to solve complex problems. *Management Science*.
Assigned Sections of the Following Papers:
(b) Gino, F., Ayal, S., Ariely. 2009. Contagion and differentiation in unethical behavior: the effect of one bad apple on the barrel. Psychological Science 20(3), 393-398
(c) *[Only Sections 2.2 and 2.3]* Eckerd, S., DuHadway, S., Kauffman, L., Carter, C., Bendoly, E. 2020. On making experimental design choices: Discussions on the use and challenges of demand effects, incentives, deception, samples, and vignettes. *Journal of Operations Management*, Forthcoming
(d) *[Only Section 2.4]* Lonati, S., Quiroga, B., Zehnder, C. and Antonakis, J., 2018. On doing relevant and rigorous experiments: Review and recommendations. *Journal of Operations Management*, 64, 19-40.

Week 10 (Mar 17) {Hill} – Design Strategies for Choice Experiments
Generic alternatives vs labeled alternatives; Revealed preference (RP) vs stated preference (SP) data; Characteristics of RP and SP data; Design strategy for a simple SP experiment (1 week)

(a) Lancsar, E., Louviere, J. 2008. Conducting discrete choice experiments to inform healthcare decision making. *Pharmacoeconomics*, *26*(8), 661-677.
(b) Feit, E. M., Beltramo, M. A., Feinberg, F. M. 2010. Reality check: Combining choice experiments with market data to estimate the importance of product attributes. *Management science*, *56*(5), 785-800.
(c) Craig, A. C., Garbarino, E., Heger, S. A., Slonim, R. 2017. Waiting to give: stated and revealed preferences. *Management Science*, *63*(11), 3672-3690.

Week 11 (Mar 24) {Bendoly} – Care and Checks to Clarity and the Effectiveness of Designs
Comprehension, Manipulation, Confounding and Hawthorne; Order Effects

(a) Fiedler, K., McGaughey, L., Prager, J. 2021. Quo vadis, methodology? The key role of manipulation checks for validity control and quality of science. Perspectives on Psychological Science, 1-11
(b) Bachrach, D.G. and Bendoly, E., 2011. Rigor in behavioral experiments: A basic primer for supply chain management researchers. *Journal of Supply Chain Management,* 47(3), 5-8.
(c) Wetzel, C.G. 1977. Manipulation Checks: A Reply to Kidd. *Representative Research in Social Psychology*, 8(2), 88-93.
(d) Parsons, H.M. 1992. Hawthorne: An Early OBM Experiment. *Journal of Organizational Behavior Management*, 12(1), 27-44.
(e) Bendoly, E. and M. Swink. 2007. Moderating Effects of Information Access on Project Management Behavior, Performance and Perceptions. *Journal of Operations Management* 25(3), 604-622.

Supplemental Reading on Experimental Design Checks

Abbey, J.D. and M.G. Meloy. 2017. Attention by design: Using attention checks to detect inattentive respondents and improve data quality. *Journal of Operations Management*, 53-56, 63-70.
Hauser, D., Ellsworth, P., R. Gonzalez. 2018. Are manipulation checks necessary? *Frontiers in Psychology*, 9.
Oppenheimer, D.M., Meyvis, T. and N. Davidenko. 2009. Instructional manipulation checks: Detecting satisficing to increase statistical power. *Journal of Experimental Social Psychology*, 45, 867-872.
Perdue, B., Summers, J. 1986. Checking the Success of Manipulations in Marketing Experiments. *Journal of Marketing Research*, 23(4), 317-326.

Instructional Break Mar 31-Apr 1

MODULE IV: EXECUTION [3 weeks]

[+ a-c] **Week 12 (Apr 7) {Bendoly} – Sampling Plans and Institutional Review**
Power (sample size, determination); People (students, MTurkers, industry contacts); Random allocation
IRB – Paperwork, Certification ad Exempt, Expedited, Full revs, Resource Planning, Execution and Debriefing

(a) Winny Shen, W., Kiger, T.B., Davies, S.E., Rasch, R.L., Simon, K.M., Ones, D.S. 2011. Samples in Applied Psychology: Over a Decade of Research in Review. *Journal of Applied Psychology* 96(5), 1055-1064.
(b) Brysbaert, M. 2019. How many participants do we have to include in properly powered experiments? A tutorial of power analysis with reference tables. *Journal of Cognition*, 2(1):16, 1-38.
(c) Goodman, J.K. and Paolacci, G., 2017. Crowdsourcing consumer research. *Journal of Consumer Research*, 44(1), 196-210.
(d) Peduzzi, P., Concato, J., Kemper, E., Holford, T.R., and Feinstem, A.R. 1996. A Simulation study of the number of events per variable in logistic regression analysis. *Journal of Clinical Epidemiology* 49(12):1373–1379.
Assigned Sections of the Following Papers:
(e) *[All of Section 2.4, and All of Sections 3 & 4]* Eckerd, S., DuHadway, S., Kauffman, L., Carter, C., Bendoly, E. 2020. On making experimental design choices: Discussions on the use and challenges of demand effects, incentives, deception, samples, and vignettes. *Journal of Operations Management*, Forthcoming
(e) *[All of Section 3]* Lonati, S., Quiroga, B., Zehnder, C. and Antonakis, J., 2018. On doing relevant and rigorous experiments: Review and recommendations. *Journal of Operations Management*, 64, 19-40.

Week 13 (Apr 14) {Hill} – Implementing an Approved Laboratory Plan (Examples)
Implementing a stated preference choice behavior study; Components of the choice process; the steps in an SP choice study (1 week)

(a) Fuchs, C., de Jong, M. G., Schreier, M. 2020. Earmarking Donations to Charity: Cross-cultural Evidence on Its Appeal to Donors Across 25 Countries. *Management Science*, *66*(10), 4820-4842.
(b) Esenduran, G., Hill, J. A., & Noh, I. J. (2020). Understanding the Choice of Online Resale Channel for Used Electronics. *Production and Operations Management*, *29*(5), 1188-1211.

Week 14 (Apr 21) {Students} – Presentations on Experimental Design
Student present full experimental designs, including details on treatments, sampling, checks, use of deception, incentives, etc. Students must be justified not only in arguing for the value of the proposed study but also in the specific decisions on design.

APPENDIX: Format for ½ page write-ups (per article assigned)

Font: Arial Narrow. Font Size: 11pt
Spacing: At 1.1 (marginally multi), 0 between paragraphs.
Margins: ½ inch all around

Content (apart from the below section headers) should not be in bold or italics.
Do not include images or formula (stick to text descriptions)

See the example below.
Each section specified below should have content, though the amount of content per section is up to you.
Your description should fit into either this half-page table cell, or the one below.
You do not have to completely fill these ½ page spaces.

We will share write-ups will everyone in class.

Article Title: Example Authors, (Example Year), Example article title …….....…….
……. Example Journal, Example Vol(#), Pages
Motivation (why study this?): Words, words, words, words……..
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Argument (including any Theory applied): Words, words, words, words……..……..
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Data collection Methods: Words, words, words, words……..
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Main Academic Findings: Words, words, words, words……..……....
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Prescription for Practice: Words, words, words, words…….……..
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Course technology:

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at ocio.osu.edu/help/hours, and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** ocio.osu.edu/help
- **Phone:** 614-688-4357(HELP)
- **Email:** servicedesk@osu.edu
- **TDD:** 614-688-8743

Baseline technical skills for online courses

- Basic computer and web-browsing skills
- Navigating Carmen: for questions about specific functionality, see the Canvas Student Guide.

Required Technology skills specific to this course

- CarmenZoom virtual meetings
- Recording a slide presentation with audio narration
- Recording, editing, and uploading video

Required equipment

- Computer: current Mac (OS X) or PC (Windows 7+) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed and tested
- Microphone: built-in laptop or tablet mic or external microphone
- Other: a mobile device (smartphone or tablet) or landline to use for BuckeyePass authentication

Required software

- Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft's Student Advantage program. Full instructions for downloading and installation is at go.osu.edu/office365help.

Academic integrity

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct (https://trustees.osu.edu/bylaws-and-rules/code) and this syllabus may constitute Academic Misconduct (https://oaa.osu.edu/academic-integrity-and-misconduct)

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: Any activity that tends to compromise the academic integrity of the University, or subvert the educational process. Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an excuse for academic misconduct, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.
If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Disability Services

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue

Grievances and Solving Problems

According to University Policies, if you have a problem with this class, you should seek to resolve the grievance concerning a grade or academic practice by speaking first with the instructor or professor. Then, if necessary, take your case to the department chairperson, associate dean for programs in the college, and to the provost, in that order. Specific procedures are outlined in Faculty Rule 3335-7-23. Grievances against graduate, research, and teaching assistants should be submitted first to the supervising instructor, then to the chairperson of the assistant's department