SOCSCI 2UR3 - Single Subject Research Design

# Course information:

* Monday, January 6, 2020 to Tuesday, April 7, 2020, Wednesdays 7p-10p.
* Instructor: Mary Hume, Med, BCBA
* Office: KTH 208
* Office hours: Wednesdays 5:30p-6:30p (or by appointment)
* Email: [humem@mcmaster.ca](mailto:humem@mcmaster.ca)

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Course Overview

## Course Description:

This course presents an introductory examination to single subject design and its applications in the field of applied behaviour analysis.

## Course Objectives:

Upon completion of this course, students will be able to:

1. Identify the features of different types of single subject design and their application.
2. Explain the differences between various types of single subject designs.
3. Explain how treatment effectiveness is determined through single subject designs.
4. Develop a research-based proposal for using single subject design.
5. Developing Transferable Skills: You will work on developing academic skills that are transferable to your other university courses as well as to the workforce. These skills include:
   * critical reading and thinking;
   * communication (oral, written and visual)
   * self and peer evaluation;
   * research skills; and
   * group work skills.

## Required Texts:

|  | ISBN | Textbook Title & Edition | Author & Publisher |
| --- | --- | --- | --- |
| Required | 9781138685260 | *Research methods in applied behavior analysis 2nd Edition*. | Bailey, J. S., & Burch, M. R. (2017).  Pearson. ISBN: |
| Recommended | ISBN: 978-1-59738-050-8 | Behavior Analysis for Lasting Change, *Third Edition* | G. Roy Mayer, Beth Sulzer-Azaroff, and Michele Wallace Pearson; Sloan Publishing |

# Course Requirements/Assignments

## Requirements Overview and Deadlines

| Assessment Activity | % of Grade | Date Due |
| --- | --- | --- |
| Hypothetical Research Paper | 1. Topic Proposal (3%) 2. Abstract and Introduction (10%) 3. Methods (10%) 4. Results and Discussion (7%) 5. Final Draft (30% total) | 1. January 31, 2020 2. February 28, 2020 3. March 13, 2020 4. March 27, 2020 5. April 8, 2020 |
| Quizzes (X3) | 15% | Dates listed below |
| In-class Activities | 10% | Surprise dates |
| TCPS 2: Core Modules | 10% | March 27, 2020 |
| Article Presentation | 10% | As Assigned |
| Final Exam (Cumulative) | 25% |  |

## Requirement/Assignment Details

Quizzes (X3):

Content for the quizzes will be derived from the lectures and readings. Quizzes are not cumulative.

Single Subject Design Case Study Presentation:

You will be divided into groups and assigned a particular single subject design. You will present 3 peer-reviewed articles that are an example of the research design for a particular class session and will lead a discussion with the class. The discussion should help each class member understand the logic of the type of design used in the study, the research question and methods of the example study, the results and implications for practice and research. Students are strongly encouraged to meet with the professor at least a week prior to their presentation to overview what they will be teaching.

In-Class Activities:

To encourage reading all assigned articles and chapters before class there will be brief in-class activities for randomly determined classes. There will be five (5) in-class activities during the term. These must be done in class (i.e., there are no make-ups outside of class) and each is worth 2 points. These activities may involve practice quizzes, Interteaching activities, or writing short essays on topics covered in that day’s readings, lecture, and discussion. Please bring at least 1 blank lined paper and pen to each class. Activities will be conducted either during the first hour of class or the last half hour, late arrival or absence from class that day will result in a 0, there are no make-ups.

Hypothetical Research Paper:

This project will be completed in groups of 2. The purposes of this assignment is for students to gain experience in (a) designing a study using single-case methodology, and (b) writing a research paper. The approximate page length of a journal brief report article (Max. 3000 words). Projects must be APA-formatted. The project should use either a withdrawal design, a variation of the multiple baseline design, changing criterion design, a variation of the alternating treatments design, or a combination design.

You will choose a topic and look into the literature for at least 10 peer-reviewed articles on the topic. You will propose a single-subject design study for a fictitious problem in class, during seminar and hand in a 1-page justification of your topic. The papers should demonstrate synthesis and evaluation of key course concepts related to single-case research design.

Sections of the research paper will be handed in separately throughout the semester (due dates indicated below). Feedback will be provided per section. A revised final draft of the research paper will be handed in on the final day of class (with revisions highlighted). If revisions meet the criteria of the rubric, grades will be changed to reflect final revisions. Templates and Rubrics will be provided via A2L.

TCPS 2: Core Modules:

The purpose of completing these modules is to provide students with a broad overview of conducting human subject research. The online tutorial is an introduction to the 2nd edition of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2). It consists of eight modules focusing on the guidance in TCPS 2 that is applicable to all research regardless of discipline or methodology. Students must provide proof of completion via email. The modules can be accessed here: <http://tcps2core.ca/>

Final Exam (cumulative):

The final exam is cumulative and will include content covered in class and in the readings over the course of the semester.

# Assignment Submission and Grading

## Guidelines:

Written Assignments: All written assignments are to be typed and double-spaced. Please include a title page with your name, student number and email address, the topic title of the assignment and the date submitted. Please submit a paper copy to the Instructor at the start of class on the due date as well as submit one file copy per group to the appropriate Dropbox in Avenue 2Learn.

Submitting Assignments Electronically: Individual assignments submitted electronically must include your last name in the filename: e.g. Smith\_Assignment\_5\_Article\_Assessments.rtf.

Late Submissions: All work is due on the date stated, at the beginning of class, unless other arrangements have been made in advance with the instructor. A late penalty of 5 percentage points per day will apply after the due date (weekends included).

Class Participation and Engagement: Class participation and engagement is an important component of this course (and of active learning). Therefore, we expect all students to be ‘active’ participants in this course. This means attending all classes, being actively involved in class activities and thoughtful discussion, and completing all assignments. The success of this course depends on you! Students who are most successful in this course fulfill these expectations, and engage in all aspects of the course!

Group Assignments: For all group assignments, ALL students in the group must be contributing members of that assignment. The expectation is that each student will be an active and respectful member of their group, and contribute to the assignment - in a fair and equitable way. Group work is sometimes challenging, but it can also be rewarding in a number of ways, including providing you with opportunities to develop valuable ‘working-as-a-team’ skills that will serve you well in this and other courses, as well as more broadly in your academic, professional, and personal life.

Policy for Returning Assignments/Posting Grades: In accordance with regulations set out by the Freedom of Information and Privacy Protection Act, the University will not allow the return of graded materials by placing them in boxes in departmental offices or classrooms so that students may retrieve their papers themselves; all tests and assignments must be returned directly to the student.

And since it is important for student learning and skills development that students receive feedback on their assignments as they progress through the course, you can expect to receive feedback (comments and a grade) on each of your examinations and the group assignment in a timely fashion. This will allow you the opportunity to see how you performed on each assignment and time to discuss any questions you might have with your instructor.

The following possibilities exist for return of graded materials:

  1. direct return of materials to students in class;

2. return of materials to students during office hours;

3. students attach a stamped, self-addressed envelope when submitting the

assignments for return by mail (for final capstone assignment only); and

4. submit/grade/return papers electronically.

Arrangements will be finalized for the return of assignments from the options listed above by the instructor during the first class.

Grades for examinations and the group assignment will be posted in Avenue2Learn. Final grades for the course will be posted on Mosaic.

# Student Responsibilities

## Academic Integrity

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the [Academic Integrity Policy](http://www.mcmaster.ca/academicintegrity.).

The following illustrates only three forms of academic dishonesty:

* Plagiarism, e.g. the submission of work that is not one’s own or for which other credit has been obtained.
* Improper collaboration in group work.
* Copying or using unauthorized aids in tests and examinations.

## Academic Accommodation of Students with Disabilities

Students with disabilities who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail [sas@mcmaster.ca](mailto:sas@mcmaster.ca) for further information, consult McMaster University’s [Academic Accommodation of Students with Disabilities](https://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicAccommodation-StudentsWithDisabilities.pdf) policy.

## Religious, Indigenous and Spiritual Observances (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the RISO policy. Students requiring a RISO accommodation should submit their request to their Faculty Office normally within 10 working days of the beginning of term in which they anticipate a need for accommodation or to the Registrar’s Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

Please review the [RISO information for students in the Faculty of Social Sciences](https://socialsciences.mcmaster.ca/current-students/riso) about how to request accommodation.

## E-mail Communication Policy

Effective September 1, 2010, it is the policy of the Faculty of Social Sciences that all e-mail communication sent from students to instructors (including TAs), and from students to staff, must originate from the student’s own McMaster University e-mail account. This policy protects confidentiality and confirms the identity of the student. It is the student’s responsibility to ensure that communication is sent to the university from a McMaster account. If an instructor becomes aware that a communication has come from an alternate address, they may not reply.

## McMaster Student Absence Form (MSAF)

In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar “Requests for Relief for Missed Academic Term Work”.

# Course Schedule

| Date | Topic, Lecture Details & Homework | Chapter |
| --- | --- | --- |
| Week of January 6, 2020 | Introduction  •Introduction to course and course requirements  •Introduction to ABA and research  Article:  Baer, Wolf, Risley (1968) Some Current Dimensions of Applied Behavior Analysis, *Journal of Applied Behaviour Analysis*, Vol 1 (91-97). http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1310980/ | Part I |
| Week of January 13, 2020 | Research Topics and questions | Part II, step 1,2 |
| Week of January 20, 2020 | Social Validity and Selecting Variables  Wolf M. M. (1978). Social validity: the case for subjective measurement or how applied behaviour analysis is finding its heart. J. Appl. Behav. Anal. 11, 203 10.1901/jaba.1978.11-203  Recommended: Mayer et al. (2019) pp. 557-559  *QUIZ 1* | Step 3, 4 |
| Week of January 27, 2020 | Data Collection And Pilot tests of variables  Recommended: Mayer et al. (2019) Chapter 7 Topic Proposal Due | Step 5, 6 |
| Week of February 3, 2020 | Research designs  Recommended: Mayer et al. (2019) Chapter 25 | Step 7 |
| Week of February 10, 2020 | Reversal Design  Barrish HH, Saunders M, Wolf MM., (1969).Good Behavior Game: effects of individual contingencies for group consequences on disruptive behavior in a classroom. Journal of Applied Behavior Analysis. 2:119–124.  Siegel R.K., (1977). Stimulus selection and tracking during urination: autoshaping directed behavior with toilet targets. Journal of Applied Behavior Analysis.10(2):255–265.  Recommended: Mayer et al. (2019) Chapter pp.177-184  **Reversal Design Presentations** |  |
| Week of February 17, 2020 | Midterm Break |  |

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| --- | --- | --- |
| Week of February 24, 2020 | Multiple Baseline Design  Lerman D.C, Sansbury T, Hovanetz A, Wolever E, Garcia A, O'Brien E, et al. (2008). Using behavior analysis to examine the outcomes of unproven therapies: An evaluation of hyperbaric oxygen therapy for children with autism. Behavior Analysis in Practice. 2:1–9.  Brobst, B., Ward P. (2002). Effects of public posting, goal setting, and oral feedback on the skills of female soccer players. Journal of Applied Behavior Analysis.35(3):247–257.  Recommended: Mayer et al. (2019) pp.185-193  Abstract and Introduction Due  **Multiple Baseline Design Presentations** |  |
| Week of March 2, 2020 | Multi-Element Design  Iwata B. A, Dozier C. L. (2008). Clinical application of functional analysis methodology. Behavior Analysis in Practice.1:3–9.  Libby M. E, Weiss J. S, Bancroft S, Ahearn W. H. A., (2008). A Comparison of most-to-least and least-to-most prompting on the acquisition of solitary play skills. *Behavior Analysis in Practice*. 1:37–43.  Recommended: Mayer et al. (2019) Chapter pp.567-574  Multi-element Design Presentations QUIZ 2 |  |
| Week of March 9, 2020 | Changing Criterion Design  Hartman DP, Hall RV. The changing criterion design. *Journal of Applied Behavior Analysis.* 1976; 9:527–532  De Luca RV, Holborn SW. (1992). Effects of a variable-ratio reinforcement schedule with changing criteria on exercise in obese and nonobese boys. *Journal of Applied Behavior Analysis.* 25(3):671–679.  Recommended: Mayer et al. (2019) pp.559-563 Methods Section Due Changing Criterion Design Presentations |  |
| Week of March 16, 2020 | Group Design  Bach P., Hayes S.C. (2002). The use of Acceptance and Commitment Therapy to prevent rehospitalization of psychotic patients: a randomized controlled trial. J Consult Clin Psych.14(5):1129–1139.  Howard, J. S., Sparkman, C. R., Cohen, H. G., Green, G., & Stanislaw, H. (2005). A comparison of intensive behavior analytic and eclectic treatments for young children with autism. Research in developmental disabilities, 26(4), 359-383.  Group Design Presentations  *QUIZ 3* |  |
| Week of March 23, 2020 | Ethics Check and Carrying out Research Results and Discussion Due DUE : Proof of completion of TCPS 2: Core Modules | Step 8, 9 |
| Week of March 30, 2020 | Analyze data | Step 10, Part III |
| Week of April 6, 2020 | Final Exam Review Final Draft Due |  |
| Monday April 13, 2020- Tuesday, April 28, 2020 | Final Exam TBD |  |

## Additional Supplementary Reading:

Carr J. E, Briggs A. M. (2010). Strategies for making regular contact with the scholarly literature. *Behavior Analysis in Practice.* 3, 13–18.

Deochand, N., Costello, M. S., & Fuqua, R. W. (2015). Phase‐change lines, scale breaks, and trend lines using Excel 2013. Journal of applied behavior analysis.

Dixon M. R, Jackson J. W, Small S. L, Horner-King M. J, Mui Ker Lik N, Garcia Y, Rosales R. Creating single-subject design graphs in Microsoft Excel™ 2007. Journal of Applied Behavior Analysis. 2009; 42:277–293.

Hanley G. P. (2010). Toward effective and preferred programming: A case for the objective measurement of social validity with recipients of behavior-change programs. *Behavior Analysis in Practice.*3,13–21.

Martin G, Thompson K, Regehr K., (2004). Studies using single-subject designs in sport psychology: 30 years of research. *The Behavior Analyst.* 27, 263–280.

Vanselow, N. R., & Bourret, J. C. (2012). Online interactive tutorials for creating graphs with Excel 2007 or 2010. Behavior analysis in practice, 5(1), 40.

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check his/her McMaster email