Psychology 9100
SMALL N RESEARCH DESIGN
UNO, Spring 2020

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Time & Location: Online learning modules as assigned
                        Four face-to-face classroom meetings:
- Monday, February 10, 8:30-10:30am (ASH 347Y)
- Monday, March 16, 8:30-10:30am (ASH 347Y)
- Monday, April 27, 8:30-10:30am (ASH 347Y)
- Monday, May 4, 8:30-11:30am (ASH 347Y)

Required Course Readings:

Riley-Tillman, T. C., & Burns, M. K. (2009). *Evaluating educational interventions: Single-case design for measuring response to intervention.* New York: Guilford Press.

American Psychological Association, Publication Manual, Sixth Edition (2010).
        http://www.apastyle.org/manual/index.aspx

Other readings as assigned (Available on Canvas).

Course Description:

PSYC 9100 is a graduate-level course on the methods and principles of data collection, measurement, data analysis, experimental design, and research methodologies that are hallmarks of applied behavior analysis. This particular section of the course is designed for graduate students in school psychology and education-related fields, and thus focuses on the application of behavior analytic methods and principles in educational settings. Examples utilized throughout the course focus primarily on children with developmental and behavioral disabilities.

UNO School Psychology Program Training Objectives and Student Learning Outcomes:

The UNO School Psychology Program adheres to the 10 domains of training and practice set forth by the National Association of School Psychologists (NASP, 2010). Below, this course's student learning outcomes are listed by the training objectives to which they match.

Objective 1. Data based decision-making and accountability.

- Students will be able to operationally define behavior in observable and measureable terms.
- Students will understand the dimensions of behavior and be able to select the appropriate dimension related to the behavior of concern.
- Students will demonstrate understanding of observation and recording techniques and be able to select an appropriate measurement procedure matched to the dimension of behavior and setting logistics.

- Students will be able to evaluate the validity of behavioral data by considering the representativeness of the sample and reliability.
- Students will demonstrate a conceptual understanding of the logic and reasoning of small-n designs, as well as the ability to select appropriate small-n designs.
- Students will be able to properly graph and visually analyze behavioral data in order to appropriately evaluate the effectiveness of an intervention.
- Students will be able to

Objective 3. Interventions and instructional support to develop academic skills.
- Students will be able to apply small-n design concepts to the Response-to-Intervention model in order to evaluate students' response to services and to make effective instructional decisions.

Objective 4. Interventions and mental health services to develop social and life skills.
- Students will be able to apply small-n design concepts to a multi-tiered system of support (MTSS, e.g, PBIS) in order to evaluate students' response to strategies that support social-emotional functioning and mental health.

Objective 9. Research and program evaluation.
- Students will be able to systematically and quantitatively analyze student data and research data in order to evaluate the effectiveness of services and supports.

Objective 10. Legal, ethical, and professional practice.
- Students will understand the ethical, professional, and legal standards to which both researchers and service-providers are held.

BACB Information
This course is part of the UNO/MMI Verified Course Sequence (VCS) approved by the Behavior Analyst Certification Board (BACB). Students completing all courses in the VCS are eligible to sit for the examination for Board Certification in Behavior Analysis (BCBA).
This course is designed to specifically meet the objectives of the BCBA Task List (5th edition) in the areas of "Measurement, Data Display, and Interpretation" and "Experimental Design," and includes 45 hours of instruction in the following areas:

C-01	Establish operational definitions of behavior.
C-02	Distinguish among direct, indirect, and product measures of behavior.
C-03	Measure occurrence (e.g., frequency, rate, percentage).
C-04	Measure temporal dimensions of behavior (e.g., duration, latency, interresponse time).
C-05	Measure form and strength of behavior (e.g., topography, magnitude).
C-06	Measure trials to criterion.
C-07	Design and implement sampling procedures (i.e., interval recording, time sampling).
C-08	Evaluate the validity and reliability of measurement procedures.
C-09	Select a measurement system to obtain representative data given the dimensions of behavior and the logistics of observing and recording.
C-10	Graph data to communicate relevant quantitative relations (e.g., equal-interval graphs, bar graphs, cumulative graphs).
C-11	Interpret graphed data.

D-01   Distinguish between dependent and independent variables.
D-02   Distinguish between internal and external validity.
D-03   Identify the defining features of single-subject experimental designs (e.g., individuals serve as their own controls, repeated measures, prediction, verification, replication).
D-04   Describe the advantages of single-subject experimental designs compared to group designs.
D-05   Use single-subject experimental designs (e.g., reversal, multiple baseline, multielement, changing criterion).
D-06   Describe rationales for conducting comparative, component, and parametric analyses.

Course Policies:

- Due dates for all assignments are clearly noted on Canvas. The general expectation is that students will be able to attend all class meetings and complete all assignments **on time**. Make-up assignments will not be allowed unless there is a legitimate, reasonable excuse that is communicated directly to the instructor IN ADVANCE. **Unexcused late assignments will result in a deduction of 10% of earned points per day the assignment is late** up to a maximum of 50% of points deducted (remember…submitting via Canvas or emailing assignments as an attachment is a viable option for handing in assignments on time). *There are only FOUR face-to-face class dates, but they are important!*

- Students may redo assignments on which less than 70% of possible points were earned. The revised grade will be the average score between the original assignment and the revised assignment. For example, a score of 60% on an assignment is eligible for a redo. If the student earns 90 points on the redo, the final score recorded for the assignment will be 75. *If you choose to redo an assignment, you must notify the instructor promptly. The revised assignment must be turned in no later than 1 week from the time the original is returned. The revision policy does not apply to assignments due after April 24th.*

- I want to be accessible to students! My office door is usually open and I check email regularly throughout the week. However, I have a family (and small kids), so there are times I need to unplug. During weekdays, you can expect your emails will be answered within 24 hours. Over the weekend, however, I may not answer your email until Monday.

- When in class, please discontinue the use of cell phones and other portable electronic devices as soon as class begins. Phones should be TURNED OFF so as not to disturb the learning of others. (In unusual circumstances when you need to have your phone available, please notify the instructor prior to class.) In addition to turning off cell phones, **please refrain from checking email, text messages, or social networking sites** during class time. Not only is it is very distracting to the instructor and to the other students who are participating actively in the class, but it interferes with your learning and participation.

- General class information, announcements, and most readings will be posted online on Canvas. Any required resources, assignment guidelines, and grades also will be posted on Canvas. Be sure to check online for announcements regularly.

- When in class, participation in activities and discussions is encouraged and expected. **Ask questions!** In the event you disagree with ideas presented by others, please refrain from any

negative comments, but please **do** feel comfortable offering your ideas. Class members not respecting others' right to learning will be asked to leave the classroom and need to speak to the instructor before returning. You may note there is no participation grade for this course. As a graduate level class, participation is expected from <u>all</u> students. Please come prepared to class having read and reacted to the readings so you may fully participate in the conversation and activities. Participating in class is practicing a vital skill for school psychologists who are expected to talk in groups, ask and answer questions, and advocate for what they believe is right.

- There is an expectation of professionalism for this course and all your other UNO courses. Much of the work for this class will be done online, and while you're at home you can dress how you like, speak how you like, etc. However, on class days, the expectation is that you should arrive to class on time, stay for the entire length of class, <u>dress appropriately</u>, and communicate verbally using professional language and style. Sloppy work reflects poorly on you and our program.

- Academic dishonesty of any kind will not be tolerated and will be addressed in a manner consistent with the University's Academic Integrity Policy (see the UNO Student Affairs website). In accordance with this policy, consequences for engaging in behavior that goes against academic integrity will be handled on a case-by-case basis at the discretion of the instructor. Penalties may range from zero credit on the assignment, to reduced or failing course grade, to expulsion from the program. ANY instances of plagiarism or other misconduct may be reported to the Program Director, Department Chair, Dean, Assistant Vice Chancellor for Student Affairs, and the registrar. Furthermore, a record of the event will be placed in the student's graduate file. Depending on the situation, there may be consequences imposed by your degree program in addition to those imposed at the course level. Students who do not agree with the penalty decided by the instructor may follow a sequence of appeals. If you are unsure of whether or not you are committing plagiarism, or want to refresh yourself, please check the tutorial at http://www.indiana.edu/~istd/. **Students should be aware that ALL assignments are subject to a check for plagiarism using the internet and/or plagiarism detection software.**

- I want to facilitate the learning of all students in the class. Accommodations are provided for students who are registered with the Accessibility Services Center and make their requests sufficiently in advance. For more information, contact Accessibility Services (MBSC 111, Phone: 554-2872) or go to the website: https://www.unomaha.edu/student-life/inclusion/disability-services/index.php. Use of accommodations in the classroom or in testing situations will remain confidential. Please contact the instructor with any special requests or accommodations. In addition, if at any time there are specific issues or concerns related to your performance in class, please address these with the instructor as soon as possible.

Evaluation Procedures:
This course will employ multiple opportunities for students to demonstrate their knowledge.

- **Quizzes (20% of final grade)**
  Quizzes will be given weekly throughout the semester as part of each Module. Generally, these are not cumulative but are designed to assess students' understanding of materials within that Module. Quizzes will cover materials from required readings as well as other referenced materials. Some items will pertain to knowledge of terminology and concepts, while others will require the application of learning concepts. Quizzes will consist primarily of multiple-choice questions, but there will occasionally be some short answer/essay responses.

Fourteen quizzes will be given in total, <u>with the lowest quiz score being dropped</u> before calculating each student's final grade.

Quizzes will be scheduled for Fridays; however, students will have the option of taking the quiz earlier in the week. **Missed quiz make-ups must be scheduled with the instructor and taken within the next week**. Ten points per day will be deducted from the quiz score until it has been made up.

The Respondus LockDown Browser must be used when taking course quizzes. The browser will allow you to complete the quiz online, but will prohibit you from accessing other URLs or opening other applications. This is to discourage cheating during the quiz (and to avoid the requirement that exams be proctored on campus).

- **Discussions and Practice on Canvas (25% of final grade)**
  Ongoing and meaningful student participation is essential. As this is a hybrid course and materials are delivered online via Canvas, I can't regularly rely on student behavior in class to communicate if material is being understood. Therefore, weekly discussions on Canvas will be utilized for the following purposes:
  a) As a formative assessment – to ensure that students are keeping up and comprehending course materials.
  b) To gain insight into students' thoughts and opinions about the subject matter.
  c) To provide practice of important skills and to evaluate these skills.
  d) To evaluate student participation in the class.
  e) So that students can learn from one another.
  f) To help build a sense of community. (I know this is no substitute for in-class experiences, but it's better than nothing!)

  At least once in each Module, a Discussion link on Canvas will be included. Students will be expected to post a reply **to each discussion**. In addition, each Module will have a "Parking Lot" Discussion forum. In this area, students will post questions or comments regarding the concepts taught in that Module. <u>All students should read, post, and respond in this Discussion area</u>! In this way, students will be able to interact, discuss, and learn from one another's questions and the instructor's replies.
  A Discussion Rubric will be used to assess students' posts in each discussion forum. Scoring criteria will include the content of the post, critical thinking, timeliness, and involvement & responsiveness.

  NOTE: Each Discussion will have a deadline posted, and student posts MUST be made by that deadline in order to earn full credit. Students may be allowed to earn partial credit for late posts if they contact the instructor within a week of the due date; after that, a grade of zero will be given to students who did not participate.

- **Research Proposal (25% of final grade)**
  Each student will submit a research proposal and present it in class. The proposal may or may not relate to other research assignments (e.g., school psychology students' Ed.S. Applied Research Project). Students should begin by selecting a broad area of interest, and then reviewing the extant literature in this area in order to begin the process of developing and refining a research question. Once the research question has been finalized and approved by the instructor, students will design an appropriate Small-n research methodology to answer it.

Students will receive a grade for their research proposal (details for which can be found on Canvas), and 10-minute presentation to the class. The proposal and Powerpoint presentation must be submitted <u>by the start of class</u> **May 4th.**

- **Performance Tasks (30% of final grade)**
  - Three class sessions will be devoted to in-class <u>Performance Tasks</u>. (**It is essential that you attend each class session!**) Performance tasks are essentially the application of course content to solve a simulated problem of some kind. The intention is to replicate some of the types of "real life" situations that you are likely to face in the field. You will work with one or more partners on each performance task.
    - Performance Task #1 (**February 10th**) will address the early stages of single case design: developing a case history, determining target behavior(s) and operational definition(s), determining the relevant dimension(s) of behavior and recording strategy, and data collection.
    - Performance Task #2 (**March 16th**) will address your understanding and ability to use SCDs to evaluate interventions.
    - Performance Task #3 (**April 27th**) will address your ability to graph data, and the visual analysis and interpretation of SCD to make educational decisions.

Grading:

The following grading scale will be used for determining your final grade:

Percentage	Grade	Percentage	Grade	Percentage	Grade
99-100%	A+	87-89.9%	B+	77-79.9%	C+
93-98.9%	A	83-86.9%	B	73-76.9%	C
90-92.9%	A-	80-82.9%	B-	70-72.9%	C-

Percentage	Grade	Percentage	Grade
67-69.9%	D+	Below 60%	F
63-66.9%	D		
60-62.9%	D-		

<u>Note</u>: Total points earned below 60% will result in a failing grade. School Psychology students must maintain at least a B average in all classes, with no grade below a C in order to remain in the program. See the Program Handbook and Graduate School policies for more information.

Daily Topics and Assignments:

Week	Date	Topic & Content	Reading
1	Jan 13-17	<u>Module 1</u> • Review of syllabus and course requirements • Background of single-case design (SCD) • The basics of SCD	*Riley-Tillman & Burns. Ch. 1 & 2* (pp. 13-27). *O'Neill et al. Ch. 1
2	Jan 20-24	<u>Module 2</u> • Getting started with your research proposal • SCD in research versus SCD in practice • Issues unique to applied research	*Riley-Tillman & Burns. Ch. 2* (pp. 27-30). *Johnston & Pennypacker. Ch. 3 *O'Neill et al. Ch. 5
3	Jan 27-31	<u>Module 3</u> • The case history • The target behavior and how to measure it	*O'Neill et al. Ch. 2 *Tilly (2008).
4	Feb 3-7	<u>Module 4</u> • More on measurement – tools & practice	
5	*February 10 (In Class - Monday)*	<u>Application via Performance Task:</u> Getting started: developing a case history, determining behavior(s) of concern, developing operational definition, determining relevant dimension(s) of behavior, & recording behavior.	
	Feb 10-14	<u>Module 5</u> • Assessing the measurement of behavior (the reliability & generality of data) • Direct Behavior Ratings	*Johnston & Pennypacker. Ch. 7 *Mudford, Beale, & Singh (1990). *Powell, et al. (1977).
6	Feb 17-21	**NASP (No assignments!)**	
7	Feb 24-28	<u>Module 6</u> • Treatment Integrity • Experimental designs: the Reversal design	*Gresham (1989). *Riley-Tillman & Burns. Ch. 3*
8	March 2-6	<u>Module 7</u> Experimental designs: multiple baseline and multiple probe designs	*Riley-Tillman & Burns. Ch. 4* (pp. 52-62). *Horner & Baer (1978).
9	March 9-13	<u>Module 8</u> • Experimental designs: alternating treatment and changing criterion designs	*Riley-Tillman & Burns. Ch. 4* (pp. 62-71). *Barlow & Hayes (1979). *Hartmann & Hall (1976).
10	*March 16 (In Class - Monday)*	<u>Application via Performance Task:</u> Choosing and using an appropriate SCD	
	March 16-20	<u>Module 9</u> • Developing and writing your methods of research • More on SCD guidelines	*Tate, et al. (2016) * WWC Standards Handbook & CEC Standards for EBP
11	March 23-27	**Spring Break (No assignments!)**	
12	March 30-April 3	<u>Module 10</u> • Graphing 101	*Riley-Tillman & Burns. Appendix A* *Dixon, et al. (2009). *Deochand et al. (2015)
13	April 6-10	<u>Module 11</u> • Visual analysis and interpretation of SCD	*Riley-Tillman & Burns. Ch. 5*
14	April 13-17	<u>Module 12</u> • Effect sizes: How good is good?	*Riley-Tillman & Burns. Ch. 6* (pp. 106-116) *Hagopian et al. (1997). *Parker et al. (2011).
15	April 20-24	<u>Module 13</u> • Putting it all together: SCD in the context of RTI	*Riley-Tillman & Burns (2009). Chs. 6* (pp. 116-122) *& 8*

	April 27 (In Class - Monday)	<u>Application via Performance Task</u>: Graphing and visual analysis of SCD to make an educational decision.	
16	April 27- May 1	Module 14 • Fine-tuning and reviewing your methods.	
	May 4 (In Class - Monday)	Presentation of students' research proposals.	