

REHB 509A
Behavior Analysis Research Designs: Single Subject Designs
Spring 2015

Course Title: Behavior Analysis Research Designs: Single Subject Designs

Course Number: REHB 509A

Credit Hours: 3

Course Dates: January 20th – May 15th

Instructor:

Mark R. Dixon, Ph.D., BCBA-D

Email: mdixon@siu.edu

Graduate Teaching Assistant:

Ryan Speelman, M.S., BCBA

Email: speelmanryan@siu.edu

CHAT TIMES:

Dr. Dixon –

Ryan – Wednesday @ 8:00-9:00pm CST

Course Description and Objectives:

This course will focus on research and evaluation methodology to evaluate interventions with single systems, including individuals, families, organizations, or other social systems. After completing this course the student should be able to do the following:

- Recognize the important role of single-case research in developing and evaluating interventions
- Recognize the role of single-case research in establishing evidence-based practice
- Distinguish between single-case and between-group designs
- Understand basic principles of behavioral assessment and measurement
- Articulate the different varieties of single-case designs, such that when given a written description and/or figure of a single system design, the student can (a) name it, (b) evaluate its procedural implementation, (c) discuss the situations for which it is appropriate and inappropriate, (d) explain the logic by which it controls extraneous variables, (e) evaluate it with respect to control of extraneous variables, and (f) interpret the results; as well as when given the name of a design (a) describe the procedures for its implementation, (b) explain the logic by which it controls extraneous variables, (c) evaluate it with respect to its control of extraneous variables, (d) discuss the situations for which it is appropriate and inappropriate, (e) present a completely labeled figure with hypothetical data illustrating the design, and (f) interpret the results.

- Compare and evaluate the various single system designs with respect to the types of research questions for which they are appropriate and their control of extraneous variables.
- Understand strategies for analyzing baseline and intervention behavioral data and for interpreting the outcomes of one's experiments.

Texts

Kazdin, A. E. (2010). *Single-Case Research Designs: Methods for Clinical and Applied Settings*. Oxford, NY: Oxford University Press

Johnston, J. M. & Pennypacker, H. S. (2009). *Strategies and Tactics of Behavioral Research 3rd Edition*. New York, NY: Routledge.

Whitaker, R. (2010). *Anatomy of an Epidemic*. New York: Random House.

I strongly advise you purchase the 6th edition of the Publication Manual of the *American Psychological Association* as well.

Additional REQUIRED Readings will be made available. These readings are marked in your syllabus with an asterisk (*) and will be posted on the Desire to Learn site for this course.

The web address for D2L is: <https://online.siu.edu/>

It is strongly encouraged that you **keep up** with the reading assignments and complete each assignment on the due date shown on the attached calendar.

Procedures

During the first week of the course you will be given the opportunity to become familiar with SIU Online and the other students in the course. Important features that will be used throughout the course are the chat rooms, posting discussion questions/comments, downloading readings, and using your SIU Online email account. The first week should also be used to ensure that you have all of the required software for this course. Please post an introduction message telling the rest of the class a little about yourself and why you are taking the class, this will help to establish an on-line relationship between members of the class.

Course Organization:

There are 15 weekly topics included in this course. A new topic is presented each week; with each new topic there will be new reading assignments. Each week, there will be TWO chat sessions. Not all of the relevant information will be covered in chat; however, chat will be a time for the class to discuss the material and ask questions. It will be to your advantage to read all assigned materials as well as attending the chat. Questions on the exams will cover information that we will discuss during the weekly chat and information in the readings. Three exams will

be given; each exam will cover material on the previous modules as indicated on your course schedule. You will also be expected to complete 2 course projects.

Requirements and Grading:

1. Exams:

Three unit exams will be open from Fridays from 5pm – Sunday 5pm. Each exam will be worth 50 points and will be short-full length answer in format. Tests will emphasize the material since the previous test; however, the content is cumulative and you should be able to relate earlier concepts to the current material on the tests. You will have 120 minutes to take each exam.

Possible points: 3 exams at 50 points each = 150

2. Quizzes:

On non-exam weeks there will be a quiz posted on D2L. Each quiz will last approximately 30 min and cover that week's reading materials. Quizzes will be multiple choice, true/false or short answer in format. Each quiz will be worth 15 points. Quizzes will be open from Friday from 5pm – Sunday 5 pm. Quizzes cannot be made up or rescheduled. Late quizzes will NOT be accepted.

Possible points: 11 quizzes at 15 points each = 165

3. Projects:

Two single-subject design hypothetical research projects will be required. A template for the assignments will be provided for you at a later date. Although projects can be on the same general topic (e.g., child abuse, biofeedback, mental retardation), each must be on a different specific topic. Projects should include a new literature review, independent, and dependent variables. Projects should not be just minor variations of each other. Each project will be worth 50 points. *Please keep in mind that submitting work in this course that is duplicative of work submitted in another course will be viewed as a form of cheating and will be treated as such.*

Possible points: 2 projects at 50 points each = 100

4. Participation:

Although this course is on-line, it will require active participation on your part. You are encouraged to “speak” in the class discussion boards with your teaching assistant and your fellow classmates. We will discuss questions that you have about the text and any related issues. If you do not have questions, we will present questions to you during our chat sessions. A portion of your available points for this course will come from this participation on discussion posts and weekly chats.

- **Discussion Board Posting:** On the course web-page is a discussion board. This area is for you to present questions, comments, and opinions to other students. Each student should post at least one original questions/comment or should reply to another student's posting at least once each week. Failure to make valid discussion postings

will result in participation point reduction. This is your opportunity to interact with each other outside of “class” time and will count towards your participation grade.

- **Chat Sessions:** In these sessions, we will discuss questions that you have about the text or readings. You will also be able to address questions or concerns related to the course, exams, grades, scheduling, etc. If you do not have any questions, we will present them to you. You are expected to contribute to the discussion during chat, not just sign in and remain idle. Failure to participate in AT LEAST ONE CHAT PER WEEK will result in participation point reduction.

Possible points: 20

Late assignments will not be accepted, and there will be no makeup exams or quizzes. All assignments/project write ups should be completed using the guidelines found in the 6th edition of the APA manual.

Grades will be based on proportion of total points earned, as follows:

Letter Grade	Points	Percentage
A	391.5 – 435	90% - 100%
B	348 – 391	80% - 89%
C	304.5 – 347	70% - 79%

Things to Keep in Mind:

- If you are having difficulty with this material, email the Teaching Assistant as soon as possible.
- If you wish to drop this course for any reason, it is your responsibility to drop by the date designated by the Graduate School.
- A grade of Incomplete will be given only under the conditions specified in the Graduate School catalog.
- Extra Credit
 - There may be extra credit opportunities to earn up to 10 points of extra credit during the semester. Particulars about an extra credit opportunity will be provided throughout the semester on SIU Online.

Academic Dishonesty

Each student is responsible for making himself or herself aware of the policies and procedures in the Graduate Catalog (pp. 44-46) that pertain to Acts of Academic Dishonesty. These policies cover such acts as plagiarism, preparing work for another student, cheating by any method or means, falsifying or manufacturing data, furnishing false information to a university official

relative to academic matters, and soliciting, aiding, concealing, or attempting conduct in violation of this code. The student is also responsible for making himself or herself aware of the procedures applicable to cases of academic dishonesty as outlined in the Graduate Catalog (pp. 49-54), including jurisdiction at the department or college level, informal resolution, and formal disciplinary measures. A student must consult with the instructor if he or she has questions pertaining to academic dishonesty prior to the submission of an assignment or test. If you wish to drop this course, you must do so after the date designated by the university. A grade of Incomplete will be given under the conditions specified in the university catalog.

The instructor is committed to equal opportunity in education for all students, including those with documented disabilities. It is the responsibility of students with documented disabilities to contact the instructor during the first week of class to discuss appropriate accommodations to ensure equity in grading, classroom experiences, and outside assignments. Documentation is to be provided and accommodations are to be arranged with Disability Support Services.

*******This syllabus is subject to modification to correct errors, and to make additions or deletions aimed at improving the course.*******

Supplemental Assigned Readings:

- Allen, K. D. & Evans, J. H. (2001). Exposure-based treatment to control excessive blood glucose monitoring. *Journal of Applied Behavior Analysis*, 34, 497-500.
- Anglesea, M. M., Hoch, H., dfesa & Taylor, B. A. (2008). Reducing rapid eating in teenagers with autism: Use of a pager prompt. *Journal of Applied Behavior Analysis*, 41, 107-111.
- Byrd, M. R., Richards, D. F., Hove, G., & Friman, P. C. (2002). Treatment of early onset hair pulling as a simple habit. *Behavior Modification*, 26(3), 400-411.
doi:10.1177/0145445502026003006
- Crosbie, J. (1999). Statistical inference in behavior analysis: Useful friend. *The Behavior Analyst*, 22, 105-108.
- Dixon, Whiting, Rowsey, Gunnarsson, & Enoch. (2014). Direct observation of road construction worker behavior. *Journal of Organizational Behavior Management*, 34, 179-187
- Fledderus, M. M., Bohlmeijer, E. T., Pieterse, M. E., & Schreurs, K. G. (2012). Acceptance and commitment therapy as guided self-help for psychological distress and positive mental health: A randomized controlled trial. *Psychological Medicine*, 42(3), 485-495.
doi:10.1017/S0033291711001206
- Fogel, V. A., Miltenberger, R. G., Graves, R., & Koehler, S. (2010). The effects of exergaming on physical activity among inactive children in a physical education classroom. *Journal of Applied Behavior Analysis*, 43, 591-600.
- Foxx, R. M., & Rubinoff, A. (1979). Behavioral treatment of caffeinism: Reducing excessive coffee drinking. *Journal of Applied Behavior Analysis*, 34, 497-500.
- Forman, E. M., Herbert, J. D., Moitra, E., Yeomans, P. D., & Geller, P. A. (2007). A randomized controlled effectiveness trial of acceptance and commitment therapy and cognitive therapy for anxiety and depression. *Behavior Modification*, 31(6), 772-799.
doi:10.1177/0145445507302202
- Hartman, D. P. & Hall, R. V. (1976). The changing criterion design. *Journal of Applied Behavior Analysis*, 9, 527-532.
- Horner, R. D., & Baer, D. M. (1978). Multiple-probe technique: A variation of the multiple

- baseline. *Journal of Applied Behavior Analysis*, 11, 189-196.
- Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children*, 71, 165-179.
- Kazdin, A. E. (2008). Evidence-based treatment and practice: New opportunities to bridge clinical research and practice, enhance the knowledge base, and improve patient care. *American Psychologist*, 63, 146-159.
- Perone, M. (1999). Statistical inference in behavior analysis: Experimental control is better. *The Behavior Analyst*, 22, 109-116.
- Reynolds, B., Dallery, J., Shroff, P., Patak, M., & Leraas, K. (2008). A web-based contingency management program with adolescent smokers. *Journal of Applied Behavior Analysis*, 41, 597-601.
- Shabani, D. B., & Fisher, W. W. (2006). Stimulus fading and differential reinforcement for the treatment of needle phobia in a youth with autism. *Journal of Applied Behavior Analysis*, 39, 449-452.
- Singh, N. N., Lancioni, G. E., Winton, A. W., Curtis, W., Wahler, R. G., Sabaawi, M., & ... McAleavey, K. (2006). Mindful staff increase learning and reduce aggression in adults with developmental disabilities. *Research in Developmental Disabilities*, 27(5), 545-558.
- Sundberg, M. L., Loeb, M., Hale, L., & Eigenheer, P. (2001). Contriving establishing operations to teach mands for information. *Analysis of Verbal Behavior*, 18, 15-29.
- Twohig, M. P., Shoenberger, D., & Hayes, S. C. (2007). A preliminary investigation of acceptance and commitment therapy as a treatment for marijuana dependence in adults. *Journal of Applied Behavior Analysis*, 40, 619-632.
- VanWormer, J. J. (2004). Pedometers and brief e-counseling: Increasing physical activity for overweight adults. *Journal of Applied Behavior Analysis*, 37, 421-425.
- Warnes, E. & Allen, K. D. (2005). Biofeedback treatment of paradoxical vocal fold motion and respiratory distress in an adolescent girl. *Journal of Applied Behavior Analysis*, 38, 529-532.
- Wetherell, J., Afari, N., Rutledge, T., Sorrell, J. T., Stoddard, J. A., Petkus, A. J., & ... Atkinson, J. (2011). A randomized, controlled trial of acceptance and commitment therapy and cognitive-behavioral therapy for chronic pain. *Pain*, 152(9), 2098-2107.
doi:10.1016/j.pain.2011.05.016

Calendar

Week:	Assigned Readings / Assignments / Exams
Week 1: January 20-25	Course Overview and Desire2Learn Introduction Post an introduction on the discussion board and learn how to: --Log into chat --Post a comment on discussion board --Take an exam

Unit 1

The scientific method; behavioral assessment and measurement

Week 2: January 26-February 1	*Kazdin (2008) *Horner et al. (2005)
Week 3: February 2 - 8	Kazdin (2010) Ch. 1 Johnston & Pennypacker (2009) Ch 1 – 3
Week 4: February 9-15	Kazdin (2010) Ch. 2 & 3 Johnston & Pennypacker (2009) Ch. 4 & 5
Week 5: February 16-22	Kazdin (2010) Ch. 4 & 5 Johnston & Pennypacker (2009) Ch. 6 & 7 *Dixon et al., (2014)
Week 6: February 23-March 1	Exam 1

Unit 2

Single System Research Designs

Week 7: March 2-6	<i>Withdrawal Designs</i>
	Kazdin (2010) Ch. 6 Johnston & Pennypacker (2009) Ch. 8, 9, Ch. 10 & 11 (stop at p. 272) *Reynolds et al. (2008) *Angelsea et al. (2000) *VanWorner (2004) *Byrd et al. (2002)
Week 8: March 7-15	No Class – Spring Break

Week 9: March 16-22	<p style="text-align: center;"><i>Multiple Baseline Designs</i></p> <p>Kazdin (2010) Ch. 7 Johnston & Pennypacker (2009) Ch. 11 (p. 272 – end) *Twohig et al. (2007) *Horner & Baer (1978) *Singh et al. (2006)</p> <p style="text-align: center;">SSD Project 1 due</p>
Week 10: March 23-29	<p style="text-align: center;"><i>Changing Criterion Designs / Alternating Treatment Designs</i></p> <p>Kazdin (2010) Ch. 8 & 9 *Hartman & Hall (1976) *Allen & Evans (2001) *Warnes & Allen (2005) *Fogel et al. (2010) *Foxx (1979)</p>
Week 11: March 30 - April 5	<p style="text-align: center;"><i>Additional Design Options</i></p> <p>Kazdin (2010) Ch. 10 & 11 *Sundberg et al. (2002) *Shabani & Fisher (2006) *Forman et al. (2007) *Wetherell et al. (2011) *Fledderus (2012)</p> <p style="text-align: center;">SSD Project 2 due</p>
Week 12: April 6-12	Exam 2

Unit 3

Science in Culture; Analyzing Behavioral Data

Week 13: April 13-19	Anatomy of an Epidemic, Ch. 1-8
Week 14: April 20-26	Anatomy of an Epidemic, Ch. 9-16
Week 15: April 27-May 3	<p>Kazdin (2010) Ch. 12 & 13 Johnston & Pennypacker (2009) Ch. 12 *Perone (1999) *Crosbie (1999)</p>
Week 16: May 4-10	<p>Kazdin Ch (2010). 14 & 15 Johnston & Pennypacker (2009) Ch. 13</p>
Week 17: May 11-15	Finals Week - Exam 3