EDP 7058: Behavioral Intervention Research and Evaluation

Co-listed with EAB 4798 Single Case Methods

Fall 2012

Class meets on Thursdays, 5:00 – 7:40 PM

Location: Chemistry & Physics (CP) 115

Professor: Dr. Martha Pelaez (Office: ZEB 242B).

Phone Number: 305-348-2090

E-mail: pelaeznm@gmail.com

Web Site: http://www.fiu.edu/~pelaeznm/

Office Hrs: Mondays 2:00-4:45 pm
Thursdays 2:45-4:45 pm

Office Hours: I will make every attempt to be flexible to accommodate your schedule. I can also meet you before or after class sessions and/or on other days by appointment.

Course Description: This course is designed to develop knowledge and skills needed to design, implement, and evaluate behavioral interventions using single-subject design in research projects. The course objectives, designed for those working in educational, psychological, and clinical settings, include:

1. To articulate the relationship between single case research methodology and behavior analysis, specifically being able to:
   - Describe the operant conditioning model and learning principles
   - Explain all components of the three-term contingency
   - Define and apply positive and negative reinforcement and provide examples of each.
   - Define punishment and provide examples.
   - Define stimulus control, discriminative stimulus and S-delta.
   - Describe, extinction, generalization, ad discrimination

2. To apply single case research procedures to address questions and issues in your applied area(s) of interests and thus empower you to demonstrate competence in making the connection between research questions, design, methods and procedures, methods for analysis of data, and interpretation and discussion of results;
   - Use various single-subject design research methodologies to determine and demonstrate functional relations and apply to the functional behavior assessment plans required for children with disabilities or adults with behavioral and mental health challenges in clinical settings.
   - Develop a research proposal to modify a behavior in an educational, family or clinical setting.
3. To evaluate and critique single case studies for methodological soundness, in particular by describing and resolving methodological concerns and issues related to using single case designs in applied settings
   - Define functional relationship;
   - Describe the considerations relevant in determining priorities for goals and objectives for students with disabilities and/or clients in clinical settings;
   - Develops skills in pinpointing and assessing target behaviors and identify the reasons for conducting a behavioral assessment;
   - Develops skills in displaying, summarizing and interpreting data;
   - Define and use response measures that provide direct, continuous measurement, and dimensional quantities of behavior (e.g., rate, frequency, latency, magnitude, duration, and topography);
   - Define and use response measures that provide indirect, discontinuous measurement and dimensionless quantities of behavior (e.g., percent of occurrence, trials to criterion, partial interval recording, whole interval recording, and momentary time sampling);
   - Select the best graphic display to effectively communicate quantified relationships.

Required Course Texts:

Richards, S.B., Taylor, R., Ramasamy, R., Richards, R. *Single subject design in educational and clinical settings*. Wadsworth Publisher. Summary notes are posted on Pelaez’s website.

Web-based Reading Material for Learning about “Functional Behavior Assessment” and Single-Subject design examples:


Pelaez, M., Virués-Ortega, J., & Gewirtz, J. L. (2012). Acquisition of social referencing via discrimination training in infants. *Journal of Applied Behavior Analysis, 45*(1), 23–35. (The acceptance rate is 25%. Impact factor is 1.11.)


Suggested Readings

- Article Title: Perhaps it would be better not to know everything More info...

- Article Title: Some current dimensions of applied behavior analysis. More info...

- Article Title: Some still-current dimensions of applied behavior analysis. More info...

- Article Title: Procedural reliability: A rationale and an example. More info...

- Article Title: Inconsistent visual analysis of intrasubject data. More info...
Article Title: The effects of code complexity and of behavioral frequency on observer accuracy and interobserver agreement. More info...

Article Title: A method for combining occurrence and non-occurrence interobserver agreement scores. More info...

Article Title: Methods of time sampling: A reappraisal of momentary time sampling and partial interval recording. More info...

Book Title: Single case experimental designs: Strategies for Studying behavior change. More info...

Article Title: The use of single-subject research to identify evidence-based practice in special education. More info...

Book Title: Replication. Strategies and tactics of human behavioral research More info...

Book Title: The development of behavioral research methods: Contributions of B.F. Skinner. Readings for Strategies and Tactics of Behavioral Research More info...

Article Title: The integrity of independent variables in behavior analysis. More info...

Book Title: Evaluating educational changes with single-subject designs. In J. Gottlieb (Ed.), Educating mentally retarded persons in the mainstream (pp. 73-105). More info...

Journal Article: A comparison of frequency, interval, and time-sampling methods of data collection. More info...

Article Title: What is the experimental analysis of behavior? More info...

Article Title: A brief report on a comparison of time-sampling procedures. More info...

Additional Supporting References:


**Graph paper:** This will be needed to practice the many graphing skills learned in class and for collecting your data.

**Internet Access:** You are required to have access to the Internet and email ability to access course notes, quiz reviews/questions, and other supports.

**Conceptual Framework:** The conceptual framework of this course is derived from logical positivism, reinforcement theory, and applied behavior analysis. Single subject research designs provide an alternative for educators and clinicians who want to study the impact of selected environmental conditions and/or treatments on the behaviors of individuals. The single subject design is particularly well suited for studying those behaviors that are considered idiosyncratic, i.e., do not occur often within the so-called normal distribution of behaviors and thus is a good model for studying individuals with disabilities. In this course, the application of single subject designs will be questioned in light of the 4 frameworks of the College of Education:

**Interculturalism:** Promoting common understandings and addressing issues of diversity with respect (in single subject design language this is referred to as ‘establishing social validity’);

**Interconnectedness:** Valuing the contributions of various cultures; Inquiry: Using critical thinking and reflective practice;

**Instructional Leadership:** Creating meaningful single subject research proposals.

### 3.0 Course Requirements and Grading

**3.1 Exams:** The exams will assess understanding of reading material, lectures, and class activities. Essay exams are intended to ensure that you have acquired the “language” of single-subject research design with emphasis on education, learning and mental health.
3.2 Research Proposal: You will develop a research proposal designed to investigate the effects of an intervention on a specified student or individual behavior using single-subject design research strategies. The proposal will include a literature review on the behavior selected, research question(s), methods, hypothetical results, discussion section, and references prepared in accordance with APA 5th edition conventions. The results of the reversal phase(s) (in the instructor’s approved cases) could be represented with hypothetical data, the baselines and intervention should be real data, under exempt IRB category (requires instructor’s approval).

3.3 Single–Subject–Research Presentation: You will select, present, a critique of one article from the literature suggested above representing a specific single-subject design (e.g., ABAB withdrawal, multiple baseline, alternating treatments, or changing criterion design). This critique should identify weakness in the design or its implementation and ways to improve it. Each of your two presentations is to be no longer than 20 minutes and should include time for at least 2 questions from the class. A presentation is to be accompanied by a short powerpoint (slides) and copies should be distributed among all students. Make sure you include a graph representing results from the selected research article.

3.4 Data Collection/Graphing Projects: You will learn various types of direct observation strategies. You will be required to collect data in real situations using these strategies and then to graphically represent the data.

3.5 Class Discussions: Participation in each session requires that you have read the assigned material and are be prepared to ask/answer questions.

3.6 Functional Assessment of Behavior (FAB) Project: One of the final exam questions for this course will require you to apply the content and concepts of this course by elaborating on a Functional Assessment of Behavior (FAB) on behalf of a hypothetical ‘case’ student with developmental disabilities or adolescent with clinical behavioral problems. You will take a specified role (e.g., behavior analyst, school psychologist, mental health counselor, and/or special educator). The goal is to be able to derive a Behavioral Intervention Plan (BIP) based on such hypothetical data derived from the functional assessment (FAB). The BIP should reflect culturally sensitivity to family, community, and student’s needs.

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<thead>
<tr>
<th>Assignment</th>
<th>Max Total Points (400)</th>
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<tbody>
<tr>
<td>Research Project (Paper):</td>
<td>120 (30 % grade)</td>
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<tr>
<td>*Cover Page &amp;</td>
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<tr>
<td>*Literature Review Intro on SS design and target behavior</td>
<td>(20)</td>
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<tr>
<td>*Formulation of Research Question(s) Functional Assessment of Behavior (FAB)</td>
<td>(20)</td>
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<tr>
<td>*Description of Method (Design)</td>
<td>(20)</td>
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<td>*Description of Results including graphs, FAB tables</td>
<td>(20)</td>
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<tr>
<td>*Discussion and Conclusion</td>
<td>(20)</td>
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<tr>
<td>*List of APA References</td>
<td>(20)</td>
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<tr>
<td>Single Subject Research Article: A Critique (25X2): in-class-Presentation</td>
<td>40 (10% grade)</td>
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<tr>
<td>Research Project Presentation</td>
<td>40 (10% grade)</td>
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<tr>
<td>Midterm Exam</td>
<td>100 (25 % grade)</td>
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<tr>
<td>1 Final Exam (100 points)</td>
<td>100 (25 % grade)</td>
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</tbody>
</table>
Course grades are based on the percentage of number of points earned. In keeping with the FIU/COE grading system, final letter grades will be assigned as follows:

<table>
<thead>
<tr>
<th>Earned Grade</th>
<th>Calculate on basis of Percent of 400 points</th>
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<tbody>
<tr>
<td>A- to A</td>
<td>90-94% of 400, 95-100% of 400</td>
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<tr>
<td>B- to B to B+</td>
<td>80-83% of 400, 84-86% of 400, 87-89% of 400</td>
</tr>
<tr>
<td>C- to C to C+</td>
<td>70-73% of 400, 74-76% of 400, 77-79% of 400</td>
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**Academic Honesty**: Academic honesty is the expected norm. Cheating, plagiarism, falsifying one’s reports, and other forms of academic dishonesty will not be tolerated and will be referred to the University’s Committee on Academic Misconduct; *this action that is required of all instructors*. Regarding the consequences of dishonest academic practice, *the instructor shall make an academic judgment about the participants’ grade on that work and in that course and shall report such incidents to the Primary Administrative Office In addition, participants are expected to adhere to the code of ethics in the conduct of research and professional practice for school psychologists ([http://www.nasponline.org/certification/ethics.html](http://www.nasponline.org/certification/ethics.html)) or special educators ([http://www.cec.sped.org/ps/ps-ethic.html](http://www.cec.sped.org/ps/ps-ethic.html)).

**Class Attendance**: It is expected that all participants will be in attendance for all class sessions. This is a class that requires active participation from each member. If you miss a class, you would be responsible for any material given or changes made during the class period. *If you miss more than 2 classes, you may forfeit your opportunity to earn a grade of A.*

**Office of Disability Services for Students**: If you have a disability and need assistance, please notify me and/or contact the Office of Disability Services for Students (348-3532). Upon contact, the Office of Disability Services for Students will review your request and contact your professors or other appropriate personnel to make arrangements for appropriate reasonable accommodations and modifications and/or assistance.

**Course Schedule (subject to modifications)**
<table>
<thead>
<tr>
<th>Date/Session</th>
<th>Lecture Topic by Dr. Martha Pelaez</th>
<th>Reading DUE</th>
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</thead>
<tbody>
<tr>
<td>8/23</td>
<td>Introduction, Overview of ABA in Education; Historical Aspects and Important Concepts in Single Subject Research; Ethics in the Conduct of Research.</td>
<td>Chapter 1</td>
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<tr>
<td></td>
<td><strong>Assignment of Topic and Design for Research Proposal</strong></td>
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<tr>
<td>9/06</td>
<td>Methods for Changing Target Behaviors; Single Subject Research Designs for methodological critiques assigned</td>
<td>Review Chapter 1 and 2</td>
</tr>
<tr>
<td>9/13</td>
<td>Methods for Changing Target Behaviors; Single Subject Research Designs for methodological critiques assigned</td>
<td>Read Chapter 2 – Methods for Changing Target Behaviors (pp. 19-44) and</td>
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<td>Methods for Recording Target Behaviors;</td>
<td>Read Chapter 3—Methods for Recording Behavior (pp. 45-82) Literature Review (listed APA) and 1 page Research Question and Design of Research Paper/Project</td>
</tr>
<tr>
<td>9/20</td>
<td><strong>Issues in Single-Subject Research</strong></td>
<td>Read Chapter 4 Horner’s article (first half)</td>
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<tr>
<td>9/22</td>
<td>Identification of target behaviors and methods for recording behavior</td>
<td>Read Chapter 13 (pp. 265-296)</td>
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<tr>
<td>9/27</td>
<td>Graphing and visual analysis</td>
<td>Review Chapter 13 and Read Chapter 5 (pp. 107-122)</td>
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<td></td>
<td><strong>Students Project Proposal Presentations begin</strong></td>
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<tr>
<td>10/04</td>
<td>Overview of withdrawal designs by Dr. Pelaez</td>
<td>Read Chapter 6 (pp. 123-144) and review Chapter 5 (Withdrawal or ABAB Designs)</td>
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<td>Discussion: Each student will briefly describe the topic for his/her research project, target behavior, and the method s/he plans to use to obtain relevant articles.</td>
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<td><strong>Students Research Project: Presentations on Proposal continue...</strong></td>
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<tr>
<td>10/11</td>
<td><strong>Students’ Critique Presentations begin:</strong></td>
<td>Read Chapter 7 (pp. 145-172)</td>
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<td>Remember, each student will “critique” 1 research article. You will explain the research design used, how were the data collected,</td>
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<tr>
<td>Date</td>
<td>Event</td>
<td>Readings</td>
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<td>10/18</td>
<td>MIDTERM EXAM</td>
<td>Read Chapter 8 (pp. 173-190) (MB) 11 (pp. 227-242)</td>
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<td>SS article review/critiques on Multiple Baseline Designs (critique presentations)</td>
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<td></td>
<td>Overview of Changing Criterion Designs by Dr. Pelaez</td>
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<tr>
<td>10/25</td>
<td>SS article reviews of Changing Criterion Designs (critique presentations)</td>
<td>Read Chapter 12 (pp. 243-258) (CC) 9 (pp. 190-208) and Chapter 10 (pp. 209-226) (AT)</td>
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<td>Alternating Treatment Designs Lecture by Dr. Pelaez</td>
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<tr>
<td>11/01</td>
<td>SS Article reviews of Alternating Treatment Designs (critique presentations)</td>
<td>Read Chapter 4 (pp. 83-106)</td>
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<td>Research Project Presentations begin</td>
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<td>11/08</td>
<td>Research Project Presentations Begin (10 min. each)</td>
<td>Print WRITTEN critique DUE bring to class to share.</td>
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<td>Functional Assessments of Behavior (FAB) &amp; BIPs Due for feedback in class</td>
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<tr>
<td>11/15</td>
<td>Issues in Analyzing Results from Single-Subject Studies, lecture by Dr. Pelaez</td>
<td>Read Horner’s article. I recommend preparing a summary to prepare for final exam questions.</td>
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<td>Data collection (graphs) of project DUE for feedback from Dr. Pelaez: Analyzing results from single-subject project.</td>
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<td>Review the textbook with the idea of how you will include your assigned single-subject research design as a way of verifying your hypothesis about the function of the participant’s behavior and as a way of determining whether or not the behavioral intervention is having the desired/hypothesized effects.</td>
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<tr>
<td>Date</td>
<td>Event Description</td>
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<tr>
<td>11/22</td>
<td>NO CLASS Thanksgiving</td>
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<tr>
<td>11/29</td>
<td>Research Project Presentations (10 min each)</td>
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<td></td>
<td>Exam Questions Discussed</td>
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<td>Pending oral presentation with overhead transparency or powerpoint continue; course</td>
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<td>evaluations.</td>
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<tr>
<td>12/06</td>
<td>FINAL ESSAY EXAM</td>
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DUE FINAL WRITTEN RESEARCH REPORT
Suggested Reading Material for Critiques on
Single Subject Research Designs and for Projects

Studies using Withdrawal Designs should be found in the *Journal of Applied Behavior Analysis*. Some references as examples include:


Other withdrawal designs:


Multiple Baseline Designs:


**Alternating Treatment Designs:**


**Examples from FIU/COE Faculty with students with learning disabilities:**


**Changing Criterion Designs:**


**Organizing for Single Subject Reviews & Methodological Critiques**

**Process:** You will be assigned to one of 5 topics (designs):

1) withdrawal (ABAB) designs
2) multiple baseline (MB) designs
3) changing criterion designs (CC)
4) alternating treatment designs (AT)
5) issues in SSD

**Your task** is to find a suitable example of the assigned single subject research design/topic published in either a behavioral, behavior analysis, school psychology, mental health, clinical psychology, or special education field of interest to you. You can conduct this search for suitable examples individually or as a member of a search group (comprised of others who are also assigned to the same design). Your responsibility is to find the 1 articles and provide the author, date, title, journal, volume, issue, and pages and abstract to me on the date listed in the calendar.

**EXAMPLE:** You may search ERIC, Psychinfo, or other data bases. For example, in a search of articles published between 1990p-2011 in ERIC, I used the keywords “multiple baseline” and “special education” published in journals, 6 articles appeared, including this one:

**ERIC #:** EJ697210

**Title:** Effects of Immediate Performance Feedback on Implementation of Behavior Support Plans

**Authors:** Coddington, Robin S.; Feinberg, Adam B.; Dunn, Erin K.; Pace, Gary M.

**Descriptors:** Student Behavior; Integrity; Special Education Teachers; Feedback; Behavior Disorders; Behavior Modification; Program Effectiveness; Contingency Management;
Abstract: Research has focused on increasing the treatment integrity of school-based interventions by utilizing performance feedback. The purpose of this study was to extend this literature by increasing special education teachers' treatment integrity for implementing antecedent and consequence procedures in an ongoing behavior support plan. A multiple baseline across teacher-student dyads (for two classrooms) design was used to evaluate the effects of performance feedback on the percentage of antecedent and consequence components implemented correctly during 1-hr observation sessions. Performance feedback was provided every other week for 8 to 22 weeks after a stable or decreasing trend in the percentage of antecedent or consequence components implemented correctly. Results suggested that performance feedback increased the treatment integrity of antecedent components for 4 of 5 teachers and consequence components for all 5 teachers. These results were maintained following feedback for all teachers across antecedent and consequence components. Teachers rated performance feedback favorably with respect to the purpose, procedures, and outcome, as indicated by a social validity rating measure.

FORMAT FOR Summary Review of the Research Article of your Research Project using Single-Subject Design (Please submit the complete list of references you have selected after your literature review—be sure to use APA standards for citing the references).

The [insert type] Design

Authors, (date), Title of article, *Title of Journal, Vol. # (Issue#)*, pp.

(Title of your Research Project)

Research Question(s)

Subjects

Setting

Dependent Variables

Independent Variables

The Design

The Intervention

Obtaining the Data and Plotting the Results

Results

Why Use This Design?
Limitations of the Study

Summary Table

Table 1. Summary of “[insert title of article]”

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tbody>
<tr>
<td>Type of Design</td>
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<td>Goal of the Study</td>
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<td>Subjects</td>
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<td>Setting</td>
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<td>Dependent Variables</td>
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<td>Independent Variables</td>
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<td>Results and Outcomes</td>
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</table>

Student’s research projects will have to be uploaded as TaskStream. Our FIU COE Website is a place that you can refer for information on just about everything you need to know—for example, Current Students Website has links for scholarships, financial aid, maps & directions, the advising center, taskstream, etc. We are posting all syllabi for all courses at: http://www.fiu.edu/~edpsy/fall09-syllabi/.