

REHB 503: Basic Behavior Analysis
Fall 2013 Course Syllabus and Calendar

Instructor Information

Instructor: Dr. Mark R. Dixon, PhD
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Office Location: 336A Rehn Hall
Office Hours: M 8:00 am - 2:00 pm
Course Time: M 6:00 pm - 9:00 pm

Teaching Assistant: Rachel Enoch
Email: rachelenoch@siu.edu
Office Location: 336 Rehn Hall
Office Hours: M 1:00 pm -3:00 pm/by appt.
Course Location: 1006 Comm

Course Materials

Texts can be purchased at the Southern Illinois University Campus Bookstore located in the Student Center, at 710 Bookstore located on US 51, on Amazon, or from the publisher's website.

1. Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied Behavior Analysis* (2nd ed). Upper Saddle River, NJ: Pearson Prentice Hall
2. Additional readings will be provided via email as .PDF attachments, or accessible online through the library's website at <http://lib.siu.edu>, or online at <http://seab.envmed.rochester.edu/jaba/>
3. Invertebrate Lab Products List: (Please bring these items to REHB Room 336 by September 4th)
 - a. Plastic Gloves (tall, heavy duty, water resistant gloves are best)
 - b. Bottle of Hand Sanitizer
 - c. Two Rolls of Paper Towels
 - d. One Roll of Heavy Duty Trash Bags
 - e. Lab Coats are optional, however plan to get wet when working with the lobsters.

Course Description and Objectives

The primary course objective is for you to understand and be capable of correctly identifying and applying basic behavior analytic principles to varying domains and populations. To attain this objective, you will be required to (1) read each of the assigned chapter(s) and research articles each week, (2) be able to discuss the points of each assigned chapter/article during class, (3) respond appropriately to questions provided on examinations based on the text and class discussion, (4) conduct and present basic behavioral research in the invertebrate behavior lab, and (5) complete two scholarly essays relevant to class material.

Upon *successful* completion of this class, you will know how to:

- Describe the assumptions, characteristics, and goals of applied behavior analysis
- Apply behavior-analytic procedures derived from basic learning principles to solve problems of social importance or improve conditions for dependent, or at-risk populations
- Become a more competent consumer of behavioral research
- Appreciate the complexity of causes and consequences
- Develop an ethic of social responsibility and citizenship

General Course Format

Each class period will begin with an examination over the previous week's lecture material (20-30 min.), and will end with lecture and discussion over the current lecture material (approximately 2 hr. 20 min.) with a brief break half way through each class period. Make plans to arrive on time. If you are late, you will lose the opportunity to take the exam during the entire allocated time frame.

Course Grades

Your course grade will be calculated based on the number of points that you can earn on the examinations, scholarly essays, and participation. The total number of possible points is thus 480, broken down as follows:

Exams (13 @ 20 pts)	260 points
Participation (awarded during class)	20 points
Invertebrate Lab Assignments (3 @ 50 pts)	150 points
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Total:	430 points

Grades will be determined according to the following point distribution:

	A	B	C	F
Percent	90	80	70	<70
Points	387	344	301	<258

A grade of an 80% or higher is considered passing for this course. A grade of a 79% or lower is not considered passing for this course

Students with Disabilities

If you have a documented disability and need reasonable accommodations, please contact me during the first week of class so that I can ensure that your needs are met in a timely manner. Students with disabilities must contact the University's Disability Support Services at the beginning of the semester to inform them of the disability and obtain information about services that can facilitate learning. Please stop by their office in Woody Hall B-150, or refer to the DSS website for further information: <http://disabilityservices.siuc.edu/>.

Examinations

There will be 14 exams given during the course of the semester. Each exam will be worth 20 points. Each exam will cover the material presented in class and within the assigned readings from the previous week. Yet occasionally, there will be information on an exam from an earlier week as well. Exams will consist of essay questions. *NO MAKE-UP EXAMS WILL BE PROVIDED.* If you are not going to be in class for any given reason, you must notify Dr. Dixon or Rachel **prior to** the start of the class period and you will need to take the exam before the rest of the class. If there is an unexpected absence, we will need medical documentation – not just a story about what happened. If we do not receive a message regarding your absence before class, you will receive a 0 for that exam. No exceptions. Your lowest single exam grade will be dropped from your final grade calculation. Your lowest exam will be dropped from your overall grade at the end of the semester.

Invertebrate Lab

This semester you will be provided with the opportunity to conduct research projects with Red Clawed Lobsters. There will be three (3) red clawed lobster assignments throughout the semester, as indicated on the course schedule below. Details regarding the assignments will be distributed in class prior to the start of the research projects. For each of these projects, you will be expected to follow a lab task analysis, collect and analyze data, and write a JABA brief report (outlined in subsequent paragraph). You will be working on these assignments in groups of 3; once your groups are selected they will remain constant throughout the semester unless otherwise noted by the instructor. Lab hours will be posted in which you will have access to your subject and related materials. It is important that you choose a time to run your subjects and make it a priority to attend your allotted timeslot. Make-up times will not be given. A calendar will be distributed to allow for lab sign up times. You are only allowed to work with the lobsters during assigned lab times and under the supervision of Dr. Dixon, Rachel or Anna Cronin. The red clawed lobster lab is located in the Life and Science II building in the vivarium and is only accessible via the three persons listed above.

Jaba Brief Report for Invertebrate Assignments:

For each of these assignments a JABA brief report will be due. The JABA website (<http://seab.envmed.rochester.edu/jaba/>) gives a detailed description of what should be included in a JABA brief report (number of words, number of images, etc.). All brief reports must be written according to APA format; purchasing the APA formatting book will be very beneficial to you throughout your graduate career as well as in this class. A template will be e-mailed out for you to write your brief report in. Each brief report will be due on the day indicated on the syllabus.

Participation

This class will often be conducted as a seminar. Therefore, you are encouraged *and* expected to speak in class; indeed your contributions (or lack there of) will be graded. We will discuss questions that you have about the text and any related issues. If you are silent or absent for an entire class period, take 1 point off your grade for participation.

Cell Phones

Cell phones and other electronic devices not used for note taking must be turned off during all class periods. Students caught texting during class will be asked to leave. No exceptions.

Academic Dishonesty

You are responsible for making yourself aware of understanding the policies and procedures in the University Catalog that pertain to Academic Integrity. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. If there is a reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Judicial Affairs. Your will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with me if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.

If I have evidence of any form of academic dishonesty, I will charge the student with violating the Academic Honesty Policy of the University in a report to the Office of Student Judicial Affairs. A student who is found responsible for an act of academic dishonesty will receive a failing grade in the course.

Cheating consists of, but is not limited to, looking at another student's quiz/exam, using external aids (such as books, notes, conversation with others) when taking the quiz, or plagiarizing the work of another person and submitting it as your original work. No course books or materials should be within the student's view during quizzes or exams. NOTE: Changing the size of characters and/or spacing between paragraphs to make your paper appear longer is WIDELY APPARENT to those grading them. Do NOT attempt to do so or your efforts will be publicly acknowledged and shamed.

Course Calendar

8/19	Readings:	Cooper, Heron, & Heward Ch. 1 & 2 Watson (1919) Ch. 1 Watson (1913) Watson & Rayner (2000) Visual Basic Chapter 1 & 2
8/26	Exam 1 Readings:	Cooper, Heron, & Heward Ch. 3, 4, & 5 Skinner (1944) Skinner (1950) Skinner (1953) Skinner (1969) Wilson, Iwata, & Bloom (2012) Sassi, Iwata, Neidert, Roscoe (2011)
9/2	No Class—Labor Day	No Assigned Readings
9/9	Exam 2 Readings:	Cooper, Heron, & Heward Ch. 6 & 7 Fahmie & Hanley (2008) Fisher, Kelley, & Lomas (2003) Calkin (2005) Dozier, Iwata, Sassi, Worsdell, & Wilson (2012) Stansbury, Haley, & Lee (2012)
9/16	Exam 3 Readings:	Cooper, Heron, & Heward Ch. 8, 9, & 10 Hammond, Iwata, Fritz, Dempsey (2011) Fryling (2011) Beaulieu, Hanley, Roberson (2012) Lydon, Rohmeier, Yi, Mattanini, & Williams (2011) Visual Basic Chapter 3 & 4
9/23	Exam 4 Readings:	Cooper, Heron, & Heward Ch. 11, 12 & 13 Miller, Lund, & Weatherly (2012) Sellers, Bloom, Samaha, & Dayton (2013) Call, Trosclair-Lasserre, Findley, Reavis, & Shillingsburg (2012) Sy & Vollmer (2012) Visual Basic Chapter 5
9/30	Exam 5 Readings:	Cooper, Heron, & Heward Ch. 14, & 15 Donaldson, Vollmer, Yakich, & Camp (2013) Donaldson & Vollmer (2011) Capriotti, Brandt, Ricketts, Espil, & Woods (2012) Heal & Hanley (2011)

10/07	Exam 6	
	Readings:	Cooper, Heron, & Heward Ch. 16 & 17 Tomina & Takahata (2012) Van der Velden, Zheng, Patullo, & Macmillan (2008) Walker & Rehfeldt (2012) Doughy & Hopkins (2011) Fragale, et al. (2012) Howlett, Sidener, Progar, & Sidener (2011)
10/14	No Class – Fall Break	No Assigned Readings
10/21	Exam 7	
	Readings:	Cooper, Heron, & Heward Ch. 18, 19, & 20 Slocum & Tiger (2011) Imam (2009) Pelaez, Virues-Ortega, & Gewirtz (2011) Bancroft, Weiss, & Ahearn (2011)
10/28	Exam 8	
	Invertebrate JABA Brief Report 1 is due	
	Readings:	Cooper, Heron, & Heward Ch. 21, 22 & 23 Wallace, Iwate, Hanley, Thompson, & Roscoe (2012) Falcomata, Wacker, Rindahl, Vinqvist, & Dutt (2013) Lambert, Bloom, & Irvin (2012) Paden, Kodak, Fisher, Gawley-Bullington, & Bouxsein (2012) LaRue, Stewart, Piazza, Volkert, Patel, & Zeleny (2011)
11/4	Exam 9	
	Readings:	Cooper, Heron, & Heward Ch. 24 & 25 Coon & Miguel (2012) Sanguinetti & Reyes (2011) Smith, Houmanfar, & Louis (2011) Sautter, LeBlanc, Jay, Goldsmith, & Carr (2011) Valentino, Shillingsburg, & Call (2012)
11/11	Exam 10	
	Readings:	Cooper, Heron, & Heward Ch. 26 & 27 Morford & Cihon (2013) Soreth (2011) Skinner (1974) Ch. 2, 4, 5, 7, 9, & 10
11/18	Exam 11	
	Invertebrate JABA Brief Report 2 is due	
	Readings:	Cooper, Heron, & Heward Ch. 28 & 29 Adkins (1997) Fraley (1994) Bannerman, Sheldon, Sherman, & Harchik (1990) Mesmer, Duhon, Dodson (2007) Lima & Abreu-Rodrigues (2010)

11/25	Exam 12	Readings:	Newsome, & Alavosius (2011) Barnes-Holmes, Barnes- Holmes, McHugh, & Hayes (2004) Rosales & Rehfeldt (2007) Barnes-Holmes, Murtagh, Barnes-Holmes, & Stewart (2010) Hayes (2004)
12/2	Exam 13	Invertebrate JABA Brief Report 3 is due	Nastally, Dixon, McKeel, & Fleming (2010)
	Readings:	Dixon & Tibbets (2009)	Johnson, & Dixon (2009)
	Review for Final	Dixon, Bihler, & Nastally (2011)	Waldvogel, & Dixon (2008)
		Moore & Dixon (2007)	
12/9-13	Finals Week		
	Exam 14		
	Monday, December 9, 5:50 pm – 7:50 pm		

Supplemental Reading List

- Adkins, V. K. (1997). Social validity and naturalistic ethics: World and Quine. *Behavior and Social Issues*, 7(2), 152-157.
- Bancroft, S. L., Weiss, J. S., Libby, M. E., & Ahearn, W. H. (2011). A comparison of procedural variations in teaching behavior chains: manual guidance, trainer completion, and no completion of untrained steps. *Journal of Applied Behavior Analysis*, 44, 559-569.
- Bannerman, D. J., Sheldon, J. B., Sherman, J. A., & Harchik, A. E. (1990). Balancing the rights to habilitation with the right to personal liberties: The right of people with developmental disabilities to eat too many doughnuts and take a nap. *Journal of Applied Behavior Analysis*, 23, 79-89.
- Barnes-Holmes, Y., Barnes-Holmes, D., McHugh, L., & Hayes, S. C. (2004). Relational frame theory: Some implications for understanding and treating human psychopathology. *International Journal of Psychology and Psychological Therapy*, 4(2), 355-375.
- Barnes-Holmes, D., Murtagh, L., Barnes, Holmes, Y., & Stewart, I. (2010). Using the implicit association test and the implicit relational assessment procedure to measure attitudes toward meat and vegetables in vegetarians and meat-eaters. *The Psychological Record*, 60, 287-306.
- Bealieu, L., Hanley, G. P., Roberson, A. A. (2012). Effects of responding to a name and group call on preschoolers' compliance. *Journal of Applied Behavior Analysis*, 45, 685-707.
- Call, N. A., Trosclair-Lasserre, N. M., Findley, A. J., Reavis, A. R., & Shillingsburg, M. A. (2012). Correspondence between single versus daily preference assessment outcomes and reinforcer efficacy under progressive-ratio schedules. *Journal of Applied Behavior Analysis*, 45, 763-777.
- Capriotti, M. R., Brandt, B. C., Ricketts, E. J., Espil, F. M., & Woods, D. W. (2012). Comparing the effects of differential reinforcement of other behavior and response-cost contingencies on tics in youth with Tourette syndrome. *Journal of Applied Behavior Analysis*, 45, 251-263.
- Coon, J. T., & Miguel, C. F. (2012). The role of increased exposure to transfer-of-stimulus-control procedures on acquisition of intraverbal behavior. *Journal of Applied Behavior Analysis*, 45, 657-666.
- Dixon, M. R., Bihler, H. L., & Nastally, B. L. (2011). Slot machine preferences of pathological and recreational gamblers are verbally constructed. *The Psychological Record*, 61m 93-112.
- Dixon, M. R., & Tibbets, P. (2009). The effects of self-choice on self-control. *Journal of Applied Behavior Analysis*, 42, 243-252.
- Donaldson, J. M., & Vollmer, T. R. (2011). An evaluation and comparison of time-out procedures with and without release contingencies. *Journal of Applied Behavior Analysis*, 44, 693-705.

- Donaldson, J. M., Vollmer, T. R., Yakich, T. M., & Van Camp, C. (2013). Effects of a reduced time-out interval on compliance with the time-out instruction. *Journal of Applied Behavior Analysis, 46*, 369-378.
- Doughty, A. H., & Hopkins, M. N. (2011). Reducing stimulus overselectivity through an increased observing-response requirement. *Journal of Applied Behavior Analysis, 44*, 653-657.
- Dozier, C. L., Iwata, B. A., Thomason-Sassi, J., Worsdell, A. S. (2012). A comparison of two pairing procedures to establish praise as a reinforcer. *Journal of Applied Behavior Analysis, 45*, 721-735.
- Falcomata, T. S., Wacker, D. P., Ringdahl, J. E., Vinquist, K., & Dutt, A. (2013). An evaluation of generalization of mands during functional communication training. *Journal of Applied Behavior Analysis, 46*, 444-454.
- Fragale, C. L., O' Reilly, M. F., Aguilar, J., Pierce, N., Lang, R., Sigafos, J., & Lancioni. (2012). The influence of motivating operations on generalization probes of specific mands by children with autism. *Journal of Applied Behavior Analysis, 45*, 565-577.
- Fraley, L. E. (1994). Behavioralogical Corrections: A new concept of prison from a natural science discipline. *Behavior and Social Issues, 4*(1,2), 3-33.
- Fisher, W. W., Kelley, M. E., & Lomas, J. E. (2003). Visual aids and structured criteria for improving visual inspection and interpretation of single-case designs. *Journal of Applied Behavior Analysis, 36* 387-406.
- Fryling, M. J. (2011). The impact of applied behavior analysis on the science of behavior. *Behavior and Social Issues, 19*, 24-31.
- Hammond, J. L., Iwata, B. A., Fritz, J. N., & Dempsey, C. M. (2011). Evaluation of fixed momentary DRO schedules under signaled and unsignaled arrangements. *Journal of Applied Behavior Analysis, 44*, 69-81.
- Hayes, S. C. (2004). Acceptance and commitment therapy, relational frame theory, and the third wave of behavioral and cognitive therapies. *Behavior Therapy, 35*, 639-665.
- Heal, N. A., & Hanley, G. P. (2011). Embedded prompting may function as embedded punishment: Detection of unexpected behavioral processes within a typical preschool teaching strategy. *Journal of Applied Behavior Analysis, 44*, 127-131.
- Howlett, M. A., Sidener, T. M., Progar, P. R., & Sidener, D. W. (2011). Manipulation of motivating operations and use of a script-fading procedure to teach mands for location to children with language delays. *Journal of Applied Behavior Analysis, 44*, 943-947.
- Imam, A. A. (2009). The shaping of a saint-president: Latent clues from Nelson Mandela's autobiography. *Behavior and Social Issues, 18*, 99-135.
- Johnson, T. E., & Dixon, M. R. (2009). Influencing children's pre-gambling game playing via conditional discrimination training. *Journal of Applied Behavior Analysis, 42*, 73-81.
- Lambert, J. M., Bloom, S. E., & Irvin, J. (2012). Trial-based functional analysis and functional communication training in an early childhood setting. *Journal of Applied Behavior Analysis, 45*, 579-584.
- LaRue, R. H., Stewart, V. S., Piazza, C. C., Volkert, V. M., Patel, M. R., & Zeleny, J. (2011). Escape as reinforcement and escape extinction in the treatment of feeding problems. *Journal of Applied Behavior Analysis, 44*, 719-735.
- Lima, E. L., & Abreu-Rodrigues, J. (2010). Verbal mediating responses: Effects on generalization of say-do correspondence and noncorrespondence. *Journal of Applied Behavior Analysis, 43*, 411-424.
- Lydon, C. A., Rohmeier, K. D., Yi, S. C., Mattaini, M. A., & Williams, W. L. (2011). How far do you have to go to get a cheeseburger around here? The realities of an environmental design approach to curbing the consumption of fast-food. *Behavior and Social Issues, 20*, 6-23.
- Mesmer, E. C., Duhon, G. J., & Dodson, K. G. (2007). The effects of programming common stimuli for enhancing stimulus generalization of academic behavior. *Journal of Applied Behavior Analysis, 40*, 553-557.
- Miller, K. B., Lund, E., & Weatherly, J. (2012). Applying operant learning to the stay-leave decision in domestic violence. *Behavior and Social Issues, 21* 135-151.
- Moore, K., & Dixon, M. R. (2007). Functional analysis and treatment of p

- Morford, Z. H. & Cihon, T. M. (2013). Developing an experimental analysis of metacontingencies: considerations regarding cooperation in a four-person prisoner's dilemma game. *Behavior and Social Issues, 22*, 5-20.
- Nastally, B. L., Dixon, M. R., McKeel, A., & Fleming, M. (2010). Teaching healthy food choices through stimulus equivalence. *Journal of Behavioral Health and Medicine, 1*, 118-125.
- Newsome, W. D., & Alavosius, M. P. (2011). Toward the prediction and influence of environmentally relevant behavior: Seeking practical utility in research. *Behavior and Social Issues, 20*, 44-71.
- Paden, A. R., Kodak, T., Fisher, W. W., Gawley-Bullington, E. M., & Bouxsein, K. J. (2012). Teaching children with autism to engage in peer-directed mands using a picture exchange communication system. *Journal of Applied Behavior Analysis, 45*, 425-429.
- Pelaez, M., Virues-Ortega, J., & Gewirtz, J. L. (2011). Reinforcement of vocalizations through contingent vocal imitation. *Journal of Applied Behavior Analysis, 44*, 33-40.
- Rosales, R., & Rehfeldt, R. A. (2007). Contriving transitive conditioned establishing operations to establish derived manding skills in adults with severe developmental disabilities. *Journal of Applied Behavior Analysis, 40*, 105-121.
- Sanguinetti, A., & Reyes, W. (2011). Functional assessment of drug trafficking terms: A substantive and methodological expansion of a verbal behavior research program. *Behavior and Social Issues, 20*, 102-117.
- Sautter, R. A., LeBlanc, L. A., Jay, A. A., Goldsmith, T. R., & Carr, J. E. (2011). The role of problem solving in complex intraverbal repertoires. *Journal of Applied Behavior Analysis, 44*, 227-244.
- Sellers, T. P., Bloom, S. E., Samaha, A. L., Dayton, E., Lambert, J. N., & Keyl-Austin, A. A. (2013). Evaluation of some components of choice making. *Journal of Applied Behavior Analysis, 46*, 455-464.
- Skinner, B. F. (1944). A review of Hull's Principles of Behavior. *The American Journal of Psychology, 57*, 276-281.
- Skinner, B. F. (1950). Are theories of learning necessary? *Psychological Review, 57*, 193-216.
- Skinner, B. F. (1974) *About behaviorism*. (Ch. 2, 4, 5, 7, 9 & 10: The World Within the Skin, Operant Behavior, Perceiving, Thinking, Knowing, The Inner World of Motivation and Emotion)
- Skinner, B. F. (1953). Operant behavior. In *Science and Human Behavior*. New York, NY: Macmillan.
- Skinner, B. F. (1969). The experimental analysis of behavior. In *Contingencies of Reinforcement*. Appleton Century Croft: New York, NY.
- Slocum, S. K., & Tiger, J. H. (2011). An assessment of the efficiency of and child preference for forward and backward chaining. *Journal of Applied Behavior Analysis, 44*, 793-805.
- Smith, G. S., Houtmanfar, R., & Louis, S. J. (2011). The participatory role of verbal behavior in an elaborated account of metacontingency: From conceptualization to investigation. *Behavior and Social Issues, 20*, 122-146.
- Soreth, M. E. (2011). Against the dichotomy of morality and self-interest: A review of power's "A problem from hell": America and the age of genocide. *Behavior and Social Issues, 20*, 32-43.
- Stansbury, K., Haley, D., & Lee, J. (2012). Adult caregivers' behavioral responses to child noncompliance in public settings: Gender differences and the role of positive and negative touch. *Behavior and Social Issues, 21*, 80-114.
- Sy, J. R., & Vollmer, T. R. (2012). Discrimination acquisition in children with developmental disabilities under immediate and delayed reinforcement. *Journal of Applied Behavior Analysis, 45*, 667-684.
- Thomason-Sassi, J. L., Iwata, B. A., Neidert, P. L., & Roscoe E. M. (2011). Response latency as an index of response strength during functional analyses of problem behavior. *Journal of Applied Behavior Analysis, 44* 51-67.
- Tomina, Y., & Masakazu, T. (2012). Discrimination learning with light stimuli in restrained American Lobsters. *Behavioural Brain Research, 229*(1), 91-105.

- Valentino, A. L., Shillingsburg, M. A., & Call, N. A. (2012). Comparing the effects of echoic prompts and echoic prompts plus modeled prompts on intraverbal behavior. *Journal of Applied Behavior Analysis, 45*, 431-435.
- Van der Velden, J., Zheng, Y., Patullo, B. W., & Macmillan, D. L. (2008). Crayfish recognize the faces of fight opponents. *PLoS ONE, 3*(2), 1-10.
- Waldvogel, J. M., & Dixon, M. R. (2008). Exploring the utility of preference and reinforcer assessments in organizational behavior management. *Journal of Organizational Behavior Management, 28*, 76-87.
- Walker, B. D., & Rehfeldt, R. A. (2012). An evaluation of the stimulus equivalence paradigm to teach single-subject design to distance education students via blackboard. *Journal of Applied Behavior Analysis, 45*, 329-344.
- Wallace, M. D., Iwata, B. A., Hanley, G. P., Thompson, R. H., & Roscoe, E. M. (2012). Noncontingent reinforcement: A further examination of schedule effects during treatment. *Journal of Applied Behavior Analysis, 45*, 709-719
- Watson, J. B. (1919). Chapter 1: Problems and Scope of Psychology.
- Watson, J. B. (1913). Psychology as the behaviorist views it. *Psychological Review, 101*, 248-253.
- Watson, J. B., & Rayner, R. (2000). Conditioned emotional reactions: Reprint of Waston and Rayner's 1920 article. *American Psychologist, 55*, 313-317.