

## **CURRICULUM VITAE**

Amy Laurie Odum

*July, 2006*

### **CONTACT INFORMATION**

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### **EDUCATIONAL HISTORY**

1998 Ph.D., Doctoral Program in Behavior Analysis  
Department of Psychology, West Virginia University  
Dissertation: The effects of morphine on fixed-interval schedule  
performance: Modification by stimulus factors  
Dissertation Advisor: David W. Schaal, Ph.D.

1996 M.A., Doctoral Program in Behavior Analysis  
Department of Psychology, West Virginia University  
Masters thesis: Key pecking of pigeons under variable-interval  
schedules of briefly signaled delayed reinforcement: A test of  
Pavlovian mechanisms  
Thesis Advisor: David W. Schaal, Ph.D.

1992 B.S., Psychology  
University of Florida

### **POSITIONS HELD**

7/06 – present Associate Professor, Department of Psychology, Utah State University  
7/03 – 6/06 Assistant Professor, Department of Psychology, Utah State University  
8/99 – 6/03 Assistant Professor, Department of Psychology, University of New Hampshire  
7/98 – 7/99 Postdoctoral Fellow, Human Behavioral Pharmacology Lab, University of Vermont  
1/97 – 6/98 Graduate Research Assistant, Department of Psychology, West Virginia University  
8/93 – 12/96 Graduate Teaching Assistant, Department of Psychology, West Virginia University  
7/91 – 7/93 Program Director and Qualified Mental Retardation Professional, Ocala Cluster, FL

### **CURRENT PROFESSIONAL INTERESTS**

Behavioral momentum  
Drug effects and temporal discrimination  
Effects of response-independent, delayed, and conditioned reinforcement  
Modification of drug effects by environmental variables  
Operant variability and stereotypy  
Rate-dependency of drug effects  
Self control and impulsivity and relation to drug abuse

## **AWARDS / HONORS**

2006 Researcher/Scholar of the Year, College of Education and Human Services, USU  
2004 Karl Lashley Distinguished Alumna, West Virginia University  
2003 NIDA Director's Travel Award to the meeting of the American Psychological Association  
2002 Nominated for Outstanding Assistant Professor at the University of New Hampshire  
2000 Summer Faculty Fellowship, Graduate School, UNH  
1999 New York Academy of Sciences Dissertation Award Nominee, West Virginia University  
1999 NIDA Director's Travel Award to College on Problems of Drug Dependence  
1998 Don Hake Award for Outstanding Graduate Student Career, Dept. of Psychology, WVU  
1997 Student Poster Competition Winner, Fall Neuroscience Research Convocation, WVU  
1997 Doctoral Student Research Program Award, Office of Academic Affairs & Research, WVU  
1985-1989 Procter and Gamble Scholar, University of Florida (UF)

## **RESEARCH AWARDS – FUNDED**

### *Principal Investigator*

“The Effects of *d*-amphetamine on Temporal Perception: Immediate vs. Retrospective Timing”  
New Faculty Research Grant: Utah State University  
Project dates: 05/01/04 – 04/30/05  
Total Costs: \$11,270

### *Principal Investigator*

“Effects of Drugs in an Animal Model of Relapse” (R03 DA14552)  
National Institutes of Health: National Institute on Drug Abuse  
Project dates: 09/01/01 – 08/31/03 (no cost extension)  
Total Costs: \$72,500

### *Co-Investigator* (John A. Nevin, Principal Investigator)

“Discrimination, Reinforcement, and Resistance to Change” (R01 MH65949)  
National Institutes of Health: National Institute of Mental Health  
Project dates: 07/01/02 – 01/31/10  
Total Costs: \$543,016

### *Co-Investigator* (Timothy A. Shahan, Principal Investigator)

“Alcohol Cues: Opioid Antagonism and Behavioral Economics” (R21 AA13576)  
National Institutes of Health: National Institute on Alcoholism and Alcohol Abuse  
Project dates: 04/01/03 - 3/31/06  
Total Costs: \$437,000

### *Co-Investigator* (Timothy A. Shahan, Principal Investigator)

“Divided Attention and Reinforcement Variables” (R01 MH072621)  
National Institutes of Health: National Institute of Mental Health  
Project dates: 07/01/05 – 06/30/08  
Total Costs: \$517,800

## **TEACHING EXPERIENCE**

### *Utah State University*

2003 - present Analysis of Behavior: Advanced, with pigeon laboratory

*University of New Hampshire*

1999 - 2003   Addiction and Behavior  
                  Advanced Seminar in Behavior Analysis: Single Subject Research Methods (graduate)  
                  Behavior Analysis and its Applications  
                  Behaviorism, Culture, and Contemporary Society  
                  Introduction to Behavior Analysis  
                  Research Methods in Psychology

*University of Vermont (co-instructor)*

1999            Learning

*St. Michael's College, Vermont (co-instructor)*

1999            Learning, with rat laboratory

*West Virginia University (graduate instructor)*

1993 - 1996   Introduction to Social Psychology  
                  Principles of Behavior and Learning (rat laboratory)

**PROFESSIONAL ACTIVITIES**

2005           National Institutes of Health Study Section *ad hoc* member, Adult Psychopathology and Disorders of Aging (APDA); March 2005

2004           National Institutes of Health Study Section *ad hoc* member, Child Psychopathology and Developmental Disabilities (CPDD); February 2004, October 2004

2003 - present Board of Trustees, Cambridge Center for Behavioral Studies

2002 - 2005   Area Coordinator, Behavioral Pharmacology Program, Meeting of the Association for Behavior Analysis

2002 - 2003   National Institutes of Health Study Section *ad hoc* member, Biobehavioral and Behavioral Processes 1 (BBBP-1): Biobehavioral Regulation, Learning, and Ethology; October, 2002, February 2003

2001 - 2003   Board of Directors, Southeastern Association for Behavior Analysis (SEABA)

**EDITORIAL EXPERIENCE (Journals)**

Guest Editor       *Behavioural Processes* – Special Issue on Animal Timing (2005)  
Editorial Board    *Behavioural Processes* (2005 – present)  
Editorial Board    *Journal of the Experimental Analysis of Behavior* (2001 – 2004; 2006-2009)  
Editorial Board    *The Behavior Analyst* (2004 – present)

**AD HOC REVIEWER (Journals)**

*Behavior Research Methods, Instruments, & Computers*  
*Behavioural Pharmacology*  
*Behavioural Processes*  
*Cognitive, Affective, & Behavioral Neuroscience*

*Drug and Alcohol Dependence*  
*Experimental Analysis of Human Behavior Bulletin*  
*Experimental and Clinical Psychopharmacology*  
*International Journal of Comparative Psychology*  
*Journal of the Experimental Analysis of Behavior*  
*Mexican Journal of Behavior Analysis*  
*Psychological Science*  
*Psychopharmacology*

### **TEXTBOOKS REVIEWED**

Chance, P. (2005). *Learning and Behavior* (5th ed.). Pacific Grove, CA: Wadsworth.

Bailey, J. S., & Burch, M. R. (2005). *Ethics for Behavior Analysts: A Practical Guide to the Behavior Analyst Certification Board Guidelines for Responsible Conduct*. Mahwah, NJ: Lawrence Erlbaum.

### **COMMITTEE MEMBERSHIP AND SERVICE**

2004 - present Behavior Analysis Graduate Emphasis Steering Committee, Utah State University  
2004 - present Undergraduate Program Steering Committee, USU  
2004 Thesis proposal review for College of Education & Human Services, USU  
2004 - present Director, Undergraduate Psychology Animal Laboratory Facility, USU  
2002 Undergraduate Honors Liaison, Department of Psychology,  
University of New Hampshire  
2001, 2002 McNair Graduate Opportunity Program Faculty Mentor, UNH  
2001 Summer Undergraduate Research Fellowship (SURF) Faculty Mentor, UNH  
2000 - 2003 Institutional Animal Care and Use Committee (IACUC), UNH  
2000 - 2003 Liberal Arts Honors Committee, UNH  
2000 - 2003 Undergraduate Program Development and Operations Committee (UPDOC), UNH  
Chair, 2001 - 2003  
2000 - 2001 History of Psychology Faculty Search Committee, Department of Psychology, UNH  
1999 - 2000 Graduate Program Development and Operations Committee (GRAPDOC), UNH  
1999 - 2000 Proseminar organizer for first year graduate students, UNH  
1997 - 1998 Student member of Full Faculty Committee, West Virginia University  
1996 - 1997 Student member of Behavior Analysis Training Committee (BATC), WVU  
1994 - 1995 Student member of Laboratory Animal Board (LAB), WVU

### **GRADUATE DISSERTATION/THESIS COMMITTEES (\*chair)**

Ericka Bailey\* (USU)  
Arian Baquero (USU)  
Christopher Barnes\* (UNH)  
Ana Amelia Bauman das Neves\* (USU)  
Corina Jimenez-Gomez (USU)  
Kate Lambourne (USU)  
Le' Ann Milinder (UNH)  
Christopher Podlesnik (USU)  
Ryan Ward\* (USU)

### **UNDERGRADUATE HONORS THESIS COMMITTEES (\*chair)**

Jason Martin\* (UNH)  
Katie Burke\* (UNH)  
Scott Curfman (WVU)  
Gary Sager III (WVU)  
Masami Kojima (WVU)

### **MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS**

American Psychological Association (APA, Divisions 25 & 28)  
Association for Behavior Analysis (ABA)  
International Study Group Investigating Drugs as Reinforcers (ISGIDAR)  
Southeastern Association for Behavior Analysis (SEABA)  
Society for the Quantitative Analysis of Behavior (SQAB)

### **REFEREED PUBLICATIONS**

- Odum, A. L., Baumann, A. A. L., & Rimington, D. D. (in press). Discounting of delayed hypothetical money and food: Effects of amount. *Behavioural Processes*.
- Odum, A. L., Ward, R. D., Barnes, C. A., & Burke, K. A. (in press). Effects of delays to reinforcement on variability and repetition of response sequences. *Journal of the Experimental Analysis of Behavior*.
- Ward, R. D., Bailey, E. M., & Odum, A. L. (in press). Effects of *d*-amphetamine and ethanol on variable and repetitive key-peck sequences in pigeons. *Journal of the Experimental Analysis of Behavior*.
- Ward, R. D., & Odum, A. L. (2006). Effects of prefeeding, intercomponent-interval food, and extinction on temporal discrimination and pacemaker rate. *Behavioural Processes*, 71, 297-306.
- Ward, R. D., & Odum, A. L. (2005). Effects of morphine on temporal discrimination and color matching: General disruption of stimulus control or selective effects on timing? *Journal of the Experimental Analysis of Behavior*, 84, 401-415.
- Odum, A. L., Shahan, T. A., & Nevin, J. A. (2005). Resistance to change of forgetting functions and response rates. *Journal of the Experimental Analysis of Behavior*, 84, 65-75.
- Odum, A. L., & Shahan, T. A. (2004). *d*-Amphetamine reinstates behavior previously maintained by food: Importance of context. *Behavioural Pharmacology*, 15, 513-516.
- Odum, A. L. & Ward, R. D. (2004). The effects of morphine on the production and discrimination of interresponse times. *Journal of the Experimental Analysis of Behavior*, 82, 197-212.
- Nevin, J. A., Milo, J. S., Odum, A. L., & Shahan, T. A. (2003). Resistance to change of response rates and remembering. *Journal of the Experimental Analysis of Behavior*, 79, 307-321.
- Odum, A. L., & Rainaud, C. P. (2003). Discounting of delayed alcohol, food, and money. *Behavioural Processes*, 64, 305-313.

- Lieving, L. M., Odum, A. L., & Schaal, D. W. (2002). The effects of morphine on chained and clogged fixed-interval schedule performance in pigeons. *Behavioural Pharmacology*, *13*, 221-228.
- Odum, A. L. (2002). Behavioral pharmacology and timing. *Behavioural Processes*, *57*, 107-120.
- Odum, A. L., Lieving, L. M., & Schaal, D. W. (2002). Effects of *d*-amphetamine in a temporal discrimination procedure: Selective changes in timing or rate dependency? *Journal of the Experimental Analysis of Behavior*, *78*, 195-214.
- Odum, A. L., Madden, G. J., & Bickel, W. K. (2002). Discounting of delayed health gains and losses by current, never, and ex-smokers of cigarettes. *Nicotine & Tobacco Research*, *4*, 295-303.
- Odum, A. L. (2000). Reflections on the glass ceiling: Women in the experimental analysis of behavior. *The Behavior Analyst*, *23*, 279-283.
- Odum, A. L., Madden, G. J., Badger, G. J., & Bickel, W. K. (2000). Needle sharing in opioid-dependent outpatients: Psychological processes underlying risk. *Drug and Alcohol Dependence*, *60*, 259-266.
- Odum, A. L., & Schaal, D. W. (2000). The effects of morphine on fixed-interval patterning and temporal discrimination. *Journal of the Experimental Analysis of Behavior*, *74*, 229-243.
- Schaal, D. W., Odum, A. L., & Shahan, T. A. (2000). Pigeons may not remember the stimuli that reinforced their recent behavior. *Journal of the Experimental Analysis of Behavior*, *73*, 125-139.
- Shahan, T. A., Odum, A. L., & Bickel, W. K. (2000). Nicotine gum as a substitute for cigarettes: A behavioral economic analysis. *Behavioural Pharmacology*, *11*, 71-79.
- Bickel, W. K., Odum, A. L., & Madden, G. J. (1999). Impulsivity and cigarette smoking: Delay discounting in current, never, and ex-smokers. *Psychopharmacology*, *146*, 447-454.
- Odum, A. L., & Schaal, D. W. (1999). The effects of morphine on clogged fixed-interval performance: Stimulus function or strength of stimulus control? *Behavioural Pharmacology*, *10*, 243-255.
- Odum, A. L., Haworth, S. C., & Schaal, D. W. (1998). Food deprivation level alters the effects of morphine on pigeons' key pecking. *Journal of the Experimental Analysis of Behavior*, *69*, 295-310.
- Schaal, D. W., Miller, M. A., & Odum, A. L. (1995). Cocaine's effects on food-reinforced pecking in pigeons depend on food-deprivation level. *Journal of the Experimental Analysis of Behavior*, *64*, 61-73.

## REFEREED PUBLICATIONS – UNDER REVIEW

Nevin, J. A., Davison, M., Odum, A. L., & Shahan, T. A. A theory of attending, remembering, and reinforcement in delayed matching to sample. *Journal of the Experimental Analysis of Behavior*.

Nevin, J. A., Shahan, T. A., & Odum, A. L. Contrast effects in remembering and response rate. *Quarterly Journal of Experimental Psychology*.

Ward, R. D., & Odum, A. L. Disruption of temporal discrimination and the choose-short effect. *Learning & Behavior*.

#### **NON-REFEREED PUBLICATIONS**

Odum, A. L. (2006). Interval timing: The current status. *Behavioural Processes*, 71, 75-76.

Odum, A. L. (2003). B. F. Skinner. In Irons-Georges, T. (Ed.), *Magill's Encyclopedia of Social Science: Psychology*. Pasadena, CA: Salem Press.

Odum, A. L. (2003). Learning. In Irons-Georges, T. (Ed.), *Magill's Encyclopedia of Social Science: Psychology*. Pasadena, CA: Salem Press.

#### **PRESENTATIONS – INVITED**

Odum, A. L., & Ward, R. D. (2006, May). *Characterizing the effects of drugs on temporal discrimination*. Talk presented at the annual meeting of the Society for the Quantitative Analysis of Behavior, Atlanta, GA.

Odum, A. L. (2004, February). *Temporal discounting: Assessing and understanding impulsivity*. Talk presented at the annual meeting of the California Association for Behavior Analysis, San Francisco, CA.

Odum, A. L., & Barnes, C. A. (2002, October). *The effects of delayed reinforcement on behavioral variability and repetition*. Talk presented at the annual meeting of the Mid-American Association for Behavior Analysis, Kalamazoo, MI.

Odum, A. L. (2001, October). *Understanding impulsivity: Delay discounting investigations*. Talk presented at the annual meeting of the Berkshire Association for Behavior Analysis and Therapy, Amherst, MA.

Odum, A. L. (2001, October). *The neuropharmacological model of timing: A beautiful theory and some ugly facts*. Talk presented at the annual meeting of the Southeastern Association for Behavior Analysis, Wilmington, NC.

Odum, A. L. (2001, May). *Behavioral pharmacology and timing*. Talk presented at the annual meeting of the Society for the Quantitative Analysis of Behavior, New Orleans, LA.

Odum, A. L. (1998, December). *Delay discounting: Understanding drug abuse and impulsivity*. Colloquium presented at the Department of Psychology, Keio University, Tokyo, Japan.

#### **PRESENTATIONS - SYMPOSIA, PAPERS SESSIONS, AND POSTERS**

Bailey, E., & Odum, A. L. (2006, May). Effects of a cannabinoid agonist on the reinforcing efficacy

- of self-administered ethanol in rats. Poster presented at the 32<sup>nd</sup> annual meeting of the Association for Behavior Analysis, Atlanta, GA.
- Baumann Neves, A. A. & Odum, A. L. (2006, May). *Decision making: Base rate neglect and contextual factors*. Poster presented at the 32<sup>nd</sup> annual meeting of the Association for Behavior Analysis, Atlanta, GA.
- Odum, A. L. (2006, May, Chair). *Discriminating and attending*. Symposium presented at the 32<sup>nd</sup> annual meeting of the Association for Behavior Analysis, Atlanta, GA.
- Nevin, J. A., Shahan, T. A., & Odum, A. L. (2006, May). *Contrast effects on accuracy and response rate in delayed matching to sample*. In A. L. Odum, Chair, *Discriminating and attending*. Symposium presented at the 32<sup>nd</sup> annual meeting of the Association for Behavior Analysis, Atlanta, GA.
- Shahan, T. A., & Odum, A. L. (2006, May). Utah State University: Behavior analysis training in the department of psychology. Poster presented at the 32<sup>nd</sup> annual meeting of the Association for Behavior Analysis, Atlanta, GA.
- Ward, R. D., & Odum, A. L. (2006, May). *Resistance to change of temporal discrimination*. In K. A. Lattal, Chair, *The temporal control of behavior*. Symposium presented at the 32<sup>nd</sup> annual meeting of the Association for Behavior Analysis, Atlanta, GA.
- Ward, R. D., & Odum, A. L. (2006, May). Effects of *d*-amphetamine on stimulus control and temporal discrimination in position and color-matching variants of the interval-bisection procedure. In E. McClure, Chair, *Topics in timing*. Symposium presented at the 32<sup>nd</sup> annual meeting of the Association for Behavior Analysis, Atlanta, GA.
- Odum, A. L. (2005, May, Chair). *Effects of amphetamine on timing*. Symposium presented at the 31st annual meeting of the Association for Behavior Analysis, Chicago, IL.
- Odum, A. L. (2005, May, Chair). *Ethanol self-administration*. Symposium presented at the 31st annual meeting of the Association for Behavior Analysis, Chicago, IL.
- Odum, A. L. (2005, May, Chair). *2005 ABA Tutorial: Pharmacology for behavioral scientists*. Invited tutorial (Gail Winger, presenter) at the 31st annual meeting of the Association for Behavior Analysis, Chicago, IL.
- Odum, A. L. (2005, May, Chair). *A Pavlovian conditioning approach to studying discriminative stimulus effects of nicotine*. Invited paper session (Rick A. Bevins, presenter) at the 31st annual meeting of the Association for Behavior Analysis, Chicago, IL.
- Baumann, A. A., Odum, A. L., & Charlton, S. R. (2005, May). *Decision making: Base rate, context and degree of exposure*. In J. Abreu-Rodrigues (Chair), *Conjunction fallacy and base-rate error: Are those behaviors controlled by reinforcement contingencies?* Symposium presented at the 31st annual meeting of the Association for Behavior Analysis, Chicago, IL.
- Ward, R. D., Packer, R., & Odum, A. L. (2005, May). *Effects of d-amphetamine on temporal*

- discrimination: Position versus symbolic matching-to-sample procedures.* In A.L. Odum (Chair), *Effects of amphetamine on timing.* Symposium presented at the 31st annual meeting of the Association for Behavior Analysis, Chicago, IL.
- Bailey, E. M., Ward, R. D., & Odum, A. L. (2005, May). *Differential effects of amphetamine and ethanol on variable and repetitive behavior.* Poster presented at the 31st annual meeting of the Association for Behavior Analysis, Chicago, IL.
- Shahan, T. A., Odum, A. L., & Cheney, C. (2005, May). *Utah State University: Behavior analysis training in the department of psychology.* Poster presented at the 31st annual meeting of the Association for Behavior Analysis, Chicago, IL.
- Odum, A. L., Shahan, T. A., Burke, K. A., & Nevin, J. A. (2004, August). *Resistance to change of forgetting functions.* In R. C. Pitts (Chair), *Celebrating B.F. Skinner's 100th birthday: Conditioned reinforcement.* Symposium conducted at the 112th annual meeting of the American Psychological Association, Honolulu, HI.
- Odum, A. L. (2004, May, Chair). *2004 ABA Tutorial: History of behavioral pharmacology.* Invited tutorial (Joseph V. Brady, presenter) at the 30th annual meeting of the Association for Behavior Analysis, Boston, MA.
- Odum, A. L. (2004, May, Chair). *Cocaine, dopamine transport inhibition, and discovery research on medical treatments for cocaine abuse.* Invited paper session (Jonathan L. Katz, presenter) at the 30th annual meeting of the Association for Behavior Analysis, Boston, MA.
- Odum, A. L. (2004, May, Chair). *Social stress experiences, neuroadaptations and cocaine binges.* Invited paper session (Klaus A. Miczek, presenter) at the 30th annual meeting of the Association for Behavior Analysis, Boston, MA.
- Ward, R. D., & Odum, A. L. (2004, May). *The effects of morphine on the discrimination of subject-produced and experimenter-imposed durations.* In C. D. L. Wynne (Chair), *A wrinkle in timing accounts: Effects of d-amphetamine and morphine.* Symposium conducted at the 30th annual meeting of the Association for Behavior Analysis, Boston, MA.
- Bailey, E. M., Ward, R. D., & Odum, A. L. (2004, May). *The effects of amphetamine on variable and repetitive behavior.* Poster presented at the 30th annual meeting of the Association for Behavior Analysis, Boston, MA.
- Shahan, T., Odum, A. L., & Cheney, C. (2004, May). *Utah State University: Behavior analysis training in the department of psychology.* Poster presented at the 30th annual meeting of the Association for Behavior Analysis, Boston, MA.
- Odum, A. L. (2003, August). *d-Amphetamine reinstates extinguished behavior previously maintained by food: Importance of context.* Poster presented at the 111th annual meeting of the American Psychological Association, Toronto, Canada.
- Odum, A. L. (2003, May, Chair). *Time and the behavioral effect of drugs.* Symposium presented at the 29th annual meeting of the Association for Behavior Analysis, San Francisco, CA.

- Odum, A. L. (2003, May, Chair). *Delta opioid receptor activation and depression: Any link to operant behavior?* Invited paper session (James H. Woods, presenter) at the 29th annual meeting of the Association for Behavior Analysis, San Francisco, CA.
- Odum, A. L., & Ward, R. D. (2003, May). *The effects of morphine on the production and discrimination of duration.* In A. L. Odum (Chair), *Time and the behavioral effect of drugs.* Symposium conducted at the 29th annual meeting of the Association for Behavior Analysis, San Francisco, CA.
- Barnes, C. A., Ward, R. D., & Odum, A. L. (2003, May). *Investigating the differential resistance of sequence variability and stereotypy.* Poster presented at the 29th annual meeting of the Association for Behavior Analysis, San Francisco, CA.
- Martin, J. F., Ward, R. D., & Odum, A. L. (2003, May). *The effects of d-amphetamine and haloperidol on timing assessed by two different methods.* Poster presented at the 29th annual meeting of the Association for Behavior Analysis, San Francisco, CA.
- Ward, R. D., & Odum, A. L. (2003, May). *The effects of retention intervals on the production and discrimination of interresponse times.* Poster presented at the 29th annual meeting of the Association for Behavior Analysis, San Francisco, CA.
- Odum, A. L. (2002, May, Chair). *Recent issues in delay discounting.* Symposium presented at the 28th annual meeting of the Association for Behavior Analysis, Toronto, Canada.
- Odum, A. L., Milo, J. S., Shahan, T. A., & Nevin, J. A. (2002, May). *Resistance to change of response rates and remembering: Disruption by extinction and retention interval.* In M. Perone (Chair), *Resistance to change.* Symposium conducted at the 28th annual meeting of the Association for Behavior Analysis, Toronto, Canada.
- Odum, A. L., & Patrakis, C. M. (2002, May). *Discounting of delayed hypothetical alcohol, food, and monetary outcomes.* In A. L. Odum (Chair), *Recent issues in delay discounting.* Symposium conducted at the 28th annual meeting of the Association for Behavior Analysis, Toronto, Canada.
- Barnes, C. A., & Odum, A. L. (2002, May). *The effects of travel requirements on behavioral variability and stereotypy.* Poster presented at the 28th annual meeting of the Association for Behavior Analysis, Toronto, Canada.
- Burke, K. A., & Odum, A. L. (2002, May). *The effects of delayed reinforcement on variability and repetition maintained by chained schedules.* Poster presented at the 28th annual meeting of the Association for Behavior Analysis, Toronto, Canada.
- Martin, J. F., & Odum, A. L. (2002, May). *The effects of morphine on timing assessed by two different methods of measurement.* Poster presented at the 28th annual meeting of the Association for Behavior Analysis, Toronto, Canada.
- Mower, C., & Odum, A. L. (2002, May). *Morphine produces the choose short effect.* Poster

presented at the annual meeting of the Society for the Quantitative Analysis of Behavior, Toronto, Canada.

- Mower, C., Milo, J. S., & Odum, A. L. (2002, May). *The effects of morphine on the production and discrimination of interresponse times: Replication and extension*. Poster presented at the 28th annual meeting of the Association for Behavior Analysis, Toronto, Canada.
- Odum, A. L., & Shahan, T. A. (2002, May). *Graduate study in behavior analysis at the University of New Hampshire*. Poster presented at the 28th annual meeting of the Association for Behavior Analysis, Toronto, Canada.
- Barnes, C. A., & Odum, A. L. (2001, October). *Effects of travel requirements on response variability: A test of two theories*. Poster presented at the 18th annual meeting of the Southeastern Association for Behavior Analysis, Wilmington, NC.
- Martin, J. & Odum, A. L. (2001, October). *The effects of morphine on timing assessed by two different methods of measurement*. Poster presented at the 18th annual meeting of the Southeastern Association for Behavior Analysis, Wilmington, NC.
- Mower, C., Milo, J. S., & Odum, A. L. (2001, October). *The effects of morphine on the production and discrimination of interresponse times*. Poster presented at the 18th annual meeting of the Southeastern Association for Behavior Analysis, Wilmington, NC.
- Odum, A. L., & Shahan, T. A. (2001, October). *Graduate study in behavior analysis at the University of New Hampshire*. Poster presented at the 18th annual meeting of the Southeastern Association for Behavior Analysis, Wilmington, NC.
- Odum, A. L. (2001, May, Chair). *Current trends in drug tolerance research*. Paper session presented at the 27th annual meeting of the Association for Behavior Analysis, New Orleans, LA.
- Barnes, C. A., DeHaven, C., & Odum, A. L. (2001, May). *Effects of delayed reinforcement on operant variability and stereotypy*. Poster presented at the 27th annual meeting of the Association for Behavior Analysis, New Orleans, LA.
- Milo, J. S., Odum, A. L., Shahan, T. A., & Nevin, J. A. (2001, May). *Resistance to change of response rates and remembering*. Poster presented at the 27th annual meeting of the Association for Behavior Analysis, New Orleans, LA.
- Odum, A. L., Mitchell, S. H., & Shahan, T. A. (2001, May). *Graduate study in behavior analysis at the University of New Hampshire Department of Psychology*. Poster presented at the 27th annual meeting of the Association for Behavior Analysis, New Orleans, LA.
- Odum, A. L., & Shahan, T. A. (2001, May). *d-Amphetamine reinstates extinguished behavior previously maintained by food*. Poster presented at the 27th annual meeting of the Association for Behavior Analysis, New Orleans, LA.
- DeHaven, C., & Odum, A. L. (2000, October). *Effects of delayed reinforcement on response variability*. Poster presented at the 17th annual meeting of the Southeastern Association for

Behavior Analysis, Chattanooga, TN.

- Milo, J. S., Odum, A. L., Shahan, T. A., & Nevin, J. A. (2000, October). *Resistance to change of response rates and remembering*. Poster presented at the 17th annual meeting of the Southeastern Association for Behavior Analysis, Chattanooga, TN.
- Odum, A. L. (2000, May, Chair). *Timing, tolerance, and tough discriminations: Recent investigations in behavioral pharmacology*. Symposium presented at the 26th annual meeting of the Association for Behavior Analysis, Washington, DC.
- Odum, A. L., Murray, L. M., & Schaal, D. W. (2000, May). *Timing and the effects of drugs on temporally organized behavior*. In A. L. Odum (Chair), *Timing, tolerance, and tough discriminations: Recent investigations in behavioral pharmacology*. Symposium conducted at the 26th annual meeting of the Association for Behavior Analysis, Washington, DC.
- Odum, A. L., Mitchell, S. H., & Shahan, T. A. (2000, May). *Graduate study in behavior analysis at the University of New Hampshire Department of Psychology*. Poster presented at the 26th annual meeting of the Association for Behavior Analysis, Washington, DC.
- Murray, L. M., Odum, A. L., & Schaal, D. W. (1999, October). *The effects of d-amphetamine: Changes in temporal discrimination or rate-dependency?* Poster presented at the 16th annual meeting of the Southeastern Association for Behavior Analysis, Columbia, SC.
- Odum, A. L., & Roll, J. M. (1999, August, Co-Chairs). *Substance abuse and impulsivity: Delay discounting investigations*. Symposium presented at the 107th annual meeting of the American Psychological Association, Boston, MA.
- Odum, A. L., Bickel, W. K., & Madden, G. J. (1999, August). *Delay discounting in current, former, and nonsmokers of cigarettes*. In A. L. Odum and J. M. Roll (Co-chairs), *Substance abuse and impulsivity: Delay discounting investigations*. Symposium conducted at the 107th annual meeting of the American Psychological Association, Boston, MA.
- Odum, A. L., Bickel, W. K., & Madden, G. J. (1999, June). *Current cigarette smokers are more impulsive than never and ex-smokers*. Poster presented at the 61st annual meeting of the College on Problems of Drug Dependence, Acapulco, Mexico.
- Murray, L. M., Schaal, D. W., & Odum, A. L. (1999, May). *Effects of morphine on chained schedule performance in pigeons*. In D. W. Schaal (Chair), *Abused drugs and temporally organized operant behavior*. Symposium conducted at the 25th annual meeting of the Association for Behavior Analysis, Chicago, IL.
- Odum, A. L., Johnson, J. L., Murray, L. M., & Schaal, D. W. (1999, May). *Effects of d-amphetamine: Changes in temporal discrimination or rate-dependency?* In D. W. Schaal (Chair), *Abused drugs and temporally organized operant behavior*. Symposium conducted at the 25th annual meeting of the Association for Behavior Analysis, Chicago, IL.
- Odum, A. L., Madden, G. J., & Bickel, W. K. (1999, May). *Delay discounting and risky drug injection*. In J. M. Roll (Chair), *Contemporary issues in human behavioral pharmacology*:

- Laboratory studies.* Symposium conducted at 25th annual meeting of the Association for Behavior Analysis, Chicago, IL.
- Johnson, J. L., Odum, A. L., & Schaal, D. W. (1998, October). *The effects of morphine on behavior maintained by fixed-interval and clocked fixed-interval schedules.* Poster presented at the 15th annual meeting of the Southeastern Association for Behavior Analysis, Asheville, NC.
- Murray, L. M., Odum, A. L., & Schaal, D. W. (1998, October). *The effects of morphine on chained schedule performance in pigeons.* Poster presented at the 15th annual meeting of the Southeastern Association for Behavior Analysis, Asheville, NC.
- Parker, B. K., Odum, A. L., Carlin, L. A., & Murray, L. M. (1998, October). *Differential outcomes and delayed matching to sample: Effects of conditioned reinforcement.* Poster presented at the 15th annual meeting of the Southeastern Association for Behavior Analysis, Asheville, NC.
- Schaal, D. W., & Odum, A. L. (1998, August). *Issues raised by the effects of drugs on performance under fixed-interval schedules.* In R. C. Pitts (Chair), *Current research in behavioral pharmacology.* Symposium conducted at the 106th annual meeting of the American Psychological Association, San Francisco, CA.
- Odum, A. L. (1998, May, Chair). *Stimulus-reinforcer relations and operant behavior.* Symposium presented at the 24th annual meeting of the Association for Behavior Analysis, Orlando, FL.
- Odum, A. L., & Schaal, D. W. (1998, May). *Remembering brief signals of delayed reinforcement.* In A. L. Odum (Chair), *Stimulus-reinforcer relations and operant behavior.* Symposium conducted at the 24th annual meeting of the Association for Behavior Analysis, Orlando, FL.
- Johnson, J. L., Odum, A. L., & Schaal, D. W. (1998, May). *The effects of morphine on behavior maintained by fixed interval and clocked fixed interval schedules: A preliminary report.* Poster presented at the annual meeting of the Behavioral Toxicology Society, Durham, NC.
- Knealing, T. W., Odum, A. L., & Schaal, D. W. (1998, May). *The effects of morphine on temporally organized behavior.* Poster presented at the annual meeting of the Behavioral Toxicology Society, Durham, NC.
- Odum, A. L., Sorrell, J. T., & Schaal, D. W. (1998, May). *The effects of morphine on fixed interval patterning and independently assessed temporal discrimination.* Poster presented at the annual meeting of the Behavioral Toxicology Society, Durham, NC.
- Odum, A. L., & Schaal, D. W. (1997, November). *The effects of morphine on temporal patterning of responses and temporal discrimination.* Poster presented at the 13th annual meeting of the West Virginia Neuroscience Society, Morgantown, WV.
- Odum, A. L., & Schaal, D. W. (1997, October). *Are morphine-produced changes in fixed-interval patterning accompanied by changes in temporal discrimination?* Poster presented at the 14th annual meeting of the Southeastern Association for Behavior Analysis, Chapel Hill, NC.
- Odum, A. L., & Schaal, D. W. (1997, May). *Response maintenance and briefly-signaled delayed*

- reinforcement: Brief stimulus function.* In T. A. Shahan (Chair), *Factors in response persistence with delayed reinforcement.* Symposium conducted at the 23rd annual meeting of the Association for Behavior Analysis, Chicago, IL.
- Schaal, D. W. & Odum, A. L. (1997, May). *Mechanisms that may underlie drug-induced increases in response rates under periodic reinforcement conditions.* In G. J. Madden (Chair), *Recent contributions of the experimental analysis of behavior to psychopharmacology.* Symposium conducted at the 23rd annual meeting of the Association for Behavior Analysis, Chicago, IL.
- Odum, A. L., & Schaal, D. W. (1996, December). *Effects of morphine on operant behavior under internal and external stimulus control.* Poster presented at the 12th annual meeting of the West Virginia Neuroscience Society, Morgantown, WV.
- Odum, A. L., & Schaal, D. W. (1996, November). *Morphine's effects on pecking maintained by fixed-interval and fixed-interval clock schedules.* Poster presented at the 13th annual meeting of the Southeastern Association for Behavior Analysis, Wilmington, NC.
- Odum, A. L., & Schaal, D. W. (1996, June). *Key pecking of pigeons under variable-interval schedules of briefly signaled delayed reinforcement.* In R. Avila S. & C. A. Bruner Iturbide, (Co-Chairs), *Estudios parametricos sobre adquisicion y mantenimiento bajo demora de reforzamiento.* Symposium conducted at the 13th annual Mexican Congress of Behavior Analysis and 1st annual Interamerican and Iberoamerican Congress of Behavior Analysis, Boca del Rio and Vera Cruz, Mexico.
- Odum, A. L., & Schaal, D. W. (1996, May). *Signal-food relations under conditions with briefly signaled delayed reinforcement.* In D. W. Schaal (Chair), *Acquisition and maintenance of operant behavior with delayed reinforcement.* Symposium conducted at the 22nd annual meeting of the Association for Behavior Analysis, San Francisco, CA.
- Haworth, S. C., Odum, A. L., & Schaal, D. W. (1995, November). *Food deprivation and morphine: Effects on key pecking under a multiple fixed-ratio fixed-interval schedule of food reinforcement.* Poster presented at the 12th annual meeting of the Southeastern Association for Behavior Analysis, Charleston, SC.
- Crosbie, J., Reilly, M., & Odum, A. L. (1995, May). *Direct and indirect effects of response cost on topographically dissimilar responses.* In C. Hughes, (Chair), *Ubiquity of aversive control.* Symposium conducted at the 21st annual meeting of the Association for Behavior Analysis, Washington, DC.
- Odum, A. L., & Schaal, D. W. (1995, May). *Interactions of deprivation levels and morphine: Effects on key-pecking of pigeons under a multiple fixed-ratio fixed-interval schedule of food reinforcement.* Poster presented at the 21st annual meeting of the Association for Behavior Analysis, Washington, DC.
- Schaal, D. W., Miller, M. A., Odum, A. L., & Berberich, L. (1994, May). *Effects of interactions of deprivation levels with cocaine on key pecking of pigeons under multiple fixed-ratio fixed-interval schedules of food reinforcement.* Poster presented at the 20th annual meeting of the Association for Behavior Analysis, Atlanta, GA.