

CURRICULUM VITAE
M. Christopher Newland
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Faculty Appointments

2001	Alumni Professor	
1998-Present	Professor	
1991-1998	Associate Professor with tenure	Auburn University
1998-1991	Assistant Professor	
1987-1988	Research Associate	Environmental Health Sciences, University of Rochester School of Medicine

Postdoctoral Fellowships

1984 - 1987	National Research Service Award (National Institute of Alcohol Abuse and Alcoholism)	Environmental Health Sciences, University of Rochester School of Medicine, Bernard Weiss, Mentor.
1982 - 1984	Training Fellowship (National Institute of Environmental Health Sciences)	Environmental Health Sciences, University of Rochester School of Medicine, Bernard Weiss, Mentor.

Graduate and Undergraduate Education

1982	Ph.D.	Georgia Institute of Technology. Emphasis: Experimental Psychology Double Minor: Mathematics, Neurobiology Advisor: M. Jackson Marr, Ph.D.
1979	M.S.	Georgia Institute of Technology. Emphasis: Experimental Psychology Advisor: M. Jackson Marr, Ph.D.
1972	B.E.E.	Auburn University, Electrical Engineering.

Grants and Awards

Impact of Rest and Aging on Tissue Micro-trauma and Systemic Inflammation in A Rat Model. Under Review, Auburn University Intramural Grants Program. \$32,000 total costs. Role: Co-PI. PI is Dr. Sean Gallagher, Industrial Engineering, Auburn University.

Collaborative research: Coupled natural-human dynamics in coastal Bangladesh: Impacts on water resources and socio-economic systems. \$447,419 total costs. Under review, NSF. 1716582. Total costs: Role: Co-PI. PI is Dr. Ashraf Uddin, Department of Geosciences, Auburn University.

Behavioral epigenetics of developmental methylmercury exposure. National Institute of Environmental Health Sciences/National Institutes of Health. R21 ES024850. 2015-2017, \$275,000 direct costs, \$407,000 total costs. Role: PI.

Adolescent exposure to methylmercury. 2013-2015 Auburn University Intramural Grant Program. Role: PI. Total costs: \$10,000. Role: PI.

Elucidation of molecular mechanisms of chemobain: Identification of targets and therapies. Auburn University Research Initiative in Cancer. 2015-2017. \$100,000 direct costs. Vishnu Suppiramaniam, PI. My role: Co-I.

A polymer-halloysite formulation for postnatal methylmercury delivery. National Institute of Environmental Health Sciences/National Institutes of Health. RO3 ES 024564. 2014-2016. Total cost: \$146,000. Role:PI.

Methylmercury and calcium homeostasis: behavioral effects. Subcontract (\$1,529,995 total costs. 2008-2013) on grant entitled *Neurotoxicity of Mercury* (RO1 ES003299 PI is Dr. William Atchison, Michigan State University).

Neurotoxic mechanisms of methylmercury poisoning in a behavioral model. Subcontract (\$98,552 total costs, 2010-2012) on grant entitled *Neurotoxic mechanisms of methylmercury poisoning*. (RO1 ES003299 PI is Dr. William Atchison, Michigan State University).

Mechanisms of inhaled B(a)P-induced neurotoxicity. Subcontract for \$72,956/\$107,206 in direct/total costs, 2010-2011. NIH R56 ES017448-01A1 PI is Dr. Darryl Hood of Meharry Medical College.

Neuroprotective effect of a ketogenic diet in Alzheimer's: Role of adiponectin. A.U. Intramural Grant. Collaboration with Drs. Robert Judd (Anatomy, Physiology and Pharmacology) and Douglas White (Nutrition and Food Sciences). \$6,000, 2011-2012.

Neurotoxic Mechanisms of Methylmercury Poisoning. \$120,496,17/\$175,924 in direct costs/total costs. 2010-2012. ViCTER limited competition consortium, PI Dr. William Atchison, Michigan State University.

Translational studies of neurobehavioral effects of methylmercury exposure. R21 ES 015464 (W. J. McIlvane, PI). \$32,446 subcontract 2010-2012.

Interaction of dietary omega-3 fatty acids and methylmercury on sensorimotor function, astrocytic activity, and glutamate transporters. Elaine Coleman, Anatomy, Physiology, Pharmacology, A. U. College of Veterinary Medicine, Co-Investigator. Auburn University Environmental Institute. \$80,000, 2002-2004.

Symposium on "*Perspectives in Behavioral Ecotoxicology*" at the Behavioral Toxicology Society Annual Meeting, Research Triangle Park, NC. Funded by U.S. EPA April, 2002.

Symposium on "*Transferring Technology Across Applications*" at the Behavioral Toxicology Society Annual Meeting, Research Triangle Park, NC, May 2001. Funded by Pfizer Pharmaceuticals and Rohm and Haas Corporation (\$3000).

Neurotoxicity of methylmercury across the lifespan. National Institute of Environmental Health Sciences/National Institutes of Health. R01 ES10865 2001-2006 No-cost extension to 2007. Total costs: \$1,753,100.

Assessing sublethal effects of neurotoxic substances in fish: Development of a model system for laboratory assessment. U.S. EPA. 2001-2003 Total Costs: \$67,000. Dennis Devries, co-investigator.

Behavioral teratology of methylmercury. National Institute of Environmental Health Sciences/National Institutes of Health. RO1-ES06466 \$316,993 total costs. 1995-1998.

Behavioral teratology of lead and methylmercury in squirrel Monkeys. Collaboration with Department of Environmental Hygiene, University of Lund, Sweden (Dr. Maths Berlin, Principal Investigator).

Caffeine-Induced supersensitivity to adenosine Agonists. R03 DA 006499 National Institute of Drug Abuse. \$85,160 direct costs; \$117,104 total costs. 1990-1992.

Literature Review of Manganese Neurotoxicity. Auburn University Grant-in-Aid.

An experimental apparatus for taking analog measures of motor function in rodents. Auburn University Grant in Aid, 1989, \$2,845

Caffeine and adenosine interactions. Auburn University Grant in Aid, 1989.

Behavioral toxicology of methanol and ethanol in primates. National Institute of Alcoholism and Alcohol Abuse. National Research Service Award 1984-1987. \$68,736

Training grant from National Institute on Environmental Health Sciences. 1982-1984.

Research Assistantship, Behavioral Biology Laboratory, Yerkes Regional Primate Center, 1979. Larry D. Byrd, Ph.D., Director

Summer Research Fellowship, Neurophysiology Laboratory Yerkes Regional Primate Center, 1979. Adrian A. Perachio, Ph.D. Director

Consultation/collaborations

Nerve Growth Factor Signaling. Principal Investigator: Marie Wooten, Biological Sciences, Auburn University. Funded by National Institute of Neurological Disorders and Stroke. My role is the oversight of cognitive testing in knockout and wild-type mice.

Interactive Effects of Perinatal Exposure to Methylmercury and Dietary Omega-3 Fatty Acids on the Development of Cardiovascular Disease. Funded by A.U. Experiment Station. Margaret Craig-Schmidt, PI. 2003-2005. 2003-2006 (\$120,000)

Developmental Effects of fish-borne toxicants in the rat. (5R01ES07921) Principal Investigator: Richard Seegal, Ph.D., Laboratory of Human Toxicology, New York State Dept. of Health. My role is the oversight of behavioral testing of adult rats exposed during gestation to combinations of PCB's and methylmercury.

Recovery and Help-Seeking Processes in Problem Drinkers. (5R01AA08972). Principal Investigator: Jalie A. Tucker, Ph.D. Department of Psychology, Auburn University, Auburn, AL. My role is the development of a quantitative description of the temporal patterns of drinking in adult alcoholics.

Scientific Review Panels

Technical Review: Standard Evaluation Procedures for Submitted Developmental Neurotoxicity Data. U. S. Environmental Protection Agency, July, 2016.

Academic Program Review, Department of Kinesiology, Auburn University, 2016

Academic Program Review, Department of Psychology, University of North Carolina Wilmington, 2015.

Technical Review Panel for the Environmental Protection Agency's Science Advisory Board. Reviewed "*Technical Support Document: National-Scale Mercury Risk Assessment Supporting the Appropriate and Necessary Finding for Coal- and Oil-Fired Electric Generating Units,*" June, 2011.

Academic Program Review. Department of Psychology, James Madison University. April, 2010.

Committee on Tetrachloroethylene. Advisory panel to National Research Council to conduct peer review of EPA's policy document on perchlorethylene (tetrachloroethylene). 2008-2009.

Association for Behavior Analysis Task Force to Review the New *NRC Guide for Guide for the Care and Use of Laboratory Animals* 2008

Advisory Panel to review scientific program of Neurotoxicology Division, Health and Environmental Effects Laboratory, U. S. Environmental Protection Agency, Research Triangle Park, NC. 27-29 March 2006.

Regular member of NAL (Neurotoxicology and Alcohol, formerly ALTOX3) Scientific Review Group ("Study Section") NIH 2003-2007.

Peer review of *Lead renovation, repair, and painting program rule-benefits* document for U.S. EPA. 2005

Peer Reviewer (*ad hoc*) U.S. EPA./National Institute of Environmental Health Sciences Superfund Program. (Summer, 2005).

Special Emphasis Panel (study section). NIH. Summer, Fall 2003 (NAL); Summer, 2008 (NAL); Winter, 2009 (NAL); Fall, 2009 (NAL). Spring 2010 (Developmental Pharmacology), Fall, 2010 (Conferences and Scientific Meetings Support)

Ad hoc member for ALTOX 3 Scientific Review Group (study section). NIH/NIEHS February, June 2003.

NIH-NIEHS Scientific Review Group. Ad Hoc Panel to review R13 grant applications. (Fall, 2002).

NIH-NCRR Scientific Review Group conducting site visit of Resource Facility for Population Kinetics, U. of Washington. March, 2002.

Scientific reviewer: Internal competition for postdoctoral positions, Neurotoxicology Division, National Health and Environmental Effects Laboratory, U.S. EPA, Research Triangle Park, N.C. June, 2001.

Expert Panel on Reference Dose (RfD) Derivation for Methylmercury, U.S. Environmental Protection Agency. Washington, DC. November, 2000.

Scientific review of *Toxicological Profile for Manganese* prepared for the Agency for Toxic Substances and Disease Registry (ATSDR) of the Centers for Disease Control. November, 1998, revised and re-reviewed, 1999.

Mercury Subcommittee/Environmental Health Committee for the Science Advisory Board of the U.S. Environmental Protection Agency. Called to review the *Mercury Study Report to Congress*, a comprehensive, 1700 page review of mercury in the environment, and its health effects. 1997

Federal Advisory Panel to review scientific program of Neurotoxicology Division, Health and Environmental Effects Laboratory, U. S. Environmental Protection Agency, Research Triangle Park, NC. October 9-11, 1996.

Expert review of *Mercury Vapor Toxicology Update*. Sponsored by the Subcommittee on Dental Amalgam of the Public Health Services Environmental Health Policy Committee. Bethesda, Md., June 24, 1996,

"Workshop on Risk Assessment of Neurobehavioral Toxicity" held by the Committee on Toxicology of the National Research Council. Beckman Center, Irvine, California. Jan 18-19, 1995 (See "Invited Presentations" below)

Scientific review of *Toxicological Profile for Manganese*, prepared for the Agency for Toxic Substances and Disease Registry of the U. S. Public Health Service. 1994.

Scientific review of a comment submitted by the Environmental Defense Fund to the Environmental Protection Agency on a proposal to add manganese to gasoline. 1994

The health implications of adding manganese to gasoline. International workshop sponsored by U.S. Environmental Protection Agency and National Institute on Environmental Health Sciences. Chapel Hill, N.C. 1991

Awards

Fellow, Association for Behavior Analysis International, 2016

American Psychological Association Division 25 (Behavior Analysis)/Med Associates Award for Distinguished Contributions to Behavior Analysis. 2013.

Graduate Faculty Lecturer Award, Auburn University, 2011.

Distinguished Alumnus Lectureship, Georgia Institute of Technology, 2004.

Alumni Professor, Auburn University. 2001-2006

Professional Service

ABAI Council. Elected as *Experimental Representative* to the Council of the Association for Behavior Analysis. 2017-2020.

Co-Editor, Special Issue on Policy Insights from Behavior Analysis. *Policy Insights from the Behavioral and Brain Sciences*. Sage Publications. 2016.

Candidate for At Large Representative to ABAI Council, 2016

External Mentor: Mindy Scheithauer. Postdoctoral Fellow at Marcus Institute/Emory University. I serve as an external subject-matter expert.

Association for Behavior Analysis International, Science Board (2010-present), Chair, 2011-present.

Association for Behavior Analysis International, Annual Convention Program Review Task Force (2010-2011, 2013, 2014).

Association for Behavior Analysis International, Task Force to Review the New *NRC Guide for Guide for the Care and Use of Laboratory Animals* 2008

President, Neurotoxicology Specialty Section of the Society of Toxicology, 2007-2008.

Behavioral Toxicology Society/Neurobehavioral Teratology Society. Invited participant and Breakout Group Leader (Data Analysis and Interpretation) in the two-day workshop on Behavioral Test Methods. (June, 2003)

Moderator: Open Forum on New Animal Use Policy Manual. Auburn University Animal Care and Use Committee. 31 July 2001.

President: Southeastern Association for Behavior Analysis (SEABA). 2001-2002

President: Behavioral Toxicology Society (2000-2001)

Program Chair: Southeastern Association for Behavior Analysis (SEABA), 1998-1999.

Councilor: Neurotoxicology Specialty Section, Society of Toxicology.

"Workshop on Risk Assessment of Neurobehavioral Toxicity" held by the Committee on Toxicology of the National Research Council. Beckman Center, Irvine, California. Jan 18-19, 1995 (See "Invited Presentations" below)

Participation in U.S. Environmental Protection Agency Workshop on the Bioavailability and Oral Toxicity of Manganese. Cincinnati, OH, August 30-31, 1994. (See "Invited Presentations", below.)

Comment submitted to Environmental Protection Agency on health consequences of adding manganese to gasoline (in response to application by Ethyl Corporation to do so), 1994.

Chair, Behavioral Toxicology Poster Session. Annual Meeting of the Society of Toxicology. New Orleans, March, 1993.

Workshop on the Toxicological Interpretation of Neurobehavioral Data. 18th Rochester Conference, Rochester, NY. June, 1992. B. Weiss, and J. O'Donoghue (organizers).

The health implications of adding manganese to gasoline. International workshop sponsored by U.S. Environmental Protection Agency and National Institute on Environmental Health Sciences. Chapel Hill, N.C. 1991

Current Research Activity

Behavioral epigenetics of developmental methylmercury exposure.
Sensitivity of the adolescent period to drug and contaminant exposure.
Lifespan neurobehavioral toxicity of developmental methylmercury exposure.
Analysis of behavior during transitions and in steady state.
Motor and cognitive function of two mouse strains.
Neurotoxicology and psychopharmacology of aging.

Research Interests

Behavioral pharmacology and toxicology.	Drug and toxicant effects on learning.
Neuromotor effects of drugs and toxicants.	Quantification in behavior analysis
Experimental analysis of behavior.	

Board of Editors

Associate Editor, Neurotoxicology, 2007 - present
NeuroToxicology (1995 - present)
Neurotoxicology and Teratology (1996 - present)
Journal of the Experimental Analysis of Behavior 1999-2002, 2004-2007
The Behavior Analyst. (1996-1998, 2012-present)

University Service

Chair	Psychology Health Disparities Search Committee (2015-2017)
Member	Health Disparities Cluster Hire Initiative (2014-present)
Member	Auburn University COACHE (Collaborative on Academic Careers in Higher Education)
Member	College of Liberal Arts Research Awards Committee (2014-2017)
Interim Director	Auburn University Professional Master's Program in Applied Behavior Analysis (Dec, 2012 to August, 2013).
Chair	Auburn University Faculty Research Committee (2012- 2014)
Member	Auburn University Health Sciences Initiative (2009)
Member	Auburn University <i>Provost</i> Search Committee (2008)
Member	Auburn University <i>Veterinarian</i> Search Committee (2008)
Member	Alumni Professor Selection Committee (2006-2008)
Director	Graduate Program in Experimental Psychology, 1993 – 1997, 2005-2008
Member	Outside committee member of Nutrition and Food Science Faculty Search Committee. 2004
Member	<i>Ad Hoc</i> subcommittee of IACUC to review health status of a dog with a rare muscular dystrophy gene.
Member	Auburn Chamber Music Society Board (2003-present)
Member	Auburn University Environmental Institute Executive Board (2002-2005)
Member	Sigma Xi Executive Board (2001-2002)
Member	Institutional Animal Care and Use Committee. 1992-1995, 1999- 2006
Moderator	Auburn Institutional Animal Care and Use Committee Policy Forum. July, 2001.
Member	Graduate Curriculum Committee (1989-1990, 1998-2000)
Chair	Graduate Curriculum committee (1996-1998)
Member	Auburn University Environmental Institute Speakers Committee (1997-1999)
Member	College of Liberal Arts Technology Committee, 1993 - 1996
Member	Graduate Core Curriculum Oversight Committee. 1993 - 1995
Member	Department of Psychology Executive Committee, 1993 - 1997
Member	Faculty Merit Evaluation Committee. 1993, 1996
At large Rep	Auburn University Sigma Xi 1997-1998.
Member	<i>Ad hoc</i> committee to recruit a department chair 1992-1993.

Chair	Space Committee, 1991-1993.
Member	Biomedical Research Support Grant review committee, Auburn University, 1991-1994
Member	College of Liberal Arts Self-Study Steering Committee and Chair of Research and Facilities Subcommittee of a Ad Hoc Committee to prepare for the Southeastern Association of Colleges and Schools (SACS) accreditation visit in 1992.
Member	Undergraduate Curriculum Committee
Member	Interdepartmental committee for Toxicology Training at Auburn University. 1988-1990
Member	Interdepartmental committee to develop a Neuroscience Program at Auburn University. 1988-1990
Chair	Biopsychology Search Committee, 1989, 1997-1998, 2006
Chair	Colloquium Committee (1988-1990)

Teaching

Auburn University–Undergraduate

Learning
Behavioral Neuroscience
Drugs and Behavior
Quantitative Methods
Sensation and Perception

Auburn University–Graduate

Behavior Principles
Context and Consequences of Behavior
Biological Bases of Behavior
Behavioral Pharmacology
Clinical Psychopharmacology
Ethics and Problems of Professional and Scientific Psychology
Behavioral Effects of Environmental Contaminants
Behavioral Effects of Chemical Exposure During Development
Seminar: Neurobehavioral Toxicity of Methylmercury
Sensation and Perception (1/2 qtr of a graduate core course)
Advanced Experimental Methods
Seminar: Quantitative Models of Behavior Change
Seminar: Grant Writing
Current Theories in the Experimental Analysis of Behavior.

University of Rochester (all graduate courses):

Toxicology Core Course, Lectures on Manganese Toxicity.
Neurotoxicology Laboratory: Human Assessment
Behavioral Toxicology Laboratory: Animal Models
Behavioral Effects of Environmental Contaminants.
Introduction to Behavioral Pharmacology
Basic Toxicology, Lectures on Behavioral Toxicology

Georgia Institute of Technology (undergraduate courses):

General Psychology
Experimental Psychology Lab
Proseminar in Psychology, Graduate Lab

Spelman/Morehouse College

Laboratory in Experimental Psychology: Conditioning and Learning
Laboratory in Experimental Psychology: Sensation and Perception

Doctoral Students Graduated

- Rebecca Adcock.
(1995)
- Caffeine consumption in young adults: measurement and determinants of self-administration.
 - Last position: Rehabilitation Psychologist, Jim Thorpe Rehabilitation Hospital.
- Scott Kollins
(1997)
- Stimulus properties of methylphenidate in children diagnosed with attention deficit hyperactivity disorder (ADHD): Discriminable and behavioral correlates. (Co-directed with Steve Shapiro of the Child Clinical Psychology program)
 - APA Dissertation Award, 1997
 - Graduate Dean's Award for Excellence, 1997
- Current position: Professor, Psychiatry, Duke University School of Medicine
- Erin Rasmussen
(2001)
- Effects of acute alcohol exposure on behavior suppressed by point-loss in humans.
 - Elected one of the top 10 graduate students at Auburn University Feb, 2000.
 - Current Position: Professor, Idaho State University
- Tracy Zinn
(2002)
- Development of a hierarchy of drug classes through a stimulus equivalence procedure.
 - Presidential scholar.
 - Speciality in I/O Psychology
 - Current position: Professor, James Madison University.
- Jeffrey Langston
(2002)
- The assessment of preference for qualitatively different reinforcers in canines: A comparison of reinforcer efficacy using behavioral economic procedures and progressive ratio schedules.
 - Current position: Scientist, U.S. Army Research Institute of Chemical Defense.

- Elliott Paletz (2004)
- Behavioral effects of combined exposure to methylmercury and fish oil containing essential fatty acids.
 - Graduated Winter, 2004
 - Current position: Professor, University of Wisconsin, Whitewater.
- Wendy Donlin (2005)
- The percentile IRT schedule: High rate behavior as a tool for examining the toxic motor effects of methylmercury exposure.
 - Current position: Associate Professor. Department of Psychology. University of North Carolina at Wilmington
- Michael Magoon (2005)
- Response-consequence contingency discriminability when positive and negative reinforcement compete in concurrent schedules. (Co-directed with Dr. Thomas Critchfield, Illinois State University).
 - APA Dissertation Award 2006.
 - Currently employed at Booz Allen Hamilton in Atlanta.
- Miranda Reed (2007)
- Effects of Dopamine Challenges on Clocked Fixed-Interval Schedule Performance for Rats Prenatally Exposed to Methylmercury and Selenium
 - Current position: Associate Professor, Drug Discovery and Development, Auburn University.
- Kelly Banna (2007)
- Drug Effects on Behavior in Transition: Does Context Matter?
 - Graduated Summer, 2007
 - Current position: Assistant Professor, Millersville College, PA.
- John Heath (2008)
- Neurological consequences of methylmercury and selenium.
 - Current position. Associate Professor, Biomedical Sciences, Tuskegee University.
- Josh Johnson (2011)
- Influences of drug and toxicant exposure on the microstructure of responding.
 - Camargo Pharmaceutical Services.
- Erin Pesek Cotton (2011)
- Operant variability: A behavioral and pharmacological analysis.
 - Current position: Engineering Psychologist, ARINC Engineering Services, Panama City, Fl. Conducting research in Human Factors and Human Psychopharmacology
- Jordan M. Bailey (2012)
- Behavioral effects of calcium channel blockers: Acute exposures and neuroprotection against methylmercury neurotoxicity.
 - Current position: Postdoctoral Fellow, Pharmacology and Toxicology, Michigan State University

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| Daniel Hoffman
(2014) | <ul style="list-style-type: none"> ○ Temporal patterning of high-rate behavior: An analysis of bout partitioning methods for behavior under neurotoxicant challenge. Completed 2014 ○ Current position: Assistant Professor: Indiana University Southeast |
| Kristen Spencer
(2015) | <ul style="list-style-type: none"> ○ Incremental Repeated Acquisition in Children. Completed 2015 ○ Current position: Private practice, Applied Behavior Analysis. |
| Craig Cummings
(2016) | <ul style="list-style-type: none"> ○ Choice in C57BL/6n Mice: Behavioral and Pharmacological Mechanisms of Concurrent Schedule Performance ○ Current position: Clinical Assistant Professor, University of Alabama |
| Andrew W. Shen
(2016) | <ul style="list-style-type: none"> ○ A bout analysis reveals age-dependent methylmercury neurotoxicity and nimodipine neuroprotection: Implications for the role of calcium homeostasis in aging. ○ Current position: Postdoctoral Fellow, Sanders-Brown Center on Aging, University of Kentucky. |
| Derek A. Pope
(2016) | <ul style="list-style-type: none"> ○ Distortions in bipeak interval timing by chronic methylmercury exposure are attenuated by the L-type Ca⁺⁺ channel blocker isradipine: Effects of relative and absolute target duration and duration of exposure. ○ Current Position: Postdoctoral Fellow, Virginia Tech Carilion Research Institute. |

Major Area Papers Directed

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| Scott Kollins | Conceptual Issues Surrounding the Diagnoses of Behavioral Disorders: Lessons from ADHD. (1996) |
| Phyllis A. Reile. | Behavior in Transition: Requirements, Determinants, and Quantification. (1999) |
| Erin B. Rasmussen. | Issues in Conceptualizing Animal Welfare and Psychological Well Being of Animals in Captivity: The Relevance of Experimental Psychology (2000) |
| Elliott Paletz | Quantification of Concurrent Schedule Responding: Mechanics and Dynamics (2000). |
| Jordan Bailey | Neurobiological and behavioral effects of aging: Parallels to toxicant exposure. (2011) |
| Derek Pope | Behavioral and Neurobiological Differences Between BALB/c and C57Bl/6 Mouse Strains: Reinforcement Eligibility Gradients and Dopamine as Underlying Mechanisms of Action (2015) |

Undergraduate Research Fellows

- 2016-2017** Kate Johnson.
- 2013-2014** Katie Teixeira (Currently Rocky Vista Osteopathic Medical School, CO.)
- 2011-2012.** Ben Campbell. (Currently, manager at Home Depot.
- 2009-2010.** Jennifer Johnson. (Entered doctoral program in Psychology at N.C. State

- 2008-2009** Joshlyn Bush.
2001-2002. Lauren Duffy (Entered doctoral program at TCU).
2002-2003. Amber Paulk. (Entered doctoral program in HDFFS, Auburn University. Currently Associate Professor at University of Northern Alabama.
2002-2003. Jeremy Day. (Entered doctoral program in Neuroscience, UNC Chapel Hill. Currently Assistant Professor of Neurobiology and Neuroscience, UAB).

Masters Theses Directed

Leida Barrios	Discriminative stimulus properties of MDMA and structurally related compounds (1992: co-director with Randall Clark, Pharmacal Sciences, Auburn University.)
Rebecca Adcock.	Normative Caffeine use in adults: Self-report of consumption and related events. 1992.
Ken Brown	Adjunctive consumption of caffeine in rodents. 1993.
Jeffrey Langston	Effects of prenatal methylmercury exposure on the acquisition and maintenance of a glutamate-based drug discrimination Sigma Xi Outstanding Thesis Award, 1998
Erin (Miller) Rasmussen	Effects of prenatal methylmercury exposure on DRH performance: A systematic replication. (1999)
Tracy Zinn	Stimulus equivalence in the teaching of drug terminology (2000).
Wendy Donlin	Operant licking as a behavioral baseline for neurotoxicity (2002)
Kelly Banna	A laboratory model of aquatic toxicology: foraging by bluegill (2005)
John Heath	Development of flicker fusion to evaluate effects of chronic exposure of methylmercury. (2004)
Miranda Reed	Effects of drug challenges on lever-pressing under a fixed interval schedule in rats prenatally exposed to methylmercury. (2004)
Josh Johnson	The opportunity for alternate reinforcement shortens bout length in BALB/c, C57Bl/6 mice. (2008)
Erin Pesek	The role of dopamine receptor subtypes in reinforced variability (2008)
Jordan Bailey	Mechanisms and performance measures in mastery-based incremental repeated acquisition: A behavioral and pharmacological analysis.

Outside Reader for Doctoral Dissertations

- David Schreibman. Automatic parallel code generation for neural network simulation. Department of Computer Science. Auburn University.
- Eleanor Josephson. Anatomic pathways between limbic and olfactory systems. Department of Anatomy. College of Veterinary Medicine. Auburn University. Directed by Donald Buxton, Ph.D.
- Jared Lisonbee. Teacher-child relationships and preschool children's cortisol fluctuations. Human Development and Family Services. Directed by Jacquelyn Mize, Ph.D.

Peer-Reviewed Papers

1. Newland, M.C., & Bailey, J.M. (2017). Behavior Science and Environmental Health Policy: Methylmercury as an Exemplar. *Policy Insights from Behavioral and Brain Sciences (PIBBS)*. 4(1), 96-103
2. Boomhower, S.R., & Newland, M.C. (2017). Effects of adolescent exposure to methylmercury and d-amphetamine on reversal learning and an extradimensional shift in mice. *Experimental and Clinical Psychopharmacology*, 25, 64-73
3. Magoon, M.A., Critchfield, T.S., Merrill, D., Newland, M.C., Schneider, W.J. (2017) Are positive and negative reinforcement "different?" Insights from a free-operant differential outcomes effect. *Journal of the Experimental Analysis of Behavior*, 107, 39-64
4. Boomhower, S. R., & Newland, M. C. (2016) Adolescent Methylmercury Exposure Affects Choice and Delay Discounting in Mice. *Neurotoxicology*. 57, 236-144. doi:http://dx.doi.org/10.1016/j.neuro.2016.09.016
5. Shen, A. N., Cummings, C., Pope, D., Hoffman, D., & Newland, M. C. (2016). A bout analysis reveals age-related methylmercury neurotoxicity and nimodipine neuroprotection. *Behavioural Brain Research (Amsterdam)*, 311, 147-159. doi:10.1016/j.bbr.2016.05.032
6. Shen, A. N., Cummings, C., Hoffman, D., Pope, D., Arnold, M., & Newland, M. C. (2016). Aging, motor function, and sensitivity to calcium channel blockers: An investigation using chronic methylmercury exposure. *Behavioural Brain Research*, 315, 103-114.
7. Pope, D. A., Boomhower, S. R., Hutsell, B. A., Teixeira, K. M., & Newland, M. C. (2016). Chronic cocaine exposure in adolescence: Effects on spatial discrimination reversal, delay discounting, and performance on fixed-ratio schedules in mice. *Neurobiology of Learning and Memory*, 130, 93-104. doi:10.1016/j.nlm.2016.01.017
8. Pope, D.A., Boomhower, S.R., Hutsell, B.A., Teixeira, K, Newland, M.C. (2016) Adolescent cocaine exposure: Perseveration, delay discounting, and the temporal reach of reinforcers. *Neurobiology of Learning and Memory*. 130, 93-104
9. Hoffman, D. J., & Newland, M. C. (2016). A microstructural analysis distinguishes motor and motivational influences over voluntary running in animals chronically exposed to methylmercury and nimodipine. *Neurotoxicology*, 54, 127-139. doi:10.1016/j.neuro.2016.04.009
10. Shen, A.N., and Newland, M.C. (2016). Examination of clozapine and haloperidol in improving ketamine-induced deficits in an incremental repeated procedure in BALB/c mice. *Psychopharmacology*. 233 (3), 485-498
11. McCallister, M., Zhang, T, Ramesh, A, Clark, R.S., Jules., G.E., Maguire, M., Rhoades, R, Hutsell, B., Newland, M.C., Hood, D.B. (2016). Discrimination reversal deficits in adolescent rats exposed in utero to benzo(a)pyrene. *Toxicological Sciences*. 149(1), 42-54.

12. Zinn, T.E., Newland, M.C., Ritchie, K.E. (2015). The efficiency and efficacy of equivalence-based learning: A randomized control trial. *Journal of Applied Behavior Analysis*, 48 (4), 865-882.
13. Shen, A. N., Pope, D. A., Hutsell, B. A., & Newland, M. C. (2015). Spatial discrimination reversal and incremental repeated acquisition in adolescent and adult Balb/c mice. *Behavioural Processes*, 118, 59-70.
14. Pope, D. A., Newland, M. C., & Hutsell, B. A. (2015). Delay-specific stimuli and genotype interact to determine temporal discounting in a rapid-acquisition procedure. *Journal of the Experimental Analysis of Behavior* (Bloomington, IN), 103(3), 450-471.
15. Newland, M. C., Reed, M. N., & Rasmussen, E. (2015). A hypothesis about how early developmental methylmercury exposure disrupts behavior in adulthood. *Behavioural Processes*, 114(0), 41-51.
16. Bullard, A., Devries, D., Wilson, A., Kinnucan, H, Clement, P, Lockaby, G, Newland, M.C. (2015). Science or snake oil? Scholarship and peer review in the digital age. *Auburn Speaks*. 202-211.
17. Newland, M. C., Hoffman, D.J., Heath, J. C., & Donlin, W. D. (2013). Response inhibition is impaired by developmental methylmercury exposure: Acquisition of low-rate lever-pressing. *Behavioural Brain Research*. 253,196-205.
18. Bailey, J. M., Hutsell, B. A., & Newland, M. C. (2013). Dietary nimodipine delays the onset of methylmercury neurotoxicity in mice. *Neurotoxicology*, 37(0), 108-117.
19. Hutsell, B., Newland, M.C. (2013). A quantitative analysis of the effects of qualitatively different reinforcers on fixed ratio responding in inbred strains of mice. *Neurobiology of Learning and Memory*. 101, 85-93.
20. Johnson, J.E., Bailey, J.M., and Newland, M.C. (2011). Using pentobarbital to assess the sensitivity and independence of response-bout parameters in two mouse strains. *Pharmacology, Biochemistry, and Behavior*, 97, 470-478.
21. Pesek-Cotton, E.F., Johnson, J.E., Newland, M.C. (2011). Reinforcing behavioral variability: an analysis of dopamine-receptor subtypes and intermittent reinforcement. *Pharmacology, Biochemistry, and Behavior*.97, 551-559.
22. Banna, K.M., Devries, D., Newland, M.C. (2011). Choice in the bluegill (*Lepomis macrochirus*). *Behavioural Processes*. 88, 33-43.
23. Johnson, J.M., Bailey, J.M., Johnson, J.E., Newland, M.C. (2010) Performance of BALB/c and C57Bl/6 mice under an incremental repeated acquisition of behavioral chains procedure. *Behavioural Processes*. 84, 331-341.
24. Bailey, J.M., Johnson, J.E., Newland, M.C. (2010) Mechanisms and performance measures in mastery-based incremental repeated acquisition: Behavioral and pharmacological analysis. *Psychopharmacology*. 209, 331-341.

25. Heath, J.C., Banna, K.M., Reed, M.N., Pesek, E.F., Cole, N., Li, J., Newland, M.C. (2010) Dietary selenium protects against selected signs of aging and methylmercury exposure. *Neurotoxicology*. 31, 169-179
26. Rasmussen, E.B. and Newland, M.C. (2009). Quantification of ethanol's antipunishment effects in humans using the generalized matching equation. *Journal of the Experimental Analysis of Behavior*, 92, 161-179.
27. Banna, K.M. and Newland, M.C. (2009) Within-session transitions in choice: A structural and quantitative analysis. *Journal of the Experimental Analysis of Behavior*. 91, 319-335. Erratum in Volume 92 (2009), p 160.
28. Johnson, J.E., Pesek, E.F., Newland, M.C. (2009). High-rate operant behavior in two mouse strains: A response-bout analysis. *Behavioural Processes*, 81, 309-315.
29. Newland, M.C. (2009). Lactational exposure to mercury in experimental models. *Neurotoxicology*., 30, 161-163.
30. Reed, M.R. and Newland, M.C. (2009). Gestational methylmercury exposure selectively increases the sensitivity of operant behavior to cocaine. *Behavioral Neuroscience*.123, 408-413.
31. Newland, M. C., Paletz, E. M., and Reed, M. N. (2008). Methylmercury and nutrition: Adult effects of fetal exposure in experimental models. *NeuroToxicology* 29, 783-801.
32. Weiss, B., Cory-Slechta, D., Gilbert, S. G., Mergler, D., Miller, E., Miller, C., Newland, M. C., Rice, D., and Schettler, T. (2008). The new tapestry of risk assessment. *NeuroToxicology* 29, 883-890.
33. Rasmussen, E.B. and Newland, M.C. (2008) Asymmetry of reinforcement and punishment in human choice. *Journal of the Experimental Analysis of Behavior*. 89, 157-167.
34. Reed, M. N., Banna, K. M., Donlin, W. D., & Newland, M. C. (2008). Effects of gestational exposure to methylmercury and dietary selenium on reinforcement efficacy in adulthood. *Neurotoxicology and Teratology*, 30, 29-37.
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48. Newland, M.C., Pennypacker, H.S., Anger, K., Mele, P. (2003) Transferring behavioral technology across applications. *Neurotoxicology and Teratology*. 25, 529-542.
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53. Critchfield, T.S., Newland, M.C., Kollins, S.H. (2000) The good, the bad, and the aggregate. *The Behavior Analyst*, 23, 107-116.
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57. Nagilla, R, Newland, M.C., Snyder, J and Bronson, M.E., (1998). Effect of once weekly treatment with 3,4-methylenedioxymethamphetamine on schedule-controlled behavior in rats. *European Journal of Pharmacology*, 385, 1-8.
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60. Newland, M.C. (1997). Quantifying the molecular structure of behavior: Separate effects of caffeine, cocaine, and adenosine agonists on interresponse times and lever-press durations. *Behavioural Pharmacology*, 8, 1-6
61. Newland, M.C., Brown, K. (1997) Behavioral characterization of caffeine and adenosine agonists after chronic caffeine exposure. *Behavioural Pharmacology*. 8, 1-30.
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68. Newland, M.C., and Brown, K. (1992) Oral caffeine consumption by rats: The roles of flavor history, concentration, concurrent food, and an adenosine agonist. *Pharmacology, Biochemistry, and Behavior*. 42. 651-659.
69. Rosenfarb, I.S., Newland, M.C., Brannon, S.E., Howey, D.S. (1992) Effects of self-generated rules on the development of schedule-controlled behavior. *Journal of the Experimental Analysis of Behavior*. U58,U 107-121.
70. Newland, M.C. (1992) Goal-Directed Behaviorism? A review of *The Goal of B.F. Skinner and Behavior Analysis* by R.W.Proctor and D.J.Weeks. *The Behavior Analyst*, 15, 165-170.
71. Newland, M.C., Weiss, B. (1992) Persistent effects of manganese on effortful responding and their relationship to manganese accumulation in globus pallidus. *Toxicology and Applied Pharmacology*, 113, 87-97.
72. Buskist, W., Newland, M.C., Sherburne, T. (1991) Continuity and Context. *The Behavior Analyst*, 14, 111-117.
73. Newland, M.C. and Weiss, B. (1991) Ethanol's effects on tremor and positioning in squirrel monkeys. *Journal of Studies on Alcohol*, 52, 1-8.
74. Newland, M. C., Rivera-Calimlim, L., and Weiss, B. (1991) Pantothenic acid attenuates the motor effects of ethanol. *Journal of Studies on Alcohol*, 53, 1-6.
75. Newland, M. C., and Weiss, B. (1990) Drug effects on an effortful operant: pentobarbital and amphetamine. *Pharmacology, Biochemistry, and Behavior*, 36, 381-387.
76. Lefavi, R.G., Reeve, T.G., Newland, M.C. (1990) Relationships between anabolic steroid and selected psychological parameters in male bodybuilders. *Journal of Sports Behavior*, 13, 157-166.
77. Newland, M. C., Kordower, J. H., Ceckler, T., Weiss, B. (1989) Visualizing the primate basal ganglia with magnetic resonance imaging after manganese exposure. *Experimental Neurology*. U106U, 251-258.

78. Cory-Slechta, D. A., Widzowski, D. V., Newland, M. C. (1989) Behavioral differentiation of the stimulus properties of a dopaminergic D1 agonist from a D2 agonist. *Journal of Pharmacology and Experimental Therapeutics*, 250, 251-258.
79. Weiss, B., Ziriax, J., Newland, M. C. (1989) Serial properties of responding as a reflection of behavioral toxicity. *Animal Learning and Behavior*, 17, 83-93.
80. Newland, M. C. (1988). Quantification of motor function in toxicology. *Toxicology Letters*, 43, 295-319.
81. Newland, M. C., Cox, C., Oberdoerster, B., and Weiss, B. (1987). The clearance of manganese chloride in the primate. *Fundamental and Applied Toxicology*, 9, 314-328.
82. Newland, M. C., Ng, W. W., Baggs, R. B., Gentry, G. D., Weiss, B., Miller, R. K. (1986). Operant behavior in transition reflects neonatal exposure to cadmium. *Teratology*, 34, 231-242.
83. Newland, M. C., Marr, M. J. (1985). The effects of chlorpromazine and imipramine on the rate and stimulus control of matching-to-sample. *Journal of the Experimental Analysis of Behavior*, 44, 49-68.
84. Stine, W. W., Howell, L. L., Murdock, G. K., Newland, M. C., Conradson, L., and Maple, T. L. (1982). The control of progression order in a captive herd of Sable Antelope (*Hippotragus niger*). *Zoo Biology*, 1, 89-119.

Book Chapters

1. Newland, M.C. (2012) In G. J. Madden (Ed) Environmental Health and Behavior Analysis: Contributions and Interactions. In APA Handbook of Behavior Analysis. Vol 2. Translating Principles into Practice. Washington, DC: APA Press. Pp 225-253.
2. Newland, M.C. (2012) Methylmercury and fish nutrients in experimental models. In S. Ceccatelli and M. Aschner (Eds) Current Topics in Neurotoxicity. New York: Springer Science. Pp 55-90
3. Newland, M.C. (2011) Fish nutrients and methylmercury: A view from the laboratory. In Developmental Neurotoxicology Research: Principles, Models, Techniques, Strategies, and Mechanisms. Wang, C, and Slikker, W. (Eds) New York: John Wiley and Sons. Pp 279-318.
4. Newland, M. C. (2010). Neural, Behavioral, and Measurement Considerations in the Detection of Motor Impairment. Comprehensive Toxicology: Vol. 13. Nervous System and Behavioral Toxicology. M. Philbert. New York, Academic Press. 13: 289-315.
5. National Research Council (2010). Review of the Environmental Protection Agency's Draft IRIS Assessment of Tetrachloroethylene (Washington, DC, National Academies Press). As part of an expert panel, I contributed significantly to chapters on Neurotoxicology, Reproduction and Developmental Toxicity, Reference Values, and the Introduction.
6. Newland, M.C., Donlin, W.D., Paletz, E.M., Banna, K.M. (2006) Developmental Behavioral Toxicity of Methylmercury: Consequences, Conditioning, and Cortex. In E. D. Levin and J.J. Buccafusco (Eds). Animal Models of Cognitive Impairment. Pp 101-146, CRC Press.
7. Bailey, C. and Newland, M.C. (2002) Toxics, environmental justice, and Alabama's pulp and paper industry. In M. el-Halwagi, J. Hall, U. Hatch, D. Block, E. Geiger (Eds), Proceedings of the International Conference on the Fiber Industry and Environmental Biocomplexity. Auburn: Auburn University Environmental Institute.
8. Newland, M.C., Reile, P.A. (1999) Learning and behavior change as neurotoxic endpoints. In H. A. Tilson and J. Harry (Eds) Target Organ Series: Neurotoxicology. New York: Raven Press. Pp 311-338.
9. Newland, M.C. (1997) Neural, behavioral, and measurement considerations in the detection of motor impairment. In Reuhl, K.R., and Lowndes, H.E. (Eds). Comprehensive Toxicology: Vol 11: Nervous System and Behavioral Toxicology. Elsevier pp 247-269.
10. Newland, M.C. and Shapiro, S.K. (1996) Studying the neurotoxicity of indoor air with nonhuman species: issues in experimental design and interpretation. In B. A. Berven and R. B. Gammage (Eds) Indoor Air and Human Health Revisited. Chelsea, MI: J. Lewis Press. pp 225-248

11. Newland, M.C. (1995) Motor function and the physical properties of the operant: screening and advanced applications. In Chang, L.W., and Slikker, W. (Eds) *Neurotoxicology: Approaches and Methods*. San Diego, Academic Press. pp 265-300.
12. Newland, M.C. (1993) Operant behavior and the measurement of motor dysfunction. In B. Weiss and J O'Donoghue (Eds). *Toxicological Interpretation of Neurobehavioral Data*. New York: Raven Press, 273-297.

Invited Presentations

- Newland, M.C., Pope, D.A. (2017) What's the Best Model for These Data? Information Theoretical Approaches to Inference as an Alternative to Hypothesis Testing. Invited Tutorial for the Society for the Quantitative Analysis of Behavior.
- Newland, M.C. (2014). Modeling impairment: Quantitative analysis and environmental contaminants. Society for the Quantitative Analysis of Behavior. May, 2014.
- Newland, M.C. (2014) How Drugs Work: Behavioral and Pharmacological Mechanisms of Action. Maryland Association for Behavior Analysis, November, 2014.
- Newland, M.C. (2014) Environment and Brain Combine to Influence Drug Effects. Tennessee Association for Behavior Analysis. October, 2014
- Newland, M.C. (2014) How drugs work: Behavioral and Pharmacological Mechanisms of Action. California Association for Behavior Analysis, February, 2014.
- Newland, M.C. (2013) Behavioral deficits caused by methylmercury exposure: Implications for public health and for an appreciation of behavioral mechanisms of action. American Psychological Association Annual Meeting, Honolulu, HI. Talk given in receipt of the Division 25/ Med Associates Award for Distinguished Contributions to Basic Behavior Analysis.
- Newland, M.C. (2013) Methylmercury Exposure and Aging. Invited address to Neurobehavioral Teratology Society, Tuscon, AZ.
- Newland M.C. (2011) Fishing for Answers: Methylmercury, Nutrition, and Abnormal Development. Colloquium at Department of Physiology and Pharmacology. University of Georgia, Athens, GA. Oct 2011.
- Newland, M.C. (2011) Selenium Protects Against Adult-Onset, But Not Developmental Methylmercury Exposure. International Conference on Mercury as a Global Pollutant. Halifax, Nova Scotia, July, 2011.
- Newland, M.C. (2011) An ounce of prevention can test a hypothesis: Dietary nutrients, calcium channels, and protection against methylmercury's neurotoxicity. Seminar for the Integrated Toxicology and Environmental Health Program, Duke University, 2 September 2011.
- Bailey, J.M., and Newland, M.C. (2011) Differential effects on learning by four calcium channel antagonists. Session titled "Can Drugs Help Us Understand Cognitive and Executive Function?" Annual Meeting of the Association for Behavior Analysis International, Denver CO, May, 2011.
- Newland, M.C., Johnson, J.E. (2011) Influences of drug and toxicant exposure on the microstructure of responding. Session titled "All About Bouts: Generality and Application of Log-Survivor Analyses of Operant Behavior." Annual Meeting of the Association for Behavior Analysis International, May, 2011, Denver CO.

- Newland, M.C. (2011) Research is a Straight and Narrow Path? Not Likely! Keynote Speaker at the 7th Annual Auburn University Undergraduate Research and Creative Scholarship Forum. April, 2011.
- Newland, M.C. (2011) Neuroprotection and Methylmercury: Selenium, DHA, and Nimodipine. Invited presentation to National Institute on Minamata Disease Forum, Minamata, Japan. January, 2011.
- Newland, M.C. (2010) Fish Nutrients and Methylmercury in Experimental Models. Invited presentation: Hawaii Seafood Symposium: Making Sense of Seafood Health Benefits and Risk. October, 2010.
- Newland, M.C.. (2010) Fish, methylmercury, and nutrition: An experimental model of a public health dilemma. Auburn University Tuskegee University symposium series.
- Newland, M.C. (2010) Fish, methylmercury, and nutrition: An experimental model of a public health dilemma. Auburn University Pharmacal Sciences symposium series.
- Newland, M.C. (2009) Methylmercury, Nutrition, and Abnormal Development. Meharry Medical College symposium series.
- Newland, M.C. (2009) Fishing for answers: Methylmercury, nutrition, and abnormal development. Human Development and Family Services Brown Bag, October, 2009.
- Newland, M.C. (2009) How the Clean Air Act has made you smarter and less violent. Invited Address to the Auburn University Sustainability Group, September, 2009
- Newland, M.C. (2009) Behavioral Toxicology: How the Fixed Interval Schedule and the Matching Law Can Make You Smarter and Less Likely to Kill Somebody. *Virginia Association for Behavior Analysis*, Harrisonburg, VA. 28 March, 2009.
- Newland, M.C. (2008) Methylmercury and aging in animal models. *25th International Neurotoxicology Conference: Environmental Etiologies of Neurological Disorders*. Rochester, NY, October, 2008.
- Newland, M.C. (2008) Accelerated aging and early environmental exposures. Symposium organized at *25th International Neurotoxicology Conference: Environmental Etiologies of Neurological Disorders*. Rochester, NY, October, 2008.
- Newland, M.C. (2008) Methylmercury and response perseveration: Links and mechanisms. Invited Address to California Association for Behavior Analysis. Garden Grove, CA, Feb, 2008.
- Newland, M.C. (2008) Methylmercury and abnormal development: Models and Mechanisms. Neuroscience Colloquium. Idaho State University, Pocatello, ID.
- Newland, M.C. (2008) Methylmercury, fish nutrients, and behavioral perseveration: Actions and implications. University of Rochester, Department of Environmental Medicine, Environmental Health Sciences Center Seminar Series. April, 2008.
- Newland, M.C. (2007) Fish nutrients and methylmercury: A view from the lab. *Twenty Fourth International Neurotoxicology Conference: Environmental Etiologies of Neurological Disorders*. San Antonio, TX. Nov. 2007.
- Newland, M.C. (2007). Cognitive consequences of developmental methylmercury exposure: Does diet play a role. Integrated Toxicology and Environmental Health Program, Duke University, September, 2007.
- Newland, M. C. (2007) The behavioral toxicity of methylmercury. WATER Institute, University of Wisconsin at Milwaukee. April, 2007

- Newland, M.C. (2007) Behavior analysis and behavioral toxicology: Reciprocal Relationships. Department of Psychology, University of Wisconsin at Milwaukee. April 2007
- Newland, M.C., Heath, J., Reed, M.N., Donlin, W.D. (2006) Mercury and selenium interactions in an animal model. Mercury 2006: International Conference on Mercury as a Global Pollutant, Madison, WI, August, 2006. (Special session on mercury/selenium interactions).
- Newland, M.C. and Donlin, W.D. (2006) Applied modeling and the identification of behavioral mechanisms of action. Society for the Quantitative Analysis of Behavior invited tutorial. Association for Behavior Analysis, May, 2006.
- Newland, M.C. (2006). Methylmercury, Perseveration, and Behavioral Interventions: Applications of a Laboratory Model of Developmental Disabilities.. Invited Colloquium at the Shriver Center/University of Massachusetts. 7 April 2006.
- Newland, M.C. (2005). Experimental neurotoxicology of methylmercury: Roles of nutrition and dosing regimen in its behavioral effects. Invited seminar at Department of Nutrition Sciences, University of Alabama at Birmingham, Birmingham, AL.
- Newland, M.C. (2005). Methods for assessing neural damage: Lessons from behavioral toxicology. Presented at Animal Models and Human Effects Advisory Panel. Institute for Non-Lethal Weapon Technology/The Pennsylvania State University. Arlington, VA, Jan, 2005.
- Newland, M.C. (2005). Behavioral toxicology: Subtle effects, large consequences, and public health. Advancing Applied Behavioral Science in Psychology (conference). Sponsored by University of Kansas. Lawrence Kansas, April, 2005.
- Newland, M.C. and Babcock, R.A. (2004) A drug isn't just a drug: How environments matter in behavioral pharmacology. Invited workshop Alabama Association for Behavior Analysis. Birmingham, AL 16 November, 2004.
- Newland, M.C. (2004) The *low* end of the dose-effect curve. Where behavioral toxicology happily cohabitates with behavior analysis. Midwestern Association for Behavior Analysis. Indianapolis, IN, 2 October, 2004.
- Newland, M.C. (2004) Fish, mercury and nutrition. Workshop (3 hour) for the International Center for Aquaculture, American Soybean Training Program. Auburn University Department of Fisheries and Allied Aquacultures. 16 July 2004
- Newland, M.C. Methylmercury and nutrition. (2004) Invited address to the Office of Science Policy, U. S. Environmental Protection Agency, Reagan Office Building, Washington, DC. 16 June 2004.
- Newland, M.C. Aging begins in the womb. (2004) Distinguished Alumnus Lecture. Georgia Institute of Technology. April, 2004.
- Craig-Schmidt, M. and Newland, C. (2004) Omega-3 Fatty acids, mercury toxicity, and chronic disease states. 95th American Oil Chemists' Society Annual Meeting and Expo, May 9-12, 2004, Cincinnati, Ohio, Abstracts, p. X . (invited symposium talk)
- Newland, M.C. (2003) Data analysis and data interpretation. *Behavioral Test Methods Workshop*. Behavioral Toxicology Society/Neurobehavioral Teratology Society joint meeting. Philadelphia, June 2003.
- Newland, M.C. (2003) Newland and behavioral mechanisms of behavior change: Experimental models and species generality. Keynote Address. *Maternal and Infant Long-Chain Polyunsaturated Fatty Acid Workshop*. Kansas City, MO. May, 2003.

- Newland, M.C. (2003) Methylmercury: Just what is the problem and is there a solution? *Auburn University Environmental Institute Earth Day Symposium*. April, 2003.
- Newland, M.C. (2002) Silent damage: Behavioral challenges and aging unmask early toxicant exposure. Invited Address: *American Psychological Association*. Chicago, IL. August, 2002.
- Newland, M.C. (2001) Silent damage: Developmental neurotoxicity of methylmercury across the lifespan *Auburn University Environmental Institute*. Fall, 2001.
- Newland, M.C. (2001) Killing us softly: Development, aging, and behavioral toxicology. Invited address to the Association for Behavior Analysis, May, 2001.
- Newland, M.C. (2001) Careers in behavioral toxicology. Invited paper given to symposium on Careers in Behavior Analysis. *Association for Behavior Analysis*. May, 2001.
- Bailey, L.C., and Newland, M.C. (2001) Toxic substances, environmental justice, and Alabama's pulp-and-paper industry. *Center for Paper Business and Industry Studies/Georgia Institute of Technology*. Atlanta, GA. 27 March 2001.
- Newland, M. C. (2000) Environmental neurotoxicants and (lifespan) developmental disabilities. *Alabama Association for Behavior Analysis Annual Meeting*, Oct 2000.
- Newland, M.C. (2000) Neurobehavioral toxicity of Methylmercury and PCBs: Effects-profiles and sensitive populations. *International Association for Great Lakes Research (IAGLR) Annual Conference*. May, 2000.
- Newland, M.C., and Paletz, E.M. (2000) Animal studies of methylmercury and PCBs: What do they tell us about expected effects in humans? Presented at "*Children's Health and the Environment: Seventeenth Annual International Neurotoxicology Conference*. Little Rock, AK September, 1999.
- Newland, M.C. (2000) Neurotoxicity of Methylmercury Across the Lifespan. *Auburn University College of Veterinary Medicine*. November, 1999.
- Newland, M.C. (2000) Behavior Change as a Neurotoxic Endpoint. *National Health and Environmental Effects Laboratory, U. S. Environmental Protection Agency*, Research Triangle, N.C.. May, 1998.
- Newland, M.C. (2000) The roles of dose and route of exposure on the neurobehavioral effects of manganese. *Manganese: Are There Effects from Long-Term, Low-Level Exposure*. 15th International Neurotoxicology Conference. Little Rock, AK. October, 1997.
- Newland, M.C. and Reile, P.A. (2000) Quantitative descriptions of behavior during transitional states: contributions from behavioral toxicology. *Annual Meeting of the Society for the Quantitative Analysis of Behavior*. Chicago, May, 1997
- Newland, M.C. Behavioral Endpoints to Identify Neurotoxic Effects of Mercury Vapor in Animals. (1996) Invited address at the *Mercury Vapor Toxicology Update*. Subcommittee on Dental Amalgam of the Public Health Services Environmental Health Policy Committee. Bethesda, Md., June, 1996
- Newland, M.C. (1995) Can Environmental Neurotoxicants Cause Behavioral Disorders? What We Know and How We Know It. Invited Colloquium at *Auburn University at Montgomery Departments of Biology and Psychology*. May 5, 1995.
- Newland, M.C. (1995) Motor Function. Invited address at the *Workshop on Risk Assessment of Neurobehavioral Toxicity*. Sponsored by the Committee on Toxicology, National Research Council, Beckman Center, Irvine, CA Jan 18, 1995

- Newland, M.C. (1994) The Toxicity of Manganese in Nonhuman Primates. Invited address at the *Workshop on the Bioavailability and Oral Toxicity of Manganese*. Sponsored by the United States Environmental Protection Agency: Environmental Criteria and Assessment Office. Cincinnati, OH, August 30-31, 1994.
- Newland, M.C. (1994) The value of behavioral mechanisms in studies of developmental toxicology. Invited address at *Symposium on Persisting Effects of Developmental Exposure to Toxicants*. Neurobehavioral Toxicology Society. Puerto Rico. June, 1994.
- Newland, M.C. and Shapiro, S.K. (1994) Essential elements for an animal model of human vigilance and distractibility. Invited address at *Oak Ridge National Laboratories Life Sciences Symposium: Indoor Air and Human Health Revisited*. Knoxville, TN. March 30, 1994.
- Newland, M.C. (1993) Behavioral change and behavioral teratology: concurrent schedules, lead, and methylmercury. Invited presentation to *Southeastern Association for Behavior Analysis (SEABA)*, October 15, 1993, Chapel Hill, NC
- Newland, M.C. (1993) Behavioral teratogenicity of mercury and lead. *Behavioral Biology Group, Yerkes Regional Primate Center*. Atlanta, GA. March, 1993
- Newland, M.C. (1992) A profile of manganese's neurotoxicity: kinetics, behavior, and accumulation in the globus pallidus. Colloquium at the Department of Pharmacology and Toxicology, *College of Pharmacy, University of Georgia, Athens, Ga.*, 14 October 1992.
- Newland, M.C. (1990) Operant behavior and the measurement of motor dysfunction. Invited presentation to the *Eighteenth Rochester Conference on Environmental Toxicity: Workshop on the Toxicological Interpretation of Neurobehavioral Data*. (Schedule-controlled operant behavior II. Advanced Applications.) Rochester, NY. June, 1992.
- Newland, M.C. (1990) Manganese Neurotoxicity. *Southeastern Society of Toxicology*. Columbia, SC. September, 1990.
- Newland, M.C. (1990) Risk assessment: from the laboratory to the public. Symposium on the *Health Effects of Fungal Toxins in the Food and Feed Supply*, Auburn University. 1990. Also videotaped for use in continuing education for veterinarians.
- Newland, M.C. (1990) Assessing motor and behavioral effects of drugs and toxic substances. Colloquium at the *Department of Psychology, University of Mississippi*. April, 1990.
- Newland, M.C. (1990) Caffeine and behavior. *Liberal Arts Brown Bag Series*. Auburn University Jan. 1990.
- Newland, M.C. (1990) Ethanol and Tremor. *Motor behavior laboratory, Auburn University*, February, 1990.
- Newland, M.C. (1990) Uses of spectral analyses in the analysis of behavior. *Jacksonville State University*, October, 1989.
- Newland, M. C. (November, 1987). Behavioral assessment of neurotoxic substances: The role of experimental psychology. *Colloquium at the Department of Psychology, Tulane University*, New Orleans, LA.
- Newland, M. C. (November, 1987). Quantification of motor performance in behavioral toxicology. Presented at the *17th Conference on Toxicology, Session V. Quantitative methods for Behavioral Toxicology*. Wright-Patterson Air Force Base, OH.

Weiss, B., Zirix, J., and Newland, M. C. (June, 1984). Serial properties of responding as a reflection of behavioral toxicity. *Harvard symposium on Quantitative Analyses of Behavior: Biological determinants of reinforcement and memory*. Cambridge, Mass.

Newland, M. C. (April, 1984). The effects of toxic exposure on the nervous system. *New York Public Interest Group (NYPIRG) Occupational Health Day*, Syracuse, NY.

Newland, M. C. (March, 1984). The uses of behavior in toxicology. *New Investigators Colloquium, Society of Toxicology*, Atlanta, GA.