

- 26 students-Fall, 2006V
25 students-Fall, 2005V
32 students- Fall, 2004Q
30 students- Fall 2003
2. Research Methods, Psychology 2900
22 students- Fall, 2003
22 students- Spring, 2003
 3. Psychopharmacology Psychology 3310
Fall 2021, 25 students
Fall 2020, 27 students
Fall 2018 19 students
Fall 2019 19 students
 4. Introduction to Neuroscience Psychology 3300
Spring 2020 79 students
 5. Motivational Neuroscience and Laboratory, Psychology 3320
27 students, Fall, 2021
27 students, Fall, 2020
27 students, Fall, 2019
25 students Fall, 2018
25 students, Fall, 2016
28 students, Spring, 2014
25 students, Spring, 2013
18 students, Spring 2012
11 students, Spring, 2011
25 students-Spring, 2007
14 students- Spring 2005
23 students –Spring 2003
 6. Psychoneuroendocrinology/Hormones and Behavior, Psychology 3350
23 students Spring 2017
18 students Fall 2015
21 students- Spring 2014
12 students-Fall, 2012
16 students- Spring 2008
25 students- Spring 2006
 7. Emotions and Life/Affective Neuroscience, Psychology 4400/5810
11 students, Spring, 2013
12 students Fall, 2010
18 students, Fall, 2008
21 students, Fall, 2007
15 students-Fall, 2006
21 students- Fall, 2005
24 students- Fall, 2004

8. Forensic Neuroscience, Psychology 4400, 5810
 - 39 students, Spring 2022
 - 27 students, Spring 2021
 - 27 students Spring 2020
 - 10 students, Fall, 2016
 - 15 students Fall 2015
 - 13 students, Fall 2014

9. Clinical Neuroscience, Psychology 4400
 - 15 students, Spring 2016

B. Graduate Classes- *Bowling Green State University*

1. Psychobiology, Psychology 7140
 - 10 students, Spring 2022
 - 11 students- Spring 2019
 - 15 students – Spring, 2015
 - 22 students- Spring, 2011
 - 5 students-Spring, 2007
 - 8 students- Spring, 2005
 - 5 students- Spring, 2004
2. Clinical Psychopharmacology 7800
 - 10 students-Spring 2021
3. Current Topics in Affective Neuroscience, Psychology 780/781 (*Themes*)
 - 9 students- Fall, 2013 (ERPology: inhibitory gating)
 - 6 students- Fall, 2011 (*Panksepp Festschrift Issue*)
 - 6 Students- Spring, 2009 (*Pediatric Psychiatry*)
 - 23 students- Spring, 2006 (*Pediatric Psychiatry*)
 - 5 students- Spring, 2004 (*Affective Consciousness*)
 - 10 students- Fall, 2002 (*Basics of Brain and Emotion*)
4. Clinical Neuroscience, Psychology 4400/781/5810
 - 12 students Spring 2016
 - 8 students- Spring, 2012
 - 8 students- Spring, 2008

C. Undergraduate Classes- *Non-Bowling Green State University*

1. Introduction to Psychology- High Point University
 - 25 students -Spring Semester 2002

D. Graduate Classes- *Non-Bowling Green State University*

1. Human Neuroanatomy- California State University at Northridge
 - 30 students -Spring Semester 1996
2. Human Physiology Laboratory- University of Fribourg (Switzerland)
 - 17 students -Spring Quarter 1999
 - 15 students- Spring Quarter 1998

3. Motor Physiology – Wake Forest University Medical School
 6 students -Spring Semester 2002
 5 students – Spring Semester- 2001

E. Master's Thesis, Preliminary Exam and Doctoral Dissertation Students

1. Thesis (Chair)

<u>Name</u>	<u>Degree</u>	<u>Year</u>	<u>University/Institution</u>
Kristina Thompson	MA	Spring 2021	BGSU
<i>Sex differences and relative reward valuation in an animal model</i>			
Ken Myers	Master of Art	Aug, 2018	BGSU
<i>Gambling in a free choice task using the rodent model</i>			
Brittany Halverstadt	Master of Art	Spring, 2017	BGSU
<i>Effects of variety on operant behavior in rat</i>			
Josh Ricker	Master of Art	Nov 2014	BGSU
<i>Decision-making and nucleus accumbens in a novel choice task</i>			
Kimberley Binkley		Left program	BGSU
<i>Ultrasonic communication and the relative reward effect</i>			
Emily Webber	Master of Art	June, 2009	BGSU
<i>Genetics of natural and learned fear responses in the rat model</i>			
Ashley McFarland	Master of Art Psychology	6/11/2008	BGSU
<i>The influence of natural variations of maternal care on the emotional and behavioral reactivity of offspring in the Rodent Model</i>			
Kelley Harmon	Master of Art Psychology	7/13/2006	BGSU
<i>Behavioral Phenotyping of Rats Selectively Bred for Differential Levels of 50 kHz Ultrasonic Vocalizations</i>			

2. Preliminary Exam/Project (Chair)

Kristina Thompson	Preliminary Project	5/2022	BGSU
Brittany Halverstadt	Preliminary Exam	10/2017	BGSU
Sanna Yuan		2017	BGSU
<i>Theta/Beta Ratio and Anxiety</i>			
Justin McGraw		March 2016	BGSU
<i>Ethanol and Choice Behavior</i>			
Rachel Acthley	Preliminary Project	1/2013	BGSU

Buffering stress-induced gating impairment with preparatory information

Emily Webber Preliminary Exam 10/2009 BGSU

Kelly Harmon Preliminary Project 8/2007 BGSU
Effects of prenatal stress on social motivation in rat pups

Ryan Mears Oral Exam 8/2004 BGSU

3. Dissertation (Chair)

Brittany Halverstadt PhD June 27th 2022 BGSU
Microbiome and addiction: behavior and genetics

Sanna Yuan Doctor of Philosophy Fall, 2021 BGSU
Behavioral and Electroencephalographic markers of incentive contrast in humans using a game playing task

Justin McGraw Doctor of Philosophy May 2018 BGSU
Relative reward effects and alcohol drinking in rat model

Josh Ricker Doctor of Philosophy May 2018 BGSU
Effects of concussions on fMRI signals related to emotions and cognition

Rachel Atchley Doctor of Philosophy May, 2014 BGSU
Inhibitory gating and mindful meditation: Removing stress from our lives

Emily S. Webber Doctor of Philosophy June, 2013 BGSU
Neural coding of relative reward effect

Kelley M. Harmon Doctor of Philosophy Dec. 2010 BGSU
Hormone mediation of early social development.

Ryan P. Mears Doctor of Philosophy 5/25/2006 BGSU
Analysis of Inhibitory Gating in Medial Prefrontal Cortex

F. Membership on Dissertation Committees

Jenny Grant Weinandy Psychology BGSU

Sudhan Pahhain Biology BGSU

Louis Moore Psychology BGSU

Brittany Sizemore Psychology BGSU

Mariya Zaturenskaya Psychology BGSU

Timothy Patrick Psychology BGSU

Dilshan Harshajith Beligala	Biology	BGSU
Christopher Gamsby	Psychology 11/30/18	BGSU
Heuristics and long form short story reading		
Alqassem Y Hakami	Depart of Pharmacology Spring 2018	University of Toledo
Brittany Leigh Perrine	Communication Disorders	Spring, 2018
Angela Reif	Communication Disorders	Spring, 2018
Mahesh Ramachandran Pillai	Biology Department	BGSU
<i>PCB and Exercise effects on immune function</i>		
Patrick Nebl	Doctor of Philosophy	12/2016 BGSU
<i>Thrifty model of female choice/competition</i>		
Samuel Jaffee	Doctor of Philosophy	BGSU
<i>Ternus display and OSPB</i>		
Kyoung Baik	Doctor of Philosophy	BGSU
<i>Evaluating acceptance and commitment therapy for insomina</i>		
Jason Whitfield	Doctor of Philosophy	August 2014 BGSU
<i>Motor sequence learning, language and Parkinson's disease</i>		
Leisha Colyn	Doctor of Philosophy	May, 2014 BGSU
Paul Goetz	Doctor of Philosophy	June, 2011 BGSU
<i>Worry and cardiac variability: insights into the polyvagal theory</i>		
Ellen Rooney	Doctor of Philosophy	May, 2010 BGSU
<i>Theatre and Neuroscience</i>		
Tobey Coley	Doctor of Philosophy	Aug, 2010 BGSU
<i>Technical Writing</i>		
Christa Bowen (deceased)	Doctor of Philosophy	BGSU
<i>Effects of progesterone on behavioral development</i>		
Daniel Hiler	Doctor of Philosophy	May, 2009 BGSU
Biological Sciences		
Quinten Lynn	Doctor of Philosophy	10/2008 BGSU
<i>Sanctification and Sport</i>		
Gabriel de la Rosa	Doctor of Philosophy	12/2008 BGSU
<i>Workplace motivation and drive !</i>		

Ryan Yoder	Doctor of Philosophy 12/2005	BGSU
	<i>Medial septal involvement in hippocampal theta rhythm</i>	
Jeffrey Burgdorf	Doctor of Philosophy 12/2005	BGSU
	Psychology	
	<i>Neurobiology of positive affective signals in the rat</i>	
Wei Li	Doctor of Philosophy 8/2004	University of Toledo
	Bioengineering	
	<i>Modeling motivational functions of basal ganglia system</i>	

G. Membership Preliminary Exam Committee

Michael Ellerbrock	Preliminary Exam	June 2022	BGSU
Victoria Rae Riesgo	Preliminary Project: VTA	2022	BGSU
Lindsay Freier	Preliminary Exam	2022	BGSU
Youzhi Yu	Preliminary Exam	2021	BGSU
Anna Gravelin	Preliminary Exam	2019	BGSU
Jennifer Grant	Prelim project	2019	BGSU
Louis Moore	Prelim project	2019	BGSU
Minhazul Islam	Prelim Proposal	2019	BGSU
Mark McCoy	Prelim Project	2018	BGSU
Tatiana Rodriguez	Prelim project	2016	BGSU
Mariya Zaturenskaya	Prelim Project		
Sarah Hassan	Prelim Paper		
Timothy Patrick	Prelim project	Dec 2016	BGSU
	<i>Action perception and movement using reaction times</i>		
Jason Whitfield	Prelim Exam	Nov. 2013	BGSU
Vickie Carhart	Prelim Project	2014	BGSU
Sabiha Parveen	Prelim Exam	July, 2012	BGSU
Udita Dallal	Prelim Exam	2011	BGSU
Paul Geotz	Prelim Project	2010	BGSU

Relationship between worry and cardiac variability

Christa Bowen	Prelim Exam	2009	BGSU
Leisha Colyn	Prelim Project	2009	BGSU
<i>Schadenfruede and Cognitive Dissonance</i>			
Michelle Pavlick	Prelim Project	10/16/2008	BGSU
<i>Why do college students drink? A review of motives</i>			
Daniel Hiler	Prelim Exam	9/2007	BGSU
<i>Biology Qualifying Exam</i>			
Gabriel de la Rosa	Oral/Written Exam	4/2007	BGSU
<i>Leadership and Work Output</i>			
Quinten Lynn	Oral/Written Exam	8/2006	BGSU
<i>Faith, Religion and Sports</i>			
Jeffrey Burgdorf	Preliminary Project	8/2005	BGSU
<i>Electrical self-stimulation of the brain and reward</i>			
Ryan Yoder	Oral Exam	8/2004	BGSU

H. Membership Thesis Committee

Ekenedilichukwu Anekwe	Biology Depart.	2022	
Victoria Rae Riesgo	Dopamine Neuroanatomy	2021	
Timothy Micah Burns	Aging and Memory	2021	
Lindsay Freier	M.A. Psychology	2021	
<i>Creativity and Performance</i>			
Leah Bogusch	M.A. Psychology	2016	
Patrick Nebl	M.A Psychology	Nov. 2014	
Naima Dahir	M.A. Education	June 2014	BGSU
<i>Cultural Neuroscience: p50 gating and individualist/collectivist cultures</i>			
Tatiana Rodriguez	M.A. Psychology	April 2014	BGSU
<i>Meta-analysis</i>			
Kyoung Baik	M.A. Psychology	2/2013	BGSU
<i>Insomnia</i>			
Donna Burdzy	M.A. Psychology	2014	BGSU
<i>Spirituality and awe</i>			

Vickie Carhart	M.A. Psychology	May, 2013	BGSU
<i>Rehabilitation and mindfulness</i>			
Margaret Feiulle	M.A. Psychology	12/2012	BGSU
<i>Spirituality, mindfulness and migraines</i>			
Nicole Cantrell*	M.S. Biology	Aug. 2011	BGSU
<i>Effects of PCB exposure on maternal care and epigenetic mechanisms</i>			
David Mankin*	M.S. Biology	March, 2012	BGSU
<i>Cross-fostering analysis and PCB effects on motor and social development</i>			
Zhi Wang	M.S. Biology	Aug. 2011	BGSU
<i>Effects of PCB on ovarian physiology and function</i>			
Victoria Eck	M.S. Biology	<u>Left program?</u>	BGSU
Katie Hiler	M.S. Biology	June, 2009	BGSU
<i>Effects of subtle hypothyroidism on motor function</i>			
Cynthia Toth*	M.S. Biology	June, 2009	BGSU
<i>Effects of subtle hypothyroidism on social development</i>			
Liesha Waddilove	M.A. Psych	7/2007	BGSU
<i>Schadenfruede: Exploring the Dark Side of Friendship</i>			
Michelle Pinter	M.A. Psych	6/2007	BGSU
<i>Craving in Binge Drinkers in college aged sample</i>			
Avanti Desai*	M.S. Biology	6/2007	BGSU
<i>Effects of PCBs on learning and memory of hippocampal system</i>			
Banafsheh Jolous-Jamshidi	M.S. Biology	5/2007	BGSU
<i>Effects of PCBs on social recognition and oxytocin in the rat</i>			
Dena Krishnan*	M.S. Biology	5/2007	BGSU
<i>Effects of PCBs on motor and social development: A model of autism</i>			
Adam Jansen	M.S. Biology	5/2007	BGSU
<i>Memory Reconsolidation: Review and Relations</i>			
Christina Asbrock	M.S. Biology	8/2006	BGSU
<i>Effects of PCBs on maternal bonding and cytokines</i>			
Ann Mary Mercier	M.A. Psych	2/2005	BGSU
<i>Timing and Development</i>			
Christopher Ayala	M.A. Psych	3/2005	BGSU

Effects of exposure and verbal context on memory for music

Jeffrey Burgdorf M.A. Psych 1/5/2005 BGSU
Reward functions of distinct ventral pallidal subregions

**Co-Chair*

IV. CURRICULUM DEVELOPMENT

A. New courses developed include:

1. Forensic Neuroscience Course (4400/5810) for certificate in Forensic Psychology. Developed in tandem with the building of the new Forensic sciences center on BGSU campus.
2. Clinical Neuroscience (7800/7810) Course for psychology, biology, human health services graduate students focusing on the biology of mental illness
3. Motivational Neuroscience Laboratory course (PSYCH 3320)- recent innovation : Enhancing reward delivery for the animal subjects and allowing students to be more engaged.
4. Emotions and Life upper level undergraduate seminar course (PSYCH 4400)
5. Value initiative for General Education course
6. Introduction to Psychology with Peer Facilitator, Fall, 2005
7. Introduction to Pediatric Psychiatry
Semester course with Dr. Luke Tsai, Director of the Autism Clinic
University of Michigan Medical Center

B. Teaching/Curriculum Development Workshops

1. Calibrated Peer Review Critical Thinking (CTLT) January, 2010
2. Clickers in the Classroom Workshop (CTLT) Sept. 2009
3. BGeXperience Continuing Faculty Training
May 4-5th, 2006
4. Understanding Millennial Students: Breakfast and Conversation Across the Divisions Workshop
Sept. 16th, 2005
5. BGeXperience Workshop Training
August 1-5th, 2005
6. 10th Annual American Psychological Society Teaching Institute
May 29th, 2003 Atlanta, USA

V. PROFESSIONAL DEVELOPMENT

A. Research Center Affiliates

1. John Paul Scott Center for Neuroscience, Mind and Behavior
 - a. Director 2009-2011
 - b. Associate Director 2011-2017
2. Center of Excellence for Health and Wellness Across the Lifespan
 - a. Research Affiliate 2012-present

B. Workshops

1. SMART Recovery Jonathan von Breton Memorial Lecture Series
Addiction and new avenues toward addiction treatment Spring 2022
2. Workshop on the teaching of Critical Thinking (Dr. Paul Moore)
February, 2009 BGSU Center for Teaching, Learning and Technology
3. Workshop on Digital Camera Use
July, 2003 BGSU Media Services
4. Workshops on Website Design (Dreamweaver Basics)
July-August, 2003 BGSU Computer Technology for Faculty
5. Faculty Development Workshop
May 3rd, 2003 College of Arts and Sciences
May, 2004 College of Arts and Sciences
6. Curriculum Vitae Writing Basics for BGSU Faculty
April 22nd, 2003 Center for Teaching, Learning and Technology

C. Post-doctoral training:

1. Research Fellow, (2000-2001) Department of Physiology and Pharmacology
Wake Forest University School of Medicine
Funding Agency: National Institute of Drug Abuse
Mentor: Donald J. Woodward
2. International Research Fellow (1996-1999) Neurophysiology Section, Institute of Physiology
University of Fribourg, Switzerland
Funding Agency: National Science Foundation (Swiss & USA)
Training Program: Division of International Programs
Mentor: Wolfram Schultz
3. Post-doctoral Trainee, (1993-1996) Neurophysiology Group, Mental Retardation Research Center
University of California at Los Angeles School of Medicine
Funding Agency: National Institute of Mental Health
Training Program: MRRC Center Training Grant

Mentors: Nathaniel A. Buchwald & Michael S. Levine

VI. RESEARCH INTERESTS

- A. Brain mechanisms of reward and motivation
- B. Physiology of attention and neural inhibition
- C. Neurophysiology of the basal ganglia system
- D. Neuroscience of social behavior and communication
- E. Genetic and behavioral investigation of social behavior
- F. Neuropathology of developmental disorders

VII. RESEARCH GRANTS

A. Funded:

1. *Reward sensitivity and alcohol preferring rat model.*
BGSU Building Strengths Award: June 2022- June 2023
Principal Investigator, 10,000.00\$
2. *Improving the behavioral neuroscience laboratory.* SeaChange National Science Foundation
Feb, 2021-August 2022 11,200.00\$ A grant to revise and update the laboratory equipment and exercises used in behavioral neuroscience including computer-controlled environments.
3. *Microbiome and addiction: A new look using an animal model of addiction*
State of Ohio Bureau of Criminal Investigations Grant. October 2019-December, 2020
Principal Investigator, 8,000.00\$
4. *Concussions in student athletes and emotional functions*
BGSU Faculty Research Incentive Grant June/2016-June/2018
Principal Investigator 10,000.00\$
5. *Insulin Growth Factor and Depression*
R01 Grant from National Institute of Mental Health 4/30/12 to 6/30/15
To examine the impact of IGF administration on hedonic processing in the rodent model.
Co-Investigator with 5% Effort for 3 Year Award.
6. *Basal ganglia and relative reward effect*
R15 Grant from National Institute of Mental Health Start date 9/30/2010-8/30/13
Principal Investigator MH091016 \$412,320 for 3 years
7. *Corticosterone and Social Development*
Hope for Depression Research Foundation 2/1/09-6/30/2010
Principal Investigator \$45,000.0
8. *Effects of PCBs on Social Behavioral Development*
R03 Grant from The National Institute of Mental Health, Start Date 6/08-02/2011
Principal Investigator Grant # HD053692 \$144,000.00
9. *Creating a new animal model of depression*
Hope for Depression Research Foundation 1/1/07-12/31/08
Principal Investigator, \$100,000.00
10. *Rat ultrasonic vocalization playback experiment*
John Paul Scott Neuroscience Center Faculty Development Award, 4/05
Principal Investigator, \$2,000.00
11. *Genetics of Social Reward*
Research Incentive Grant from Faculty Research Committee
Bowling Green State University, 6/05- 6/06

- Principal Investigator \$8,000.00
12. *The effects of food deprivation on striatal activity*
John Paul Scott Neuroscience Center Faculty Development Award, 6/05-9/05
Principal Investigator \$9945.00
 13. *Effects of early amygdala damage on social reward and neural inhibition*
Research Incentive Grant from Faculty Research Committee
Bowling Green State University, 6/03-5/04
Principal Investigator \$8,000.00
 14. *Children's readiness to learn: An analysis of social and biological factors important for social competence"*
Interdisciplinary Grant Award from The College of Education,
Bowling Green State University 7/03-8/04
Co-Investigator \$25,000.00
 15. *Effects of early brain damage on behavior and neurophysiology*
Pilot Project from Ohio Board of Regents Incentive, 6/03
Principal Investigator \$1300.00
 16. *Influence of reward devaluation on striatal activity*
National Institute of Mental Health Award for New Investigators 1/03-12/04
Principal Investigator Grant # MH067136 \$63,280.00

B. Submitted (last 5 years):

1. *Prepubertal neural and behavioral risk factors for later alcohol consumption/preference: A focus on reward sensitivity and perineuronal nets*
R03 to National Institute of Health (NIAA) March 2023 Scored Application
2. *Impaired Reward Sensitivity and Transition to Addiction*
R03 to National Institute of Alcoholism and Alcohol Abuse: Start date: April 2022/Oct 2022
3. *Glutamate, Gambling using rodent model*
R15 to National Institutes of Health (NIAAA) Start Date: Jan 2019
4. *Environmental ethanol sensing and rat activity*
Grants in Laboratory Animal Science Start date: May 2018
5. *Training animals to prefer effortful work options*
Grants in Laboratory Animal Science Start date: May, 2018
6. *Ethanol and depression reactions*
R03 Grant submitted to NIAAA Institute at NIH Start date 6/1/2017
7. *Ethanol and free choice behavior*
R21 Grant submitted to NIAAA Institute at NIH start date 6/1/2017
8. *Ethanol and relative reward effects*
Resubmission of R01 grant to NIAAA institute at NOH start date 6/1/2017

VIII. PUBLICATIONS

A. Book Chapters, Reviews, Obituary, Commemorative Pieces

1. Cromwell HC, Lowe LJ. The Human Affectome Project: A dedication to Jaak Panksepp. (2022) *Neurosci Biobehav Rev.* 11;138:104693. doi: 10.1016/j.neubiorev.2022.104693
2. Cromwell HC (2021) Characterizing the Neural Substrate of Reward with the Use of Specific Brain Lesions. *The Brain Reward System*; Springer Nature Publishing. Marc Fakhoury Editor pp. 51-74.
3. Cromwell HC. (2019) Climbing with Mike *J Neurosci Res.*;97(12):1750. doi: 10.1002/jnr.24534.

4. Cromwell H.C. (2018) Jaak Panksepp 1943-2017 *American Psychologist* Vol. 73, No. 2, 20
5. Cromwell HC and Ricker JM (2018) Emotion and motivation interactions: Ultrasonic vocalizations during incentive contrast and free choice paradigms. *Handbook of Ultrasonic Vocalizations*. Edited by Dr. Stefan Brudzinski. **ELSEVIER** | Global Book Production. pp. 267-277.
6. Cromwell HC (2010) Striatal implementation of action sequences and more: grooming chains, inhibitory gating, and the relative reward effect In: *Neurobiology of Grooming Behavior* Edited by Kaleuff, A. Cambridge University Press pp. 156-183.
7. Cromwell, H.C. (2009) A review of Endocrine-Disrupting Chemicals: From Basic Research to Clinical Practice *General and Comparative Endocrinology*, Vol. 160, 1-2.
8. Cromwell HC and King BH (2004) Involvement of basal ganglia in the production of self-injurious behavior in developmental disorders. *International Review of Mental Retardation Research*, 29: 119-158.

B. Journal Articles (peer reviewed)

1. McGraw, JJ, Goldsmith R and Cromwell HC (2023) Altered reward sensitivity to sucrose outcomes prior to drug exposure in alcohol preferring rat. *Pharmacology, Biochemistry and Behavior* Under Review.
2. Daniela Schiller, Alessandra N. C. Yu , Nelly Alia-Klein, Susanne Becker, Howard C. Cromwell *et al.* (2023) The Human Affectome. *Neuroscience, Biobehavioral Reviews* Under Review.
3. Yuan, S. Harmon, M.R., Stewart, E.L. Schwarzman M.R. and Cromwell H.C. (2022) Sex differences in incentive contrast during game play: Contributions of personality and emotion. *Learning and Motivation* 79: 101828 <https://doi.org/10.1016/j.lmot.2022.101828>
4. Cromwell HC, Papadelis C. (2022) Mapping the brain basis of feelings, emotions and much more: A special issue focused on 'The Human Affectome'. *Neurosci Biobehav Rev.* 137:104672. doi: 10.1016/j.neubiorev.2022.104672.
5. Ricker, Joshua; Smith, Kylee; Schmidt, Alexandra; Cripps, Andrea; Thalla, Palguna; Cromwell, Howard C.; and Wang, Xin (2021) "Concussion-related Alterations in Neural Activity During Emotion Recognition: Case Studies of Short-term and Residual Effects," *Journal of Sports Medicine and Allied Health Sciences: Official Journal of the Ohio Athletic Trainers Association*: Number 7 : Issue 2, Article 3. DOI: <https://doi.org/10.25035/jsmahs.07.02.03>.
6. Zackery T. Knauss, Marko Filipovic, Kylee A. Smith, Melanie M. Queener, Joseph A. Lubera, Najae M. Bolden-Hall, Jasmine P. Smith, Robert S. Goldsmith, Jacob E. Bischoff, Melissa K. Miller and Howard C. Cromwell. (2020) Effort-reward balance and work motivation in rats: Effects of context and order of experience. *Behavioral Processes*. 181:104239. doi: 10.1016/j.beproc.2020.104239. Epub 2020 Sep 20. PMID: 32966870
7. Cromwell HC, Abe N, Barrett KC, et al. (2020) Mapping the interconnected neural systems underlying motivation and emotion: A key step toward understanding the human affectome. *Neurosci Biobehav Rev.*;113: 204-226. doi:10.1016/j.neubiorev.2020.02.032
8. Pillai MR, Keylock KT, Cromwell HC, Meserve LA. (2020) Exercise influences the impact of polychlorinated biphenyl exposure on immune function. *PLoS One*;15(8):e0237705. Published 2020 Aug 24. doi:10.1371/journal.pone.0237705
9. Toth C.L., Mankin D.E., Hiler K.E., Baldwin N.A.F., Meserve L.A. and Cromwell H.C. (2019) Influence of perinatal polychlorinated biphenyl or thiouracil on dopamine function. *Toxicology and Environmental Health Sciences* 11, 283–294 doi:10.1007/s13530-019-0415-3.

10. Cromwell HC. (2019) Translating striatal activity from brain slice to whole animal neurophysiology: A guide for neuroscience research integrating diverse levels of analysis. *J Neurosci Res.* 97(12):1528-1545. doi: 10.1002/jnr.24480. E
11. Halverstadt B.A. and Cromwell H.C. (2019) An investigation of variety effects during operant responding in the rat utilizing different reward flavors. *Appetite.* 1;134:50-58. doi: 10.1016/j.appet.2018.12.024. Epub 2018 Dec 20.
12. Douglas HM, Halverstadt BA, Reinhart-Anez P, Webber ES, Cromwell HC. (2018) A possible social relative reward effect: Influences of outcome inequity between rats during operant responding. *Behav Processes* 157 pp. 459-469. doi: 10.1016/j.beproc.2018.06.016
13. Cromwell, HC, Tremblay, L and Wolfram Schultz (2018) Neural encoding of choice during a delayed response task in primate striatum and orbitofrontal cortex. *Experimental Brain Research*; 236(6), 1679-1688, <https://doi.org/10.1007/s00221-018-5253-z>
14. McGraw JJ, Zona LC, Cromwell HC (2017) The effects of ethanol on diverse components of choice in the rat: reward discrimination, preference and relative valuation. *Eur J Neurosci.*;46(3):1837-1849. doi: 10.1111/ejn.13627. Epub 2017 Jul 30
15. Zona L. C., Fry B. R. and Cromwell H.C. (2017) Effects of anandamide administration on components of reward processing during free choice. *Pharmacology, Biochemistry and Behavior.* 158:14-21.
16. Webber ES, Mankin DE, and Cromwell HC (2016) Striatal activity and reward relativity: Neural signals encoding dynamic outcome valuation. *eNeuro*;3(5). pii: eNEURO.0022-16.2016. eCollection.
17. Ricker JM, Kopchok R, Drown R and Cromwell HC (2016) Effects of striatal lesions on components of choice: reward discrimination, preference, and relative valuation *Behavioural Brain Research* 315:130-40.
18. Ricker JM, Hatch JD, Powers DD, Cromwell HC (2016) Fractionating choice: A study on reward discrimination, preference, and relative valuation in the rat (*Rattus norvegicus*). *J Comp Psychol*;130(2):174-86. doi: 10.1037/com0000034. Epub 2016 Apr 14.
19. Webber E.S., Chambers, N., Kostek, J., Mankin, D.E. and Cromwell H.C. (2015). Relative reward effects on operant behavior: Incentive contrast, induction and variety effects *Behavioral Processes.* 10.1016/j.beproc.2015.05.003
20. Cromwell H.C. and Atchley (2015) Influence of emotional states on inhibitory gating: Animal models to clinical neurophysiology. *Behav Brain Res.* 2014 May 23. pii: S0166-4328(14)00329-5. doi: 10.1016/j.bbr.2014.05.028.
21. Dover, E.N., Mankin D.E., Cromwell H.C., Phuntumart V., Meserve L.A. (2015) Polychlorinated biphenyl exposure alters oxytocin receptor gene expression and maternal behavior in rat model. *Endocrine Disruptors*, DOI:10.4161/23273747.2014.979681.
22. Krishnan, D. Cromwell H.C. Meserve L.A. (2014) Effects of Polychlorinated Biphenyl (PCB) Exposure on Response Perseveration and Ultrasonic Vocalization Emission in Rat During Development. *Endocrine Disruptors*; Vol 2 DOI:10.4161/23273739.2014.969608
23. Binkley, K., Webber, E.S., Powers, D.D., and Cromwell, H.C. (2014). Emotion and relative reward processing: An investigation on instrumental successive negative contrast and ultrasonic vocalizations in the rat. *Behavioral Processes.* 107:167-74. DOI:10.1016/j.beproc.2014.07.011
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54. Cromwell H.C. and K.C. Berridge (1997) Haloperidol decreases hyperkinetic paw treading induced by globus pallidus lesions in the rat *Exp Neurology*, May; 145(1): 288-94.
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61. Cromwell H.C. and K.C. Berridge (1994) Mapping of globus pallidus and ventral pallidum lesions that produce hyperkinetic treading. *Brain Research*, Dec 30;668(1-2):16-29.
62. Cromwell H.C. and K.C. Berridge (1993) Where does damage lead to enhanced food aversion: the ventral pallidum/substantia innominata or lateral hypothalamus? *Brain Research*, Oct 8;624(1-2):1-10.
63. Berridge K.C. and H.C. Cromwell (1990) Motivational-sensorimotor interaction controls aphagia and exaggerated treading after striatopallidal lesions. *Behavioral Neuroscience* Oct;104(5):778-95.

IX. PAPERS READ TO PROFESSIONAL SOCIETIES

A. Invited papers

1. Cromwell HC (2022) Relative reward processing and the Pankseppian approach. Topic: Jaak Panksepp Memorial Meeting of the Neuropsychology Association Webinar Conference April 23rd (5th Annual Remembrance for Jaak Panaksepp).
2. Cromwell HC (2016) Neuroqualia: A new perspective. Presented at the Neuroqualia Workshop in August, Halifax, Nova Scotia,
3. Cromwell H.C. (2014) Brain basis of relative reward processing. Presented at the Midwestern Psychological Association Meeting. Chicago Ill. May, 2014.
4. Cromwell H.C. (2010) Using inhibitory gating to understand schizophrenia, Presented at the fifth CNTRICS meeting: Conceptual Issues Related to Animal Models of Cognition and Emotion in Schizophrenia. St. Louis MO. April, 2010.
5. Cromwell H.C. (2006) Single unit analysis of inhibitory gating in different interconnected brain structures. Presenter at the Third Annual Electroencephalography and Clinical Neurophysiology Society (ECNS) Conference in Boston, (Sept)
6. Cromwell H.C. (2006) Symposium Organizer and Co-Chair at the 3rd Annual ECNS Conference in Boston, (Sept.) Symposium entitled, "Inhibitory gating from the clinic to basic research".
7. Cromwell H.C. (2005) Integrating new computational methods into neural event analysis: linking neural and behavioral data with biologically plausible models. Midwest Symposium on Circuits and Systems, Cincinnati, OH., Aug 7-10.
8. Cromwell H.C. (1998) Cognitive aspects of reward processing in the primate basal ganglia. Presented at the European Behavioral Pharmacology Society Meeting. *Behavioral Pharmacology* 33, 202. Brno Czech Republic (Symposium Speaker)
9. Cromwell H.C. (1997) Functions of the basal ganglia. Presented at the Workshop zur Heptischen Encephalopathie, May 14-15th, Hannover, Germany

10. Cromwell H.C. (1997) Primate striatal neuron activity in choice tasks. Presented at the Annual Network Meeting for the Human Capital and Mobility Foundation: Biomed II. L'Aquila, Italy.

B. Refereed Papers/Abstracts

1. Thompson K.M., Roush V., Riesgo V., Willing J., Cromwell HC (2022) Pubertal changes on dopaminergic innervation of the striatum and nucleus accumbens. Session 520 Poster Number 520.11 Society for Neuroscience (November; San Diego CA).
2. Keylock, KT, Pillai MR, Cromwell, HC and Meserve, LA (2022) Effect of polychlorinated biphenyls (PCBs) and exercise on average body temperature following LPS stimulation. The International Society of Exercise and Immunology (ISEI) Oct. Arizona.
3. Thompson K.M., Stewart E.S., Quinn A.K., Cromwell H.C. (2021) Positive and negative incentive contrast in rats: A new look at the differences between the sexes. Society for Neuroscience Program No. P334-03 Neuroscience Meeting Planner. Chicago Ill.: Society for Neuroscience, Online.
4. Harmon, M.R., Stewart, E.S. Yuan, S. and Cromwell H.C. (2019) Incentive contrast in humans: Behavioral and Electroencephalographic Measures. Society for Neuroscience Abstracts Chicago, Ill.
5. Harmon M.R., Stewart E.S., Yuan S., Schwarzman M. and Cromwell H.C. (2019) Incentive contrast examined in human subjects using a 'labyrinth' game playing task. @ 26th Annual Symposium on Research in Psychiatry, Psychology and Behavioral Science at the University of Toledo, Ohio.
6. Ricker J., Smith KA, Schmidt A., Cripps A.M., Thalla P. Cromwell HC, Wang X. (2018) Differential patterns of neural activation related to emotional face recognition in short-term and long-term recovery from concussion: Two fMRI case studies. 48th Annual Society for Neuroscience Abstracts. 664.15 / BB14 San Diego, CA.
7. McGraw J.J., Goldsmith R.S., & Cromwell H.C. (2018) Reward processing alterations for natural reward in alcohol-preferring (P) rats: Incentive contrast, reward discrimination, and alcohol consumption. Society for Neuroscience Abstracts (Vol 48) Session /Poster 686.13 / CCC8 in San Diego CA., USA.
8. Myers KA, Filipovic,M., Fry B. & H. C. Cromwell (2018) Gambling in rodent model and effects of training and testing regimen @ 25th Annual Symposium on Research in Psychiatry, Psychology and Behavioral Science; May 10th at Toledo Ohio.
9. McGraw, J.J., Smith K. Goldsmith, R. and Cromwell H.C. (2018) Alcohol-preferring rats show reward supersensitivity and alterations in incentive contrast to sucrose solutions. The Ohio Journal of Science 118(1) p. 17.
10. Ricker J, Smith K., Schmidt A., Cripps A., Thalla P, Cromwell HC, & Xin Wang (2018) Alterations in neural activity during attention and emotional face recognition in college athletes post-concussion Ohio Academy of Sciences, BGSU Bowling Green Ohio 43403
11. Myers KA, Filipovic,M., Fry B. & H. C. Cromwell (2018) RISK AVERSION AND ITS EFFECTS ON FORAGING BEHAVIOR IN SPRAGUE-DAWLEY RATS. The Ohio Journal of Science 118 (1) p. 14.
12. Knauss Z. ...Cromwell H.C. (2018) Early exposure to work effort leads to increase in preference to work in rodent model. The Ohio Journal of Science 118(1) p. 34.
13. McGraw, J.J., Smith K. Goldsmith, R. and Cromwell H.C. (2017) The relative reward effect: Instrumental and consummatory contrast for sucrose in Sprague-Dawley and alcohol-preferring (P) rats. Society for Neuroscience Washington D.C. Nov 11-17th.

14. Fry, B.R., Zona, L.C. and Cromwell H.C (2017) Effects of anandamide administration on components of reward processing during free choice. Society for Neuroscience Washington D.C.
15. Knauss Z. ...Cromwell H.C. (2017) Order effects alter work effort in rat model of free choice. Society for Neuroscience in Washington D.C. Nov 11-17
16. K Smith and Cromwell HC (2017) Incentive contrast as a relative reward process. 24th Annual Symposium on Research in Psychiatry, Psychology and Behavioral Science April 27th 2017 Toledo Ohio.
17. Fry B., Zona L, LaLonde J and Cromwell HC (2016) Effects of Anandamide on free choice behavior. Presented at the Midwest/Great Lakes Undergraduate Research Symposium in Neuroscience at Ohio State University, Columbus Ohio (Oct) Poster won **Research with Distinction Award.**
18. McGraw JJ, Zona, LC & Cromwell HC (2016) Ethanol self-administration effects on free choice in the rat. Society for Alcohol Research. New Orleans La.
19. Ricker JM, Kopchok R, Drown R, Cromwell HC (2015) Free Choice in a Novel Reward Preference Paradigm: Effects of Striatal Lesions and Diverse Control Experiences Society for Neuroscience Annual Meeting Chicago Ill.
20. Mears RP, Cromwell HC, Bose PK, and Thompson FJ (2015) Neurobiological markers of aberrant aversive learning in the traumatic brain injury rodent model. Society for Neuroscience Annual Meeting Chicago Ill.
21. Halverstadt B and Cromwell HC (2015) Reward variety effects on instrumental actions in rats. Society for Neuroscience Annual Meeting Chicago Ill.
22. Yuan S., Atchley RM, Cromwell HC, & Garrett-Ruffin¹ SM (2015) Stress, mindfulness and theta/beta ratio: a study on EEG oscillation. Society for Neuroscience Annual Meeting Chicago Ill.
23. McGraw JJ, Zona, LC & Cromwell HC (2015) Ethanol self-administration and decision making in a free reward choice task in the rat. Society for Neuroscience Annual Meeting Chicago Ill
24. Garrett-Ruffin S, Cromwell H.C. and Herring E. (2015) Exploring the relationships between EEG T/B ratios and empathy and reward sensitivity among undergraduate women. 22nd Annual University of Toledo/BGSU Symposium on research in Psychiatry, Psychology and Behavioral Sciences, Toledo Ohio on April 16th 2015.
25. McGraw, J J., Zona, L. and Cromwell H.C. (2015) Ethanol self-administration and decision-making in a free choice task in the rat. 22nd Annual University of Toledo/BGSU Symposium on research in Psychiatry, Psychology and Behavioral Sciences, Toledo Ohio on April 16th.
26. Ricker J., Kopchok R., Hatch J., Downey C. and Cromwell H.C. (2015) Effects of striatal lesions on reward choice using a multi-box environment. 22nd Annual University of Toledo/BGSU Symposium on research in Psychiatry, Psychology and Behavioral Sciences, Toledo Ohio on April 16th 2015.
27. Baldwin J., Duffy H., Cromwell H.C. and Meserve L.A. (2014) Characterization of Developmental Endocrine Disruption By PCB As Monitored By Ultrasonic Vocalization *ICE/ENDOCRINOLOGY SOCIETY* June 21-24 in Chicago, Illinois
28. Ricker, J., Downey C., Hatch, J. and Cromwell H.C. (2014) Brain substrates for choice behavior in a novel 3-box paradigm. *International Behavioral Neuroscience Society*. Las Vegas NE.
29. Dahir N. and Cromwell H.C. (2014) Interactions between stress, culture and the brain. *Midwest Graduate Research Symposium*. University of Toledo. March 29th.
30. Dahir, N., Atchley, R.M. and Cromwell H C. (2014) ERPology and cultural influences. The *International Cultural Neuroscience Consortium Conference* in Ann Arbor Michigan, April 4th.
31. Dahir, N. and Cromwell H.C. (2014) Cultural neuroscience: Effects of culture on stress and inhibitory gating. *Association for Psychological Science Meeting*, San Francisco, CA.

32. Atchley, R.M. and Cromwell H.C. (2014) Mindfulness meditation effects on stress and inhibitory gating of brain signals. *Association for Psychological Science Meeting* San Francisco, CA.
33. Atchley, R.M. and Cromwell H.C. (2013) Buffering Stress-induced Inhibitory Gating Deficits with Preparatory Information. *Society for Biological Psychiatry Meeting*, San Francisco, CA.
34. Samantha L. King, David E. Mankin, Jeffrey Baldwin, Howard C. Cromwell, and Lee A. Meserve. (2013) The Effects of Length of Exposure to PCB on Circulating Thyroid Hormone Concentration And Ultrasonic Vocalizations in Young Rats *Endocrinology Society*, San Francisco, CA.
35. Webber E.S., Mankin D.E., Cromwell H.C. (2012) The relative reward effect: Reward plasticity in the striatum. *Society for Neuroscience*, New Orleans La.
36. Powers D. and Cromwell H.C. (2012) The relative reward effect: A novel choice paradigm examining decisions in the rat model. *Society for Neuroscience*, New Orleans La.
37. Mankin D.E. and Cromwell H.C. and Meserve L.A (2012) PCB effects on early maternal care and pup social behavior: a cross-fostering analysis. *Society for Neuroscience*, New Orleans La.
38. Cromwell H.C., Almodovar J., Ozybok M. , Guesz, M. (2012) Do hairless mice groom? *Society for Neuroscience*, New Orleans La.
39. Mankin D.E., Wang Z. Dover, N., Cromwell H.C., And Meserve L.A. (2012) A Cross-Fostering analysis of the effect of PCB on motivation and movement of sprague-dawley rats. *Society for Endocrinology Meeting* Houston TX.
40. Mankin D.E., Wang Z. Dover, N., Cromwell H.C., And Meserve L.A. (2012) A Cross-Fostering analysis of the effect of PCB on Behavioral development of sprague-dawley rats. *Ohio Academy of Sciences Meeting*, April 24th. Asland University (Ohio).
41. Webber ES, Binkley KA and Cromwell HC (2011) Relative reward effect: A new behavioral paradigm using operant behavior to examine reward comparison. *Society for Neuroscience*, Washington DC.
42. Binkley KA, Webber ES, Hagerman JR and Cromwell HC (2011) Relative reward effect: Do USVs reflect reward comparisons? *Society for Neuroscience*, Washington DC.
43. CL Bowen, V Eck, T Sawyer, M Lynch, K Ammons, B Rush, HC Cromwell, LA Meserve (2010) Ameliorative Effects of Progesterone Supplementation on Delayed Behavioral Development in Rat Pups Exposed to PCB Perinatally. *Society for Endocrinology*, San Diego, CA.
44. Cromwell HC, Mankin DE, Webber ES (2009) USVs during PPI: Effects of expectations. *Society for Neuroscience*, Chicago Ill.
45. Harmon KM, McGraw J.J., Mankin DE, Cromwell HC (2009) Role of corticosterone in early social motivation in the rat. *Society for Neuroscience*, Chicago Ill.
46. Mankin DM, Stouffer, M., Shaw, K., Baldwin, N., Meserve, LA. And Cromwell HC (2009) Hypothyroid status or PCB exposure: Effects on PPI and USVs in the rat. *Society for Neuroscience*, Chicago, Ill.
47. Webber ES, Beckwith TJ, Pena SR, and Cromwell HC (2009) Selective breeding for differential USVs: An examination of social recognition and fear conditioning. *Society for Neuroscience*, Chicago Ill.
48. Mears RP, Kocsis, B., Boutros, NN, and Cromwell HC (2009) Ketamine and haloperidol differentially influence inhibitory gating and gamma rhythm in the rat medial prefrontal cortex. *Society for Neuroscience*, Chicago Ill.
49. Webber ES, Pena S, and Cromwell HC (2009) Fear assessment and social recognition in rats selectively bred for different levels of USV emission. *International Behavioral Neuroscience Society Meeting*, June, 9-12th.

50. Meserve LA, Hiler KA, Toth, CL and Cromwell HC (2009) Comparison of hypothyroid state and PCB exposure on motor function. *The Endocrine Society's 90th Annual Meeting*
51. Mankin DE, Shaw K, Baldwin N, Meserve LA and Cromwell HC (2009) Prepulse inhibition of the acoustic startle response in rodents exposed to polychlorinated biphenyls. *Ohio Journal of Science* 109 in press.
52. Varner, EJ and Cromwell HC (2009) Multiple Intelligences & The Development of Specific Cognitive Abilities. *American Junior Academy of Sciences*, Chicago Ill Feb 12-15th,
53. Webber ES, Beckwith TJ and Cromwell HC (2008) Prepulse inhibition in rats bred for different levels of 50 kHz ultrasonic vocalizations. . *Society for Neuroscience Planner* 3 883.11/TT87 Washington D.C.
54. Hiler KA, Toth CL, Smith WL, Pena SR, Cromwell HC and Meserve LA (2008) Influence of perinatal PCB exposure and hypothyroidism on subsequent motor and behavioral development in the rodent model. . *Society for Neuroscience Planner* 33 864.19/LL26 Washington D.C.
55. McFarland AM, Beckwith TJ, Greenwald M., and Cromwell HC (2008) Effects of variation in maternal care on early social motivation in rat pups. . *Society for Neuroscience Planner* 33 795.18/UU36 Washington D.C.
56. McAuley, JD, Stewart AL, Webber ES, Cromwell HC, Servatius R., Pang, KCH (2008) Wister-Kyoto rats demonstrate enhanced startle, sensorimotor gating and distractibility: Support for a hyper-vigilance model of vulnerability to anxiety. *Society for Neuroscience Planner* 33 196.3/UU68 Washington D.C.
57. McFarland, AM, Greenwald, M, Beckwith, TJ and Cromwell HC (2008) The effects of natural fluctuations in early maternal care on social motivation in young rats. *American Psychological Society Meeting*, Chicago, May 22nd.
58. McFarland, AM and Cromwell HC (2008) The effects of natural fluctuations in early maternal care on the affective and behavioral states of the offspring of long-evans rats. *The Ohio Journal of Science* 108 (1) A-35.
59. Greenwald. M., McFarland, AM , Beckwith, TJ and Cromwell HC (2008) The effects of prenatal prozac on affective and behavioral states of the offspring in long-evan rats. *The Ohio Journal of Science* Vol 108 (1) A-34.
60. Harmon KM, McFarland AM, Beckwith TJ, Greenwald M and Cromwell HC (2007) The effects of mild prenatal stress on social motivation in rat pups. *Society for Neuroscience Abstracts* 32: CD-ROM.
61. Jolous-Jamshidi, B, McFarland AM, Cromwell HC and Meserve LA (2007) Effects of PCBs on social recognition in juvenile rats. *Society for Neuroscience Abstracts*: 32 CD ROM.
62. Krishnan D., Trang T., Cromwell HC and Meserve LA. (2007) Effects of PCBs on motor development: New insights into toxins and developmental disorders. *Society for Neuroscience Abstracts* 32: CD ROM.
63. Desai A. Cromwell HC and Meserve LA. (2007) Effects of perinatal PCBs on learning and memory function. *Society for Neuroscience Abstracts* 32: CD-ROM San Diego
64. Meserve L.A., Asbrock C. and Cromwell H.C. (2007) Influence of perinatal ingestion of the mixture PCB 47/77 on circulating IL-6 and TNF-[alpha] and maternal odor conditioning in young Sprague-Dawley rats. *The Endocrine Society's 89th Annual Meeting*.
65. Harmon KM, McFarland AM, Beckwith TJ, Greenwald M and Cromwell HC (2007) Effects of prenatal stress on social motivation in rat pups. *Parental Brain Conference*, Boston, Mass. USA.,
66. Krishnan DK, Trang T., Cromwell HC and Meserve LA. (2007) Perinatal PCB disrupts developing motor skills in rats: A possible model for autism. *Neural Systems for Social Behavior Conference*, Austin, TX. USA.

67. Krishnan DK, Trang T. Cromwell HC and Meserve LA. (2007) Perinatal PCB exposure disrupts motor skills and hormone regulation in Sprague-Dawley rats: A possible model for autism. *The Ohio Journal of Science* Vol 107 (1) A-17.
68. Miller EJ, Skopin M., Molitor SC and Cromwell HC (2007) Functional neuroanatomical and physiology of reward processing in *rattus norvegicus*. *The Ohio Journal of Science* Vol. 107 (1) A-18.
69. Beckwith TJ, McFarland AM, Greenwald M., Harmon KM, Meserve LA. And Cromwell HC (2007) Effects of perinatal perturbations on social communication in the rat model. *The Ohio Journal of Science* Vol 107 (1) A-17.
70. Harmon, K.M., Burgdorf, J., Moskal, J.R., Kroes, R.A., Panksepp, J. and Cromwell H.C. (2006) Behavioral phenotyping of rats selectively bred for differential levels of 50 kHz ultrasonic vocalizations. *Society for Neuroscience Abstracts* 32, Atlanta, GA., CD-ROM.
71. Horinek M., Johnson A., McKnight L., Asbrock C., Cromwell H.C. and Meserve L.A. (2006) Effects of perinatal polychlorinated biphenyl exposure on the development of social behavior in the rat. *The Ohio Journal of Science*, Vol 106 (1) p. A-13
72. Mears, R.P. Boutros N.N. and Cromwell H.C. (2006) Systemic haloperidol and baclofen strengthen inhibitory sensory gating of medial prefrontal cortex local field potentials in the rat. *Biological Psychiatry* 59 (8): 260S-260S 851 Suppl. S APR 15 200
73. Klein A., Mears, R.P. and Cromwell H.C. (2005) A neurophysiological analysis of inhibitory gating in the striatum of freely moving rats. *Society for Neuroscience Abstracts* 31, CD-ROM.
74. McKnight L, Johnson A., Hornek M., Cromwell H.C. and Meserve L.A. (2005) Effects of polychlorinated biphenyls on social behavioral development. *Society for Neuroscience Abstracts* 31, CD-Rom.
75. Burgdorf, J., Harmon, KM, Cromwell, HC and Panksepp J. (2005) Converging evidence the 50 kHz ultrasonic vocalizations in rats are closely linked to reward and the mesolimbic dopamine system. *Society for Neuroscience Abstracts* 31, Washington D.C., CD-ROM.
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111. Cromwell H.C. and Berridge K.C. (1990) Damage to different striatopallidal subregions produces exaggerated treading and an enhancement of aversion. *Basal Forebrain: Anatomy to Function Conference* May 28-30th, Chicago, Ill.
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X. INVITED SEMINARS, COLLOQUIA AND CONFERENCE KEYNOTE SPEECHES

1. *New treatment approaches to addiction: Genetic models and reward insensitivity* (2022) Seminar presentation for Recovery: More Than Just a Pill a Mental Health Conference Series Event. National Alliance on Mental Illness, May 26th (in-person event).
2. *Impaired reward relativity and vulnerability to addiction* (2021) Seminar presentation for the Neuroscience research group at Bowling Green State University, Spring semester. (Zoom)
3. *Alcohol preferring rats and alterations in reward valuation* (2018) Invited seminar for Addiction Program Group at Wayne State University, April 4th.
4. *Relative reward valuation and brain-behavior activity* (2018) Invited seminar to Math and Statistics Department at BGSU Feb 28th.
5. *A novel choice paradigm to study drug addiction* (2017) Invited seminar for Pharmacology Department at University of Toledo on March 29th.
6. *Feelings and connecting the brain dots.* (2016) Talk at the 2-day workshop in Neuroqualia for the Human Affectome Project. August 5-6 in Halifax Nova Scotia, Canada.

7. *Brain signals and relative reward processing: Implications for addiction*. Seminar for Pharmacology Department at University of Toledo on Feb 26th 2015. Host: Dr. Zahoor Shah
8. *Psychology degrees and the workplace*. Panelist for Student Forum on Jobs and Career Placement at Bowling Green State University on Feb 26th 2014.
9. *Protect your bird brain*. Panelist for Brain Awareness Event at Bowling Green State University on March 14th 2013.
10. *Relative reward processing and mental health*. Research in Brief presentations for the Center of Excellence Retreat: Health and Wellness Across the Lifespan at Bowling Green State University. Sept. 2012.
11. *Healing Brains, Healing Minds: Neurobiology of mental illness*. Seminar for Mental Health 102 sponsored by the National Alliance on Mental Illness. Oct. 7th 2011. (Perrysburg, Ohio).
12. *Models of Attachment Disorder: A Pankseppian Approach* (Panksepp Festschrift) Bowling Green State University May 22nd 2010.
13. *Reward signals in the brain: A rewarding seminar*. (Seminar) Mahidol University Center for Neuroscience, Bangkok (Salaya) Thailand, December 17th 2009. Host: Dr. Piyarat Govitrapong.
14. *Inhibitory gating in the brain: from single units to field potentials*. NeuroDay Symposium, University of Toledo Medical School, February 20th 2009.
15. *Using brain activity to understand motivation (Keynote Address)* at the 20th Annual Ohio Undergraduate Research Conference. Baldwin-Wallace College in Berea, Ohio. April 8th, 2006.
16. *Information flow through the basal ganglia* (Seminar) Bioengineering Research Group, College of Engineering, University of Toledo, Toledo, Ohio April 7th, 2006. Host: Dr. Scott Molitor
17. *Biomarkers for hunger in the basal ganglia* (Seminar) Department of Psychology, Gettysburg College, Gettysburg, PA. March 3rd, 2006 Host: Dr. Stephen Sivi
18. *Influence of internal state changes on reward-related activity in striatum* (Seminar) Bioengineering Program, University of Toledo, Toledo, OH. November, 2005. Host: Dr. Brent Cameron
19. *Relative reward evaluation and striatal neurophysiology* (Seminar) Genome Research Institute, University of Cincinnati School of Medicine, Cincinnati, OH, August, 2005. Host: Dr. Jeffrey Johnson
20. *Reward contrast and basal ganglia activity* (Biopsychology Colloquium) Department of Psychology, University of Michigan, Ann Arbor, MI., April, 2005. Host: Dr. Kent Berridge
21. *An investigation of the neurophysiology of expectation* (Seminar) Department of Physiology and Pharmacology, Wake Forest University School of Medicine, Winston-Salem, NC, February 2001 Host: Dr. Donald Woodward
22. *Neural correlates of reward expectation in primate striatum* (Neuroscience Seminar Series) Department of Psychology, Bowling Green State University, Bowling Green Ohio January, 2001 Host: Dr. Jaak Panksepp
23. *Striatal neural activity and expectancy theory* (Seminar) Department of Psychology, University of Wisconsin-Madison, Madison, WI. January 2001 Host: Dr. Brad Postle
24. *Basal ganglia: Anatomy to Function* (A Short Course) Department of Neurobiology, Janus Pannonius University, Pecs, Hungary, Oct., 1999 Host: Dr. Istvan Hernadi
25. *Striatal activity and drugs of abuse* (Seminar) Institute of Physiology, University of Fribourg, Fribourg, Switzerland June, 1999 Host: Dr. Eric Rouillier
26. *Influence of reward on behavior-related neuronal activity in primate striatum* (Seminar) Psychology Department, Wayne State University Detroit Michigan Feb. 1999 Host: Dr. George Borszcz
27. *Reward Signals and Basal ganglia activity* (Symposium Lecture) *European Neuropharmacology Society Meeting*. Brno, Czechoslovakia, July 1999.

28. *Reward Processing and striatal single neurons* (Seminar) Department of Psychology, University of Georgia, Athens, GA, Feb. 1999 Host: Dr. Philip V. Holmes
29. *Reward discrimination by single striatal neurons* (Seminar) Centre Nationale Recherche Scientifique (CNRS) Marseilles France, July, 1998. Host: Dr. Paul Apicella
30. *Basal ganglia as integrative activity.* Neurology Department, Hannover Medical School. Hannover, May, 1998, Hannover Germany.
31. *Functional heterogeneity of striatal and pallidal subregions* (Seminar) Behavioral Toxicology Division, Institute for Technology Research (ETH) Zurich, Switzerland January, 1998. Host: Dr. Joram Feldon
32. *Pharmacologic mechanisms underlying stereotyped self-injury* (Seminar) Mental Retardation Research Center Annual Retreat, Lake Arrowhead Conference Center, Lake Arrowhead, California, Oct. 1995. Host: Dr. Michael Levine
33. *Functional heterogeneity of striatopallidal system* (Biopsychology Colloquium) Department of Psychology, University of Michigan, Ann Arbor, MI., August, 1993. Host: Dr. Kent Berridge
34. *Lesions to striatum and diverse functional consequences* (619 research presentation) Department of Psychology University of Michigan, Ann Arbor MI, Sept. 1989. Host; Dr. Kent Berridge.

XI. SERVICE

A. Department

1. Merit, Tenure and Promotion Committee (2018-2020), Chair 2018-2019
2. Faculty Advisor for the Student Neuroscience Club @ BGSU (2018-present)
 - a. Panelist for Undergraduate Psychology Club: Career Advice (2022)
3. Neuroscience faculty candidate search committee (2010) (2018)
4. Undergraduate Honors Committee 2004-present
5. Undergraduate Curriculum Committee Fall semester 2021 and ongoing
6. Graduate Student Admissions Committee (Neural Sciences Division) 2005-present
7. Public Relations Committee 2006-2008
8. University Preview Day Participant for the Department 2006-2008, April 2011

B. John Paul Scott Center for Neuroscience, Mind and Behavior

1. Director 2009-2011
2. Associate Director 2011-2012
3. Public Outreach (Planner/Organizer/Speaker)
 - a. Brain Awareness Day Speaker 2013 (Bird Brain Event)
 - b. STEM: Science in the Park Event (2011-2014)
 - c. Brain Awareness Week 2009 (Dr. Thomas Zoeller)
 - d. Brain Awareness Week 2008 (Dr. Michael Zigmond)
 - e. Brain Awareness Week 2007 (Drs. Henry Heffner and Ani Patel)
 - f. Brain Awareness Week 2006 (Drs. Steven Small and Brooke Hallowell)
 - g. Brain Awareness Week 2004 (Dr. Luke Tsai, Speaker)
 - h. Brain Awareness Week 2003 (Dr. Terry E. Robinson, Speaker)
4. Symposium Organizer
 - a. JP Scott Lectureship 2015 (Dr. Bruce Overmier, (Speaker)
 - b. JP Scott Lectureship 2007 (Stephen Porges, Speaker)
 - c. JP Scott Lectureship 2005(Larry Young, Speaker)

- d. JP Scott Lectureship 2003 (Ann E. Kelley, Speaker)

5. Committees

- a. Neuroscience Curriculum Committee

C. University

1. Undergraduate poster Judge at Center for Undergraduate Research (BGSU) symposium, 2015-present
2. Reviewer for the BGSU President's Award for Collaborative Research, 2021- 2022
3. Undergraduate oral research presentation judge at the CURS symposium, BGSU April 18th 2015
4. Shanklin Awards Judge 2014-2016
 - a. 25 manuscripts reviewed and scored
 - b. Oral presentations evaluated (finalists from all categories)
5. Grants Reviewer for Office of Sponsored Research Office Ad Hoc
6. Institutional Animal Care and Use Committee
 - a. August 2018- June 2019, Chairman of the Committee
 - b. Jan 2008 to 2012
7. Intercollegiate Athletics Committee Academic Year 2005-2006, 2008-2012
 - a. Chairman of committee, 2010 -2012
 - b. Research Subcommittee
 - c. Public Relations Subcommittee
8. The Distinguished Thesis Award Review Committee (Graduate College @BGSU)
9. Academic Honesty Committee (Sept 2008- 2009)
10. Faculty Grievance Committee (Sept 2008-2009)
11. Broadcasting Advisory Committee Year 2006-2007
12. Planning Committee for the Annual BGSU Research Conference (SPAR; off & on)
13. Faculty Research Committee for Sponsored Programs and Research Academic Year 2003-2004
14. Hiring Committee for Animal Facilities Department (Animal Technician Position) December 2003
15. Faculty Advisor for BGSU National Alliance on Mental Illness 2008 to 2012

D. Community

1. Interviewer of high school seniors: Providing feedback and interview experience Elmwood High School, Wood County, Ohio (May 2022/2023)
2. Wood County Historical Museum:
 - a. General consulting for history of mental health and lunatic house exhibit, ongoing
 - b. Board Retreat and Planning Committees- 2007-2015
 - c. Strategic Planning Committee 2010-2015
 - d. Educational committee (Mental Health Series Subcommittee-current)
3. Lunatic House Committee for the Wood County Historical Center and Museum- planning and designing new permanent exhibit. Organizing Annual Mental Health Lecture Series (guest speakers for the annual event are in parentheses)
 - a. 10th year Anniversary of Grand Opening: A 2014 Event
 - a. Friday night lecture by photo journalist
 - b. Saturday Mental Health event with guest speakers (Tom Clemens, Community Agencies and Mental Health &

- Dr. deYoung, History of Mental Health Treatments)
 - b. Empowering Clients in Therapy (November, 2011)
 - c. Volunteer Museum Docent for Heritage Days Festival, June 2009
 - d. Food for Thought in 2007 (Healthy Living Project & Dr. Robert Carels)
 - e. Suicide: History and Prevention in 2006 (Dr. Ellen Anderson)
 - f. Grand Opening Lecture Series in 2004 (Dr. Elliot Valenstein)
4. Chairmen of the Board for The Memorial Foundation for Lost Children 2003-2011 (university/community charity organization for children with developmental disabilities with a focus on Autism).
5. Board Member, Wood County Alcohol, Drug Addiction and Mental Health Board, 2009-2017
- a. Officer:
 - a. Vice Chairman 2014-2016
 - b. Secretary 2012-2014
 - b. Executive Committee member: 2012- 2016
 - c. Program Committee member: 2010-2017
 - d. Outcomes Committee member: 2010- 2016
6. Board Member, Children’s Resource Center, Bowling Green Ohio January 2019-present
- a. Program Committee Member
 - b. Personnel Committee member (new director interviews 2019)
7. Panel Moderator for ‘Should I stay or Should I go?’ Event May 2022
Organized by Wood County Commission on Aging at Senior Center BG Ohio

XII. RESEARCH CONSULTANT/REVIEWER

A. Journal reviewer

1. *Archives of Endocrinology*
2. *Archives of Environmental Contamination and Toxicology*
3. *Behavioral Brain Research*
4. *Behavioral Processes*
5. *Biological Psychiatry*
6. *Brain Research*
7. *Developmental Neuroscience*
8. *Endocrinology*
9. *Entropy*
10. *European Journal of Neuroscience*
11. *European Neuropharmacology*
12. *Foundations of Science*
13. *Frontiers in Neuroscience*
14. *Frontiers in Behavioral Neuroscience (Review Editor)*
15. *Journal of Experimental Psychology: Animal Cognition*
16. *Journal of Experimental and Therapeutic Pharmaceuticals*
17. *Journal of Neurochemistry*
18. *Journal of Neurophysiology*

19. *Journal of Neuroscience*
20. *Journal of Neuroscience Research*
21. *Journal of Pharmacology and Experimental Therapeutics*
22. *Learning & Behavior*
23. *Learning and Motivation*
24. *Nature Protocols*
25. *NeuroReport*
26. *Neuroscience*
27. *Neuroscience Letters*
28. *Neuroscience and Biobehavioral Reviews*
29. *Neuroscience Research*
30. *Ohio Journal of Science*
31. *Philosophical Papers and Reviews*
32. *Physiology and Behavior*
33. *PLOS ONE*
34. *Psychoneuroendocrinology*
35. *Psychopharmacology*
36. *The Psychological Record*

B. Journal Editorships

1. *Neuroscience Biobehavioral Reviews*: Guest Editor for Special Issue: Mapping the Human Affectome. Ongoing effort by set of international research teams 2016-present
2. *Neuroscience Biobehavioral Reviews*: Guest Editor for Special Edition entitled, “Impact of Affective Neuroscience: A celebration of the pioneering work of Jaak Panksepp”. 2010-2011
3. *Frontiers in Behavioral Neuroscience*: Reviewing Editor for Motivation and Reward section

C. Book Reviewer

1. *Introduction to Contemporary Neuroscience* by Princeton University Press (2022)
2. *Psychology Around Us* Emotion/Motivation Chapter (FlatWorld Publishers; 2018)
3. *Endocrine-Disrupting Chemicals: From Basic Research to Clinical Practice*. Edited Andrea Gore (Humana Press, 2007)
Review published in: *General and Comparative Endocrinology* 160 pp. 1-2
4. *Psychology in Context* (3rd and 4th Editions) (Allyn and Bacon Publishing House)
5. *Experimental Psychology* 8th Edition (Thomson/Wadsworth Publishers)
6. *Instant Notes on Physiological Psychology* (BIOS Scientific Publishers)

D. Awards/Grant/Presentation/Poster Reviewer

1. Reviewer for the President’s Award for Collaborative Research an Annual Award at BGSU (2022)
2. Reviewed grants for Belgium Science Foundation and Libre University 2019-2020
3. Ohio Academy of Sciences Meeting Abstract Reviewer -ongoing
4. National Science Foundation (Ad Hoc Review) –Ongoing
5. National Science Foundation Proposal Review Panelist, Division of Integrative

Organismal Systems, Neural Systems Cluster, October 5-7, 2009

6. Swiss National Science Foundation: Fonds National Suisse de la Recherche Scientifique
2007 Grant Applications and Ongoing Ad Hoc Reviews
7. National Science Foundation: Fogarty International Fellowships Reviewer
2001-2002 Grant Applications
8. Scientific Awards Judge (reviewer)
 - a. Melvin Scholar Judge at The Ohio Academy of Sciences Meeting
107th Ohio Academy of Sciences Meeting, April, 2007
 - b. Research Presentation Judge at The State Science Day
Sponsored by the Ohio Academy of Sciences, May, 2007
 - c. Center for Undergraduate Research at BGSU ongoing poster judge

XIII. MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- A. Society for Neuroscience (USA) 1988-pres
- B. Society for Biological Psychiatry 2013-2018
- C. European Neuroscience Association 1997-2003
- D. American Psychological Society 1989-2005
- E. Society for Neuroscience (Switzerland) 1997-2002
- F. European Brain and Behavior Society 1996-2004
- G. International Basal Ganglia Society 1997-2000
- H. International Behavioral Neuroscience Society 2005-pres.
- I. American Association for Laboratory Animal Science 2014-2015; 2018

XIV. HONORS AND AWARDS

- A. Omicron Delta Kappa (*ODK*) Leadership Society Membership 2011
Presented by the Bowling Green State University Chapter of *ODK*
- B. Outstanding Summer Research Institute Mentor Award 2009
Presented by the McNair Scholars Program (BGSU)
- C. International Research Fellowship Award 1998
Presented by the National Science Foundation (USA)
- D. Young Foreign Investigator Award 1997
Presented by the International Brain Research Organization
- E. Donald Marquis Dissertation Award 1993
Presented by Horace Rackham College of Graduate Studies,
The University of Michigan
- F. National Research Service Award 1991
Presented by the National Institute of Mental Health