

30 students- Fall 2003

2. Research Methods, Psychology 2900
22 students- Fall, 2003
22 students- Spring, 2003
3. Motivational Neuroscience and Laboratory, Psychology 3320
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
4. 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
5. 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
6. Forensic Neuroscience, Psychology 4400, 5810
10 students, Fall, 2016
15 students Fall 2015
13 students, Fall 2014
7. Clinical Neuroscience, Psychology 4400
15 students, Spring 2016

B. Graduate Classes- *Bowling Green State University*

1. Psychobiology, Psychology 714
15 students – Spring, 2015
22 students- Spring, 2011
5 students-Spring, 2007
8 students- Spring, 2005
5 students- Spring, 2004

2. 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*)

3. 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>
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>			

F. Membership on Dissertation Committees

Timothy Patrick	Psychology	BGSU
Christopher Gamsby	Psychology	BGSU
Dilshan Harshajith Beligala	Biology	BGSU
Alqassem Y Hakami Department 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

Workplace motivation and drive !

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

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
<i>Relationship between worry and cardiac variability</i>			
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
Faith, Religion and Sports

Jeffrey Burgdorf Preliminary Project 8/2005 BGSU
Electrical self-stimulation of the brain and reward

Ryan Yoder Oral Exam 8/2004 BGSU

H. Membership Thesis Committee

Leah Bogusch M.A. Psychology 2016

Patrick Nebl M.A Psychology Nov. 2014

Naima Dahir M.A. Education June 2014 BGSU
Cultural Neuroscience: p50 gating and individualist/collectivist cultures

Tatiana Rodriguez M.A. Psychology April 2014 BGSU
Meta-analysis

Kyoung Baik M.A. Psychology 2/2013 BGSU
Insomnia

Donna Burdzy M.A. Psychology In progress BGSU
Spirituality and awe

Vickie Carhart M.A. Psychology May, 2013 BGSU
Rehabilitation and mindfulness

Margaret Feiulle M.A. Psychology 12/2012 BGSU
Spirituality, mindfulness and migraines

Nicole Cantrell M.S. Biology Aug. 2011 BGSU
Effects of PCB exposure on maternal care and epigenetic mechanisms

David Mankin M.S. Biology March, 2012 BGSU
Cross-fostering analysis and PCB effects on motor and social development

Zhi Wang M.S. Biology Aug. 2011 BGSU
Effects of PCB on ovarian physiology and function

Victoria Eck M.S. Biology Left program? BGSU

Katie Hiler M.S. Biology June, 2009 BGSU
Effects of subtle hypothyroidism on motor function

Cynthia Toth M.S. Biology June, 2009 BGSU
Effects of subtle hypothyroidism on social development

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
<i>Effects of exposure and verbal context on memory for music</i>			
Jeffrey Burgdorf	M.A. Psych	1/5/2005	BGSU
<i>Reward functions of distinct ventral pallidal subregions</i>			

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)
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-present
2. Center of Excellence for Health and Wellness Across the Lifespan
 - a. Research Affiliate 2012-present

B. Workshops

1. Workshop on the teaching of Critical Thinking (Dr. Paul Moore)
February, 2009 BGSU Center for Teaching, Learning and Technology
2. Workshop on Digital Camera Use
July, 2003 BGSU Media Services
3. Workshops on Website Design (Dreamweaver Basics)
July-August, 2003 BGSU Computer Technology for Faculty
4. Faculty Development Workshop
May 3rd, 2003 College of Arts and Sciences
May, 2004 College of Arts and Sciences
5. 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. *Concussions in student athletes and emotional functions*
BGSU Faculty Research Incentive Grant June/2016-June/2018
Principal Investigator 10,000.00\$

2. *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 Years

3. *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

4. *Corticosterone and Social Development*
Hope for Depression Research Foundation 2/1/09-6/30/2010
Principal Investigator \$45,000.00

5. *Effects of PCBs on Social Behavioral Development*
R03 Grant from The National Institute of Mental Health, Start Date 6/08-02/2011
Principal Investigator HD053692 \$144,000.00
6. *Creating a new animal model of depression*
Hope for Depression Research Foundation 1/1/07-12/31/08
Principal Investigator, \$100,000.00
7. *Rat ultrasonic vocalization playback experiment*
John Paul Scott Neuroscience Center Faculty Development Award, 4/05
Principal Investigator, \$2,000.00
8. *Genetics of Social Reward*
Research Incentive Grant from Faculty Research Committee
Bowling Green State University, 6/05- 6/06
Principal Investigator \$8,000.00
9. *The effects of food deprivation on striatal activity*
John Paul Scott Neuroscience Center Faculty Development Award, 6/05-9/05
Principal Investigator \$9945.00
10. *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
11. *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
12. *Effects of early brain damage on behavior and neurophysiology*
Pilot Project from Ohio Board of Regents Incentive, 6/03
Principal Investigator \$1300.00
13. *Influence of reward devaluation on striatal activity*
National Institute of Mental Health Award for New Investigators 1/03-12/04
Principal Investigator MH067136 \$63,280

B. Submitted (last 5 years):

1. *Glutamate, Gambling using rodent model*
R15 to National Institutes of Health (NIAAA) Start Date: Jan 2019
2. *Environmental ethanol sensing and rat activity*
Grants in Laboratory Animal Science Start date: May 2018

3. *Training animals to prefer effortful work options*
Grants in Laboratory Animal Science Start date: May, 2018
4. *Ethanol and depression reactions*
R03 Grant submitted to NIAAA Institute at NIH Start date 6/1/2017
5. *Ethanol and free choice behavior*
R21 Grant submitted to NIAAA Institute at NIH start date 6/1/2017
6. *Ethanol and relative reward effects*
Resubmission of R01 grant to NIAAA institute at NOH start date 6/1/2017
7. *Ethanol and relative reward effects.*
R01 Grant submitted to NIAAA institute at NIH start date 6/1/2016.
8. *Variety effects on operant behavior in the rat model*
Research Grant to Grants in Laboratory Animal Medicine start date 6/15/2015

VIII. PUBLICATIONS

A. Book Chapters, Reviews, Obituary

1. Cromwell H.C. (2018) Jaak Panksepp 1943-2017 *American Psychologist* Vol. 73, No. 2, 20
2. 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.
3. 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.
4. Cromwell, H.C. (2009) A review of Endocrine-Disrupting Chemicals: From Basic Research to Clinical Practice *General and Comparative Endocrinology*, Vol. 160, 1-2.
5. 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. 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*. pii: S0376-6357(17)30616-2. doi: 10.1016/j.beproc.2018.06.016
2. 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>
 3. 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
 4. 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.
 5. 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.
 6. 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.
 7. 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.
 8. 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
 9. 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.
 10. 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.
 11. 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
 12. 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
 13. Webber, E.S., Mankin, D.E., McGraw, J.J. and Cromwell H.C. (2013). Ultrasonic vocalizations, predictability and sensorimotor gating in the rat. *Behavioral Brain Research*, Sep 15;253:32-41.
 14. Webber E.S., Harmon K.M., Beckwith T.J., Pena, S., Burgdorf, J., Panksepp, J., Cromwell H.C. (2012) Selective breeding for 50 kHz ultrasonic vocalization emission produces alterations in the ontogeny and regulation of rough-and-tumble play. *Behavioral Brain Research*, 229(1):138-44.
 15. Desai, A N.,McFarland A.M., Cromwell H.C. and Meserve L.A. (2011) Influence of Perinatal Exposure to a Polychlorinated Biphenyl Mixture on Learning and Memory, Hippocampal Size, and Estrogen Receptor-Beta Expression. *Ohio Journal of Science*, 110: 114-120.
 16. Cromwell H.C. and Panksepp J. (2011) Rethinking the Cognitive Revolution from a Neural Perspective: How Overuse/Misuse of the Term 'Cognition' and the Neglect of

- Affective Controls in Behavioral Neuroscience could be Delaying Progress in Understanding the BrainMind. *Neuroscience BioBehavioral* Oct; 35(9):2026-35.
17. Cromwell H.C. (2011) Rat pup social motivation: A critical component of early psychological development. *Neurosci. BioBehavioral Reviews*, 35(5):1284-90
 18. Jolous-Jamshidi B, Cromwell HC, McFarland AM, Meserve LA (2010) Perinatal exposure to polychlorinated biphenyls alters social behaviors in rats. *Toxicol Lett.* 199(2):136-43.
 19. J.D. McAuley, A.L. Stewart, E.S. Webber, H.C. Cromwell, R.J. Servatius, & K.C.H. Pang (2009) Wistar-Kyoto rats as an animal model of anxiety vulnerability: Support for a hyper-vigilance hypothesis. *Behav Brain Res.* 204(1):162-8..
 20. Mears, RP, Boutros, NN, Cromwell HC (2009) Reduction of Prelimbic Inhibitory Gating of Auditory Evoked Potentials After Fear Conditioning. *Behavioral Neuroscience.* Apr;123(2):315-27.
 21. Burgdorf, J., Moskal J.R., Cromwell H.C., Brudzynski, S.M., Kroes R.A., and Panksepp J. (2009) Emotional behavior of rats selectively bred for differential levels of 50 kHz ultrasonic vocalizations. *Dev Psychobiol.* Jan;51(1):34-46.
 22. Harmon K.M., McFarland A.M., Beckwith, T.J., Greenwald, M. and Cromwell H.C. (2009) The effects of prenatal stress on social motivation in rat pup. *Stress*;12(3):250-8.
 23. Harmon, K.M., Cromwell H.C., Burgdorf, J., Moskal J.R., Brudzynski, S.M., Kroes R.A., and Panksepp J. (2008) Rats bred for low 50 kHz ultrasonic vocalizations exhibit changes in early social motivation. *Developmental Biopsychology* 50(4): 322-331.
 24. Cromwell H.C., Mears, RP, Wan L. and Boutros NN. (2008) Sensory Gating: A translational effort from basic to clinical science. *Journal of Clinical EEG & Neuroscience*: 39(2) 1-4.
 25. Cromwell H.C., Johnson A., McKnight L., Horinek M., Asbrock C., Burt S., Jolous-Jamshidi, B. and Meserve L.A. (2007) Effects of polychlorinated biphenyls on maternal odor conditioning in rat pups. *Physiology and Behavior* 91(5):658-66.
 26. Cromwell H.C., Klein A.C. and Mears R.P. (2007) Single unit and population responses during inhibitory gating of striatal activity in freely moving rats. *Neuroscience* Apr 27;146(1):69-85. Epub 2007 Feb 22.
 27. Anstrom K.K., Cromwell H.C. and Woodward D.J. (2007) Effects of restraint and haloperidol on sensory gating in the midbrain of awake rats. *Neuroscience* May 11;146(2):515-24. Epub 2007 Mar 23.
 28. Cromwell H.C. and Woodward D.J. (2006) Inhibitory gating and amygdale: Influence of haloperidol, ketamine or nicotine. *Biological Psychiatry*, Apr 1;61(7):880-9. Epub 2006 Oct 19.
 29. Mears R.P., Klein A.C. and Cromwell H.C. (2006) Auditory inhibitory gating in the medial prefrontal cortex: Single unit and local field potential analysis. *Neuroscience*, 141(1):47-65.
 30. Cromwell H.C., O.K Hassini and W. Schultz. (2005) Relative reward processing in primate striatum. *Exp Brain Res.* May;162(4):520-5. Epub 2005 Mar 8.
 31. Cromwell H.C., Anstrom K.K., Azaroz, A., and Woodward DJ (2005) Single unit analysis of inhibitory gating in the amygdala of behaving rat. *Brain Research*, 1043 (1-2): 12-23.
 32. Cromwell HC and Schultz W. (2003) Influence of the expectation for different reward magnitudes on behavior-related activity in primate striatum. *J. Neurophysiology* 89: 2823-2838.

33. Anstrom KK, Markowski T., Cromwell H.C. and Woodward DJ (2003) The effect of baclofen on ethanol and sucrose self-administration in rats. *Alcoholism: Clinical and Experimental Research* 27: 900- 908.
34. Watanabe M., H.C. Cromwell, Tremblay L., Hollerman JR, Hikosaka K. and Schultz W. (2001) Behavioral reactions reflecting differential expectations of outcomes in monkeys. *Experimental Brain Research* 140: 511-518.
35. Hassani O.K., H.C. Cromwell and W. Schultz (2001) Influence of the expectation for different rewards on behavior-related neuronal activity in primate striatum. *Journal of Neurophysiology* 85: 2477-2489.
36. Brunson, K.L., A. Khanna, H.C. Cromwell and R.W. Cohen (2001) The effect of the non-competitive NMDA antagonists MK-801 and ketamine on the spastic Han-Wistar mutant: A rat model of excitotoxicity. *Developmental Neuroscience*, 23(1): 31-40.
37. Sabatino, M., H.C. Cromwell, C. Cepeda, M.S. Levine and V. LaGrutta. (1999) Acetylcholine receptor activation enhances NMDA receptor-mediated responses in neostriatum. *Clinical Neurophysiology*, 29(6): 482-489.
38. Cepeda, C., Z. Li., H.C. Cromwell, K.L. Altremus, C.A. Crawford, E.A. Nanson, M.A. Aiano, D.R. Sibley, W.K. Peacock, G.W. Mathern and M.S. Levine (1999) Electrophysiological and morphological analyses of cortical neurons obtained from children with catastrophic epilepsy: Dopamine receptor modulation of glutamatergic responses. *Developmental Neuroscience*, 21 (3-5): 223-235.
39. Cromwell H.C., M.S. Levine, and B.H. King (1999) Cortical damage enhances pemoline-induced self-injurious behavior in prepubertal rats. *Pharmacol Biochem Behavior* Feb;62(2):223-7.
40. Cromwell H.C., K.C. Berridge, J. Drago and M.S. Levine (1998) Action sequencing is impaired in D1A-deficient mutant mice. *Eur J Neuroscience* Jul;10(7):2426-32.
41. King B.H., H.C. Cromwell N.T. Maidment, T. Schmanke and M.S. Levine (1998) Dopaminergic and glutamatergic interactions in the expression of self-injurious behavior. *Dev Neuroscience.*;20(2-3):180-7. Review.
42. Cromwell H.C., B.H. King, and M.S. Levine (1997) Pemoline alters dopamine modulation of synaptic responses of neostriatal neurons in vitro. *Dev Neuroscience*;19(6):497-504.
43. 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.
44. Cromwell H.C. and M.S. Levine (1996) Neocortical damage alters synaptic responses of neostriatal neurons in vitro. *Neuroscience*, Nov;75(2):361-72.
45. Levine M.S., K.L. Altremus, C. Cepeda, H.C. Cromwell, C.A. Crawford, M.A. Ariano, J. Drago, D.R. Sibley, and H. Westphal (1996) Modulatory actions of dopamine on NMDA receptor-mediated responses are reduced in D1A-deficient mutant mice. *Journal of Neuroscience* Sep 15;16(18):5870-82.
46. Levine M.S., Z. Li., C. Cepeda, H.C. Cromwell and K.L. Altremus (1996) Neuromodulatory actions of dopamine on synaptically-evoked neostriatal responses in slices. *Synapse*, Sep;24(1):65-78
47. Cromwell H.C. and K.C. Berridge (1996) Implementation of action sequences by a neostriatal site: a lesion mapping study of grooming syntax. *Journal of Neuroscience* May 15;16(10):3444-58.
48. Cromwell H.C., E.A. Witte, C. A. Crawford, T.L. Hoa, N.T. Maidment and B.H. King (1996) Pemoline produces ipsilateral turning behavior in unilateral 6-OHDA-lesioned

rats. *Progress in Neuropsychopharmacology and Biological Psychiatry*. Apr;20(3):503-14.

49. Cromwell H.C., N.A. Buchwald and M.S. Levine (1995) Decortication decreases paired-pulse facilitation in the neostriatal slice of the rat. *Neurosci Letters*, Jun 16;192(3):213-7.
50. 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.
51. 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.
52. 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 (2016) Neuroqualia: A new perspective. Presented at the Neuroqualia Workshop in August, Halifax, Nova Scotia,
2. Cromwell H.C. (2014) Brain basis of relative reward processing. Presented at the Midwestern Psychological Association Meeting. Chicago Ill. May, 2014.
3. 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.
4. 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)
5. 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".
6. 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.
7. 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)
8. Cromwell H.C. (1997) Functions of the basal ganglia. Presented at the Workshop zur Heptischen Encephalopathie, May 14-15th, Hannover, Germany
9. 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. 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.

2. 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.
3. 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
4. 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.
5. 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.
6. 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*.
7. 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.*
8. 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*
9. 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.
10. 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.**
11. McGraw JJ, Zona, LC & Cromwell HC (2016) Ethanol self-administration effects on free choice in the rat. *Society for Alcohol Research. New Orleans La.*
12. 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.*
13. 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.*
14. Halverstadt B and Cromwell HC (2015) Reward variety effects on instrumental actions in rats. *Society for Neuroscience Annual Meeting Chicago Ill.*
15. 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.*
16. 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*
17. 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.
18. McGraw, J J., Zona, L. and Cromwell H.C. 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 2015.

19. Ricker J., Kopchock 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.
20. 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
21. 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.
22. Dahir N. and Cromwell H.C. (2014) Interactions between stress, culture and the brain. *Midwest Graduate Research Symposium*. University of Toledo. March 29th.
23. 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.
24. 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.
25. 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.
26. 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.
27. 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.
28. 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.
29. 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.
30. 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.
31. Cromwell H.C., Almodovar J., Ozypok M. , Guesz, M. (2012) Do hairless mice groom? *Society for Neuroscience*, New Orleans La.
32. 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.
33. 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).
34. 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.
35. Binkley KA, Webber ES, Hagerman JR and Cromwell HC (2011) Relative reward effect: Do USVs reflect reward comparisons? *Society for Neuroscience*, Washington DC.
36. 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.
37. Cromwell HC, Mankin DE, Webber ES (2009) USVs during PPI: Effects of expectations. *Society for Neuroscience*, Chicago Ill.

38. Harmon KM, McGraw J., Mankin DE, Cromwell HC (2009) Role of corticosterone in early social motivation in the rat. *Society for Neuroscience*, Chicago Ill.
39. Mankin DM, Stoffer, 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.
40. 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.
41. 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.
42. 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.
43. 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*
44. 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.
45. Varner, EJ and Cromwell HC (2009) Multiple Intelligences & The Development of Specific Cognitive Abilities. *American Junior Academy of Sciences*, Chicago Ill Feb 12-15th,
46. 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.
47. 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.
48. 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.
49. McAuley, JD, Stewart AL, Webber ES, Cromwell HC, Servatius R., Pang, KCH (2008) Wistar-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.
50. 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.
51. 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.
52. 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.
53. 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.
54. 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.

55. 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.
56. 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
57. 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*.
58. 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.,
59. 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.
60. 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.
61. 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.
62. 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.
63. 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.
64. 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
65. 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
66. 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.
67. 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.
68. 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.
69. Johnson, A., McKnight L., Burt, S., Horinek, M., Asbrock C., Cromwell H.C. and Meserve L.A. (2005) Effects of perinatal polychlorinated biphenyls on behavior. Ohio Academy of Sciences, April 4th in Bowling Green, Ohio: *The Ohio Journal of Science*, 105 (1) p. A-6.
70. Ward R.J., Harmon K. and Cromwell H.C. (2005) Effects of prenatal stress on the development of social behavior. Ohio Academy of Sciences Annual Meeting. *The Ohio Journal of Science* 105 (1) p. A-18.
71. Klein A., Mears, R.P. and Cromwell H.C. (2005) Gating of audition in the striatum. Ohio Academy of Sciences, *The Ohio Journal of Science* 105,(1) p. A-20

72. Mears R.P and Cromwell H.C. (2004) Influence of fear conditioning on inhibitory gating in rat medial prefrontal cortex. *Society for Neuroscience Abstracts* 30, San Diego, CA. CD-ROM.
73. Cromwell H.C. and Mears R.P. (2003) Neurophysiology of inhibitory gating: A fundamental process of attention and emotion. *American Psychological Society Abstracts* 15, Atlanta, USA.
74. Cromwell H.C., Wilson A.G. and Mears R.P. (2003) Influence of sensory-specific satiety on striatal activity. *Society for Neuroscience Abstracts* 29, New Orleans, USA.
75. Mears R.P. and Cromwell H.C. (2003) Inhibitory gating in the prefrontal cortex of rat: single units and local field potentials. *Society for Neuroscience Abstracts* 29, New Orleans, USA.
76. Cromwell H.C., Azarov A., Anstrom K and Woodward D.J. (2001) Neural responses in mesoamygdala circuits during associative learning. *Society for Neuroscience Abstracts* 27, CD ROM San Diego, CA.
77. Woodward D.J., Cromwell H.C., Anstrom K., Glasier M.M. and Azarov A. (2001) Inhibitory gating of auditory stimuli by single neurons in the mesoamygdala and mesocortical circuits of the awake, behaving rat. *Society for Neuroscience Abstracts* 27 CD ROM.
78. Anstrom K., Cromwell H.C., Azarov A., Chang J., Lyons D., Glasier M.M. and Woodward D.J. (2001) Behavioral, electrophysiological and pharmacological responses of ventral tegmental area neurons in awake, behaving rats. *Society for Neuroscience Abstracts* 27, 1303.
79. Watanabe M. Cromwell HC, Tremblay L., Hollerman JR, Hikosaka K. and Schultz W. (2001) Differential expectations of outcomes reflected in primate behavioral reactions. *Society for Neuroscience Abstracts* 27, 2199.
80. Cromwell H.C. and Schultz W. (2000) Reward discrimination in primate striatum II. Reward magnitude. *Society for Neuroscience Abstracts* 26, 1501, New Orleans, La.
81. Ibrahim M., Cromwell H.C. and Celio M.R. (1999) Associations of local-circuit neurons and possible synaptic interactions in the adult rat anterior medullary velum. *Society for Neuroscience Abstracts* 25, 759, Miami Beach, FLA.
82. Hassini O.K., Cromwell H.C. and Schultz W. (1999) Discrimination entre les recompenses dans le striatum du primate. *Societe des Neurosciences, Livres des Resumes* 4, 273, Marseilles, France.
83. Hassini O.K., H.C. Cromwell, and W. Schultz (1999) Discrimination between rewarding stimuli in primate striatum. *Swiss Society for Neuroscience Abstracts* 4, 43, Zurich, Switzerland.
84. Cromwell H.C., O.K. Hassini and W. Schultz (1998) Reward discrimination in primate striatum. *Society for Neuroscience Abstracts* 24, 1652. Los Angeles, CA.
85. Cromwell H.C., K.C. Berridge, C.A. Crawford, J. Drago, and M.S. Levine (1997) Grooming syntax disrupted in D1A mutant mice. Presented at the European Brain and Behavior Society Meeting. *Experimental Brain Res.* 177 S51. Munich Germany.
86. Cromwell H.C. and Levine M.S. (1997) Enhanced cholinergic mediation of locally-evoked striatal synaptic responses after cortical damage. *Swiss Society for Neuroscience Abstracts* 2, 16. Fribourg, Switzerland.
87. Cepeda C., C.A. Crawford, E.A. Nansen, H.C. Cromwell, K.A. Altremus, W. Peacock, M.A. Ariano, D.R. Sibley, N.A. Buchwald and M.S. Levine (1996) Electrophysiological and morphological analyses of cortical neurons obtained from children with catastrophic epilepsy. *Epilepsia* 37 (Suppl 5) 41. San Francisco, CA.
88. Witte E.A., H.C. Cromwell and B.H. King (1996) Effects of serotonergic modulation on pemoline-induced self-injury in the rat. *Society for Neuroscience Abstracts* 22, 2066. Washington D.C. USA.
89. Altremus K.L., C. Cepeda, H.C. Cromwell, W. Peacock, N.A. Buchwald and M.S. Levine. (1996) Modulation of neuronal excitability on developing human cortical neurons. *Society for Neuroscience Abstracts* 22, 186.

90. Levine M.S. and H.C. Cromwell (1996) Pemoline-induced self-injurious behavior involves alterations in both excitatory amino acid and dopaminergic neurotransmission in the rat neostriatum. Presented at the 10th World Congress of the International Association for the Scientific Study of Intellectual Disabilities. Jul 13-18th. Helsinki, Finland.*
91. Cromwell H.C., M.S. Levine and B.H. King (1995) Pemoline treatment alters evoked synaptic responses in the rat neostriatal slice. *Society for Neuroscience Abstracts* 21, 193. San Diego, CA.
92. Levine M.S., Altremus K.L., C. Cepeda, H.C. Cromwell, C.A. Crawford, J. Drago, D.R. Sibley, and H. Westphal (1995) Alterations in neostriatal neuronal responses to dopamine receptor agonists in mutant mice lacking D1A receptors. *Society for Neuroscience Abstracts* 21, 912.
93. Brunson K.L., A. Khanna, H.C. Cromwell, and R.W. Cohen (1995) Neuroprotection in a rat model of excitotoxicity: NMDA antagonists. *Society for Neuroscience Abstracts* 21, 1343.
94. Crawford C.A., K.L. Altremus, H.C. Cromwell, N.A. Buchwald and M.S. Levine. (1995) Neostriatal dopaminergic function in aged rats: behavior, fos, immunoreactivity and electrophysiology. *Society for Neuroscience Abstracts* 21, 574.
95. King B.H., H.C. Cromwell, E. Estonia, J.T. McCracken, and M.S. Levine (1995) Bilateral cortical lesions enhance pemoline-induced self-biting behavior in pre-pubertal rats. *Society for Neuroscience Abstracts* 21, 193.
96. Cromwell H.C., N.A. Buchwald, and M.S. Levine (1994) Decortication alters locally evoked synaptic responses in the rat neostriatal slice. *Society for Neuroscience Abstracts* 20, 563. Miami, Fla.
97. Turman J.E., B.H. King, H.C. Cromwell, P.A. Davanzo, E.A. Witte, C. Crawford and J.T. McCracken (1994) Unilateral neostriatal lesions inhibit pemoline-induced self-biting behavior in pre-pubertal rats. *Society for Neuroscience Abstracts* 20, 820.
98. King B.H., H.C. Cromwell, J.E. Turman, P.A. Davanzo, E.A. Witte, C. Crawford and J.T. McCracken (1994) Pemoline produces ipsilateral turning behavior in unilateral 6-OHDA lesioned rats. *Society for Neuroscience Abstracts* 20, 824.
99. King, B.H., J.E. Turman, H.C. Cromwell, P.A. Davanzo, and R. Poland. (1994) Pharmacologic and neuroanatomic substrates for pemoline-induced self-injurious behavior in prepubertal rats. *International Journal of Developmental Neuroscience* 21, Suppl. 1, 58.
100. Sabatino M., H.C. Cromwell and V. LaGrutta (1994) Excitatory cholinergic modulation of NMDA responses in the rat caudate nucleus. *Societa Italiana di Neuroscienze, Rilascio di Neurotrasmettitore e Plastica Sinaptica* 29, Roma, Italia.
101. Cromwell H.C., D. Karimipour and K.C. Berridge (1992) Where is aversion: lateral hypothalamus or ventral pallidum/substantia innominata? *Society for Neuroscience Abstracts* 18, 1067, Anahiem, CA.
102. Cromwell H.C. and K.C. Berridge (1991) Systemic haloperidol decreases the hyperkinetic paw treading induced by ventromedial striatopallidal lesions in the rat. *Society for Neuroscience Abstracts* 17, 1220. New Orleans, La.
103. Cromwell H.C. and K.C. Berridge (1990) Anterior lesions of the corpus striatum produce a disruption of stereotyped grooming sequences in the rat. *Society for Neuroscience Abstracts* 16, 223. St. Louis, Mo.
104. 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.
105. Cromwell H. C. and K.C. Berridge (1989) Localization of the corpus striatum subregion responsible for a paw treading chorea in the rat. *Society for Neuroscience Abstracts* 15, 914. Phoenix, Arizona.

X. INVITED SEMINARS, COLLOQUIA AND CONFERENCE KEYNOTE SPEECHES

1. *Alcohol preferring rats and alterations in reward valuation* (2018) Invited seminar for Addiction Program Group at Wayne State University, April 4th.
2. *Relative reward valuation and brain-behavior activity* (2018) Invited seminar to Math and Statistics Department at BGSU Feb 28th.
3. *A novel choice paradigm to study drug addiction* (2017) Invited seminar for Pharmacology Department at University of Toledo on March 29th.
4. *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.
5. *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
6. *Psychology degrees and the workplace.* Panelist for Student Forum on Jobs and Career Placement at Bowling Green State University on Feb 26th 2014.
7. *Protect your bird brain.* Panelist for Brain Awareness Event at Bowling Green State University on March 14th 2013.
8. *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.
9. *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).
10. *Models of Attachment Disorder: A Pankseppian Approach* (Panksepp Festschrift) Bowling Green State University May 22nd 2010.
11. *Reward signals in the brain: A rewarding seminar.* (Seminar) Mahidol University Center for Neuroscience, Bangkok (Salaya) Thailand, December 17th 2009. Host: Dr. Piyarat Govitrapong.
12. *Inhibitory gating in the brain: from single units to field potentials.* NeuroDay Symposium, University of Toledo Medical School, February 20th 2009.
13. *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.
14. *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
15. *Biomarkers for hunger in the basal ganglia* (Seminar) Department of Psychology, Gettysburg College, Gettysburg, PA. March 3rd, 2006 Host: Dr. Stephen Sivi
16. *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
17. *Relative reward evaluation and striatal neurophysiology* (Seminar) Genome Research Institute, University of Cincinnati School of Medicine, Cincinnati, OH, August, 2005. Host: Dr. Jeffrey Johnson
18. *Reward contrast and basal ganglia activity* (Biopsychology Colloquium) Department of Psychology, University of Michigan, Ann Arbor, MI., April, 2005. Host: Dr. Kent Berridge
19. *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
20. *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
21. *Striatal neural activity and expectancy theory* (Seminar) Department of Psychology, University of Wisconsin-Madison, Madison, WI. January 2001 Host: Dr. Brad Postle

22. *Basal ganglia: Anatomy to Function (A Short Course)* Department of Neurobiology, Janus Pannonius University, Pecs, Hungary, Oct., 1999 Host: Dr. Istvan Hernadi
23. *Striatal activity and drugs of abuse (Seminar)* Institute of Physiology, University of Fribourg, Fribourg, Switzerland June, 1999 Host: Dr. Eric Rouillier
24. *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
25. *Reward Signals and Basal ganglia activity (Symposium Lecture) European Neuropharmacology Society Meeting.* Brno, Czechoslovakia, July 1999.
26. *Reward Processing and striatal single neurons (Seminar)* Department of Psychology, University of Georgia, Athens, GA, Feb. 1999 Host: Dr. Philip V. Holmes
27. *Reward discrimination by single striatal neurons (Seminar)* Centre Nationale Research Scientifique (CNRS) Marseilles France, July, 1998. Host: Dr. Paul Apicella
28. *Basal ganglia as integrative activity.* Neurology Department, Hannover Medical School. Hannover, May, 1998, Hannover Germany.
29. *Functional heterogeneity of striatal and pallidal subregions (Seminar)* Behavioral Toxicology Division, Institute for Technology Research (ETH) Zurich, Switzerland January, 1998. Host: Dr. Joram Feldon
30. *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

XI. SERVICE

A. Department

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

D. Community

1. Wood County Historical Museum:
 - a. Board Retreat and Planning Committees- 2007-2015
 - b. Strategic Planning Committee 2010-2015
 - c. Educational committee (Mental Health Series Subcommittee-current)
2. 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)
3. 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).
 4. Board Member, Wood County Alcohol, Drug Addiction and Mental Health Board, 2009-2017
 - a. Officer:
 - a. Vice Chairman 2014-present
 - b. Secretary 2012-2014
 - b. Executive Committee member: 2012- present
 - c. Program Committee member: 2010-present
 - d. Outcomes Committee member: 2010- present

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. *Journal of Experimental and Therapeutic Pharmaceuticals*
14. *Journal of Neurochemistry*
15. *Journal of Neurophysiology*
16. *Journal of Neuroscience*
17. *Journal of Neuroscience Research*
18. *Journal of Pharmacology and Experimental Therapeutics*
19. *Learning & Behavior*
20. *Nature Protocols*
21. *NeuroReport*
22. *Neuroscience*
23. *Neuroscience and Biobehavioral Reviews*
24. *Neuroscience Research*
25. *Ohio Journal of Science*
26. *Philosophical Papers and Reviews*
27. *Physiology and Behavior*
28. *PLOS ONE*

29. *Psychopharmacology*
30. *The Psychological Record*

B. Journal Editorships

1. *Neuroscience Biobehavioral Reviews*: Guest Editor for Special Edition entitled, “Impact of Affective Neuroscience: A celebration of the pioneering work of Jaak Panksepp”.

C. Book Reviewer

1. *Psychology Around Us Emotion/Motivation Chapter* (FlatWorld Publishers; 2018)
2. *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
3. *Psychology in Context* (3rd and 4th Editions) (Allyn and Bacon Publishing House)
4. *Experimental Psychology* 8th Edition (Thomson/Wadsworth Publishers)
5. *Instant Notes on Physiological Psychology* (BIOS Scientific Publishers)

D. Grant/Presentation/Poster Reviewer

1. Ohio Academy of Sciences Meeting Abstract Reviewer 2017/2018
2. National Science Foundation (Ad Hoc Review) –Ongoing
3. National Science Foundation Proposal Review Panelist, Division of Integrative Organismal Systems, Neural Systems Cluster, October 5-7, 2009
4. Swiss National Science Foundation: Fonds National Suisse de la Recherche Scientifique 2007 Grant Applications and Ongoing Ad Hoc Reviews
5. National Science Foundation: Fogarty International Fellowships Reviewer 2001-2002 Grant Applications
6. 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

XIII. MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- A. Society for Neuroscience (USA) 1988-pres
- B. Society for Biological Psychiatry 2013-pres.
- C. European Neuroscience Association 1997-pres
- D. American Psychological Society 1989-pres
- E. Society for Neuroscience (Switzerland) 1997-pres.
- F. European Brain and Behavior Society 1996-pres

- G. International Basal Ganglia Society 1997-pres.
- 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