Dr. Candice M. Klingerman, M.S., Ph.D.

Curriculum Vitae

Bloomsburg University
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Education

Lehigh University — Bethlehem, PA
Ph.D., Integrative Biology, Behavioral Neuroscience — January 2012
- Dissertation: Roles of ovarian steroids, mesolimbic dopamine and gonadotropin-inhibiting hormone in regulating sexual and ingestive motivation.
- Adviser: Dr. Jill E. Schneider

University of Delaware — Newark, DE
M.S., Animal Science, Animal Nutrition — January 2008
- Thesis: An evaluation of exogenous enzymes with amylolytic activity for dairy cows.
- Adviser: Dr. Limin Kung

Delaware Valley College — Doylestown, PA
B.S., Small Animal Science — May 2004

Teaching Experience

Bloomsburg University — Bloomsburg, PA
Assistant Professor — 2013 to present
- Animal Behavior, Introduction to Nutrition, Anatomy and Physiology I and II laboratories, Anatomy of the Head, Neck, and Thorax laboratory, Concepts in Biology laboratory, Freshman Seminar.

Graduate Student Mentoring

➢ John Poling	Effects of environmental toxins on zebrafish behavior and neuroanatomy (2016-2017)
➢ Samirah Boksmati	Effects of neuropeptide Y on ingestive and reproductive behaviors of female, Syrian hamsters (2015-2016)
➢ Shandna Burroughs	Effects of ghrelin on ingestive and reproductive behaviors of female Syrian hamsters (2015-2016)

Undergraduate Student Mentoring

➢ Hanan Ben Nacef	IRB-approved protocol; Sedentary lifestyles contributing to exercise-induced hyperpnea and tachycardia in university students (2015-2016)
➢ Taylor Trautwein and Arjun Dalsania	Effects of Prokineticin-2 on reproductive and ingestive behaviors of Syrian hamsters (2016)

Lehigh University — Bethlehem, PA
Graduate Student Laboratory Instructor — 2009, 2011
- Cell and Molecular Biology, Experimental Neuroscience

Lehigh University — Bethlehem, PA
Undergraduate Mentoring — 2007 to 2011
- Kaila Krishnamoorthy — Competition-induced food hoarding (2010 to 2011)
- Amir Abdulhay — Cold and exercised-induced suppression of sexual behavior and enhancement of food hoarding (2008 to 2010)
- Sanjana Bhatia — Male preference of females with varying energy availability (2008 to 2010)
- Anand Patel — Effect of dopamine receptor agonists/antagonists on sexual and ingestive behavior (2007 to 2009)
- Noah Benton — Effect of melanocortin receptor agonists/antagonists on sexual and ingestive behavior (2007 to 2008)

Delaware Valley College — Doylestown, PA
Teaching Assistant — 2003
- Introduction to Laboratory Animal Science

Employment & Work Experience

Penn State College of Medicine — Hershey, PA
Post-doctoral Research Associate — 2012 to 2013
- I studied the toxicity of hydrogen sulfide *in-vivo* using microsurgery, cerebrospinal fluid collection, and measurement of H2S in the blood and expired gas of spontaneously breathing, anesthetized rats. NIH grant 1R21NS-080788-01

Penn State College of Medicine — Hershey, PA
Post-doctoral Research Associate — 2011 to 2012
- I elucidated the mechanisms by which atypical antipsychotic medications cause overeating, obesity, and development of type II diabetes using cell culture and animal model systems. NIH grant R01DK084428.

Lehigh University — Bethlehem, PA
Research Assistant — 2007 to 2011
- I studied the effects of food restriction on metabolic processes and brain peptides related to energy balance and reproduction in Syrian hamsters and sheep. Sheep experiments were performed by temporarily relocating to work in the laboratory of Dr. Iain Clarke at Monash University in Clayton, Australia. NSF grant IBN0645882, NIH grant R01DK069981.

University of Delaware — Newark, DE
Research Assistant — 2005 to 2007
- I performed various *in-vivo* and *in-vitro* experiments studying the effects of exogenous, amylolytic enzymes on digestion and performance of dairy cows.

Children's Hospital of Philadelphia — Philadelphia, PA
Research Technician, Level II — 2004 to 2005

- I assisted in various arterial stenting procedures in the Department of Cardiology in both swine and rodents. Skills included monitoring of anesthesia and heart rate, pre- and post-operative care, euthanasia, and organ recovery. I monitored all IACUC protocols in the department and filed for both their annual and 3-year renewals.

Delaware Valley College — Doylestown, PA
Student Animal Laboratory Manager — 2002 to 2004

- Managerial duties, work scheduling, technician training/monitoring, administration of medication, procedural training, breeding, and quality assurance

Delaware Valley College — Doylestown, PA
Animal Laboratory Technician — 2001

- Animal handling/restraint, animal care

Peer-reviewed Publications

1. Burroughs, S.E., W. Schwindinger, J. Venditti, T. Trautwein, A. Dalsania, and **C.M. Klingerman**. (In preparation). "Prokineticin-2 robustly and reliably influences the sexual and ingestive behaviors of female Syrian hamsters." *Behav Brain Res.*

2. Schneider, J., Benton, N., Russo, K., **Klingerman, C.,** Williams, W., Simberlund, J., Abdulhay, A., Brozek, J., and Kriegsfeld, L. (2017) RFamide-related Peptide-3 and the Trade-off Between Reproductive and Ingestive Behavior. *Integr Comp Biol.* 57:1225-1239.

3. **Klingerman, C.M.**, M. Stipanovic, A. Hajnal, and C. Lynch. (2015) "Acute metabolic effects of olanzapine depend on dose and injection site." *Dose-response*. 13:1-8

4. Haouzi., P.**,** T. Sonobe, N. Torsell, B. Prokopczyk, B. Chenuel, and **Klingerman, C.M.** (2014) "In vivo interactions between cobalt or ferric compounds and the pools of sulfide in the blood during and after H2S poisoning. *Tox Sci.* 141:493-504.

5. Haouzi, P., B. Chenuel, T. Sonobe, and **C.M. Klingerman**. (2014) "Are H2S-trapping compounds pertinent to the treatment of sulfide poisoning?" *Clin Tox.* 52:566.

6. Abdulhay, A.A., N. Benton, **C.M. Klingerman**, K. Krishnamoorthy, J. Brozek, and J. E. Schneider. (2014) "Estrous cycle fluctuations in sex and ingestive behavior are accentuated by exercise or cold ambient temperatures." *Horm Behav* 66:135-147.

7. **Klingerman, C.M.**, M.E. Stipanovic, M. Bader, and C.J. Lynch. (2014) "Second generation antipsychotics cause a rapid switch to fat oxidation that is required for survival in C57BL/6J mice." *Schizophrenia Bulletin*. 40:327-340.

8. Haouzi, P. & **C. M. Klingerman**. (2013) "Fate of intracellular H2S/HS- and metallo-proteins." *Resp Physiol And Neurobiol* 188:229-230.

9. **Klingerman, C.M.**, N. Trushin, B. Prokopczyk, and P. Haouzi. (2013) "H2S concentrations in the arterial blood during H2S administration in relation to its toxicity and effects on breathing." *Am J Physiol Regul Integr Comp Physiol.* 305:R630-R638.

10. Schneider, J.E., **C.M. Klingerman**, A.A. Abdulhay. (2012) "Sense and nonsense in metabolic control of reproduction." *Frontiers in Systems and Transl Endocrinol.* 3, 26:1-21.

11. **Klingerman, C.M.**❖, W.P. Williams❖, L.J. Kriegsfeld, and J.E. Schneider. (2012) "Cellular activation in gonadotropin-inhibiting hormone-immunoreactive cells is association with sexual motivation and food hoarding, but not sexual performance and food intake in female Syrian hamsters." *Frontiers in Systems and Translational Endocrinol.* ❖Co-first authors on this manuscript. 2, 101:1-15.

12. **Klingerman, C.M.**, A. Patel, V.L. Hedges, R.L. Meisel, and J.E. Schneider. (2011) "Food restriction dissociates sexual motivation, sexual performance, and the rewarding consequences of copulation in female Syrian hamsters." *Behav Brain Res.* 223:356-370.

13. **Klingerman, C.M.**, Krishnamoorthy, K., Patel, K., Struby, C. Spiro, A.B., and Schneider, J.E. (2010) "Energetic challenges unmask the role of ovarian hormones in orchestrating ingestive and sex behaviors." *Horm. Behav.* 58:563-574.

14. Kung, Jr., L., E. Stough, E. McDonell, R.J. Schmidt, M. Hofherr, L., Reich, and **C. Klingerman**. (2010) "The effect of wide swathing on wilting times and nutritive value of alfalfa haylage." *J. Dairy Sci.* 93:1770-1773.

15. **Klingerman, C.M.**, W. Hu, E.E. McDonell, M.C. DerBedrosian, and L. Kung, Jr. (2009) "An evaluation of exogenous enzymes with amylolytic activity for dairy cows." *J. Dairy Sci.* 92:1050-1059.

16. Hu, W., R.J. Schmidt, E.E. McDonell, **C.M. Klingerman**, and L. Kung, Jr. (2009) "The effect of *Lactobacillus buchneri* 40788 or *Lactobacillus planterum* MTD-1on the fermentation and aerobic stability of corn silages ensiled at two dry matter contents." *J. Dairy Sci* . 92:3907-3914.

Other Publications

1. **Klingerman, C.M.**, and R.W. Taylor. (2007) "Grass tetany – a look at its causes, symptoms, and management." *Mid-Atlantic Regional Agronomist Quarterly Newsletter.* 18-21.

2. Kung, Jr., L., E. Stough, E. McDonell, R. Schmidt, **C. Klingerman**, M. Hofherr, and L. Reich. (2007) "A quick note at wide swathing alfalfa for making silage." *Pennstate Extension Central Region Dairy Newsletter*. 5-6.

Presentations at National & International Meetings

1. Burroughs, S., Trautwein, T., Dalsania, A., Schwindinger, W., Venditti, J., and **Klingerman, C.M.** "Effects of prokineticin-2 on the sexual and ingestive behaviors of female Syrian hamsters." (poster) Interdisciplinary Neuroscience Conference at Lehigh University. Bethlehem, PA. 2017.

2. **Klingerman, C.M.** and Haouzi, P. "Concentrations of dissolved and combined H_2S in the blood in relation to its toxicity: Effects of vitamin B12 and methemoglobin solutions in rats and sheep." (poster) *CounterACT Network Research Symposium.* Bethesda, MD. 2013.

3. **Klingerman, C.M.** and Haouzi, P. "The arterial chemoreceptors can be stimulated by very low levels of H_2S in-vivo." (talk) *Experimental Biology.* Boston, MA. 2013.

4. **Klingerman, C.M.** and Haouzi, P. "Very low levels of H_2S in the blood are needed to affect the medullary respiratory neurons and the arterial chemoreceptors in-vivo." (poster) *Experimental Biology.* Boston, MA. 2013.

5. **Klingerman, C.M.**, Trushin, N., Prokopczyk, B., Van de Louw, A., and Haouzi, P. "How much H2S is needed to stimulate the arterial chemoreflex in-vivo?" (poster) *Data and Dine Symposium.* Hershey, PA. 2013.

6. **Klingerman, C.M.**, Stipanovic, M.E., Panganiban, R., and Lynch, C.J. "Atypical antipsychotics increase the risk of obesity and diabetes and cause rapid metabolic toxicity when combined with CPT-1 inhibitors in mice." (talk and poster) *Penn State Diabetes and Obesity Research Summit*. Hershey, PA. 2012.

7. **Klingerman, C.M.**, Patel, A., Hedges, V.L., Meisel, R.L., and Schneider, J.E. "Energetic deficits dissociate motivation from performance and reward." (talk) *Society for the Study of Ingestive Behavior*. Clearwater, FL. 2011.

8. Williams, W.P., **C.M. Klingerman**, J. Simberlund, N. Brahme, L.J. Kriegsfeld, and J.E. Schneider. "Energetic and reproductive status impact RFamide-related peptide-3 immunoreactivity in female Syrian hamsters." (poster) *Society for Neuroscience.* San Diego, CA. 2010.

9. **Klingerman, C.M.**, Patel, A., Hedges, V.L., Meisel, R.L., and Schneider, J.E. "Food restriction alters appetitive and ingestive behaviors but not consummatory behaviors nor neural activation in the ventromedial nucleus of the hypothalamus and nucleus accumbens." (poster) *Society for Behavioral Neuroendocrinology.* Toronto, Canada. 2010.

10. Schneider, J.E., **C.M. Klingerman**, K. Krishnamoorthy, K. Patel, C. Struby, and A.B. Spiro. "Energetic challenges unmask the role of ovarian hormones in orchestrating the appetitive ingestive and sex behaviors, food hoarding, and paracopulatory behaviors." (poster) *Society for Behavioral Neuroendocrinology.* Toronto, Canada. 2010.

11. Patel, A., **C.M. Klingerman**, R. Meisel, J.E. Schneider. "Dopamine and the desire for food and sex." (poster) *Society for Behavioral Neuroendocrinology.* East Lansing, MI. 2009.

12. **Klingerman, C.M.**, W. Hu, E.E. McDonell, M.C. DerBedrosian, and L. Kung, Jr. "An evaluation of exogenous enzymes with amylolytic activity for dairy cows." (poster) *American Dairy Science Association and American Society of Animal Science joint annual meeting.* Indianapolis, IN. 2008.

13. **Klingerman, C.M.**, J. Simberland, R. Shankar, C. Casper, and J. Schneider. "Detailed analysis of effects of energy on ingestive and sex behaviors." (poster) *Society for Behavioral Neuroendocrinology.* Groningen, The Netherlands. 2008.

14. **Klingerman, C.M.**, R.J. Schmidt, W. Hu, E.E. McDonell, and L. Kung, Jr. "The effect of microbial inoculants on the fermentation and aerobic stability of orchard grass silage." (talk) *American Dairy Science Association and American Society of Animal Science joint annual meeting.* San Antonio, TX. 2007.

15. **Klingerman, C.M.**, R.J. Schmidt, W. Hu, E.E. McDonell, and L. Kung, Jr. "The effect of microbial inoculants on the fermentation and aerobic stability of orchard grass silage." (poster) *American Dairy Science Association and American Society of Animal Science joint annual meeting.* San Antonio, TX. 2007.

16. Kung, L. Jr., E.C. Stough, E.E. McDonell, R.J. Schmidt, M.W. Hoffher, L.J. Reich, and **C.M. Klingerman**. "The effect of wide swathing on wilting times and nutritive value of alfalfa haylage." (poster) *American Dairy Science Association and American Society of Animal Science joint annual meeting.* San Antonio, TX. 2007.

17. McDonell, E.E., **C.M. Klingerman**, R.J. Schmidt, W. Hu, and L. Kung, Jr. "An evaluation of two methods to cover bunker silos to maintain the nutritive value of silage." (talk) *American Dairy Science Association and American Society of Animal Science joint annual meeting.* San Antonio, TX. 2007.

18. Schmidt, R.J., J.A. Mills, W. Hu, **C.M. Klingerman**, E.E. McDonell, and L. Kung, Jr. "Changes in fermentation end products and use of real-time quantitative PCR to monitor the dynamics of *Lactobacillus buchneri* in alfalfa silage." (poster) *American Dairy Science Association and American Society of Animal Science joint annual meeting.* San Antonio, TX. 2007.

19. Schmidt, R.J., W. Hu, **C.M. Klingerman**, E.E. McDonell, and L. Kung, Jr. "The effect of *Lactobacillus buchneri* 40788 with or without *Pediococcus pentasaceous* on the fermentation and aerobic stability of corn silage made at different locations." (talk) *American Dairy Science Association and American Society of Animal Science joint annual meeting.* San Antonio, TX. 2007.

20. Yellen, B.B., M. Chorney, I. Fishbein, N. Dai, **C.M. Klingerman**, I. Alferiev, O. Nyanguile, R. Wilensky, G. Friedman, and R.J. Levy. "Site specific gene delivery using magnetic forces to localize adenoviral vector-magnetic nanoparticle complexes to stented arterial segments." (poster) *American Heart Association Scientific Sessions.* Dallas, TX. 2005.

21. Yellen, B.B., M. Chorney, I. Fishbein, D.N. Williams, **C.M. Klingerman**, I.S. Alveriev, O. Nyanguile, G. Friedman, and R.J. Levy. "Nanoparticle mediated gene delivery to magnetized implants." (poster) *American Society for Gene Therapy.* St. Louis, MO. 2005.

Invited Lecturer

1. Guest lecturer; Human Sexuality (Instructor Thomas Klinger) 2014
2. Symposium presentation; "Building and sustaining a scholarly culture and community at Bloomsburg University.: The role of undergraduate research, scholarship, and creative activity." 2013
3. Keynote speaker; Lehigh Valley Chapter of the Society for Neuroscience conference 2012
1. Guest lecturer; Energy balance and reproduction lecture; Bioscience in the 21st Century (Instructor Vassie Ware) 2011
5. Lehigh University Graduate Student Open House/ Symposium 2010
6. Energy balance lecture; Endocrinology of Behavior (Instructor Jill Schneider) 2007

Grants & Awards

1. Research and Scholarship Grant; Bloomsburg University 2016
   Title: Food restriction affects reproductive and ingestive behaviors in zebrafish (*Danio rerio*). Award amount: $10,000.
2. Co-author on Bloomsburg University Teacher-scholar Grant 2015
3. Research and Scholarship Grant; Bloomsburg University 2014
   Title: The effects of neuropeptide Y, ghrelin, and leptin on reproductive and ingestive behaviors of Syrian hamsters. Award amount: $10,000.
4. Gordon C. Thorne Fellowship, Lehigh University 2011
5. Graduate student spotlight, Lehigh University 2011
6. Lehigh University travel award 2011
7. Grants-in-aid of research; Sigma Xi. 2010
   Title: Energy availability affects sexual motivation and sexual reward through the actions of ghrelin and leptin. Award amount: $900.
8. Cover photograph for Hormones and Behavior, Vol. 58, Issue 4 2010
9. Gordon C. Thorne Fellowship, Lehigh University 2010
10. Lehigh University travel award 2010

Professional Affiliations

1. Nutrition Club adviser. Bloomsburg University 2016 to present
2. The Society for the Study of Ingestive Behavior (SSIB) 2011 to present
3. Collaborative Institutional Training Initiative (CITI) 2011 to present
   a. Bloomsburg University and Lehigh University
4. The Society for Behavioral Neuroendocrinology (SBN) 2009 to present
5. The Society for Neuroscience (SFN) 2011 to 2012
6. American Association for the Advancement of Science (AAAS) 2008 to 2011
7. Lehigh Valley Chapter of the Society for Neuroscience (LVSFN) 2009 to 2010
8. American Dairy Science Association (ADSA) 2005 to 2007

Other Achievements

1. American Red Cross Adult CPR/AED Certification, Exp. 2 years 2014

2. American Red Cross Adult First Aid Certification, Exp. 2 years 2013
3. Responsible Care and Use of Laboratory Animals Training Program 2012
   Penn State College of Medicine; Hershey, PA
4. Completion of Teacher Development Series, Lehigh University 2011
5. Craig Hill achievement award, Delaware Valley College 2004
6. Delta Tau Alpha honors society, Delaware Valley College 2003 to 2004
7. Dean's list, Delaware Valley College 2001 to 2004
8. Faculty scholarship, Delaware Valley College 2000 to 2004