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EDUCATIONAL BACKGROUND

- December, 2001 Ph.D., Physiology & Neurobiology, University of Connecticut, Storrs, CT
Dissertation: Cellular properties, cortical circuitry and aberrant activity associated with focal neocortical dysplasia (Date: 12/19/2001, Advisor: Joseph J. LoTurco, Ph.D.)
- December, 2000 M.S., Physiology & Neurobiology, University of Connecticut, Storrs, CT
Thesis: Anatomical and physiological characterization of neurons within neocortical ectopias and their influence on cortical circuitry (Date: 12/3/2000, Advisor: Joseph J. LoTurco, Ph.D.)
- May, 1998 M.A., Psychology/Behavioral Neuroscience, University of Connecticut, Storrs, CT
Thesis: Biophysical characterization and muscarinic modulation of potassium currents in the rat neostriatum (Advisor: Eric S. Nisenbaum, Ph.D.)
- May, 1996 B.S., Psychology/Bio-Ethics, Allegheny College, Meadville, PA
Thesis: Defining chronic stress: Measurement of serum corticosterone and ACTH levels following different types of chronic restraint stress (Advisor: Jeffrey D. Cross, Ph.D.)

GRANTS AND FELLOWSHIPS

- 2017-2020 **NIH-NICHD, R15**, Genes to behavior: Unlocking the code for early detection of reading disorder (PI), (\$374,137).
- 2017-2021 **Lee Pesky Learning Center Foundation Research Grant**, Examination of cognitive performance of individuals with developmental dyslexia on a visuo-spatial virtual maze task. (\$165,000)
- 2016-2017 **Humboldt Foundation Fellowship for Experienced Researchers**, Genes to behavior: Unlocking the code for early detection of reading disorder in native German speaking children, Friedrich Alexander Universitaet, Erlangen, Germany (~€71,100, 18 months)
- 2015 **College of Education Seed Grant**, Boise State University, Virtual maze environment as a mechanism for early detection of reading disorder (\$20,000)
Clinical Translational Research- Infrastructure Network (CTR-IN) grant, From mice to men: translating dyslexia across species (\$10,000)
- 2014 **Lee Pesky Learning Center Foundation Research Grant**, Examination of cognitive performance of individuals with developmental dyslexia on a visuo-spatial virtual maze task. (\$35,000)
- 2013 **Andrew W. Mellon Foundation grant, Integration of the Creative Arts**, Neuroscience of Music, Lafayette College (\$1500)
Academic Resource Center Faculty Research Grant, Partial Callosal Agenesis Confers Seizure Resistance in BXD29 Mice with Subcortical Nodular Heterotopia, Lafayette College (\$3184)

- 2012 **Lee Pesky Learning Center Foundation Research Grant**, Examination of cognitive performance of individuals with developmental dyslexia on a visuo-spatial virtual maze task. (\$50,000)
- 2011 **Think Tank Program Grant**, Are you smarter than a mouse: development of a virtual maze to examine cognitive performance in individuals with developmental dyslexia, Lafayette College (\$25,000)
- 2011 **NSF Major Research Instrumentation Program grant**, MRI: Acquisition of a Biopotential Measurement System, National Science Foundation (\$142,309.20)
- 2011 **Academic Resource Center Faculty Research Grant**, Deletion of Dcdc2 and Dclk candidate dyslexia susceptibility genes leads to spontaneous seizure behavior, Lafayette College (\$1000)
- 2011 **Academic Resource Center Faculty Research Grant**, Mutation of the of dyslexia-associated gene Dcdc2 impairs LTM and visuo-spatial working memory: request for color figure page charges, Lafayette College (\$330.61)
- 2010 **Think Tank Program Grant**, Brain-computer Interface: Harnessing the Power of the Brain, Lafayette College (\$25,000)
- 2009 **Support of Mentors and their Students in the Neurosciences (SOMAS) grant**, Howard Hughes Medical Institute, Davidson College, National Science Foundation (\$9000)
- 2009 **Andrew W. Mellon Foundation Grant, Cross-Disciplinary Team Teaching Course Development Grant**, Neuroscience of Music, Lafayette College (\$3000)
- 2009 **Fund for Faculty Innovation Award**, Interdisciplinary Seminar Series for the Life Sciences, Lafayette College
- 2003-2004 **Post-doctoral fellowship**, Individual NRSA-NICHD, Brown University
- 2002-2003 **Post-doctoral fellowship**, Institutional NRSA, Brown University
- 2001 **Pre-doctoral Fellowship**, University of Connecticut
- 1999-2001 **Neuroscience Fellowship**, University of Connecticut

HONORS AND AWARDS

- 2018-2021 **William C.'67 and Pamela Rappolt Scholar in Neuroscience**
- 2018 **Carl R. and Ingeborg Beidleman Research Award**, in recognition for outstanding applied research or scholarship
- 2013 **The Thomas Roy and Lura Forrest Jones Lecture Award**, for superior teaching and scholarship, Lafayette College
- 1999-2000 **Teaching Excellence Award**, Physiology and Neurobiology, University of Connecticut
- 1996 **Latin Honors, Cum Laude**, Allegheny College
- 1996 **Outstanding Senior Comprehensive Project**, Honorable Mention, Allegheny College
- 1994-1996 **Alden Scholar**, Allegheny College

PROFESSIONAL EXPERIENCE

- 2017-present, **Chair, Neuroscience Program**, Lafayette College, Easton, PA
- 2015-2017 **Medical Faculty, Kinder- und Jugendabteilung fur Psychische Gesundheit**, Universitaetklinikum Erlangen, Germany

2015-2016	Past-President, Faculty for Undergraduate Neuroscience (FUN) , national organization
2014-2015	President, FUN
2013-2014	President-Elect, FUN
2013-2016*	Chair, Neuroscience Program , Lafayette College, Easton, PA <i>*on leave between 2015-2017</i>
2013-present	Associate Professor , Department of Psychology & Program in Neuroscience, Lafayette College, Easton, PA
2007-2013	Assistant Professor , Department of Psychology & Program in Neuroscience, Lafayette College, Easton, PA (<i>Spring 2008 family leave, AY 2010-2011 family leave & midterm research leave</i>)
2006-2007	Visiting Assistant Professor , Department of Psychology, Lafayette College, Easton, PA
2005-2006	Research Associate (Research Faculty), Department of Neuroscience, UPenn School of Medicine (<i>Advisors: Matthew Dalva, Ph.D.; Marcos Frank, Ph.D.</i>)
2002-2004	Postdoctoral Fellow , Department of Neuroscience, Brown University Medical School (<i>Advisor: Justin Fallon, Ph.D.</i>)
2004-2005	Postdoctoral Fellow , Department of Neurophysiology & Neuropharmacology, Wyeth Research
1999-2001	Mentor , UCONN Mentor Connection Program, University of Connecticut
2000 (Spring)	Graduate Assistant , Department of Physiology & Neurobiology, University of Connecticut (<i>Anatomy & Physiology Laboratory honors class</i>)
1996 (Fall)	Graduate Assistant , Department of Psychology, University of Connecticut (<i>Introduction to Psychology laboratory</i>)
1995-1996	Resident Director , Allegheny College, Meadville, PA
1995-1996	Teaching Assistant , Department of Psychology, Allegheny College (<i>Physiological Psychology laboratory</i>)
1994-1995	Resident Advisor , Allegheny College
1994-1995	Teaching Assistant , Department of Psychology, Allegheny College (<i>Statistics</i>)
1994-1995	Tutor , Department of Psychology, Allegheny College (<i>Statistics</i>)

COURSES TAUGHT

- Advanced Neuroscience (Neur 401, [W])
- Psychopharmacology (Psyc 225)
- Introduction to Neuroscience (Neur 201)
- °Music and the Brain: The Neuroscience of Music (Mus/Neur 255, [W])
- Physiological Psychology (with lab) (Psyc 323& 323L, [W])
- Quantitative Methods (Psyc 120)
- Research Design and Analysis (with lab) (Psyc 203& 203L)
- †VaST: Technological Telepathy: Advances in Brain-Computer Interface (VaST 216, [W])
- †FYS: Melding Mind and Machine (FYS 148, [W])
- °Human Machine and Advances in Medical Technology (Neur/ECE 205)
- °Technology Clinic (INDS 321-322)
- Honors Thesis (Psyc; Neur 495/496, [W])
- Advanced Research (Psyc; Neur 491/492, [W])
- Independent Study (Psyc; Neur 391/392, [W])

° interdisciplinary team-taught course

‡ common course of study

[W] writing course

RESEARCH STUDENTS (Honors, Advanced Research, Independent Study, EXCEL, Master's Thesis)

I've overseen 18 Honors Thesis projects, acted as second reader or outside reader on eight Honor Thesis projects, and was the advisor for a Master's Thesis at the Friedrich-Alexander Universitaet in Erlangen, Germany. In addition I've supervised 59 different students on Advanced Research, Independent Study and research scholar (i.e. EXCEL, HHMI, and Preminger) projects (145 total projects in total). See Appendix A "Research Students" for a complete list.

RESEARCH INTERESTS

Work in my laboratory focuses on behavioral and neurophysiological consequences of neurodevelopmental disorders. Students in my laboratory have used animal models of developmental dyslexia, fragile-X mental retardation, and cortical dysplasia, to answer questions regarding the mechanism(s) which underlie neurodevelopmental disorders. More recently we have translated our work from animal models to humans with developmental dyslexia and in the process may have identified a new tool for the early identification of reading disorder. In addition to our work in neurodevelopment, engineering and neuroscience students are working on a multidisciplinary research program to develop new and/or improved Brain-Computer Interface (BCI). The BCI research program, run by Assoc. Prof. Yih-Choung Yu (Electrical & Computer Engineering) and I, is focused on developing more cost-effective, and user friendly devices for individuals with impaired motor control.

PATENT

Provisional Patent, Serial No. 62/475,553, filed March 23rd, 2017, "*Translational Method to Determine Biological Basis for Dyslexia*"

JOURNAL PUBLICATIONS (*Lafayette College Undergraduates)

- Gabel, L.A.**, Manglani, M.*, Escalona, N.*, Cysner, J.*, Hamilton, R.*, Pfaffmann, J., Johnson, E. (2016). Translating dyslexia across species, *Annals of Dyslexia*, 66, 319-336. [Epub ahead of print March 24, 2016].
- Ramos, R.L., Siu, N.Y., Brunken, W.J., Yee, K.T., **Gabel, L.A.**, Hoplight, B.J. (2014). Cellular and axonal constituents of neocortical molecular layer heterotopias, *Developmental Brain Research*, 3, 477-89. [Epub ahead of print September 18, 2014].
- Gabel, L.A.**, Manglani M.*, Ibanez N.*, Roberts J.*, Ramos R.L., Rosen G.D. (2013). Differential seizure response in two models of cortical heterotopia. *Brain Research*, 1494, 84-90. [Epub ahead of print November 29, 2012].
- Mangaru, Z., Salem, E., Sherman, S., Bhambri, A., Brumberg, J.C., Richfield, E.K., **Gabel, L.A.**, & Ramos, R.L. (2013) Neuronal migration defect of the developing cerebellar vermis in substrains of C57BL/6 mice: Cytoarchitecture and prevalence of molecular layer heterotopias. *Developmental Neuroscience*, 35, 28-39. [Epub ahead of print February 14, 2013]

- Gabel, L.A.,** Marin, I.*, LoTurco, J.J., Che, A., Murphy, C.*, Manghani, M.*, & Kass, S.* (2011). Mutation of the dyslexia-associated gene *Dcdc2* impairs LTM and visuo-spatial working memory. *Genes, Brain and Behavior*, *10*, 868-875. [Epub ahead of print Aug.29,2011]
- Wang, Y., Yin, X., Rosen, G., **Gabel, L.A.,** Guadiana, S.M., Sarkisian, M., Galaburda, A.M., & LoTurco, J.J. (2011). *Dcdc2* knockout mice display exacerbated developmental disruptions following *Dcx* RNAi. *Neuroscience*, *190*, 398-408. [Epub ahead of print, June 13]
- Lipoff, D.M., Bhambri, A., Fokas, G.J., Sharma, S., **Gabel, L.A.,** Brumberg, J.C., Richfield, E.K., & Ramos, R.L. (2011). Neocortical Molecular Layer Heterotopia in Substrains of C57BL/6 and C57BL/10 Mice, *Brain Research*, *1391*, 36-43. [Epub ahead of print, March 15]
- Gabel, L.A.** (2011). Layer I Neocortical Ectopia: Cellular Organization and Local Cortical Circuitry, *Brain Research*, *1381*, 148-158. [Epub ahead of print 2011, Jan. 20]
- Gabel, L.A.,** Gibson, C.J., Gruen, J.R., & LoTurco, J.J. (2010). Progress towards a cellular neurobiology of reading disability, *Neurobiology of Disease*, *38*, 173-180. [Epub ahead of print 2009, July 17]
- Gabel, L.A.,** Won, S., Kawai, H., McKinney, M., Tartakoff, A., & Fallon, J.R. (2004). Visual experience regulates transient expression and dendritic localization of fragile X mental retardation protein. *Journal of Neuroscience*, *24*, 10579-10583. **Gabel, L.A.,** & LoTurco, J.J. (2002). Layer I ectopias and increased excitability in murine neocortex. *Journal of Neurophysiology*, *87*, 2471-2479.
- Peiffer, A.M., Dunleavy, C.K., Frenkel, M., **Gabel, L.A.,** LoTurco, J.J., Rosen, G.D., & Fitch, R.H. (2001). Impaired detection of variable duration embedded tones in ectopic NZB/BINJ mice. *Neuroreport*, *12*, 2875-2879.
- Gabel, L.A.,** & LoTurco, J.J. (2001). Electrophysiological and morphological characterization of neurons within neocortical ectopias. *Journal of Neurophysiology*, *85*, 495-505.
- Sarkisian, M.R., **Gabel, L.A.,** Orborski, J.A., & LoTurco, J.J. (1999). Spontaneous seizures in the flathead (*fh/fh*) mutant are associated with altered interneuron number and function. *Epilepsia*; *40(suppl 7)*: 156.
- Gabel, L.A.,** & Nisenbaum, E.S. (1999). Muscarinic receptors differentially modulate the persistent potassium current in striatal spiny projection neurons. *Journal of Neurophysiology*, *81*, 1418-1423.
- Gabel, L.A.,** & Nisenbaum, E.S. (1998). Biophysical characterization and the functional consequences of a slowly inactivating potassium current in rat striatal neurons. *Journal of Neurophysiology*, *79*, 1989-2002.

CONFERENCE PAPERS IN ENGINEERING & COMPUTER SCIENCE (peer-reviewed)

- Yu, Y-C, Smith, B.*, Du, H.*, & **Gabel, L.A.** (2018, July). *Design of a Brain-Computer Interface wheelchair navigation*. Paper to be presented at the IEEE 40th Annual International Conference in Engineering in Medicine and Biology Society (EMBS), Honolulu, HI.
- Yu, Y-C, Goreshnik, A.*, Smith, B.*, & **Gabel, L.A.** (2018, May). *An affordable design for robot and wheelchair navigation*. Paper to be presented at the 7th International BCI Meeting, Pacific Grove, California.
- Goreshnik, A.*, Smith, B.*, Yu, Y-C, **Gabel, L.A.** (2017, March). *Robots to wheelchairs: affordable BCI design*. Paper presented at the Northeast Bioengineering Conference (NEBEC), 2017 IEEE 43th Annual Northeast, Newark, NJ.

- Gabel, L.**, Johnson, E., Shelton, B. E., & Hung, J-L. (2016, October). Closing the reading gap with virtual maze environments. Paper presented at The 2016 International Workshop on Online Adaptive Learning Techniques and Applications (OALTA 2016). Rome, Italy. (*note: this conference paper was turned into a book chapter, see Gabel et al. 2017*)
- Yu, Y.C., Wang, S.*, & **Gabel, L.A.** (2016) “A feasibility study of using event-related potential as a biometrics,” Paper presented at The 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Orlando, FL.
- Battison, A.*, Yu, Y-C, **Gabel, L.A.** (2016, April). *Post-processing of eye tracking data for systematic error reduction and offline recalibration*. Paper presented at the Northeast Bioengineering Conference (NEBEC), 2016 IEEE 42th Annual Northeast, Binghamton, NY.
- Goreshnik, A.*, Battison, A.*, Yu, Y-C, **Gabel, L.A.** (2016, April). *Hybrid Brain-Computer Interface: studying mu power and heart rate interaction*. Paper presented at the Northeast Bioengineering Conference (NEBEC), 2016 IEEE 42th Annual Northeast, Binghamton, NY.
- Smith, B.*, Yu, Y-C, **Gabel, L.A.** (2016, April). *Robot navigation using Brain-Computer Interface*. Paper presented at the Northeast Bioengineering Conference (NEBEC), 2016 IEEE 42th Annual Northeast, Binghamton, NY.
- Battison, A.*, Schluskel, M.*, Fuller, T*, Yu, Y-C, **Gabel, L.A.** (2015, April). *Effectiveness of Subject Specific Instruction on Mu based Brain-Computer Interface Training*. Paper presented at the Northeast Bioengineering Conference (NEBEC), 2015 IEEE 41th Annual Northeast, Troy, NY.
- Garrison, H.*, McCullough, A.*, Yu, Y-C, **Gabel, L.A.** (2015, April). *Feasibility Study of EEG Signals for Asynchronous BCI System Applications*. Paper presented at the Northeast Bioengineering Conference (NEBEC), 2015 IEEE 41th Annual Northeast, Troy, NY.
- Wang, S.*, Yu, Y-C, & **Gabel, L.A.** (2014, March). *An Application of the P300 Event-Related Potential as a Biometric*. Paper presented at the Northeast Bioengineering Conference (NEBEC), 2014 IEEE 40th Annual Northeast, Boston, MA.
- Corbit, V.*, Yu, Y-C., **Gabel, L.A.** *Improving Participant Performance on Mu Rhythm Based Brain-Computer Interfaces*. Paper presented at the Engineering in Medicine and Biology Society (EMBS), 2013 IEEE 6th International Conference on Neural Engineering, San Diego, CA.
- Wang, S.*, Yu, Y-C, Jouny, I. & **Gabel, L.A.** (2013, March). *Development of Assistive Technology Devices Using an EEG headset*. Paper presented at the Northeast Bioengineering Conference (NEBEC), 2013 IEEE 39th Annual Northeast, Syracuse, NY .
- Corbit, V.*, Yu, Y-C., **Gabel, L.A.** *Improving Mu Rhythm Brain-Computer Interface Performance by Providing Specific Instructions for Control*. Paper presented at the Northeast Bioengineering Conference (NEBEC), 2013 IEEE 39th Annual Northeast, Syracuse, NY , pp.
- Yih-Choung Yu, A. Nawroj*, S. Wang*, and **L. Gabel**, “Mobile Robot Navigation through a Brain Computer Interface”, Proc. of the IEEE Signal Processing in Medicine and Biology Symposium, New York, 2012.
- Angeloni, C.*, Salter, D.*, Corbit, V.*, Lorence, T.*, Yu, Y-C., & **Gabel, L.A.** (2012, March). *P300-based Brain-Computer Interface Memory Game to Improve Motivation and Performance*. Paper presented at the Northeast Bioengineering Conference (NEBEC), 2012 Institute of Electrical and Electronics Engineers (IEEE) 38th Annual Northeast, Philadelphia, PA, pp. 235-236
- Nawroj, A.*, Wang, S.*, Jouny, I., Yu, Y-C., & **Gabel, L.A.** (2012, March). *An Event Classifier using EEG Signals: an Artificial Neural Network Approach*. Paper presented at the Bioengineering Conference (NEBEC), 2012 IEEE 38th Annual Northeast, Philadelphia, PA, pp. 149-150

Nawroj, A.*, Wang, S.*, Yu, Y-C., & **Gabel, L.A.** (2012, March). *A Brain Computer Interface for Robotic Navigation*. Paper presented at the Bioengineering Conference (NEBEC), 2012 IEEE 38th Annual Northeast, Philadelphia, PA, pp. 239-240.

BOOK CHAPTERS

Gabel, L., Johnson, E., Shelton, B. E., & Hung, J-L. (2017) Closing the Reading Gap with Virtual Maze Environments. In: Wu TT., Gennari R., Huang YM., Xie H., Cao Y. (eds) *Emerging Technologies for Education*. SETE 2016. Lecture Notes in Computer Science, vol 10108. Springer, Cham

CONFERENCE PRESENTATIONS

Goreshnik, A*., Smith, B.T., Schimmel, M*., Yu, Y-C, & **Gabel, L.A.** (2017, Nov.). Melding mind and machine. Robot navigation using a wireless Brain-Computer Interface device. Presented at the Society for Neuroscience meeting, Washington, DC.

Gabel, L.A., Goerner, C., Battison, A*., Horndasch, S. (2017, Nov.). Impact of orthography and dyslexia on virtual maze performance. Presented at the Society for Neuroscience meeting, Washington, DC.

Battison, A*., Goreshnik, A*., Fuller, T*., Schlüssel, M*., Yu, Y-C, & **Gabel, L.A.** (2016, Nov.). Eliminating BCI-illiteracy: individualized training protocols enhance control of mu-based BCI device. Presented at the Society for Neuroscience meeting, San Diego, CA.

Maita, I*., Battison, A*., Truong, D., Escalona, N*., Booson-Heenan, J., Pfaffmann, J., Gruen, J, Johnson, E., **Gabel, L.A.** (Nov. 2016). Early detection of reading impairment with virtual maze environment: a longitudinal study. Presented at the Society for Neuroscience meeting, San Diego, CA.

Gabel, L.A., & Johnson, E. (2016, April). Virtual Hebb-Williams maze: A practicable early detection mechanism for Dyslexia? Presented at the British Dyslexia Association meeting, Oxford, UK.

Gabel, LA (2015, October). Teaching Neuroscience to Nonscientists: Neuroscience of music. Presented at the Society for Neuroscience meeting, Chicago, IL.

Guo, L*., Escalona*,N., Chen, Y*., Szeinberg*, R., Truong, D., Battison, A*., Bosson-Heenan, J., Pfaffmann, J., Gruen, J. R., Johnson, E., **Gabel, L.A.** (2015, October). Virtual Hebb-Williams maze: a practicable early detection method for dyslexia? Presented at the Society for Neuroscience meeting, Chicago, IL.

Guo, L*., Chen, Y*., Battison, A*., **Gabel, L.A.** (2015, October). Statistical learning of spatial cues in virtual Hebb-Williams maze. Presented at the Society for Neuroscience meeting, Chicago, IL.

Gabel, LA, Stavnezer, AJ, Smith, J. (2015, October) *Multiple mechanisms for supporting undergraduate students in the neuroscience*. Presented at the Society for Neuroscience meeting, Chicago, IL.

Gabel, LA; Manglani, M*.; Escalona, N*.; Cysner, J*.; Szeinberg, R*.; Pfaffmann, J.; Johnson, E. (2014, November) *Are you smarter than a mouse? Utilizing virtual environments in translational research*. Presented at the Cell Symposia: Translational neuroscience: Bridging the gap between basic research discoveries and clinical applications. Arlington, VA.

Schlüssel, M*., Battison, A*., Fuller, T*, Corbit, V*, Yu, Y-C, **Gabel, LA** (2014, November) *The need to be me: Influence of participant-specific instructions on mu-based BCI performance*. Presented at the Society for Neuroscience meeting, Washington, DC.

- Hamilton, RH*, Toia, A., Ramos, RL, **Gabel, LA** (2014, November) *TLR-4 mutation is associated with enhanced seizure susceptibility in C57BL mouse model*. Presented at the Society for Neuroscience meeting, Washington, DC.
- Smith, J., **Gabel, LA**, Sandstrom, N. (2014, November) *Multiple mechanisms for supporting undergraduate students in the neuroscience*. Presented at the Society for Neuroscience meeting, Washington, DC.
- Ramos, RL, Siu, N, Brunken, WJ, Yee, KT, **Gabel, LA**, VanDine, SE, Hoplight, BJ (2014, November) *Cellular axonal constituents of neocortical molecular layer heterotopia*. Presented at the Society for Neuroscience meeting, Washington, DC.
- Cysner, J.*, Manglani, M.*, Escalona, N.*, Taylor, M., Johnson, E., **Gabel, LA**. (2013, November) *Are you smarter than a mouse? Comparison of adults, children, and mice on virtual and physical Hebb-Williams mazes*. Presented at the Society for Neuroscience meeting, San Diego, CA.
- Corbit, V.*, Schluskel, M.*, Yu, Y.-C., **Gabel, LA**. (2013, November) *Improving participant performance on mu rhythm-based brain-computer interfaces*. Presented at the Society for Neuroscience meeting, San Diego, CA.
- Corbit, V.*, Angeloni, C.*, Salter, D.*, Lorence, T.*, Y.-C., Y., **Gabel, L.A.** (2012, October). *Visual attention networks and P300-based brain-computer interface performance*. Presented at the Society for Neuroscience meeting, New Orleans, LA.
- Kass, S.*, & **Gabel, L.A.** (2012, October). *Effect of environmental enrichment on cognitive and motor performance in *fmr1*-ko mice*. Presented at the Society for Neuroscience meeting, New Orleans, LA.
- Gabel, L.A.**, Manglani, M.*, Ibanez, N.*, Roberts, J.*, Ramos R.L., & Rosen, G.D. (2012, October). *Partial callosal agenesis may confer seizure resistance in an animal model of MCD*. Presented at the Society for Neuroscience meeting, New Orleans, LA.
- Yu, Yih-Choung, & **Gabel, LA** (2012, June). *Breaking Down Barriers: Designing Successful Multidisciplinary Projects at Undergraduate institutions*. Interactive session conducted at the CUR Conference, Leveraging Uncertainty: Toward a New Generation of Undergraduate Research, Ewing, NJ.
- Marin, I.*, Manglani, M.*, Murphy, C.*, & **Gabel, L.A.** (2011, November). *Forebrain-specific deletion of dyslexia-associated gene *dyx1c1* impairs visuo-spatial memory*. Presented at the Society for Neuroscience conference, Washington, DC. [Program No. 777.05]
- Mangaru, Z., Salem, E., Sherman, M., Bhambri, A., Brumberg, J.C., Richfield, E.K., **Gabel, L.A.**, & Ramos, R. L. (2011, November). *Cytoarchitecture and transcriptional profiles of cerebellar molecular layer heterotopia in *c57bl/6* mice*. Presented at the Society for Neuroscience conference, Washington, DC. [Program No. 128.08]
- Marin, I.*, Manglani, M.*, Murphy, C.*, & **Gabel, L.A.** (2011, April). *Deletion of RD Susceptibility Gene *Dyx1c1* Impairs Cognitive Performance*. Presented at the Lehigh Valley Association of Independent Colleges-Lehigh Valley Society for Neuroscience (LVAIC-LVSNF) conference, Easton, PA.
- Manglani, M.*, Marin, I.*, Murphy, C.*, & **Gabel, LA**. (2011, April). *Deletion of Dyslexia Susceptibility Gene, *Dcdc2*, Impairs Visuo-spatial Working Memory*. Presented at the LVAIC-LVSNF conference, Easton, PA.
- Murphy, C.*, & **Gabel, L.A.** (2011, April). *Olfactory and Visual Discrimination Learning in an Animal Model of Fragile X Mental Retardation*. Presented at the LVAIC-LVSNF conference, Easton, PA.

- Cordeaux, C.*, & **Gabel, L.A.** (2010, November). *Pitch perception and the generalized Mozart effect*. Presented at the Society for Neuroscience conference, San Diego, CA. [Program No. 606.12]
- Marin, I.A.*, LoTurco, J.J., & **Gabel, L.A.** (2010, November). *Deletion of a candidate RD susceptibility gene, DCDC2, leads to impaired cognitive performance in mice*. Presented at the Society for Neuroscience conference, San Diego, CA. [Program No. 870.4]
- Ibanez, N.*, & **Gabel, L.A.** (2010, April). *Focal neocortical dysplasia and seizure susceptibility in C57Bl/10J mice*. Presented at the LVAIC-LVSNF conference, Bethlehem, PA.
- Gabel, L.A.**, & Fulmer, M.F.* (2009, October). *Focal cortical dysplasia: effect of location and number of neocortical ectopia on learning and memory in C57Bl/10J mice*. Presented at the Society for Neuroscience conference, Chicago, IL. [Program No. 477.16]
- Ibanez, N.*, Roberts, J.*, Ramos, R.L., & **Gabel, L.A.** (2009, October). *Focal neocortical dysplasia and seizure susceptibility in C57Bl/10J mice*. Presented at the Society for Neuroscience conference, Chicago, IL. [Program No. 637.4]
- Lipoff, D., Sharma, S., **Gabel, L.A.**, Brumberg, J.C., Richfield, E.K., & Ramos, R.L. (2009, October). *Molecular layer heterotopia in the neocortex of the C57BL6 mouse strain: A vendor study*. Presented at the Society for Neuroscience conference, Chicago, IL. [Program No. 225.19]
- Booker, A.B., Lim, J.H., **Gabel, L.A.**, Berk-Rauch, H.E., & Fallon, J.R. (2008, November). *Experience-dependent translational regulation of FMRP in Rodent Olfactory Bulb*. Presented at the Society for Neuroscience conference, Washington, DC. [Program No. 550.8]
- Mullins, S.E.*, & **Gabel, L.A.** (2007, November). *Effects of environmental enrichment on learning and memory in *fmr-1* ko mice*. Presented at the Society for Neuroscience conference, San Diego, CA. [Program No. 696.6]
- Gabel, L.A.**, Chen, J., Lin, S., & Dunlop, J. (2005, November). *Characterization of TRPM channels expressed in *Xenopus* oocytes*. Presented at the Society for Neuroscience conference, Washington, DC.
- Gabel, L.A.**, Won, S., Seale, G., & Fallon, J.R. (2003, November). *NMDA receptor-dependent regulation of experience-induced Fragile-X Mental Retardation Protein (FMRP)*. Presented at the Society for Neuroscience conference, New Orleans, LA.
- Won, S., Lim, J., Paradise, A., Kawai, H., **Gabel, L.**, & Fallon, J.R. (2002, October). *Experience-dependent translation and polyadenylation of Fragile X Mental Retardation (FMR1) mRNA*. Presented at the Society for Neuroscience conference, Orlando, FL.
- Gabel, L.A.** & LoTurco, J.J. (2001, November). *Aberrant cortical connectivity within slices containing neocortical ectopias*. Presented at the Society for Neuroscience conference, San Diego, CA.
- Gabel, L.A.** & LoTurco, J.J. (2000, November). *Characterization of synaptic activity in neocortical ectopias of NZB/BlNJ and NXSM-D/Ei mice*. Presented at the Society for Neuroscience conference, New Orleans, LA.
- Sarkisian, M.R., **Gabel, L.A.**, Orborski, J.A., & LoTurco, J.J. (1999, October). *Altered interneuron development in flathead (*fh/fh*) mutant*. Presented at the Society for Neuroscience conference, Miami Beach, FL.
- Consiglio, J.F., **Gabel, L.A.**, & Nisenbaum, E.S. (1998, November). *Serotonergic modulation of the persistent potassium current in rat neostriatal neurons*. Presented at the Society for Neuroscience conference, Los Angeles, CA.

- Gabel, L.A. & Nisenbaum, E.S. (1997, October).** *Biophysical characterization and the functional consequences of a slowly inactivating potassium current in rat striatal neurons.* Presented at the Society for Neuroscience conference, New Orleans, LA.
- Gabel, L.A. & Nisenbaum, E.S. (1997, October).** *Muscarinic receptors differentially modulate the persistent potassium current in neostriatal spiny projection neurons.* Presented at the Society for Neuroscience conference, New Orleans, LA.

INVITED TALKS

- 2018
Panelist, Discussion on grant proposals and awards, Office of Sponsored Research, Lafayette College, March 2018
- 2017
Keynote speaker “*Decoding Dyslexia: Closing the gap with early identification of reading disorder*” Lee Pesky Learning Center 25th Anniversary Event, Boise, ID, April 2017
- “*Decoding Dyslexia: Closing the gap with early identification of reading disorder*”, Lafayette College Accessibility Week., April 2017
- “*Is a science career in academia right for me?*”, Franconian International School, Career Day Event, Erlangen Germany, March, 2017
- “*Application of Brain Computer Interface to Drone Navigation*”, Works-in-Progress talks, Lafayette College (with Yih-Choung Yu, ECE), Nov. 2017
- “*Decoding Dyslexia: Closing the gap with early identification of reading disorder*”, Parents Weekend, Lafayette College., Sept. 2017
- 2016
“*Unlocking the code for early detection of reading disorder*”, Friedrich-Alexander-Universität, Linguistik Department, May 2016
- “*Virtual Maze Environment May Close the Reading Gap with Early Intervention*”, Network Meeting of the Alexander von Humboldt Foundation Freiburg im Breisgau, Germany, Oct. 2016.
- “*Decoding Dyslexia*”, Guest Lecturer Developmental Psychopathology Course, Friedrich-Alexander-Universitätsklinikum, Germany, December 2016.
- 2015
“*Virtual Hebb William maze for early detection of reading disorder*”, Universitätsklinikum Erlangen, Germany
- “*Teaching Neuroscience to Nonscientists: Neuroscience of Music*”, Society for Neuroscience Professional Development Workshop (*lecture and recorded interview*)
- “*Developing a workforce through interdisciplinary training*”, NSF “Brain Stem” Workshop, Chicago, IL
- “*Decoding Dyslexia*”, Guest Lecturer Developmental Psychopathology Course, Friedrich-Alexander-Universität, Germany

- 2014 *Social Justice Retreat: "From Me to We"*, Lafayette College
Special lecture: Gator Days, Allegheny College, Meadville, PA
Last Lecture Series, Lafayette College (*student elected presentation*)
Translating basic research on reading disorder across species using virtual maze environments, Bucknell University, Lewisburg, PA
- 2013 *Jones Lecture: Are you smarter than a mouse: Utilizing virtual environments in translational research*, Lafayette College
- 2012 *A Campus Conversation on Diversity and Disability Studies*, Panelist, Lafayette College
- 2012 *Cross Disciplinary Studies*, Panelist, Board of Trustees, Lafayette College
- 2011 *"Towards an understanding of the genetic basis of developmental dyslexia"*, Lafayette College
Bioethics: Issues in Neuroscience, Guest Lecturer Writing Genres, Lafayette College
"Conversation on Learning Disabilities", Panelist, Lafayette College
- 2009 *"Small Changes, Big consequences: Focal Cortical Dysplasia & Seizure Susceptibility"*, Moravian College, Brain Awareness Week.
 New Faculty Orientation program, Panelist, Center for the Integration of Teaching, Learning and Scholarship, Lafayette College.
 Problem-based learning, Panelist, the Center for the Integration of Teaching, Learning and Scholarship, Lafayette College
- 2008 *"Alcohol: Thirst for Change"*, Panelist, Lafayette College.
- 2007 *"What to do with a Psychology Degree"* Panel member, Lafayette College.
- 2006 *"Visual Experience Regulates Transient Expression and Dendritic Localization of Fragile X Mental Retardation Protein"*, Muhlenberg College.
"Autism" Lafayette College.
- 2000 *"Specific Resistance: The immune response"*. Guest Lecturer Anatomy and Physiology, University of Connecticut

PROFESSIONAL AFFILIATION

- 1997-Present Society for Neuroscience, mentor and member
 1997-1998 American Physiological Society
 2000 Women in Neuroscience
 2006-Present Faculty for Undergraduate Neuroscience, Executive committee
 2008-Present †Lehigh Valley Chapter for the Society for Neuroscience, founding member
 2013-present Institute of Electrical and Electronics Engineers (IEEE)

†2011 chapter of the year award from the Society for Neuroscience

Appendix A Research Students

(*EXCEL Scholars funded by external grants)

2007

Excel Scholars

- Jesse Hatgis '08 (Neuroscience) "Experience-dependent down-regulation of Fragile X Mental Retardation Protein in vivo" [Spring]
- Daryn Carp '10 (Psychology) "Effects of environmental enrichment on learning and memory in fmr1-ko mice" [Fall]

Advanced Research

- Cara Hueston '07 (Neuroscience) "The Effects of Cortical Microgyria on Spatial Learning in Rats" [Spring]
- Sylvina Mullins '07 (Neuroscience) "Effects of Environmental Enrichment on Learning and Memory in Fmr1-KO Mice" [Spring]
- Jesse Hatgis '08 (Neuroscience) "The Impact of Environmental Enrichment on Learning and Memory in an Animal Model of Fragile X Mental Retardation" [Fall]
- Julie Olenski '08 (Psychology) "The Effects of Delta-9-THC Pre-treatment on Methylphenidate Preference in Cocaine Preferring and Cocaine Non-Preferring Mice" [Fall]
- Rachel Friedman '09 (Neuroscience) "A Preliminary Immunohistochemistry Analysis of Fragile X Mental Retardation Protein (FMRP) and Neurogranin" [Fall]
- Jenny Boyar '08 (Psychology) "Perceptual and Body Image Disturbance in Adolescents with Epilepsy" [Fall]

Independent Study

- Sylvia Mancebo '07 (Neuroscience) "The Effect of Nucleus Accumbens Core Lesions on Relapse" [Spring]
- Natalia Ibanez '10 (Neuroscience) "Effects of D1 and D2 agonist into Ventral Tegmental Area (VTA) projections to the Nucleus Accumbens core and shell in Cocaine Cue-Induced relapse" [Fall]

Honors Thesis (Second Reader)

- Sarah Filone '08 (Psychology) "Barbie Girls: Lasting Effects of Barbie on College Women." [Fall/Spring]

2008

Honors Thesis

- Megan Fulmer '09 (Psychology) "Investigating the Severity of Ectopias on Behavior Abnormalities on the Hebb-Williams and the Morris Water Maze" [Fall]

Advanced Research

- Natalia Ibanez '10 (Neuroscience) "The role of chronic delta-9-THC administration on the reinforcing properties of cocaine in ICR and C57Bl6 mice" [Fall]
- Jessica Roberts '09 (Psychology) "Neocortical heterotopias and seizure susceptibility in C57Bl10/J mice" [Fall]
- Rachel Friedman '09 (Neuroscience) "FMRP and Neurogranin Expression in the Cerebral Cortex" [Fall]

Independent Study

- Stephanie Fosbenner '10 (Neuroscience) "Effects of environmental enrichment on spine morphology in the FMR1-knockout mouse" [Fall]

2009

Honors Thesis

- Megan Fulmer '09 (Psychology) "Investigating the Severity of Ectopias on Behavior Abnormalities on the Hebb-Williams and the Morris Water Maze" [Spring]
- Alyssa Wheeler '10 (Neuroscience) "Mozart Effect on learning-associated proteins in the mouse model of Fragile-X Mental Retardation" [Fall]

EXCEL Scholar

- Leah Goldberg '11 (Neuroscience) "Evaluating a new animal model of Autism" [Fall]

Advanced Research

- Natalia Ibanez '10 (Neuroscience) "Neocortical ectopia and seizure susceptibility in C57B110/J mice: Role of ectopia in seizure production" [Spring/Fall]
- Jessica Roberts '09 (Psychology) "Neocortical heterotopias and seizure susceptibility in C57B110/J mice" [Spring]
- Hilary Carroll '10 (Neuroscience) "Evaluation of the severity of neocortical ectopia and their impact on behavior" [Fall]
- Cara Cordeaux '10 (Neuroscience) "Verifying the generalized Mozart effect in mice" [Fall]

Independent

- Chris Blum '10 (Neuroscience) "Caffeine intake and exercise on Alzheimer's Disease" [Spring]
- Alyssa Wheeler '10 (Neuroscience) "Music as a potential therapy for neurological disorders" [Spring]
- Melissa Drennan '12 (Psychology) "Cortical Ectopia: What has been discovered and what science has yet to learn" [Fall]
- Cara Murphy '11 (Neuroscience) "Olfactory memory and synaptic protein expression in fmr1 mice" [Fall]

2010

Honors Thesis

- Alyssa Wheeler '10 (Neuroscience) "Impact of musical structure on Synaptic Proteins in the Juvenile Mouse Brain"
- Ioana Marin '11 (Neuroscience) "Dyslexia susceptibility gene candidate 1: a study of cognitive performance in mice"

EXCEL Scholar

- Ioana Marin '11 (Neuroscience) "DCDC2 knockout, developmental dyslexia susceptibility gene, impairs learning and memory"
- Monica Manglani '13 (Neuroscience) "Genetic basis of reading disorder"

Advanced Research

- Natalia Ibanez '10 (Neuroscience) "Neocortical ectopia and seizure susceptibility in C57B110/J mice: Role of ectopia in seizure production"
- Hilary Carroll '10 (Neuroscience) "Evaluation of the severity of neocortical ectopia and their impact on behavior"
- Cara Cordeaux '10 (Neuroscience) "Verifying the generalized Mozart effect in mice"
- Cara Murphy '11 (Psychology & English) "Olfactory memory and synaptic protein expression in fmr1 mice"

Independent Study

- Cara Murphy '11 (Psychology & English) "Olfactory memory and synaptic protein expression in fmr1 mice"

Honors Thesis (Second Reader)

- Stephen Conway '10 (Neuroscience) "The Effects of Dietary Modulation on a Fly Model of Epilepsy"

2011

Honors Thesis

- Ioana Marin '11 (Neuroscience) "Dyslexia susceptibility gene candidate 1: a study of cognitive performance in mice" [Spring]
- Christopher Angeloni '12 (Neuroscience) "Visual Attention Ability and P300-Based Brain-Computer Interface Performance" [Fall]

Advanced Research

- Cara Murphy '11 (Psychology & English) "Olfactory memory and synaptic protein expression in fmr1 mice" [Spring]
- Monica Manglani '13 (Neuroscience) "Creation of a virtual Hebb-Williams maze" [Fall]

Independent study

- Anna Salvatore '13 (Neuroscience) "Examination of seizure susceptibility in BxD29-TyJ mice" [Fall]
- Alissa Coffey '12 (Neuroscience) "Relationship between cortical maldevelopment and spatial working memory in C57B110J" [Fall]

EXCEL scholar

- Monica Manglani '13 (Neuroscience) "Genetic basis of reading disorder" [Spring]
- Stephanie Kass '14 (Neuroscience, pre-declared) "Genetic Basis of Reading Disability" [Summer]
- Christopher Angeloni '12* (Neuroscience) "Brain Computer Interface: Harnessing the power of the brain" [Summer]
- Victoria Corbit '13* (Neuroscience) "Brain Computer Interface: Harnessing the power of the brain" [Summer]
- Stephanie Kass '14 (Neuroscience, pre-declared) "Effect of environmental enrichment on behavior in an animal model of Fragile X syndrome" [Fall]
- Victoria Corbit '13 (Neuroscience) "Development of a Brain-Computer Interface system for cursor control" [Fall]

Honors Thesis (second or outside reader)

- Joshua Lipschultz '12 (Psychology) "Post-reinforcement pausing on variable ratio schedules with an added counter" [Fall]
- Sarah Rogal '12 (Biochemistry) "Effect of brain injury on musical composition of professional composers" [Fall]

2012

Honors Thesis

- Christopher Angeloni '12 (Neuroscience) "Visual Attention Ability and P300-Based Brain-Computer Interface Performance" [Spring]
- Monica Manglani '13 (Neuroscience) "Rescue of cognitive deficits associated with mutation in doublecortin containing 2 gene: a pharmacological intervention" [Fall]
- Victoria Corbit '13 (Neuroscience) "Improving mu rhythm brain-computer interface performance by implementing specific instructions for control" [Fall]

Advanced Research

- Monica Manglani '13 (Neuroscience) "Creation of a virtual Hebb-Williams maze" [Fall]
- Stephanie Kass '14 (Neuroscience) "Effect of environmental enrichment on synaptic protein expression in an animal model of Fragile X syndrome" [Fall]
- Genevieve Curtis '14 (Neuroscience) "Effect of memantine treatment on cognitive performance in DCDC2 knockout mice" [Fall]

Independent Study

- Anna Salvatore '12 (Neuroscience) "Examination of seizure susceptibility in BxD29-TyJ mice" [Fall]
- Alissa Coffey '12 (Neuroscience) "Relationship between cortical maldevelopment and spatial working memory in C57B110J mice" [Fall]

Excel Scholar:

- Stephanie Kass '14 (Neuroscience) "Effect of environmental enrichment on behavior in an animal model of Fragile X syndrome" [Summer - Fall]
- Victoria Corbit '13 (Neuroscience) "Effect of environmental enrichment on synaptic plasticity in an animal model of Fragile X syndrome" [Fall]
- Jessica Cysner '14 (Neuroscience) "Factors which influence BCI performance" [Summer - Fall]
- Monica Manglani '13* (Neuroscience) "Are you smarter than a ~~fifth-grader~~ mouse: creating a virtual maze" [Summer]
- Victoria Corbit '13* (Neuroscience) "Brain Computer Interface: Harnessing the power of the brain" [Summer]

Honors Thesis (Second reader or Outside reader):

- Joshua Lipschultz '12 (Psychology) "Post-reinforcement pausing on variable ratio schedules with an added counter" [Spring]
- Ahsan Nawroj'12 (ECE)A Brain Computer Interface for the Wireless Control of Navigation of a Rover [Spring]
- Sarah Rogal '12 (Biochemistry) "Effect of brain injury on musical composition of professional composers" [Spring]
- Ashley Kaminski '13 (ChBE) "Using Contemporary Strategies to Study Cell-Material Interactions to Better Engineer Substrates: A Transcriptomic and Proteomic Approach" [Fall]

2013

Honors Thesis

- Victoria Corbit '13 (Neuroscience) "Improving Participant Performance on Mu Rhythm-Based Brain-Computer Interfaces" [Spring]
- Monica Manglani '13 (Neuroscience) "Rescue of cognitive deficits associated with mutation in doublecortin containing 2 gene: a pharmacological intervention" [Spring]
- Jessica Cysner'14 (Neuroscience) "Using Maze Learning as a Predictor of Reading Ability in 5-6 Year Olds" [Fall]
- Stephanie Kass, '14 (Neuroscience) "Environmental Enrichment Impacts Synaptic Plasticity in a Mouse Model of Fragile X Syndrome" [Fall]
- Ryan O'Sullivan, '14 (Neuroscience) "Dyslexia and Memantine: How an Alzheimer's Drug could alleviate cognitive deficits in the Dcdc2 Knockout mouse model of Reading Disorder" [Fall]
- Genevieve Curtis, '14 (Neuroscience) "Auditory Discrimination and Processing in DBA/2J and C57BL/6J Mice" [Fall]
- Rachel Hamilton, '14 (Neuroscience) "Effect of Tlr4 Mutation on Seizure Severity in Mice" [Fall]
- SC Wang, '14 (ECE) "Identifying a neural-fingerprint for personal identification" [Fall]

Advanced Research

- Maura Schlusell '15 (Neuroscience) "Sensory Motor Rhythm Driven Brain-Computer Interface" [Spring – Fall]
- Genevieve Curtis '14 (Neuroscience) "Development of a novel phonological processing test" [Fall]

EXCEL scholars

- Jessica Cysner '14 (Neuroscience) "Validation of a novel virtual environment platform for use in translational research" [Spring – Fall]
- Maura Schlusell '15 (Neuroscience) "Improving Brain-Computer Interface performance through specific instruction" [Summer]
- Yiming Chen* '15 (Computer Science) "Improving a virtual Hebb-Williams maze for young children" [Summer]
- Annalisa Ashman* '16 (Computer Science) "Development of a virtual environment for the Hebb-Williams mazes" [Summer]
- Rachel Hamilton* '14 (Neuroscience) "Comparison of virtual environment on adult performance" [Summer]
- Alexandria Battison '16 (ECE) "Brain-computer Interface" [Spring – Fall]

Honors Thesis (Second reader or Outside reader)

- Ashley Kaminski '13 (ChBE) "Using Contemporary Strategies to Study Cell-Material Interactions to Better Engineer Substrates: A Transcriptomic and Proteomic Approach" [Spring]

2014

Honors Thesis

- Jessica Cysner'14 (Neuroscience) "We may not always improve with age: Examination of navigation abilities in children and adults on a virtual Hebb-Williams maze" [Spring]

- Stephanie Kass, '14 (Neuroscience) "Examination of Environmental Enrichment on Synaptic Protein Expression in a Mouse Model of Fragile X Syndrome" [Spring]
- Ryan O'Sullivan, '14 (Neuroscience) "An uncompetitive NMDA receptor antagonist, Memantine, may improve visuo-spatial learning in a mouse model of Reading Disorder" [Spring]
- Genevieve Curtis, '14 (Neuroscience) "What did you say?: Auditory discrimination and working memory in DBA/2J and C57BL/6J Mice" [Spring]
- Rachel Hamilton, '14 (Neuroscience) "Tlr-4 mutation is associated with enhanced seizure susceptibility in C56BL mouse model" [Spring]
- Sicheng Wang, '14 (ECE) "An Application of P300 Event-Related Potential as a Biometric" [Spring]
- Evan Newbold '15 (Neuroscience) "Seizure Susceptibility in BXD29-Tlr4lps-2j/j Mice and Related Strains" [Fall]
- Li Guo '15 (Psychology) "Influence of Cue Reliability on Navigation in a Virtual Hebb-Williams Maze" [Fall]
- Maura Schluskel '15 (Neuroscience) "The need to be me: Influence of participant-specific instructions on mu-based BCI performance" [Fall]
- Haley Garrison '15 (ECE) "Applications of BCI to Robotics Control" [Fall]

Advanced Research

- Maura Schluskel '15 (Neuroscience) "Sensory Motor Rhythm Driven Brain-Computer Interface" [Spring]
- Emily Bennett '16 (Neuroscience) "Mutation Differences of the BXD29 Strain in Mouse Models" [Fall]
- Scott Bradley '16 (Neuroscience) "Inducing agenesis of the corpus callosum in P7 mice: A case for reducing seizure susceptibility" [Fall]
- Maria Cano-Garcia '16 (Neuroscience) "Fragile X syndrome: FMRP interactions with ubiquitin E3 ligase" [Fall]
- Jillian Hall '17 (Neuroscience) "Fragile X Syndrome" [Fall]
- Alexandra McCullough '16 (Neuroscience) "Participant Controlled Brain-Computer Interface" [Fall]

Independent Study

- Jacob Mann '14 (B.S. Psychology) "The effects of memantine on visuo-spatial learning in Dcdc2 knockout mouse models of Reading Disorder" [Spring]
- Valerie Melson '18 (Undeclared) "Fragile X Syndrome: FMRP binding partners" [Fall]

EXCEL Scholars

- Li Guo '15 (B.S. Psychology) "Pattern Analysis for human performance in virtual maze task" [Spring]
- Alexandria Battison '16 (B.S. Physics) "Brain-computer Interface" [Spring]
- Jessica Baylor '16 (B.S. Biology) "Examination of partial agenesis of the corpus callosum as the factor for seizure resistance" [Spring]
- Samantha Chavin '16 (Neuroscience) "The Effect of Cinnamon Extract on Insulin and Memory Function in Obese and Lean C57BL/6J Mice" [Spring]
- Samantha Chavin '16 (Neuroscience) "Biological Basis of Reading Disorder" [Summer]
- Yiming Chen '15* (Computer Science) "Virtual reality environment development" [Fall]
- Alexandria Battison '16 (Neuroscience) "VEP driven BCI devices" [Fall]

Preminger Scholar

- Alexandra McCullough '16 (Neuroscience) "EngAGING Arts Participation Through Brain-Computer Interface" [Summer]

Howard Hughes Medical Institute scholar

- Camila Moscoso '16 (Neuroscience) "Brain Computer Interface" [Summer]

2015

Honors Thesis

- Evan Newbold '15 (Neuroscience) "Seizure Susceptibility in BXD29-Tlr4lps-2j/j Mice and Related Strains" [Spring]
- Li Guo '15 (Psychology) "Influence of Cue Reliability on Navigation in a Virtual Hebb-Williams Maze" [Spring]
- Maura Schluskel '15 (Neuroscience) "The need to be me: Influence of participant-specific instructions on mu-based BCI performance" [Spring]
- Haley Garrison '15 (ECE) "Applications of BCI to Robotics Control" [Spring]

Advanced Research

- Jillian Hall '17 (Neuroscience) "Fragile X Syndrome" [Spring]
- Scott Bradley '16 (Neuroscience) "Spontaneous seizure development in BXD29 mutant mice" [Spring]
- Isabella Maita '17 (Neuroscience) "Influence of Cue Reliability on Navigation in a Virtual Hebb-Williams Maze" [Fall]

Independent Study

- Ashley Goreshnik '18 (Neuroscience) "Mu-based Brain-computer Interface" [Spring]

EXCEL Scholars

- Ashley Goreshnik '18 (Neuroscience) "Mu-based Brain-computer Interface" [Summer – Fall]
- Alexandria Battison '16 (Neuroscience) "SSVEP driven BCI devices" [Spring]
- Alexandria Battison '16 (Neuroscience) "Early detection of reading disorder based on virtual maze performance and genetic" [Fall]
- Alexandria Battison '16 (Neuroscience)- Friedrich Alexander Universitaet, Erlangen, Germany "Integration of eye-tracking device with virtual maze software for wayfinding analysis in dyslexic children" [Summer]

2016

Honors Thesis

- Isabella Maita '17 (Neuroscience) "Cue-Reliability and Murine Navigation through Hebb Williams Mazes" [Fall]
- Ashley Goreshnik '17 (Neuroscience) "Accuracy and Reliability Study of Brain-Computer Interface Robot Navigation" [Fall]

Advanced Research

- Isabella Maita '17 (Neuroscience) "Statistical Learning in Virtual Maze environment" [Spring]

Independent Study

- McKenna Schimmel '19 (Neuroscience, not declared) "Mu based Brain-Computer Interface" [Spring – Fall]

EXCEL Scholars

- Erin Murray '19 (Neuroscience, not declared) "Integration of eye-tracking with virtual maze software for statistical learning analysis in dyslexic children" [Summer]
- Erin Murray '19 (Neuroscience, not declared) "Early detection of reading disorder based on virtual maze performance and genetic" [Fall]
- Alexandria Battison '16 (Neuroscience) "SSVEP driven BCI devices" [Spring]
- Ashley Goreshnik '17 (Neuroscience) "Application of HR to enhance Mu-based Brain-computer Interface performance" [Spring]

2017

Honors Thesis

- Isabella Maita '17 (Neuroscience) "Cue-Reliability and Murine Navigation through Hebb Williams Mazes" [Spring]
- Ashley Goreshnik '17 (Neuroscience) "Accuracy and Reliability Study of Brain-Computer Interface Robot Navigation" [Spring]

Advanced Research

- Elena Esch '18 (Neuroscience) “Determining the link between virtual maze performance and dyslexia” [Fall]
- McKenna Schimmel '19 (Neuroscience & Biochemistry) “The potential impact of BCI” [Fall]

Independent Study

- McKenna Schimmel '19 (Neuroscience & Biochemistry) “Mu based Brain-Computer Interface” [Spring]
- Sarah Blitz '20 (Neuroscience & Biochemistry) “Using Mu Rhythm, Alpha Rhythm, and SSVEP to Operate a Hybrid BCI-Controlled Robot” [Fall]

EXCEL Scholars

- Erin Murray '19* (Neuroscience) “Early detection of reading disorder based on virtual maze performance and genetic analysis” [Spring- Fall]

Honors Thesis (Second reader or Outside reader)

- Brandon Smith '17 (ECE) “Design of a Wheelchair for Use with a Brain-Computer Interface” [Spring]
- Taylor Corsi '18 (Neuroscience & Women and Gender Studies) “The role of paternal song quality in Developmental acquisition of zebra finch and song preference” [Fall]

Non-LC Masters Thesis Student

- Christina Goerner, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany, “Language orthography and its impact on virtual maze performance in dyslexia” [Spring]

2018

Advanced Research

- McKenna Schimmel '19 (Neuroscience & Biochemistry) “Mu based Brain-Computer Interface” [Spring]

Independent Study

- Sarah Blitz '20 (Neuroscience & Biochemistry) “Using Mu Rhythm, Alpha Rhythm, and SSVEP to Operate a Hybrid BCI-Controlled Robot” [Spring]
- Kelsey Voss '20 (Neuroscience) “Investigating Performance of Participants with ADHD and Dyslexia on the Virtual Hebb-Williams Maze” [Spring]
- Nicole Segalini '20 (Neuroscience) “Hybrid Brain-Computer Interface” [Spring]
- Kevin Long '20 (Neuroscience) “Toward the development of multidimensional cursor movement with mu-based BCI” [Spring]

EXCEL Scholars

- Erin Murray '19* (Neuroscience) “Understanding factors which impact performance efficiency on the virtual Hebb-Williams maze” [Spring]
- Elena Esch '18* (Neuroscience) “Determining the link between virtual maze performance and dyslexia” [Spring]
- Lana Sidani '18* (Neuroscience) “Early detection of dyslexia through vHW maze performance” [Spring]
- Olivia Grigaux '19* (Neuroscience) “Early detection of reading disorder” [Spring]
- Sorawit Roongruengratanakul '21* (Computer Science) “ Detecting user intention using eye-tracking during completion of the virtual Hebb-Williams maze” [Spring-Summer]
- Ethan Miller '21 (ECE) “Development of an interface for mu-based BCI design” [Summer]

Honors Thesis (Second reader)

- Taylor Corsi '18 (Neuroscience & Women and Gender Studies) “The role of paternal song quality in Developmental acquisition of zebra finch and song preference” [Spring]