Julie A. Korak, Ph.D., P.E.

Current Position

Assistant Professor, *Department of Civil, Environmental and Architectural Engineering, University of Colorado Boulder,* 2018-present

Education

University of Colorado Boulder	Civil Engineering	Ph.D.	2014
University of Colorado Boulder	Civil Engineering	M.S.	2013
University of Colorado Boulder	Environmental Engineering	B.S.	2009
University of Colorado Boulder	Chemical Engineering	B.S.	2009
Norwegian University of Science and Technology		N/A	2006-2007

Professional Licensure

Professional Engineer (P.E.), State of Colorado (PE.0052389), June 2017 –present

Professional Experience

Assistant Professor, University of Colorado Boulder, Boulder, CO 2014-present

Environmental Engineer, *Bureau of Reclamation, U.S. Department of the Interior,* 2015 –2018

Postdoctoral Research Associate, *University of Colorado Boulder,* 2014-2015

Lecturer, *University of Colorado Boulder***,** Spring 2015**,** Analytical Methods for Environmental Engineering (Department of Civil Engineering)

Lecturer, *University of Colorado Boulder,* Spring 2015, Intro to Engineering Computing (Department of Computer Science)

Graduate Research Assistant, *University of Colorado Boulder*

Publications (h-index = 9 as of 1/1/2019)

I. Peer-Reviewed Journal Publications and Book Chapters

1. McKay, G.; **Korak, J. A.;** Rosario-Ortiz, F. L. Temperature dependence of the fluorescence of dissolved organic matter: Implications for DOM photophysics. *Environmental Science and Technology*, **2018**, 52, 9022-9032.

2. **Korak, J.A.**; Huggins, R.; Arias-Paic, M.; Nanofiltration to improve process efficiency of hexavalent chromium treatment using ion exchange. *Journal-American Water Works Association*, **2018**, 110 (6), E13-E26.

3. Kennedy, A.M.; **Korak, J.A.**; Flint, L.; Hoffman, C.; Arias-Paic, M. Pilot-scale studies of chromium removal using stannous chloride. *Journal-American Water Works Association*, **2018**,110 (4), E29-E42.

4. McKay, G.M.; **Korak, J.A.;** Erickson, P.R.; Latch, D.E.; McNeill, K.; Rosario-Ortiz, F.L. The case against charge transfer interactions in dissolved organic matter photophysics. *Environmental Science and Technology*, **2018**, 52, 406-414.

5. **Korak, J.A**.; Huggins, R; Arias-Paic, M. Regeneration of pilot-scale ion exchange columns for hexavalent chromium removal. *Water Research*, **2017**, 118, 141-151.

6. Cawley, K.; Hohner, A.; Podgorski, D.; Cooper, W.; **Korak, J.A.;** Rosario-Ortiz, F. Molecular and spectroscopic characterization of water extractable organic matter from thermally altered soils reveal insight into disinfection byproduct precursors. *Environmental Science and Technology*, **2017**, 51 (2), 771-779.

7. **Korak, J.A.;** Rosario-Ortiz, F.L.; Summers, R.S. Evaluation of optical surrogates for the characterization of DOM removal by coagulation. *Environmental Science: Water Research & Technology*, **2015**, 1 493-506.

8. **Korak, J. A.;** Wert, E. C.; Rosario-Ortiz, F. L. Fluorescence spectroscopy as a surrogate for the release of intracellular organic matter upon oxidation of cyanobacteria cells. *Journal-American Water Works Association*, **2015**, 107 (1), E523-E542.

9. **Korak, J.A.;** Wert, E.C.; Rosario-Ortiz, F.L. Evaluating fluorescence spectroscopy as a tool to characterize cyanobacteria intracellular organic matter upon simulated release and oxidation in natural water. *Water Research*, **2015**, 68 432-443.

10. Cawley, K.M.; **Korak, J.A.;** Rosario-Ortiz, F.L. Quantum yields for the formation of reactive intermediates from dissolved organic matter samples from the Suwannee River. *Environmental Engineering Science*, **2015**. 32 31-37.

11. Lester, Y.; Thurman, E.M.; Ferrer, I.; Sitterley, K.; **Korak, J.A.;** Aiken, G.; Linden, K.; Characterization of fracturing flowback water in Colorado: Implications for water treatment. *Science of the Total Environment*, 512-513, **2015**, 637-644.

12. Wert, E.C., **Korak, J.A.,** Trenholm, R.A., Rosario-Ortiz, F.L. Effect of oxidant exposure on the release of intracellular microcystin, MIB, geosmin from three cyanobacteria. *Water Research*, **2014**, 52, 251-259.

13. **Korak, J.A.;** Dotson, A.D.; Summers, R.S.; Rosario-Ortiz, F.L. Critical analysis of commonly used fluorescence metrics to characterize dissolved organic matter. *Water Research*, **2014**, 49, 327–338.

14. **Korak, J.A.;** Rosario-Ortiz, F.L.; Summers, R.S. Fluorescence characterization of humic substance coagulation: Application of new tools to an old process. In *Advances in the Physicochemical Characterization of Organic Matter*; Rosario-Ortiz, F.L., Ed; ACS Symposium Series 1160; American Chemical Society: Washington DC, **2014**; pp 281-300.

15. Mostafa, S.; **Korak, J.A**.; Shimabuku, K; Glover, C.M.; Rosario-Ortiz, F.L. Relation between optical properties and formation of reactive intermediates from different size fractions of organic matter. In *Advances in the Physicochemical Characterization of Organic Matter*; Rosario-Ortiz, F.L., Ed; ACS Symposium Series 1160; American Chemical Society: Washington DC, **2014**; pp 159-179.

16. Beggs, K. M. H.; Bilica, J. A.; **Korak, J.A.;** Rosario-Ortiz, F. L.; McKnight, D. M.; Summers, R. S. Spectral evaluation of watershed dissolved organic matter and DBP precursors. *Journal-American Water Works Association*, **2013**, 105 (4) E173-188.

II. Publications in Preparation

1. Korak, J.A.; Fint, L.; Arias-Paic, M. Waste Minimization for hexavalent chromium strong base anion exchange: a process modeling approach. Planned submission Spring 2019.

2. Warren, M.; Korak, J.A. Sampling approaches for lead release in distribution systems: A critical review Planned submission in Winter 2018.

III. Patents

1. Arias-Paic, M.; **Korak, J.A.;** Method for purifying and recovering solvent from ion exchange processes. Patent application in preparation, 2018.

IV. Articles (not peer-reviewed)

1. Ling, A.; Korak, J.A.; Schliep, A. Lead and Copper Corrosion in Distribution Systems: Current Understanding and Outlook. Breeze Minnesota Section of the AWWA, **2018**, 22–24.

2. McKay, G.M.; **Korak, J.A.;** Erickson, P.R.; Latch, D.E.; McNeill, K.; Rosario-Ortiz, F.L. Response to comment on the case against charge transfer interactions in dissolved organic matter photophysics. *Environmental Science and Technology*, **2018**, 52 (9) 5514-5516.

3. Rosario-Ortiz, F.L.; **Korak, J.A.**; Oversimplification of Dissolved Organic Matter Fluorescence Analysis: Potential Pitfalls of Current Methods. *Environmental Science and Technology*, **2017**, 51 (2), 759-761.

V. Research Reports (peer-reviewed)

1. **Korak, J.A.;** Monitoring strategies for direct use of reclaimed water. Report to Bureau of Reclamation Science and Technology Program. Project #365. **2016.**

2. **Korak, J.A.;** Literature review and sampling plan for the San Juan River. Report to the Bureau of Reclamation Office of Research and Development. **2016**.

3. **Korak, J.A.;** Leitz, F.; Hirschbeck, M. San Juan River quality before and after the Gold King Mine spill. Report to Bureau of Reclamation Four Corners Construction Office. **2016.**

4. **Korak, J.A.;** Arias-Paic, M.; Forward osmosis evaluation and applications for Reclamation. Report to Bureau of Reclamation Science and Technology Program. Project #1759. **2015.**

5. Guerra, K.L; **Korak, J.A**.; Development and evaluation of a hybrid photovoltaic reverse osmosis system for treating brackish groundwater. Report to Bureau of Reclamation Science and Technology Program. Project #1340. **2015**.

6. Wert, E.C.; Dong, M.M.; **Korak, J.A.;** Rosario-Ortiz, F.L. Release of intracellular metabolites from cyanobacteria during oxidation processes. Report to Water Research Foundation. Project #4406. **2014.**

Funded Research and Authored Proposals

1. **Agency:** Bureau of Reclamation Office of Native American Affairs **Title:** Modeling and laboratory studies of distribution system blending and its effects on corrosion for Cutter Lateral **PI:** Julie Korak **Funds Requested:** $115,000 **Duration:** 11/1/2016-9/30/2018 **Status:** Funded

2. **Agency:** Bureau of Reclamation Office of Native American Affairs **Title:** Modeling and laboratory studies of distribution system blending and its effects on corrosion **PI:** Julie Korak **Funds Requested:** $138,892 **Duration:** 10/1/2016-9/30/2018 **Status:** Funded

3. **Agency:** Bureau of Reclamation Science and Technology Program **Title:** Water quality impacts in the Animas and San Juan River basins: Literature search, sampling plan and program **PI:** Julie Korak **Funds Requested:** $300,000 **Duration:** 10/1/2016-9/30/2019 **Status:** Funded

4. **Agency**: Bureau of Reclamation Science and Technology Program **Title:** San Juan River water quality literature review and sampling plan **PI:** Julie Korak **Funds Requested:** $25,000 **Duration:** 5/1/2016-9/30/2016 **Status:** Complete

5. **Agency:** Bureau of Reclamation Science and Technology Program **Title:** Monitoring strategies for direct reuse of reclaimed water **PI:** Julie Korak **Funds Requested:** $15,000 **Duration:** 10/1/2015-9/30/2016 **Status:** Complete

6. **Agency:** National Science Foundation **Title:** Characterizing pyrogenic soil organic matter as a source of nitrogenous disinfection byproducts **PI:** Fernando Rosario-Ortiz **Co-PI:** Julie Korak (primary author) **Funds Requested:** $247,708 **Duration:** 7/1/2015-6/30/2018 **Status:** Funded

7. **Agency:** National Science Foundation **Title:** Workshop: Natural organic matter and its impact on drinking water. **PI:** Michael Gonsior. **Role:** Collaborator **Funds Requested:** $48,060. **Duration:** 2/15/15-03/31/2016. **Status:** Complete

8. **Program:** National Science Foundation Graduate Research Fellowship Program. **PI:** Julie Korak. **Total Funds (including awarded supplements):** $125,500. **Award number:** DGE 1144083. **Duration:** 9/1/2011 through 8/31/2014. **Status:** Complete

Awards and Honors

1. Best Doctoral Dissertation: Department of Civil, Environmental and Architectural Engineering, University of Colorado Boulder, May 2015.

2. Student Travel Award to attend and present at the 17th Meeting of the International Humic Substances Society in Ioannina, Greece. Award covered cost of transportation, accommodations and conference registration (33% acceptance rate). 2014

3. Best Graduate Student Presentation: Hydrological Sciences Symposium. 2014

4. Certificate of Merit: American Chemical Society for First Oral Presentation at a National Conference for Framework for using fluorescence spectroscopy to evaluate changes in organic matter. 2013

5. Certificate of Merit: American Chemical Society for First Poster Presentation at a National Conference for Characterizing algal organic matter and its transformations during oxidation using fluorescence spectroscopy. 2013

6. National Science Foundation Graduate Research Fellow. 2011-2014

7. Outstanding Graduate for the College of Engineering at University of Colorado at Boulder (Awarded to one undergraduate student from College of Engineering). 2009

8. Silver Medal Finalist from Colorado Engineering Council (Three undergraduate students from College of Engineering). 2009

9. First Place: Halliburton Environmental Footprint Reduction Challenge. $20,000 team prize split amongst four team members. 2009

10. Ranked #1 in graduating class for both Chemical (52 students) and Environmental (13 students) engineering majors. 2009

11. Awarded Outstanding Undergraduate Teaching Assistant by Chemical Engineering Department. 2009

12. Avon Foundation Scholarship Recipient. 2004-2009

Teaching Experience

Professor: Analytical Methods, Experimental Design and Applied Data Analysis, Graduate, University of Colorado, Spring 2019
Professor: Environmental Engineering Processes, Undergraduate, University of Colorado, Fall 2018
Lecturer: Intro to Engineering Computing, Undergraduate, University of Colorado, Spring 2015
Lecturer: Analytical Methods for Environmental Engineering, Graduate, University of Colorado, Spring 2015
Grader: Hazardous and Industrial Waste Management, Undergraduate and Graduate, University of Colorado Boulder, online course, Summer 2013
Assistant Lecturer: Analytical Methods for Environmental Engineering, Graduate, University of Colorado, Spring 2013, Developed 4 lectures and 2 lab sessions
Teaching Assistant: Fundamentals of Environmental Engineering, Undergraduate, University of Colorado, Fall 2010
Teaching Assistant: Introduction to Engineering Computing, Undergraduate, University of Colorado, Fall 2008, Spring 2009. Awarded Outstanding Undergraduate TA from Chemical Engineering Department.
Tutor: Herbst Academic Center for Student Athletes (2005-2006)

Other Professional Experience

Administrative Assistant: Sand Creek Regional Greenway Project, Denver, CO, 2010
Undergraduate Summer Internship: Avon Products, Morton Grove, IL, 2008
Volunteer Teacher and Grant Writer: Holy Cross Anglican School, San Pedro, Belize, 2009
Whitewater Rafting Guide: Arkansas Valley Adventures, Buena Vista, CO, 2005, 2006

Presentations (Presenting author underlined, * indicates poster presentation)

I. Invited Presentations

1. Korak, J.A. From Student to Engineer. Colorado School of Mines, Engineering Technology Management Program Executive in Residence Seminar Series. Golden, Colorado, March 13, 2018.

2. Korak, J.A. Limitations of fluorescence spectroscopy to characterize organic matter in engineered systems. American Geophysical Union Fall Meeting. New Orleans, Louisiana, December 11-15, 2017.

3. Korak, J.A. Regeneration and waste minimization of hexavalent chromium ion exchange processes. Environmental Engineering Program Seminar Series, University of Colorado Boulder, December 9, 2016.

4. Korak, J.A. Photovoltaic-powered reverse osmosis desalination. Public webinar for Bureau of Reclamation Office of Research and Development. March 2, 2016.

5. Korak, J.A.; Photovoltaic-powered reverse osmosis desalination. Webinar for the National Science Foundation's Re-Inventing the Nation's Urban Water Infrastructure (ReNUWIt) Program. Presented at New Mexico State University; Broadcasted to Colorado School of Mines, University of California Berkeley and Stanford University. December 2, 2015.

6. Korak, J.A.; Removal of DBP precursors using coagulation. AWWA ACE, Denver, CO, June 9-13, 2013

II. Presentations

1. Kennedy, A; Croft, R.; Flint, L.; Korak, J.A.; Arias-Paic, M.. Long-Term Filtration Pilot Study for the Removal of Total and Hexavalent Chromium from Drinking Water Using Stannous Chloride. American Water Works Association - Water Quality and Technology Conference. Toronto, Ontario, Canada, November, 11-15, 2018.

2. Tsuchihashi, R.; Hoffman, C.; Korak, J.; Arias-Paic, M.. Selection and Optimization of External Carbon Addition for Biological Selenium Removal: Addressing Influent/Seasonal Variations. American Water Works Association - Water Quality and Technology Conference. Toronto, Ontario, Canada, November, 11-15, 2018.

3. McKay, G.; Korak, J.A.; Rosario-Ortiz, F. Temperature dependence of dissolved organic matter fluorescence: Implications for DOM photophysics. 255th American Chemical Society National Meeting. New Orleans, Louisiana, March 18-22, 2018.

4. McKay, G.; Korak, J.A.; Erickson, P.; Latch, D.; McNeill, K.; Rosario-Ortiz, F. Critical evaluation of models for CDOM optical properties and photochemistry. 255th American Chemical Society National Meeting. New Orleans, Louisiana, March 18-22, 2018.

5. Arias-Paic, M; Gress, A; Korak, J.A.; Chang, Y. Attempting zero liquid discharge from a challenging water source using membrane-based processes. Membrane Technology Conference. West Palm Beach, Florida. March 12-16, 2018.

6. McKay, G.; Korak, J.A.; Erickson, P.; Latch, D.; McNeill, K.; Rosario-Ortiz, F. The case against charge transfer interactions in dissolved organic matter optical properties. American Geophysical Union Fall Meeting. New Orleans, Louisiana, December 11-15, 2017.*

7. Korak, J.A.; Huggins, R.; Arias-Paic, M.; Beneficial reuse of hexavalent chromium ion exchange brines: Alternative configurations, next-generation resins and nanofiltration. American Water Works Association - Water Quality and Technology Conference. Portland, Oregon, November 12-16, 2017.

8. Korak, J.A.; Arias-Paic, M.; Ion exchange for chromium removal: The unintended consequences of uranium and vanadium during resin regeneration. American Water Works Association - Water Quality and Technology Conference. Portland, Oregon, November 12-16, 2017. *

9. Kennedy, A.; Korak, J.A.; Flint, L.; Hoffman, C.; Arias-Paic, M.; Stannous chloride for the reduction and subsequent filtration of hexavalent chromium from groundwater. American Water Works Association - Water Quality and Technology Conference. Portland, Oregon, November 12-16, 2017.*

10. Arias-Paic, M; Hoffman, C.; Kennedy, A.; Korak, J.A.; Gress, C.A.; Irvine, S.; Tsuchihashi, R.; Optimization of bioreactor processes for selenium removal in a challenging source water. American Water Works Association - Water Quality and Technology Conference. Portland, Oregon, November 12-16, 2017.

11. Korak, J.A.; Arias-Paic, M. Regeneration of strong base ion exchange resin for hexavalent chromium removal. 253rd American Chemical Society National Meeting. San Francisco, California, April 2-6, 2017.

12. Korak, J.A.; McKay, G.; Erickson, P.; Latch, D.; McNeill, K.; Rosario-Ortiz, F. Investigation of the effect of solvent polarity and temperature on the optical properties of dissolved organic matter. 253rd American Chemical Society National Meeting. San Francisco, California, April 2-6, 2017.

13. Korak, J.A.; Huggins, R.; Hirschbeck, M.; Seidel, C.; Arias-Paic, M. Membrane fractionation, waste minimization and beneficial reuse of hexavalent chromium ion exchange brine. AWWA Annual Conference and Exposition. Chicago, Illinois, June 20-22, 2016.

14. Huggins, R; Korak, J.A.; Hirschbeck, M; Arias-Paic, M; Beneficial reuse of waste minimization of hexavalent chrome ion exchange brine. AWWA American Membrane Technology Association. San Antonio, Texas, February 1-5, 2016.

15. Korak, J.A.; Rosario-Ortiz, F.L.; Summers, R.S.; Fluorescence monitoring for DOM removal by coagulation: the relative (un)importance of wavelength selection. IWA Specialist Conference on Natural Organic Matter in Water., Malmo, Sweden, September 7-10, 2015.

16. Wert, E.C.; Dong, M.M.; Korak, J.A.; Rosario-Ortiz, F.L. Release of cyanobacterial metabolites due to preoxidation processes. AWWA Water Quality and Technology Conference, New Orleans, LA, November 16-20, 2014.

17. Korak, J.A.; Wert, E.C.; Rosario-Ortiz, F.L. Characterization of cyanobacteria-derived intracellular organic matter and its release during cell oxidation. 17th International Humic Substance Society Conference, Ioannina, Greece, September 1-5, 2014 (Poster and Oral).

18. Korak, J.A.; Wert, E.C.; Rosario-Ortiz, F.L. Fluorescence spectroscopy as an indicator for cyanobacteria organic matter release by oxidation processes. 248th American

Chemical Society National Meeting and Exposition, San Francisco, CA, August 10-14, 2014.

19. Korak, J.A.; Wert, E.C.; Rosario-Ortiz, F.L. Fluorescence spectroscopy as an indicator for cyanobacteria organic matter release by oxidation processes. Hydrological Sciences Student Research Symposium. Boulder, CO. April 3-4, 2014.

20. Korak, J.A.; Dotson, A.D.; Summers, R.S.; Rosario-Ortiz, F.L. Critical analysis of commonly used fluorescence metrics. AWWA Water Quality and Technology Conference, Long Beach, CA, November 3-6, 2013.

21. Korak, J.A.; Wert, E.C.; Dong, M.M.; Rosario-Ortiz, F.L. Characterizing algal organic matter and its transformations during oxidation using fluorescence spectroscopy. AWWA Water Quality and Technology Conference, Long Beach, CA, November 3-6, 2013.

22. Wert, E.C.; Dong, M.M.; Korak, J.A.; Trenholm, R.; Rosario-Ortiz, F.L. Release of cyanobacterial metabolites due to preoxidation processes. AWWA Water Quality and Technology Conference, Long Beach, CA, November 3-6, 2013. *

23. Wert, E.C.; Dong, M.M.; Korak, J.A.; Rosario-Ortiz, F.L. Release of intracellular metabolites and disinfection byproduct precursors after oxidation of cyanobacteria. International Ozone Association 2013 World Congress, Las Vegas, NV, September 22-26, 2013.

24. Korak, J.A.; Dotson, A.D.; Summers, R.S.; Rosario-Ortiz, F.L. Critical analysis of commonly used fluorescence metrics. Association of Environmental Engineering & Science Professors 50th Anniversary Conference, Golden, CO, July 14-16, 2013.*

25. Korak, J.A.; Wert, E.C.; Dong, M.M.; Rosario-Ortiz, F.L. Characterizing algal organic matter and its transformations during oxidation using fluorescence spectroscopy. AWWA ACE Conference, Denver, CO, June 9-13, 2013.

26. Wert, E.C.; Dong, M.M.; Korak, J.A.; Rosario-Ortiz, F.L. Release of cyanobacteria metabolites due to preoxidation processes. AWWA ACE Conference, Denver, CO, June 9-13, 2013.

27. Korak, J.A.; Rosario-Ortiz, F.L.; Summers, R.S. Evaluating DOM removal during coagulation using fluorescence spectroscopy. RMSAWWA/RMWEA Joint Annual Conference. Keystone, CO, September 8-11, 2013.

28. Korak, J.A.; Wert, E.C.; Dong, M.M.; Rosario-Ortiz, F.L. Characterizing algal organic matter and its transformations during oxidation using fluorescence spectroscopy. RMSAWWA/RMWEA Student Conference. May 14, 2013.

29. Korak, J.A.; Rosario-Ortiz, F.L.; Summers, R.S.; Framework for using fluorescence spectroscopy to evaluate changes in organic matter. 245th ACS National Meeting. New Orleans, LA, April 7-11, 2013.

30. Korak, J.A.; Wert, E.C.; Dong, M.M.; Rosario-Ortiz, F.L. Characterizing algal organic matter and its transformations during oxidation using fluorescence spectroscopy. 245th ACS National Meeting. New Orleans, LA, April 7-11, 2013.*

31. Wert, E.C.; Dong, M.M.; Korak, J.A.; Rosario-Ortiz, F.L. Effect of ozone oxidation on algal cells. International Ozone Association Pan American Group, Milwaukee, WI, September 23-26, 2012.

32. Moutinho, J.; Korak, J.A.; Rosario-Ortiz, F.L.; Characterization of natural organic matter removal during coagulation using fluorescence spectroscopy. SACNAS National Conference. San Jose, CA, October 27-30, 2011.*

33. Korak, J.A.; Moutinho, J.; Rosario-Ortiz, F.L.; Summers, R.S.. Characterization of natural organic matter removal during coagulation using fluorescence spectroscopy. Fourth IWA Specialty Conference on Natural Organic Matter. Costa Mesa, CA, July 27-29, 2011.*

Service Activities

I. Professional and Academic Organizations

- American Water Works Association
- American Chemical Society
  - Symposium Organizer for Spring 2015 meeting in Denver
  - Symposium Organizer for Summer 2016 meeting in Philadelphia
- American Geophysical Union
- International Humic Substances Society
- Tau Beta Pi (Engineering Honor Society)
- Omega Xi Epsilon (Chemical Engineering Honor Society)

II. University Service

A) Environmental Engineering Curriculum Committee (2018-2019)

III. Journal Peer Reviewer

- Environmental Science and Technology
- Water Research
- Environmental Engineering Science
- Journal of Environmental Engineering (ASCE)
- Chemosphere
- Environmental Earth Sciences
- Hydrometallurgy
- Environmental Science: Water Research and Technology

IV. Student Mentoring

A) Undergraduate Students
   1) Jennifer Moutinho, Research Experience for Undergraduates (REU) — Summer 2011
   2) Marta Viscut, Discover Learning Apprenticeship Program — 2014-2015
   3) Yiqun Yao, Undergrad research assistant — 2018-present

B) Masters Students
   1) Melanie Warren, Advisor — 2018-present
   2) Leah Flint, Advisor — 2018-present

C) PhD Students
   1) Sydney Ulliman, PhD Committee Member — 2017-present