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EDUCATION

Duquesne University, Pittsburgh, PA

Ph.D., Chemistry, August 2017

Washington and Jefferson College, Washington, PA

Bachelor of Arts, Chemistry, May 2010

TEACHING EXPERIENCE AND LEADERSHIP

Assistant Professor of Physics, 6 semesters (Fall 2016 - Spring 2019)

- Instructor of Introduction to Physical Sciences (PHY105), 6 semesters.
- Instructor of General Chemistry I (CHM111), 1 semester.
- Instructor of General Chemistry II (CHM112), 1 semester.
- Instructor of General Physics I (PHY111), 3 semesters.
- Instructor of General Physics II (PHY113), 3 semesters.
- Instructor of General Physics I Laboratory (PHY112), 3 semesters.
- Instructor of General Physics II Laboratory (PHY114), 3 semesters.
- Co-chair of Learning Technology Committee, 4 semesters.
- Member of Educational Planning Committee, 2 semesters.
- Faculty advisor of Coffee Club, 4 semesters.
- Faculty advisor of Physical Therapy Club, 4 semesters.

National Science Foundation S-STEM teaching fellow, five semesters (Fall 2013 - Spring 2016)

- served as head graduate student on the Department of Chemistry and Biochemistry's S-STEM teaching grant at Duquesne University.
- approximately 500 hours of teaching and professional interactions per academic year.
- primary focus on financially disadvantaged undergraduates to aid them in their development as students and scientists.
- scheduled bi-monthly meetings with STEM undergraduate cohorts - mentoring financially disadvantaged students to increase chemistry major retention and degree completion.
- was responsible for leading a team of graduate students and faculty, who serve to mentor undergraduate chemistry majors for their future careers in science and graduate school.
- organized and lead workshops on time management, prioritization, critical thinking, writing, speaking, and leadership skills.
- additional activities included: student survey preparation, program webpage development, institutional review board document preparation, ethics training, managing various undergraduate research projects, moderating student presentations in a chemistry research for credit course, data analysis, and annual report review.

Mentor of undergraduate research fellows, four years (Summer 2012 - Spring 2016)

- comprised the Research Experience for Undergraduates (REU), National Institute of Health (NIH), and Student Research Experience (SRE) summer undergraduate research programs at Duquesne University.
- approximately 150 hours of teaching and professional interactions per summer research program.
- served as organizer of a computational group meeting of approximately 40 students and faculty.
- was responsible for giving an introductory presentation on the verbal and written expectations of the student presentations, as well as an overview of the ten week program and the topics to be presented in each meeting.
- developed, implemented, and revised a protocol where members of the audience evaluated the performance of presenters and provided written feedback for improving future presentations.

Teaching assistant orientation mentor, two years (Summer 2013 and 2014)

- served as an experienced teaching assistant and conducted an instructional session for all incoming science (pharmacy, biology, and chemistry) graduate students on effective teaching in the sciences.
- approximately 20 hours per summer.

Volunteer physical chemistry teaching assistant, three semesters (Fall 2012 - 2014)

- was responsible for the grading of course quizzes, exams, and mini-projects.
- approximately 200 hours per semester.
- established various grading rubrics to communicate instructor expectations to students.
- mentored and assisted students who were struggling in the class.
- administered a project, utilized by undergraduates in class, that illustrates various quantum chemistry principles seen in lecture. This involved writing a computer program for the students, presenting the project expectations, facilitating project discussion and question/answer, and implementing pre- and post-project surveys to gather student feedback for improving future assignments.

General chemistry recitation teaching assistant five semesters (Fall 2011 - Spring 2014)

- was responsible for mentoring new chemistry graduate student teaching assistants and communicating with other experienced TA's on effective teaching/learning techniques.
- prepared syllabi and lesson plans, and developed assignments and quizzes to assess student learning.
- met with students to discuss career opportunities in science.
- approximately 400 hours per academic year.

General chemistry laboratory teaching assistant one semester (Fall 2015)

- developed assignments and quizzes to assess student learning.
- participated in faculty/graduate student discussion on experiment improvements/modifications.
- approximately 200 hours per semester.

PROFESSIONAL DEVELOPMENT AND AFFILIATIONS

- Member of the Educational Planning Committee (Fall 2018 - present)
- Co-chair and member of the Learning Technology Committee (Fall 2017 - present)
- First-year faculty committee, Franciscan University (Fall 2016 - Spring 2017)

- Completion of Certificate and Advanced Certificate of University Teaching programs, Center for Teaching Excellence, Duquesne University - five years (Fall 2011 - Spring 2016)

The following workshops were attended for portfolio and future faculty preparation:

- Civic Provocations (book study)
- Writing a Statement of Teaching Philosophy
- Integrating Critical Reflection to Generate, Deepen, and Document Learning in Service-Learning
- Mindfulness: A Practice that Deepens Learning
- Students with Disabilities and Faculty Responsibilities
- Lecture Strategies that Increase Comprehension
- Developing a Teaching Portfolio
- Strange Encounters of a TA Kind
- Preparing a CV and Cover Letter
- American Chemical Society member (2012 - present)
- Graduate student representative on the American Chemical Society executive board at Duquesne University - four years (Spring 2012 - Spring 2016)
 - coordinator and leader of a team of judges for middle and high school student science presentations at the Pennsylvania Junior Academy of Sciences (PJAS) regional meeting in Pittsburgh
 - attend weekly meetings to advise the undergraduate ACS committee on various outreach initiatives
 - undergraduate/graduate student liaison - responsible for coordinating joint events for science activities in the department
 - approximately 50 hours per semester
- Member of the Student Safety Committee in the Department of Chemistry and Biochemistry at Duquesne University - three years (Fall 2013 - Spring 2016)
 - organizer and leader of committee meetings on discussions for new safety initiatives in the department
 - organizer of semester's safety moment schedule
 - prepare monthly safety newsletter
 - head of new member recruitment
 - approximately 50 hours per semester
- Member of Duquesne's Phi Lambda Upsilon National Honorary Chemical Society (Fall 2014 - present)
- March of Dimes - group leader of fundraising for organization that aids research for prematurely born babies, Spring 2009
- Student Affiliates of the American Chemical Society organization member, 2006 - 2010

RESEARCH PROJECTS

Manuscripts in progress:

- Rationalizing the band gap tunability of semiconductors via electronic structure calculations
- Numerical methods for chemists using Python
- Using dimensional analysis to identify a mistake in *Science*
- Merging the scientific method with undergraduate research experience
- Structure and optical properties of Mn-substituted AgInSe₂ chalcopyrite semiconductors

PEER-REVIEWED PUBLICATIONS

- Srnec, M.N.; Upadhyay, S.; Madura, J.D. (2017) A Python program for solving Schrödinger's equation in undergraduate physical chemistry. *J. Chem. Educ.* *94*, 813-815.
- Srnec, M.N.; Upadhyay, S.; Madura, J.D. (2016) Teaching reciprocal space to undergraduates via theory and code components of an IPython Notebook. *J. Chem. Educ.* *93*, 2106 - 2109.
- Srnec, M.N.; Madura, J.D. "RE: Revisiting the thermodynamic model from Goldstein et al. (1992)" (2016); <http://science.sciencemag.org/content/256/5062/1425.e-letters>.
- Devlin, K.P.; Glaid, A.J.; Brant, J.A.; Zhang, J.H.; Srnec, M.N.; Clark, D.J.; Kim, Y.S.; Jang, J.L.; Daley, K.R.; Moreau, M.A.; Madura, J.D.; Aitken, J.A. (2015) Polymorphism and second harmonic generation in a novel diamond-like semiconductor: Li₂MnSnS₄. *J. Solid State Chem.* *231*, 256-266.
- Rosmus, K.A.; Brant, J.A.; Wisneski, S.D.; Clark, D.J.; Kim, Y.S.; Jang, J.I.; Brunetta, C.D.; Zhang, J.H.; Srnec, M.N.; Aitken, J.A. (2014) Optical nonlinearity in Cu₂CdSnS₄ and α/β -Cu₂ZnSiS₄: diamond-like semiconductors with high laser-damage thresholds. *Inorg. Chem.* *53*, 7809-7811.
- Rosmus, K.A.; Brunetta, C.D.; Srnec, M.N.; Karuppanan, B.; Aitken, J.A. (2012) Synchrotron x-ray diffraction and electronic band structure of α - and β -Cu₂ZnSiS₄. *Z. Anorg. Allg. Chem.* *638* (15), 2578-2584.
- Schleker, S.; Sun, J.; Raghavan, B.; Srnec, M.; Müller, N.; Koepfinger, M.; Murthy, L.; Zhao, Z.; Klein-Seetharaman, J. (2012) The current *Salmonella*-host interactome. *Proteomics Clin. Appl.* *6*, 117-133.
- Hoop, C.L.; Sivanandam, V.N.; Kodali, R.; Srnec, M.N.; van der Wel, P.C.A. (2012) Structural characterization of the Caveolin scaffolding domain in association with cholesterol-rich membranes. *Biochemistry.* *51*, 90-99.

MENTORED RESEARCH PROJECTS WITH UNDERGRADUATES

Poster presentations of students mentored through the undergraduate research program.
Undergraduates mentored directly are denoted in bold below:

- **Glaid, A.J.**; Aitken, J.A.; Madura, J.D.; Srnec, M.N. The impact of substituent size and electronegativity on the band gap of TiO₂ polymorphs. Poster presented at: Duquesne University 2014 Summer Research Symposium. 2014 Jul 25; Pittsburgh, PA.
- **Upadhyay, S.**; Iuliucci, R.; Madura, J.; Srnec, M. The ssNMR peak matching of geometry optimized organic crystals. Poster presented at: Duquesne University 2014 Summer Research Symposium. 2014 Jul 25; Pittsburgh, PA.
- **Worst, J.**; Glaid, A.; Aitken, J.; MacNeil, J.; Madura, J.; Srnec, M. Electronic structure calculations of Li₂-II-IV-VI₄ diamond-like semiconductors. Poster presented at: Duquesne University 2014 Summer Research Symposium. 2014 Jul 25; Pittsburgh, PA.
- **Clifford, S.W.**; Evanseck, J.D.; Gawalt, E.S.; Srnec, M.N. Quantum models of methylphosphate adsorption onto the rutile (110) surface. Poster presented at: Duquesne University 2014 Summer Research Symposium. 2014 Jul 25; Pittsburgh, PA.
- **Neel, S.**; Evanseck, J.; Gawalt, E.; Lim, M.S.; Srnec, M. Quantum modeling of alkyl carboxylic acids adsorbed to α -Al₂O₃ (0001) surface. Poster presented at: Duquesne University 2014 Summer Research Symposium. 2014 Jul 25; Pittsburgh, PA.
- **Glaid, A.J.**; Srnec, M.N.; Aitken, J.A.; Madura, J.D. The impact of substituent size and electronegativity on the band gap of TiO₂ polymorphs. Poster presented at: Innovations in Materials Chemistry Symposium. 2014 May 2-3; University of Pittsburgh, Pittsburgh, PA.

- **Glaid, A.J.**; Srnec, M.N.; Aitken, J.A.; Madura, J.D. Correlation between band gap and electronegativity of substituted atoms in the TiO₂ crystalline structure. Poster presented at: ES2013: The 25th annual workshop on recent developments in electronic structure methods. 2013 Jun 11-14; William and Mary College, Williamsburg, VA.

TECHNICAL SKILLS

- Computer programming in Python and MatLab/Octave
- Data analysis using the R Statistics Package
- Computational software tools - CrystalMaker, SingleCrystal, CrystalDiffract, XCrysDen, WIEN2k, Quantum Espresso, and Visual Molecular Dynamics
- L^AT_EX typesetting software

HONORS AND AWARDS

- Graduate Student Award for Excellence in Teaching, Center for Teaching Excellence, Duquesne University, Spring 2016.
- National Science Foundation S-STEM fellow, Fall 2013 - Spring 2016.
- 2015 and 2016 Patricia Cross Future Leaders Award nominee.
- Best Interdisciplinary Chemistry Poster, Duquesne University, Phi Lambda Upsilon poster session, Spring 2014.
- One of fifty recipients, chosen nationwide, of the American Chemical Society (ACS) travel award - allowed for travel and research presentation at the 2010 ACS symposium in San Francisco, CA.
- Selected by the Pony League World Baseball Federation as the Umpire-in-Chief of the 2008 Pony League World Championship in Washington, PA.