

## **Michael J. Drummond, PhD**

---

**Azusa Pacific University | Department of Biology and Chemistry**

Segerstrom Science Center, Office 306, 675 E. Foothill Blvd., Azusa, CA 91702

E-mail: [mdrummond@apu.edu](mailto:mdrummond@apu.edu) Telephone: 626-815-6000 Ext. 6519

### **Education & Further Academic Work**

---

- Assistant Professor: Azusa Pacific University** **2020-Current**  
Appointment in the Department of Biology and Chemistry as an Assistant Professor in the area of analytical chemistry. Teaching general chemistry and analytical chemistry courses and advising undergraduate student research and professional development.
- Postdoctoral Fellow: University of Illinois Chicago** **2019-2020**  
Appointment in the Department of Chemistry as a lecturer (General and Inorganic Chemistry) and researcher working on the development of charge carrying molecules for non-aqueous redox flow batteries (NRFBs) in the laboratory of Professor Neal Mankad.
- PhD in Chemistry: University of Illinois Urbana-Champaign** **2014-2019**  
Thesis: *Bio-Inspired Iron and Cobalt Complexes Featuring a Secondary Coordination Sphere: Ligand Design, Complexation, and Modeling of Enzymatic Processes*. Advisor: Professor Alison Fout  
Fellowships and Awards from University of Illinois Urbana-Champaign:  
Teaching Excellence Fellow, **2016**; Rodger Adams Scholar, **2014**; Virginia Bartow Scholar, **2014**
- Bachelor of Science in Chemistry with Honors : Azusa Pacific University** **2010-2014**  
Scholarships and Awards for Azusa Pacific University:  
Outstanding Chemistry Major: **2014**; Stauffer Scholarship: **2013**  
Selected for study abroad term at Oxford University & research internship at Texas A&M University: **2013**

### **Teaching**

---

- Azusa Pacific University (Assistant Professor)** **2020-Current**  
Assistant Professor of Analytical Chemistry teaching general chemistry courses as well as upper-division analytical chemistry courses. Also advising undergraduate students on research focused on the development of new battery materials for non-aqueous redox flow batteries.
- University of Illinois Chicago** **2019-2020**  
Lecturer and instructor of record for general chemistry (~250 students) and inorganic chemistry (~60 students). Responsibilities include designing and giving lectures, writing/grading exams/quizzes, and working with other faculty to develop course materials. Also held responsibility for supervising lab sections in inorganic chemistry and overseeing multiple teaching assistants.
- University of Illinois Urbana-Champaign** **2014-2017**  
Lead Teaching Assistant, Substitute lecturer: Advanced Inorganic Synthesis (4 semesters)  
Teaching Assistant : Advanced Undergraduate Inorganic Chemistry (1 semester)  
Teaching Assistant: General Chemistry (1 semester)
- Azusa Pacific University (Undergraduate)** **2012-2014**  
Teaching Assistant (peer leader): General Chemistry (5 semesters)  
Teaching Assistant: Organic Chemistry (2 semesters)  
Tutor: General and Organic Chemistry (4 semesters)

## **Publications and Presentations**

---

### **Publications (\* = Co-first authors):**

**Drummond, M. J.**, Gersib, S. G., Kellow, R., Mankad, N.P. A New Molecular Motif for Electron Storage in NRFBs: The  $\delta$ -bond in Quadruply Bonded Bimetallic Complexes. *Manuscript in preparation*.

Leahy, C.A.\*, **Drummond, M. J.\*** Vura-Weis, J. Fout, A.R. Synthesis of a series of M(II) (M = Mn, Fe, Co) chloride complexes with a ligand capable of inter and intra-molecular hydrogen bonding interactions. *Manuscript in preparation*.

**Drummond, M. J.**, Leahy, C. A., Lapsheva, E., Woods, T. J., Schelter, E.J. Fout, A.R. Hydrogen Bond Enabled Spin State Switching in Cobalt Complexes with a Secondary Coordination Sphere. *Manuscript in preparation*.

**Drummond, M. J.**, Miller, T. J., Ford, C. L., Fout, A.R. Catalytic Perchlorate Reduction using Iron: Mechanistic Insights and Improved Catalyst Turnover. *ACS Catal.* **2020**, 10, 3175–3182.

Gordon, Z.; Matson, E. M.; Burgess, M.; Miller, T. M.; **Drummond, M. J.**; Lord, R. L.; Rodriguez-Lopez; Fout, A. R. Characterization of Terminal Iron(III)-Oxo and Iron(III)-Hydroxo Complexes Derived from O<sub>2</sub> Activation. *Inorg. Chem.* **2019**, 58, 15801–15811.

**Drummond, M. J.**, Ford, C. L., Gray, D.L., Popsecu, C.V., Fout, A.R., Radical Rebound Hydroxylation Versus H-atom Transfer in Non-Heme Iron(III)-hydroxo Complexes: Reactivity and Structural Differentiation. *J. Am. Chem. Soc.* **2019**, 141, 6639-6650.

Gordon, Z., **Drummond, M. J.**, Matson, E. M., Bogart, J.A., Schelter, E. J., Lord, R. L., Fout, A. R. Tuning the Fe(II/III) Redox Potential in Nonheme Fe(II)–Hydroxo Complexes through Primary and Secondary Coordination Sphere Modifications., *Inorg. Chem.* **2017**, 56, 4852-4863.

Pulukkody, R., Kyran, S. J., **Drummond, M. J.**, Hsieh, C.-H., Darensbourg, D. J., Darensbourg, M. Y., Hammett Correlations as Test of Mechanism of CO-Induced Disulfide Elimination from Dinitrosyl Iron Complexes. *Chem. Sci.*, **2014**, 5, 3795-3802.

### **Presentations:**

**Drummond, M.J.**, Fout, A.R. (July 2019) Modeling Radical Rebound Hydroxylation using Iron Complexes. Schaap Chemistry Symposium, Hope College, Holland, MI.

**Drummond, M.J.**, Fout, A.R. (August 2018) Reactivity of Iron(III)-hydroxide Complexes in a Tetrapodal Ligand Containing a Secondary Coordination Sphere. ACS, Boston, MA.

**Drummond, M.J.**, Fout, A.R. (June 2018). Tetrapodal First Row Metal Complexes Containing a Secondary Coordination Sphere. Metallocofactors in Biology Gordon Research Conference, Mount Holyoke College, South Hadley MA.

**Drummond, M.J.**, Matson, E.M., Gordon, Z., Fout, A.R. (August 2015). Mimicking the Secondary Coordination Sphere of Metalloproteins using a pyrrole-imine Scaffold: Synthesis and Characterization of Cobalt-Oxygen Species. ACS, Boston, MA.

**Drummond, M.J.**, Pulukkody, R., Darensbourg, M.Y. (March 2014) Further Mechanistic Studies of Carbon Monoxide Induced Reductive Elimination Heterocyclic Carbene (NHC)/ Thiolate Dinitrosyl Iron Complex (DNIC). ACS, Dallas, TX.

**Drummond, M.J.**, Conrad, M., Tallman, K. (May 2013) Separation of Quorum Sensing molecules from the PAO1 strain of *Pseudomonas aeruginosa* using High Performance Liquid Chromatography and Thin Layer Chromatography. American Society for Microbiology National Meeting, Denver, CO.

## **Department Service and Science Outreach**

---

### **Department of Chemistry Graduate Student Advisory Committee (UIUC)**

I was chair of the sub-committee on graduate student arbitration with faculty. The main project was producing a report released to the Department of Chemistry on graduate student mental health. We partnered with researchers in the UIUC Department of Psychology and produced a report that has caused the Chemistry Department to re-evaluate the working conditions and mental health resources available to graduate students. The report resulted in the formation of student led committees on diversity/inclusion and student wellness.

### **Undergraduate and Junior Graduate Student Research Mentorship (UIUC/UIC)**

I mentored an undergraduate researcher (Leticia Mayorga) in the Fout lab over 2 years. She was a part of the UIUC Chemistry Merit Program, which builds a community of scholars amongst students from smaller high schools, women, and ethnic minorities. She has since gone on to hold a position as an industrial bench chemist testing jet fuel. I was also responsible for training two junior graduate students in the Fout lab, and training a junior graduate student in the Mankad lab.

### **Undergraduate Instruction Mentorship (UIUC/UIC)**

As a lead teaching assistant at UIUC and lecturer at UIC I was able to train junior teaching assistants in how to be effective TAs, as well mentor undergraduate students that I was teaching. I mentored a group of diverse students in race, gender, socio-economic status, and age at UIC, which is a top 20 diverse university according to US News and World Report.

### **Chemical Joint Safety Team (UIUC)**

I was a founding member of the Chemistry Joint Safety Team which consists of graduate students, faculty, and staff trying to improve the safety culture and practices in the Department of Chemistry at UIUC. Over two years of service my duties included distribution of safety information and training lab safety officers, as well as putting on safety themed seminars and events to educate researchers and faculty.

### **Women's Chemists Committee Girl's Day Camp (UIUC)**

I was a group leader for a chemistry themed day camp for middle school aged girls put on by the Department of Chemistry Women's Chemist Committee each year. My duties included encouraging girls to explore their curiosity for science through group experiments as well as participating in the experiments with them.