

KEVIN M. MCWILLIAMS

CURRICULUM VITAE

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CAREER GOALS My career goal was to obtain a faculty position at an institution that has a solid commitment toward excellence in teaching and encourages direct interaction between the student body and the faculty. I have more than a decade of experience teaching at liberal arts colleges, which has given me the opportunity to develop my teaching acumen, work with undergraduate students on various research projects, and gain valuable service experience across the department, college, and university levels.

EDUCATION **Iowa State University**, Ames, IA 50011
Ph.D. Inorganic Chemistry (Summer 2007)
Research Advisor: Professor Robert J. Angelici

Truman State University, Kirksville, MO 63501
B.S. Chemistry with a minor in Biology (2001)
Research Advisor: Professor John O'Brien

EXPERIENCE **Associate Professor of Chemistry**
Department of Chemistry & Physics
Coastal Carolina University, Conway, SC, 29526 (8/11 – Current)
Taught two-course general chemistry sequences designed for students pursuing science-related majors such as chemistry, biology, physics, health & exercise science and nursing. Primary topics covered in lecture included but were not limited to: nomenclature, statistical analysis of data and uncertainty, gas laws, thermodynamics, kinetics, and bond theory. The lab component reinforced theory discussed in lecture via practical experimentation and exposed students to redox reactions, acid/base titrations, kinetics using UV-vis spectroscopy, qualitative separation of ions, etc.

Taught an advanced inorganic chemistry course designed for senior chemistry majors. Some topics included periodicity, symmetry, MO theory using group theory, kinetics, standard spectroscopic techniques, and organometallic compounds. In lab, students worked as independent researchers to try and simulate a graduate school environment. Students encountered a variety of synthetic methods ranging from Schlenk line usage to column chromatography covering topics like macrocycle formation, reaction kinetics, and optical isomerism.

Developed and taught an organometallics course designed to prepare senior science majors for the rigors of research associated with attending graduate school. Students were heavily involved in reading primary literature, developing their own presentations, working together as a research team, and learning new information and software without direct instructor supervision.

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Taught laboratory component of a two-course organic chemistry sequence. The first course focused on standard organic techniques such as crystallization, distillation, thin-layer chromatography, and melting and boiling point analyses. The second course dealt primarily with standard organic transformations such as Friedel-Crafts alkylation, aldol condensation, aldehyde reduction, and Diels-Alder cycloaddition. Students characterized products based on melting or boiling points where appropriate along with IR and NMR spectra.

Taught a course that revolved around communication practices in the physical sciences. Students are exposed to the primary chemical literature through directed research topics which students present at semester's end in the form of written and oral presentations. In class time revolved around group discussions on assigned readings that encompassed both primary literature as well as current news items.

Visiting Assistant Professor of Chemistry

Department of Chemistry

Truman State University, Kirksville, MO, 63501 (8/08 – 7/11)

Taught two- and three- course general chemistry sequences designed for students pursuing science-related majors. Lab portion covered standard wet lab phenomena such as titrations, serial dilution, and recrystallization. Dry labs involved interpreting NMR data as well as performing molecular orbital calculations using WebMO. Taught an inorganic chemistry course designed for senior chemistry majors that also had a lab component where students learned air-free techniques while synthesizing different coordination compounds.

Instructor

Department of Chemistry & Biochemistry

University of Northern Iowa, Cedar Falls, IA, 50614 (8/07 – 5/08)

Taught an organic laboratory class designed for science majors. General reactions such as oxidation, reduction, nucleophilic substitution, and Fischer esterification were performed by the students. Techniques such as recrystallization, distillation, extraction, and chromatography were emphasized during the experiments to purify and analyze obtained products.

Graduate Research Assistant

Department of Chemistry

Iowa State University, Ames, IA 50011 (8/01 – 7/07)

Synthesis and reactivity of new $[\text{Cp}^*\text{Ru}(\text{CO})(\text{L})(\eta^2\text{-olefin})]^+$ complexes to further the research on metal-olefin bond interactions. Synthesis of $\text{AgNO}_3/\text{SiO}_2$ adsorbents for partial separation of polyunsaturated FAMES from vegetable oils. Expert in spectroscopic characterization, air-free techniques, and crystal growth.

Research Advisor – Professor Robert J. Angelici

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Instructor for Chemistry 160

Department of Chemistry

Iowa State University, Ames, IA 50011 (1/06 – 5/06)

Lectured and performed in-class demonstrations for a course designed for non-science majors. Emphasis was put on real life applications of chemistry while a minimum was placed on mathematical transformations.

Graduate Teaching Assistant

Department of Chemistry

Iowa State University, Ames, IA 50011 (9/01 – 5/03)

Taught recitation and laboratory classes for courses designed for both chemistry majors and engineering majors. Reviewed major concepts and problem solving techniques in recitation. Demonstrated techniques and assisted students during laboratory.

Undergraduate Research

Department of Chemistry

Truman State University, Kirksville, MO 63501 (8/00 – 5/01)

Synthesis of large aromatic-based ligands for use in the formation of an oxygen-carrying catenane.

Research Advisor – Dr. John O'Brien

Instrument/Technical Expertise

^1H and ^{13}C NMR spectroscopy

NMR-based kinetics

Gas chromatography

Infrared spectroscopy

Dry box/bag manipulations

Schlenk line manipulations

Crystal growth techniques

AWARDS AND HONORS

- Joseph F. Nelson Chemistry Scholarship, May 2002
- Iowa State University Travel Award, September 2006
- Nominated for Truman State University's Educator of the Year Award, Spring 2010
- Winner of Chemistry Club's annual 'Most Sarcastic Professor' satirical award, April 2015 & April 2016

ORGANIZATIONS

- Professional Member of the South Carolina Academy of Science
 - Vice-president (2015 – 2016)
 - President-elect (2016 – 2017)
 - President (2017 – 2019)
 - Past President (2019 – 2020)
 - Past Past President (2020 – 2021)
 - Counselor (2021 – Current)

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- Professional member of the American Chemical Society (August, 2007)
- Professional member of Alpha Chi Sigma chemistry fraternity (May, 2001)

COMMITTEES

- Served on budget committee for TSU chemistry department (8/09 – 7/11)
- Served on assessment committee for TSU chemistry department (8/09 – 8/10)
- Served on student relations committee for TSU chemistry department (8/08 – 8/10)
- Served on temporary faculty search committee for TSU chemistry department (1/10 – 4/10)
- Served on tenure track faculty search committees for CCU chemistry department (8/11 – 5/12)
- Served as chair on lecturer search committee for CCU chemistry department (10/12 – 6/13)
- Served on tenure track faculty search committee for CCU math department (11/11 – 5/12; 9/13 – 5/14)
- Served as chair of curriculum committee for CCU chemistry department (11/12 – Current)
- Served on promotion and tenure committees for CCU chemistry department (8/13 – Current)
- Served as departmental representative on faculty senate for CCU chemistry department (8/13 – 8/16)
- Served as departmental representative on College of Science Promotion and Tenure committee (1/17 – 9/20)
- Served as chair of College of Science Promotion and Tenure committee (1/19 – 9/20)
- Served as College of Science representative on University Faculty Manual committee (9/22 – current)
- Served as College of Science representative on University Promotion & Tenure committee (9/22 – current)

ADVISOR

- Faculty advisor to the Truman chapter of the Alpha Kappa Lambda fraternity (8/10 – 7/11)
- Faculty advisor to Biology Club at CCU (9/12 – 9/13)
- Faculty advisor to chemistry and biochemistry majors for CCU chemistry department (8/11 – Current)

PUBLICATIONS

- 1.) “Synthesis of Cp’Ru(CO)(L)(η^2 -olefin)⁺ Complexes and Kinetic Studies of Olefin,” Kevin M. McWilliams, Arkady Ellern, and Robert J. Angelici,* *Organometallics* **2007**, *26*, 1665-1673.
- 2.) “Displacement of a *cis*-Olefin from a *trans*-Olefin Complex CpRu(CO)₂(*trans*-olefin)⁺,” Kevin M. McWilliams, Robert J. Angelici,* *Organometallics* **2007**, *26*, 5111-5118.
- 3.) “Batchwise extraction of methyl linolenate (18:3, ALA) from fatty acid methyl esters derived from soybean and canola oils using silver nitrate/silica gel,” Kevin M. McWilliams, Robert J. Angelici,* *Eur. J. Lipid Sci. Technol.* **2016**, *118*, 252-261.

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POSTER PRESENTATIONS

- “Ruthenium Complexes of Soybean Oil and Model Compounds: Characterization and Initial Binding Studies”
 - BIOconference 2004: Biobased Industry Outlook, Ames, IA, March 2004
- “Binding Studies Ruthenium to FAMES: Model Complexes, Characterization, and Kinetics”
 - 229th American Chemical Society Conference, San Diego, CA, March 2005
- “Ligand Substitution of the *trans*-olefin in [CpRu(CO)₂(η²-*trans*-olefin)]⁺ Complexes to give Displaced *cis*-olefin”
 - 232nd American Chemical Society Conference, San Francisco, CA, September 2006

ORAL PRESENTATIONS

- “Synthesis of Two New Turns for the Construction of a Doubly-Wound [2] Catenane”
 - 15th National Conference for Undergraduate Research, Lexington, KY, March 2001
- “Ligand Substitution of the *trans*-olefin in [CpRu(CO)₂(η²-*trans*-olefin)]⁺ Complexes to give Displaced *cis*-olefin”
 - 232nd American Chemical Society Conference, San Francisco, CA, September 2006
- “Development of an Organometallic Course: Preparing Students for Graduate Work”
 - 68th Southeastern Regional Meeting of the American Chemical Society at Columbia, SC, October 2016

STUDENT POSTER PRESENTATIONS

- “Determination of Rates of Reaction for the Hydrolysis of Phthalates with NH₄OH” – Tyler Aslund
 - Undergraduate Research Competition at CCU, Conway, SC, April 2014
 - South Carolina Academy of Science Annual Meeting at Trident Technical College, Charleston, SC, April 2014
- “Synthesis of Osmium-Olefin Compounds” – Cameron Hance
 - Undergraduate Research Competition at CCU, Conway, SC, April 2014
 - South Carolina Academy of Science Annual Meeting at Trident Technical College, Charleston, SC, April 2014
- “Heavy Metal Concentration in Donax Clams Found in Myrtle Beach Analyzed Using Atomic Absorption” – Harley Coates, Larissa Martin
 - Undergraduate Research Competition at CCU, Conway, SC, April 2015
 - South Carolina Academy of Science Annual Meeting at Furman University, Greenville, SC, April 2015
- “CCU Campus Water Quality” – Aquilla Samuel
 - Undergraduate Research Competition at CCU, Conway, SC, April 2015
- “Development of a Molecular Modeling Module” – Brittany Valedon
 - Undergraduate Research Competition at CCU, Conway, SC, April 2015
- “Heavy Metal Analysis of *Donax variabilis* Clams” – Logan Klinepeter
 - Undergraduate Research Competition at CCU, Conway, SC, April 2019
- “3D Molecular Printing” – Elizabeth Dieckman-Meyer
 - Undergraduate Research Competition at CCU, Conway, SC, April 2019

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STUDENT ORAL PRESENTATIONS

- “Heavy Metal Concentration in Donax Clams Found in Myrtle Beach Analyzed Using Atomic Absorption” – Harley Coates, Larissa Martin
 - Undergraduate Research Competition at CCU, Conway, SC, April 2016
 - South Carolina Academy of Science Annual Meeting at Winthrop University, Rock Hill, SC, April 2016
- “Development of a [2]-catenane Synthetic Method and a Student Beliefs Survey for a Hybrid Organometallic Course” – Jourdan Lakes, Jesse Holmberg
 - Undergraduate Research Competition at CCU, Conway, SC, April 2016