SUSAN MARIE HENDRICKSON
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EDUCATION

Graduate:
Colorado State University, Ft. Collins, CO
Graduate Advisor: C. Michael Elliott
Ph.D. Analytical Chemistry, August 1997
August 1991 - July 1997

Undergraduate:
Bates College, Lewiston, ME
Bachelor of Science, May 1989
Double Major in Chemistry and Mathematics
August 1985 - May 1989

CURRENT PROFESSIONAL EXPERIENCE

Department of Chemistry, University of Colorado, Boulder, CO

Teaching Professor, Senior Instructor- Taught first and second semester General Chemistry and Introductory Chemistry. Prepared daily lectures, including concept tests (clicker questions) for over 700 students each semester. Prepared and administered exams and organized teaching assistants in the proctoring of the exams. Developed questions and prepared homework assignments online using WebAssign, Connect and Sapling software. Maintained complete course grades online via WebAssign, Desire2Learn or Canvas and updated them weekly. Maintained a course web site on CULearn, Desire2Learn or Canvas containing daily lectures, practice problems and answer keys to past examinations plus other course resources. August 2007 – present.

Instructor, CU Pre-Collegiate Development Program- Developed the curriculum and taught two-week beginning and advanced chemistry classes to high school students in summer pre-collegiate program. This program is designed to better prepare first-generation college-bound high school students for a college experience. Students live in the dorms and take classes as an introduction to college life. Beginning chemistry was designed for students with no chemistry background as an introduction to the subject with the goal of improving their performance in their future high school chemistry course. Advanced chemistry was designed for students who have taken a high school chemistry course with the goal of exposing them to lab facilities and techniques that may not have been available in their high school courses. Summer 2008 – 14, 2016 – 19.

Externally Funded Scholarly Activities:
Collaborative Research: Scaling Undergraduate STEM Transformation And Institutional Networks for Engaged Dissemination (SUSTAINED) (NSF DUE-1525354)**-** This project has four major goals: 1) build a website that supports widespread engagement (https://learningassistantalliance.org/), 2) perform a large-scale nation-wide study of the effectiveness of the Learning Assistant (LA) approach, 3) share the University of Colorado management tool (LA Central, now LA Campus available on the LAA website), and 4) evolve the effort into a sustainable, self-supporting, collaborative effort referred to as the LA Alliance. Valerie K. Otero, Laurie S. Langdon, Susan M. Hendrickson, Benjamin C. Van Dusen; NSF, $2,519,974, September 15, 2015 - August 31, 2020.

NSMDS: Computational Design and Synthetic Exploitation of Earth-Abundant-Sourced Photocatalysts for C-X Activation- Interacted with high school science teachers from the Front Range and helped them develop activities for use in their classrooms. Anthony K. Rappe (Colorado State University) and Niels Damrauer (University of Colorado, Boulder), NSF, $300,000 supplement for Research Experience for Undergraduates (REU) and Research Experience for Teachers (RET) Program, Spring and Summer 2016.

Scholarly Activities and Service:
American Chemical Society General Chemistry 1 Exam Committee- Worked in a group of thirteen chemistry faculty from around the country to produce a standardized General Chemistry 1 exam that will be used throughout the country. June 2018 – March 2020.

Faculty Adviser, University of Colorado Global Brigades- Advised CU student group and participated in fundraising and planning of an annual 7-day trip to Central America to provide medical, dental and public health services as well as hygiene education. Accompanied and supervised the students on the week-long trip six out of eight years. 2010 – present.

CU Wizards- Prepared and presented an hour-long Wizard Show entitled "*Redox, Reuse, Recharge: Batteries!*" designed to expose K-12 students to the concepts of electricity, oxidation-reduction reactions and batteries. The presentation included many scientific demonstrations that encouraged audience participation. August 28. 2019

PhET Activity Development- Worked as part of a team of five faculty from four different institutions in cooperation with PhET staff to develop, test and make available online active-learning resources for use with PhET Interactive Simulations in General Chemistry. These activities were implemented in the General Chemistry 1 recitation sections during the fall 2014 semester. July 2013 – December 2014.

Mock Lecture Instructor, Accepted Students Day- Presented a 60-minute mock lecture entitled "Enthalpy" to visiting accepted students and their families including the use of classroom response devices (iClickers) and chemical demonstrations. 2014 – 2019.

Presenter, Graduate Teacher Program Fall Intensive- Developed and facilitated an interactive 60-minute workshop entitled "Teaching and Managing Large STEM Classes". This session was intended to help graduate students improve their teaching skills while at CU and to better prepare them for a future academic career. 2016 – 2018.

Learning Assistant Departmental Coordinator- Served as the departmental liaison between the Learning Assistant Program and the Department of Chemistry and Biochemistry. Coordinated faculty applications for learning assistants, requested departmental support for the program, assisted in the interview and hiring process for learning assistants, mentored Chemistry and Biochemistry faculty on the use of learning assistants in their courses and developed instructional materials for weekly meetings with learning assistants and graduate teaching assistants. August 2012 – present.

WebAssign Liaison- Served as the liaison between CU instructors, CU IT staff and WebAssign personnel to get WebAssign functioning at CU in the fall 2007 for General Chemistry 1 and 2 courses. The use of WebAssign in our department proved that online homework is a valuable tool in allowing students to practice concepts, get immediate feedback and to have access to their grades in real time. Served as a resource for anyone using WebAssign in the department. July 2007 – August 2012.

WebAssign Content Development- Although textbook questions are available for use in WebAssign, it was our hope to be able to expand the database of existing questions and include more concept-based questions. Over four years, I developed and coded numerous questions for both general chemistry 1 and 2 based on the weekly recitation materials. This allowed us to hold students accountable for a portion of the course that was previously ungraded. January 2008 – August 2012.

Connect Content Development- Worked with McGraw Hill Higher Education division to produce conceptual questions for use in their online homework program, Connect. October 2010 – May 2012.

Introductory Chemistry Recitation Material Development- Adapted and introduced Process-Oriented Guided-Inquiry Learning (POGIL) to Introductory Chemistry. POGIL is an inquiry based learning methodology which fosters cooperative learning and self-assessment among students. Developed activities that encourage student discussions and enable students to elucidate chemical concepts *on their own*. These activities were implemented in the fall 2009 recitation sections for Introductory Chemistry. June 2008 and June 2009.

DEPARTMENTAL COMMITTEE WORK

Member, Undergraduate Curriculum Committee, 2007 – present.
Member, General Chemistry Coordination Committee, 2008 – present.
Member, Undergraduate Scholarship Committee, 2009 – 2016.
Member, New Teaching Assistant Training and Orientation Committee, 2009 – 2015.
Member, Disbursement of Instructional Fees Committee, 2012 – present.
Member, Program Review and Planning Committee, 2009.
Chair, General Chemistry Textbook Search Sub-Committee, 2008 – 2009.

HONORS AND POSITIONS HELD

- Promoted to Teaching Professor, 2019.
- Marinus G. Smith Award from the CU Parents Association for “Making a Difference”, 2016.
- Award of Excellence as an Outstanding Teacher for Technology in Teaching, CU ASSETT, fall 2013 and spring 2014.
- President’s Diversity Award Commendation, For adaptations to the General Chemistry lab for visually impaired students, 2012.
- Newsletter Editor, Younger Chemists Committee, 1998 - 2003.
- Chair, Communications Subcommittee of the Younger Chemists Committee, 1999 - 2003.
- Associate Member, Younger Chemists Committee, American Chemical Society, 1998 - 2003.
- Colin Garfield Fink Summer Fellow, Electrochemical Society, 1995.
- Department of Education Fellow, Colorado State University, 1992 - 1993.

PREVIOUS PROFESSIONAL EXPERIENCE

Department of Chemistry, North Carolina State University, Raleigh, NC

Lecturer- Taught first and second semester General Chemistry. Prepared PowerPoint lectures for classes of 200 students. Developed questions and prepared homework assignments online via WebAssign software. Administered exams and organized teaching assistants in the grading of the exams. Maintained a course web site containing daily lectures, practice problems and answer keys to past examinations. August 2001 – May 2007.

Coordinator of General Chemistry Laboratory Program - Responsible for scheduling and managing first and second semester General Chemistry laboratories for approximately 3800 students each year. Prepared lab manuals for publication. Worked with lab manual publisher to have lab videos produced that demonstrate the proper use of laboratory equipment which are accessed on the internet. Developed Prelab, Inlab and Postlab assignments online via WebAssign software. Oversaw day-to-day operations of the Chemistry Tutorial Center. Trained and managed teaching assistants involved in lab instruction and tutorial center assistance. Maintained open-access laboratory web sites containing laboratory schedules, TA contact information and limited-access web sites containing teaching information for the TA’s, lab keys and sample data. August 2003 – May 2007.

Building Liaison, Fox Science Teaching Laboratories- Responsible for use, maintenance and upkeep of newly constructed 31,600 sq. ft. science laboratory building. Received requests and arranged for use of the facility for special events ranging from science camps to university fundraisers. Fielded complaints regarding the building and its contents and arranged for repairs. January 2004 – May 2007.

Departmental Committee Work
Member, Educational Funding Initiatives Committee, North Carolina State University, 2005 –2007.
Member, Effective Teaching Initiatives Committee, North Carolina State University, 2005 – 2007.
Member, Operations Committee, North Carolina State University, 2004 – 2005.
Member, Self-Study Committee, North Carolina State University, 2005 – 2006.
Member, Undergraduate Studies Committee, North Carolina State University, 2003 – 2007.

Assistant Professor, Department of Chemistry, Davidson College, Davidson, NC
Directed an undergraduate research program studying crown ether-modified conducting polymers. Secured research funding from the ACS-PRF. Taught Inorganic Chemical Analysis, both lecture and two laboratory sections. Prepared lectures, assigned and graded homework sets and examinations. Prepared laboratory for weekly experiments. Maintained all laboratory equipment and instrumentation. Maintained a web site containing practice problems, homework assignments, answer keys to past homework assignment and examinations. August 1999 - July 2001.

Postdoctoral Assistant, Department of Chemistry, University of North Carolina, Chapel Hill, NC
Synthesized and purified polyethylene oxide derivatized metallo-porphyrin molecular melts. Performed electrochemical measurements on these semi-rigid materials to determine diffusion coefficients and electron transfer rate constants. Also directed undergraduate researchers in related projects. August 1997 - July 1999.

Visiting Assistant Professor, Department of Chemistry, Duke University, Durham, NC
Taught graduate level electrochemistry. Prepared and presented lectures, utilized digital simulations for demonstration of concepts, created and graded problem sets and tests. January 1998 - May 1998.

Research Assistant, Department of Chemistry, Colorado State University, Ft. Collins, CO
Worked on the development of an amperometric detector for neutral organics in aqueous solution based on conducting polymer modified electrodes. Performed chemical synthesis, purification and characterization as well as electrochemical and flow injection analysis techniques. Aided in the preparation of manuscripts and grants for submission. Thesis Title: "Incorporation and Release of Molecules and Ions from Pyrrole-Based Polymer Modified Electrodes." August 1992 - July 1997.

Summer Scientist, Shell Development Company, Bellaire, TX
Researched a technique for the separation of small alkane isomers using commercially available capillary gas chromatographic columns in series. Observed and participated in the daily routine of a Ph.D. chemist at a large company. June - August 1991.

Chemistry and Mathematics Teacher, St. Andrew's Episcopal School, Jackson, MS
Instructed high school level courses in General and Advanced Placement Chemistry, Algebra II, Honors Geometry, Advanced Mathematics, and Introductory Computer. Responsible for entire chemistry program, including laboratory set up and maintenance. August 1989 - June 1991.

Teaching Fellow, Harvard Summer School, Harvard University, Cambridge, MA
Attended daily lectures of a college-level introductory chemistry course and supervised a section for laboratory experiments and problem solving sessions. June - August 1990.

Researcher, Department of Chemistry, Bates College, Lewiston, ME
Researched separation techniques of tetracyclines using high performance liquid chromatography coupled with ultraviolet and fluorescence detection and assisted in preparing material for publication. Developed a laboratory experiment for introductory organic chemistry classes using liquid chromatography for the separation of isomers. June - July 1987.

PUBLIC SERVICE

Volunteer, Habitat for Humanity International, Metro Denver and St. Vrain Valley
Fundraised and participated in three separate home construction projects. International: 5-day build in Cape Town, South Africa. Metro Denver: two single day builds at the Sheridan Square development and St. Vrain Valley: one single day build at the Lyons ReBuild site. May 2010, 2016, 2017 & 2018.

Volunteer, Community Knitting, Shuttles, Spindles & Skeins, Boulder, CO
Knitted items for donation to local charities and the Cheyenne River Reservation in South Dakota. November 2008 – 2019.

Greeter, Cary Blood Donation Center, American Red Cross, Cary, NC
Checked in blood donors, administered required reading materials and answered basic donation questions. Assisted nurses in basic set-up and clean-up of the blood donation center. Made reminder calls to donors and scheduled them for future appointments. Approximately 150 hours of service logged each year. August 2002 – December 2006.

PUBLICATIONS

1. Mary E. Emenike, Carolyn P. Schick, Andrea Gay Van Duzor, Mel S. Sabella, Susan M. Hendrickson, and Laurie S. Langdon; "Leveraging Undergraduate Learning Assistants to Engage Students during Remote Instruction: Strategies and Lessons Learned from Four Institutions," *J. Chem. Educ.*, **2020**, 97, 9, 2502–2511.
2. Susan M. Hendrickson; "Book and Media Review: WebAssign," *J. Chem. Educ.*, **2009**, 698.
3. Pawel J. Kulesza, Enders, V. Dickinson, Mary Elizabeth Williams, Susan M. Hendrickson, Marcin A. Malik, Krzysztof Miecznikowski, Royce W. Murray; "Electron Self-Exchange Dynamics of Hexacyanoferrate in Redox Polyether Hybrid Molten Salts Containing Polyether-Tailed Counterions," *J. Phys. Chem. B*, **2001**, 5833-5838.
4. Corey A. Salzer, C. Michael Elliott and Susan M. Hendrickson; "Quantitative in Situ Measurement of Ion Transport in Polypyrrole/Poly(styrenesulfonate) Films Using Rotating Ring–Disk Voltammetry;" *Anal. Chem.* **1999**, *71*, 3677-3683.
5. Enders Dickinson V, Mary Elizabeth Williams, Susan M. Hendrickson, Hitoshi Masui and Royce W. Murray; "Hybrid Redox Polyether Melts Based on Polyether-Tailed Counterions;" *J. Am. Chem. Soc.*, **1999**, *121*, 613-616.

6. Susan M. Hendrickson, Michael Krejcik and C. Michael Elliott; "Poly(*N*-methylpyrrole) Modified Electrodes-Amperometric Response to Trace Chlorocarbons in Aqueous Solution;" *Anal. Chem*., **1997**, *69*, 718-723.
7. Susan M. Hendrickson; "Indirect electrochemical detection of halocarbons in aqueous solution by conducting polymer modified electrodes," *Electrochemical Society Interface*, **1996**, 49-50.
8. Daniel L. Feldheim, Michael Krejcik, Susan M. Hendrickson and C. Michael Elliott; "Charge Trapping in Poly(3,4-diphenylpyrrole) and Release by Trace Halocarbons in Water;" *Chem. Mater.,* **1995**, *7*, 1124-1131.
9. Steve L. Larson, Susan M. Hendrickson, Suzanne Ferrere, Daniel L. Derr, and C. Michael Elliott; "Energy Transfer in Rigidly-Linked Heterodinuclear Ru(II)/Fe(II) Polypyridyl Complexes: Distance and Linkage Dependence;" *J. Am. Chem. Soc.,* **1995**, *117*, 5881-5882.
10. Daniel L. Feldheim, Christopher J. Baldy, Page Sebring, Susan M. Hendrickson and C. Michael Elliott; "Synthesis and Catalytic Activity of Transition Metal Polymers Containing Alkane-Linked Bi- and Ter- Pyridine Ligands;" *J. Electrochem. Soc.*, **1995**, *142*, 3366-3372.
11. Daniel L. Feldheim, Susan M. Hendrickson, Michael Krejcik, C. Michael Elliott and Colby A. Foss, Jr.; "Kinetics of Absorption of Dichloromethane from Aqueous Solution into the Conducting Polymers Poly(*N*-methylpyrrole) and Poly(N-methylpyrrole/ polystyrenesulfonate);" *J. Phys. Chem.*, **1995**, *99*, 3288.
12. Daniel L. Feldheim, Michael Krejcik, Susan M. Hendrickson and C. Michael Elliott; "Interactions of Neutral Organics in Aqueous Solution with Conducting Polymer Films of Poly(*N*-methylpyrrole) and Poly(*N*-methylpyrrole/ polystyrenesulfonate);" *J. Phys. Chem.*, **1994**, *98*, 5714-5720.
13. David B. Ledlie, Thomas J. Wenzel, and Susan M. Hendrickson; "Isomerization of Dimethyl Maleate to Dimethyl Fumarate;" *J. Chem. Educ.*, **1989**, *68*, 781.
14. Thomas J. Wenzel, Lisa M. Collette, Deirdre T. Dahlen, Susan M. Hendrickson, and Lawrence W. Yarmaloff; "Liquid Chromatographic and Flow Injection Analysis of Tetracycline Using Sensitized Europium(III) Luminescence Detection;" *J. Chromatogr.*, **1988**, *433*, 149.

SELECTED ORAL PRESENTATIONS

1. Susan M. Hendrickson; "Ways Faculty Use LAs: Learning Assistants in Large Enrollment Chemistry Courses," 2016 International Learning Assistant Conference, Boulder, CO, November 2016.
2. Susan M. Hendrickson; "Making a General Chemistry Laboratory Accessible to Visually Impaired Students," 2012 Biennial Conference on Chemical Education, State College, PA, August 2012.
3. Susan M. Hendrickson; "Adaptation of a Large General Chemistry Program to an Atoms First Approach," 2012 Biennial Conference on Chemical Education, State College, PA, August 2012.
4. Susan M. Hendrickson and Laurie Langdon; "Utilizing Message Boards for Online Help in Large Enrollment Classes," 2010 Biennial Conference on Chemical Education, Denton, TX, August 2010.
5. Susan M. Hendrickson and Laurie Langdon; "Supporting Conceptual Learning with Electronic Homework," 2010 Biennial Conference on Chemical Education, Denton, TX, August 2010.
6. Susan M. Hendrickson; "Online Homework- Pros, Cons and New Applications," 28th Annual High School-University Chemistry Teachers' Conference, Boulder, CO, October 24, 2009.
7. Susan M. Hendrickson; "Pros, Cons, Best Practices for Online Homework," Colorado Learning and Teaching with Technology (COLTT) Conference, Boulder, CO, August 12, 2008.
8. Susan M. Hendrickson; "Online Homework: Pros, Cons and Best Practices," Houghton-Mifflin Team-Up Faculty Workshop, Houston, TX, United States, February 8, 2008.

SELECTED POSTER PRESENTATIONS

1. Susan M. Hendrickson and Laurie Langdon; "Instructor and Student Benefits of Using Online Message Boards;" Science Education Initiative (SEI) End-of-Year Event; Boulder, CO; May 2010.
2. Susan M. Hendrickson and Laurie Langdon; "Supporting Conceptual Learning with Online Homework;" Science Education Initiative (SEI) End-of-Year Event; Boulder, CO; May 2009.