

CURRICULUM VITAE

HollyAnn Harris, Ph.D.

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Education

Ph.D.	1988	University of Wisconsin-Madison	Chemistry (emphasis on theoretical, physical, and inorganic chemistry)
B.S.	1982	Harvey Mudd College	Chemistry (emphasis on physical chemistry)

University Appointments

2010 – present	Associate Dean, College of Arts and Sciences, Creighton University
2019 – present	Professor of Chemistry
2013 – 2014	Acting Chair, Department of Atmospheric Sciences
2002 – 2010	Chair, Department of Chemistry, Creighton University
1996	Jan – Aug: Acting Chair, Department of Chemistry, Creighton University
1995 – 2018	Associate Professor of Chemistry, Creighton University
1993 – 1998	Faculty member, Nebraska Metallobiochemistry Group (under a cooperative agreement with the University of Nebraska, Lincoln)
1990 – 1995	Clare Boothe Luce Professor of Science, Assistant Professor of Chemistry, Creighton University
1988 – 1990	Visiting Assistant Professor, Grinnell College
1988	Lecturer, Department of Chemistry, University of Wisconsin-Madison
1988	Staff Scientist, Department of Chemistry, University of Wisconsin-Madison

Academic Leadership Experience

Associate Dean for the Natural Sciences (August 2014 – present)

- Oversee departments of Biology, Chemistry, Exercise Science, Mathematics, and Physics
- Partner with Dean and University Relations to develop external funding opportunities for science departments
- Coordinate and oversee a five-year, \$5,000,000 renovation project for the science labs
- Coordinate all capital requests from the five departments
- Assist with strategic planning and faculty recruitment for the five departments
- Oversee processes for all curriculum changes within the College
- Collaborate with Registrar and Department Chairs to insure the appropriate scheduling of courses for each semester
- Collaborate with Admissions to enhance recruitment of new students (first-year, transfer, and international) to the College
- Develop, coordinate, and oversee the registration process for incoming first-year students
- Oversee all activities related to academic policy issues including student appeals, academic probation and dismissal, and academic honesty cases
- Collaborate with Deans' offices from the other undergraduate colleges within the University to create and administer consistent policies for all undergraduate students.
- Serve as the Dean's office representative to Faculty Senate Curriculum committee
- Prepare enrollment, staffing, and teaching load reports and collect data and prepare other institutional research-related reports
- Collaborate with the other associate deans to develop and administer college-wide programs

Associate Dean for Curriculum and Student (Academic) Development (August 2010 – July 2014)

- Develop and oversee College-wide competitive undergraduate research scholarship program.
- Coordinate all College undergraduate research programs
- Coordinate and oversee external program review for all undergraduate and several graduate programs within the College
- Oversee processes for all curriculum changes within the College.
- Collaborate with Registrar and Department Chairs to insure the appropriate scheduling of courses for each semester.
- Collaborate with Admissions to enhance recruitment of new students (first-year, transfer, and international) to the College.
- Co-lead our first- and second-year (pre-major) advising program, the Ratio Studiorum Program, recruit and train faculty advisors for incoming freshmen.
- Oversee all activities related to academic policy issues, including student withdrawal and leave of absence requests, academic probation and dismissal, and academic honesty cases.
- Collaborate with Deans' offices from the other undergraduate colleges within the University to create and administer consistent policies for all undergraduate students.
- Serve as the Dean's office representative to several Faculty Senate committees.
- Prepare enrollment, staffing, and teaching load reports and collect data and prepare other institutional research-related reports.
- Supervise three professional staff members and two administrative assistants.

Co-Chair, University Task Force on Student Success and Retention (July 2019 – present)

- Survey student success initiatives across all nine schools and colleges
- Develop a university-wide strategy for student success
- Create and implement tactics to achieve the student success strategic goals

Acting Chair, Department of Atmospheric Science (July 2013 – June 2014)

- Supervised two tenured and one tenure-track faculty members, one full-time staff member, and one part-time staff member.
- Oversaw the graduate (MS) program and the certified undergraduate program.
- Coordinated with other departments and interdisciplinary programs that make extensive use of ATS courses and resources.

Co-Chair, Core Curriculum Revision Task Force (October 2010 – May 2014)

- Developed and led a process by which the Creighton College of Arts and Sciences faculty collaboratively revised the core curriculum.
- Helped to develop and implement an assessment plan for the new core curriculum.
- Collaborated with faculty and administrators from the other undergraduate colleges and schools within the University to adopt and implement a (first ever) University-wide undergraduate core curriculum.

Chair, Department of Chemistry (July 2002 – August 2010)

- Supervised 10 – 14 tenured or tenure track faculty, two laboratory instructors, three adjunct faculty, one permanent part-time faculty, and three staff members.
- Oversaw an equipment and supplies budget that ranged from \$100,000 - \$150,000.
- Managed external funding budget ranging from \$100,000 – \$1,000,000 annually.
- Oversaw the development and implementation of an American Chemical Society certified Biochemistry major.
- Managed the department through a building expansion and renovation.
- Successfully grew the tenure-track faculty from 10 to 14 positions.
- Successfully recruited seven new junior faculty members (four new positions and three retirement/replacement positions) and two new laboratory instructors.
- Successfully mentored to tenure and promotion five junior faculty members.
- Successfully mentored to promotion to full professor one faculty member (only the third full professor in the past 30 years from the department).

- Oversaw the development of a faculty workload analysis rubric to address inequities (both real and perceived) in faculty teaching loads.
- Collaborated with faculty members to develop a faculty evaluation rubric to increase transparency in the evaluation process.
- Implemented assessment of written and oral communication within the major program.
- Revised criteria for offering undergraduate research credit.
- Prepared and submitted the American Chemical Society five-year re-accreditation report (twice)

Creighton College of Arts and Sciences Lead Academic Advisor (Summer 2006 – Summer 2010)

- Support ~40 faculty members serving as academic advisors to incoming freshmen.
- Assist in coordinating registration for 700 – 800 incoming freshmen during the summer.
- Coordinate the offering of placement exams in math, chemistry, and foreign languages.
- Serve as resource for students, faculty advisors, and Student Services during the summer prior to the freshman year.

Director, General Chemistry Division (August 1999 – July 2002)

- Determine the course schedule and teaching assignments for 8 – 12 sections of general chemistry lecture and laboratory each semester.
- Oversee the administration of the ACS standardized final exams and other assessment instruments in each semester.
- Work with the General Chemistry Laboratory Instructor to coordinate laboratory and lecture material across sections.
- Coordinate and promote faculty development opportunities for improved teaching effectiveness.
- Coordinate the textbook selection process.

Acting Chair, Department of Chemistry (January – August 1996)

- Supervised 11 full-time and two part-time faculty and 2 staff members
- Prepared Fall 1997 schedule
- Prepared and submitted the American Chemical Society five-year re-accreditation report

Inaugural Clare Boothe Luce Professor for Women in Science (August 1990 – July 1995)

- Created the Women in Science Seminar
- Developed and administered the CBL Scholarship program for undergraduate women in science.
- Coordinated the first Women in Science symposium at Creighton (October 1992)

Professional Service – Leadership

2018 -	Elected member of the Board of Directors, Sigma Xi: The Scientific Research Honor Society
2018 -	Chair, ETS- GRE Chemistry Committee
2013 – 2018	Sigma Xi, Associate Director: Multi-Institution Constituency Group (elected position)
2010 – 2018	Member, ETS-GRE Chemistry Committee
2009 – 2012	Sigma Xi, National Nominating Committee (elected position)
1996 – 1997, 2009 - 2012	President, Sigma Xi, Omaha Chapter
1997 – 1999	Chair, American Chemical Society, Omaha Section

Professional Service – Other activities

2001 – 2010	ETS-GRE, Physical Chemistry contributor
2002 – 2003	Pacific Northwest National Laboratory, Summer research programs, consultant, research ethics education
1997 – 2009	International Jesuit Association of Chemistry and Chemical Engineering Universities and Schools (ISJACHem), founding member
Reviewer	<i>Journal of Chemical Education, Organometallics, Inorganic Chemistry, Journal of Biological Inorganic Chemistry, Angewandte Chemie International Edition</i> , Houghton Mifflin, McGraw-Hill
Referee	The Petroleum Research Fund of the American Chemical Society; Research Corporation

Teaching Expertise and Interests

Physical chemistry (thermodynamics, quantum chemistry, spectroscopy, and kinetics); general chemistry; advanced inorganic chemistry; scientific writing and science communication; history of women in science;

Scholarly Interests

While I have been trained in certain synthetic and experimental techniques, my chemistry research is primarily theoretical, including the study of small-molecule activation at transition metal centers, electron transfer mechanisms in metallo-proteins, theoretical methods, and kinetics and spectroscopy of metallo-enzymes; The bulk of my scholarly interests in the past 20 years has been pedagogical, including the factors that affect and predict success in General Chemistry and in Physical Chemistry assessment.

Honors, Fellowships, and Awards

2016	Creighton University Distinguished Service as an Administrator Award
2010	Creighton College of Arts and Sciences Dean's Award for Professional Excellence – Freshman Advising
1998	Creighton College of Arts and Sciences Faculty Development Award (to develop a research ethics course)
1995	Omicron Delta Kappa <i>Teach for Tomorrow</i> Award nominee (again in 1997 and 2001)
1991	Nominated to membership, Sigma Xi, the Scientific Research Honor Society
1990	Recipient of the first Clare Boothe Luce Endowed Chair for Women in Science, Creighton University
1986	Recipient of a Knapp Travel Grant, University of Wisconsin
1983	Recipient of a duPont Summer Research Assistantship

Research Support and/or Fellowships for research

Principal Investigator (sole author):

2004	\$106,875	National Institutes of Health – <i>Applied for</i>
1991	\$ 18,000	American Chemical Society--The Petroleum Research Fund (funded)
1990	\$ 7,000	Research Corporation (funded)
1989	\$ 4,500	Grinnell College Grant Board (funded)

Co-Principle Investigator (multiple authors):

1993	\$348,178	National Science Foundation - Teacher Enhancement Program - Creighton University
1993	\$ 54,501	National Science Foundation – EPSCoR
(Note: this was my portion of a 5-year, multimillion dollar, multi-institution award)		
1990	\$102,600	National Science Foundation - REU Program - Grinnell College

Scholarship (annotated, undergraduate students are indicated with an *)

Peer-reviewed publications, book chapters, invited contributions and presentations

Graham, K. and Harris, H.A. "Gathering Around the Table: Creating Campus-Wide Dialogue to Reform General Education", American Association of Colleges and Universities, Conference on General Education and Assessment, Feb., 2014.

(Graham and Harris were equal co-authors)

Harris, H.A. "Predicting (non)success in General Chemistry for first-year students". "Abstracts of Papers" 237th National Meeting of the American Chemical Society, Salt Lake City, UT. March, 2009. (invited contribution)

Harris, H.A. "Fitting Physical Chemistry into a Crowded Curriculum" in *Reforming Physical Chemistry Curriculum*, T.A. Schoolcraft and M.D. Ellison, eds.; ACS Symposium Series 973; American Chemical Society: Washington, DC, 2008.

Harris, H.A. "Fitting Physical Chemistry into a Crowded Curriculum". "Abstracts of Papers" 230th National Meeting of the American Chemical Society, Washington, DC. August, 2005. (invited contribution)

Harris, H.A. "Teaching and Research at a Comprehensive University". "Abstracts of Papers" 225th National Meeting of the American Chemical Society, New Orleans, LA. March, 2003. (invited contribution)

Harris, H.A. "The Clare Boothe Luce Program for Women in Science at Creighton University", in *Teaching the Majority: Science, Mathematics and Engineering that Attracts Women*. Sue V. Rosser, ed. Teachers College Press, 1995.

Harris, H.A. and Andersen, L.E*. "The Nature of the Si - Si Double Bond in a Series of Substituted Disilenes". *Main Group Metal Chemistry*, **1994**, 17, 403-408.

(Harris was primary author, Anderson was an undergraduate student.)

Harris, H.A.; Kanis, D.R.; Dahl, L.F. "A Comparative Theoretical Analysis of the Tetrathiolate- and Oxalate-bridged Ditungsten Series, $[(\text{Cp}_2\text{Ti})_2(\mu\text{-C}_2\text{X}_4)]^n$ (where X=S, n= +2, +1, 0, -1, -2; X=O, n= +2, 0, -2): An Explanation of the Electron Delocalization from the Metal Centers Upon Replacement of the Oxalate Ligand with the Tetrathiolate Ligand" *J. Amer. Chem. Soc.* **1991**, 113, 8602-8611.

(LF Dahl was my thesis advisor, this paper represented Chapters 3 and 4 of my Ph.D. thesis; Kanis contributed a new theory that was used for ~5 % of the analysis)

Edverson, G.M.; Gaines, D.F.; Harris, H.A.; Campana, C.F. "NMR and X-ray Studies of Penta- and Hexaborane Alkyl Derivatives Involving [3.3.1] and [3.3.2] Ring Systems". *Organometallics*, **1990**, 9, 401-408.

(I performed the X-ray structural analyses of the compounds synthesized by Edverson)

Wermer, J.G.; Gaines, D.F.; Harris, H.A. "Synthesis and Molecular Structure of Lithium Tris(tert-butyl)beryllium, $\text{Li}[\text{Be}(\text{tert-C}_4\text{H}_9)_3]$ ". *Organometallics*, **1988**, 7, 2421-2422.

(I performed the X-ray structural analyses of the compounds synthesized by Wermer)

Harris, H.A.; Rae, A.D.; Dahl, L.F. "The Synthesis, Structure, and Properties of $[(\eta^5\text{-C}_5\text{H}_5)_2\text{Ti}]_2(\text{C}_2\text{S}_4)$, the First Example of an Early Transition Metal Promoted Reductive Head-to-Head Dimerization of CS_2 ." *J. Amer. Chem. Soc.*, **1987**, 109, 4739-4741.

(LF Dahl was my thesis advisor, this paper represented Chapter 2 of my Ph.D. thesis; Rae contributed a structural algorithm *RAELS* that was used to solve one of the structures discussed in the paper.)

Invited Lectures:

November, 2015	<i>Mentoring young women for careers in academic science</i>	Meeting of the Clare Boothe Luce Faculty Chairs, sponsored by the Luce Foundation
Fall, 2010	<i>A one-semester rigorous physical chemistry course</i>	University of Nebraska at Omaha Chemistry Department
Fall, 2008	<i>Analysis, assessment, and adjustment: maximizing the educational opportunities for students in Chemistry</i>	Missouri State University Chemistry Department
Summer, 2003	2 Workshops on Research Ethics, one for undergraduate summer research students, one for graduate students and post-docs.	Pacific Northwest National Laboratories
April, 2003	<i>Balancing an academic career with personal and family life</i>	Meeting of the Clare Boothe Luce Faculty Chairs, sponsored by the Luce Foundation
Summer, 2002	Workshop on Research Ethics for undergraduate summer research students	Pacific Northwest National Laboratories
Spring, 1998	<i>Models of dihydrogen activation at transition metal centers</i>	The Nitrogen Fixation Lab, The John Innes Center, Norwich, UK
Fall, 1994	<i>The acidity of transition metal hydrides – An MO approach</i>	Xavier University Chemistry Department

Fall, 1994	<i>Mechanisms of H₂ activation and hydride transfer: an MO analysis</i>	University of Kansas Inorganic Chemistry Division
May 1993	<i>Ellen Swallow Richards and Gertrude Elion: profiles in determination</i>	Creighton University – President's Council of Women
February, 1993	<i>Perspectives of women in science</i>	Creighton University Physics Department
October, 1992	<i>"A Room of One's Own" for women in science</i>	Creighton University, Clare Boothe Luce Inaugural Symposium
June, 1992	<i>A few comments on the history of women in science</i>	"Making Connections: Women's Studies at Catholic Colleges" conference at Boston College
May, 1992	<i>The impact of <u>Women's Ways of Knowing</u> on classroom interactions</i>	Nebraska Faculty College
April, 1992	<i>Women in science – perspectives from the field</i>	University of Nebraska – Omaha, History and Philosophy of Science group
March, 1992	<i>Women in science</i>	University of Nebraska – Omaha, Women's Studies Series
March, 1992	<i>The history of women in science – is education the key?</i>	Creighton University Biology Department
Spring, 1990	<i>The Si-Si double bond – Can MO theory prove its existence?</i>	Creighton University Chemistry Department
Spring, 1987	<i>What can molecular orbital theory tell us about CO₂?</i>	Grinnell College Chemistry Department
Fall 1986	<i>X-ray crystallography and theoretical chemistry</i>	Beloit College Chemistry Department

Contributed Papers: (Harris is primary author and presenter on all except where indicated; undergraduate student co-authors indicated with *)

Harris, H.A.; Barrios, Z. X.*; Grosely, R.*; Tilleman, J.* "Quantum Chemical Studies of the Ni-Fe Hydrogenase Active Site: A Comparative Analysis". "Abstracts of Papers" 219th National Meeting of the American Chemical Society, San Francisco, CA March, 2000.

Harris, H.A.; Raffaele, M.* "A Theoretical Study of a Hydrogenase Model Complex: η^1 - vs. η^2 - Binding of H₂ to a Transition Metal Center". Metals in Biology Gordon Conference, Ventura, CA January, 1998.

Harris, H.A. "A Theoretical Analysis of a Series of Polyene-bridged Diferrocene Compounds". "Abstracts of Papers" 213th National Meeting of the American Chemical Society, San Francisco, CA April 1997.

Harris, H.A.; Raffaele, M.* "Molecular Orbital Analysis of a Hydrogenase Model Complex - Implications for Dihydrogen Binding to a Metal Site and Subsequent Deprotonation of the M-H₂ Complex" "Abstracts of Papers" 209th National Meeting of the American Chemical Society, Anaheim, CA April 1995.
(Raffaele was presenting author.)

Harris, H.A.; Raffaele, M.*; Cunningham, S.C.*; Ollerich, J.* "Molecular Orbital Analysis of a Series of Transition Metal-Hydride Complexes: An Investigation of the Mechanism of H⁻ Transfer" "Abstracts of Papers" 208th National Meeting of the American Chemical Society, Washington, D.C. August, 1994.

Harris, H.A.; Crans, D.C.; Felty, R.F. "Electronic Structures of a Series of Oxovanadium (V) Alkoxides - Implications for Structure and Reactivity" "Abstracts of Papers" 206th National Meeting of the American Chemical Society, Chicago, IL August 1993.

(*Felty* was a graduate student in laboratory of *Crans* and performed the synthesis of the compounds.)

Harris, H.A.; Andersen, L.E.* "A Theoretical Investigation of the Si - Si Double Bond in Substituted Disilenes" "Abstracts of Papers" 199th National Meeting of the American Chemical Society, Boston, MA. April, 1990.

North, T.E.; Spencer, B.; Harris, H.A.; Dahl, L.F. "Comparative Analysis of the Triply Bridging Thiocarbonyl vs Carbonyl Ligand in a Series of Triangular Nickel Clusters. "Abstracts of Papers" 196th National Meeting of the American Chemical Society, Los Angeles, CA, Sept. 1988.

(*North* was presenting and primary author; I performed theoretical analysis of the compounds, representing ~30% of work presented; Spencer contributed ~10% of the synthesis of the compounds; Dahl was primary investigator.)

Harris, H.A.; Dahl, L.F. "A Comparative Theoretical Analysis of the Tetrathiolate- and Oxalate-bridged Titanium Dimers, $[(\eta^5\text{-C}_5\text{H}_5)_2\text{Ti}]_2(\text{C}_2\text{S}_4)$ and $[(\eta^5\text{-C}_5\text{H}_5)_2\text{Ti}]_2(\text{C}_2\text{O}_4)$: An Explanation of the Apparent Electron Delocalization from the Metal Centers Upon Replacing the Oxalate Ligand with the Tetrathiolate Ligand" "Abstracts of Papers" 192nd National Meeting of the American Chemical Society, Anaheim, CA Sept. 1986.

Harris, H.A.; Dahl, L.F. "Titanium-Promoted Carbon-Carbon Bond Formation by Reductive Head-to-Head Coupling of CS_2 : A Comparative Analysis of the Electron Delocalized Tetrathiooxalate Dimer, $[(\eta^5\text{-C}_5\text{H}_5)_2\text{Ti}]_2(\text{C}_2\text{S}_4)$ with the Corresponding Electron Localized Oxalate and Carbodiimide Dimers" 190th National Meeting of the American Chemical Society, Chicago, IL Sept. 1985.

Englert, M.E.; Maj, J.J.; Rae, A.D.; Jordan, K.T.; Harris, H.A.; Dahl, L.F. "Transition Metal Promoted Carbon-Carbon Bond Formation by the Reductive Head-to-Head Coupling of CS_2 : Direct Synthesis of π -Delocalized bis (1,2) – dithiolene-like Tetrathiooxalato Dimetal Complexes, $\text{LMC}_2\text{S}_4\text{ML}$, from CS_2 and Resulting Physicochemical Analysis" "Abstracts of Papers" 187th National Meeting of the American Chemical Society, St. Louis, MO April, 1984.

I contributed ~33 % of the synthesis and structural analysis; Maj, Englert, and Jordan combined for ~50% of the synthesis, Rae contributed ~17% to the structural analysis and Dahl was principal investigator.

Other Scholarship

Writer and reviewer for Graduate Record Exam – Chemistry Exam (Educational Testing Service).

Test questions for the GRE exams are rigorously reviewed and subjected to statistical analysis for effectiveness and validity. Since 2001 I have contributed approximately 300 questions in the area of physical chemistry to exam question pool and have reviewed several thousand across all areas of chemistry

Internal Publications

Physical Chemistry I Laboratory Manual, Thermodynamics and Kinetics - A Project Oriented Approach. Written in 1996 and revised each subsequent year through 2001.

General Chemistry I Laboratory Manual. Revised and updated from an earlier, in-house lab manual in Spring, 2000.

General Chemistry II Laboratory Manual. Revised and updated from an earlier, in-house lab manual in Fall, 2001

Professional Organizations

1982 – 2009	American Chemical Society, member; divisions of Chemical Education, Inorganic Chemistry, and Physical Chemistry
1991 – present	Sigma Xi, member
1996 – present	Society for Biological Inorganic Chemistry, member

Additional College and University Service

2018 – present	University Academic Policy and Administration Committee (develops and oversees all policies related to academic matters)
2018 – present	University Policy Committee (reviews existing and proposed new all-University non-academic policies)
2017 – 2018	University Strategic Planning sub-committee <i>Leading with the Liberal Arts</i>
2014 – 2017	Academic Administrators Committee (develops and coordinates policy across all academic units of the University)
2013 – 2015	University Assessment Committee
2013 – 2015	University Strategic Planning – Interdisciplinary Bridge Programs Task Force
2011	University Strategic Planning – Undergraduate Education Task Force
2008 – 2010	Board of Undergraduate Studies (also 2004 – 2006), elected member
2008 – 2010	Faculty Senate, Executive Board, Vice President (elected)
2008 – 2009	Member, University Strategic Planning Task Force
2008	Internal member, Computer Science External Review team
2007 – 2008	Dean Search Committee, elected faculty representative
2007 – 2008	Faculty Senate, Executive Board, Senate Secretary (elected)
2007 – 2009	Council of Chairs Executive Committee
2005 – 2007	College Budget Committee, elected member
2005 – 2007	Workload task force, appointed member
2003 – 2005	Faculty Senate, Executive Board (elected)
2002 – 2004	Honors Advisory Board
2002 – 2003	First Year Experience advisory committee, appointed member
2002 – 2003	Women's and Gender Studies Board, appointed member
1999 – 2010	Faculty Senate, elected member 1999 – 2002, appointed 2002 - 2010
1997 – 2002	Honors Program Board, appointed member
1998 – 1999	University Strategic Planning Committee
1998	University Diversity Seminar on Gender and Pedagogy, co-leader
1997	Chair, Associate Dean Search Committee
1996 – 1997	National and International Scholarships committee, appointed member
1995 – 1996	Advisory Committee to the Vice President, Academic Affairs
1995 – 1996	Chair, Clare Boothe Luce Faculty Search Committee
1992 – 1994	University Academic Council, elected member

Additional Departmental Service

2001 – 2002	Chair, Physical Chemistry Search Committee
1999 – 2001	Curriculum revision committee member
1999 – 2000	Chair, Biochemistry Search Committee
1998 – 2002	Renovation committee member
1996 – 2001	Mentor, new faculty
1993 – 1994	Chair, Analytical Chemistry Search Committee
1991 – 2010	Chemistry Field Day moderator (annual until 2000, bi-annual since)