Alison J. Draper, Ph.D.

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Current Position

TRINITY COLLEGE — Hartford, CT
Director, Center for Interdisciplinary Science — 1/03-present

Responsibilities include:

- Directing Interdisciplinary Science Program, an honors program for first-year students interested in science; includes teaching first-year seminar and advising
- Organizing science division activities, such as the annual research symposia, national fellowship nominations, and programming for summer research students
- Seeking external funds for science education and managing current grant activity
- Supervising Supplemental Instruction programs, a peer-assisted study program associated with introductory science courses
- Working with Admissions to recruit science students

Education

UNIVERSITY OF KANSAS MEDICAL CENTER — Kansas City, KS
Ph.D. with Honors in Toxicology
August 1996
Dissertation title: Chemical inhibitors as a means of identifying the role of specific human cytochrome P450 enzymes in the metabolism of drugs and other xenobiotics
Dissertation advisor: Dr. Andrew Parkinson

CLARK UNIVERSITY — Worcester, MA
B.A. Chemistry and Environment, Technology and Society
May 1992
High honors in Chemistry and Highest honors in Environment, Technology and Society
Gryphon and Pleiades Honor Society (Leadership, Academics, Athletics)
Worcester County Alumni Scholar 1988-1992 (Full scholarship)
Honors thesis title: Characterizing occupational exposure to diesel exhaust: A study of Worcester firefighters

Past Work Experience

ASSISTANT PROFESSOR — August 1999-December 2002
Bucknell University — Lewisburg, PA
Research area: Environmental impact of automobile tire rubber particles on human and aquatic health, environmental chemistry of tire wear particles
Undergraduate research assistants: 3-Spring ‘00, 6-Summer ‘00, 5-Fall ‘00, 6-Spring ‘01, 8-Summer ‘01, 3-Fall ’01, 6-Spring ’02, 1-Summer ’02, 5-Fall ‘02
Master’s theses supervised: Rose M. Juma, def. 8-01, Janelle E. Barnes, def. 8-03

Research Experience

NIEHS POSTDOCTORAL FELLOW — October 1996-August 1999
University of California at Davis — Davis, CA
Research area: Bioactivation of long-chain fatty acids by inflammatory cells,

interaction of epoxide hydrolase with xenobiotics, regulation of soluble and microsomal epoxide hydrolase
Postdoctoral advisor: Dr. Bruce D. Hammock

RESEARCH ASSISTANT October 1990-August 1992
University of Massachusetts Medical Center Worcester, MA
Research area: GC/MS quantification of environmental exposure to volatile organic solvents and polycyclic aromatic hydrocarbons
Principal Investigator: Dr. S. Katharine Hammond (now at Univ. Cal. Berkeley)

Teaching Experience

THE PROCESS OF DISCOVERY
A first-year seminar for the Interdisciplinary Science Program
Designed course Fall 2003, Trinity College Hartford, CT

HUMAN HEALTH AND NUTRITION
BIOL 121, An introductory-level biology course for non-science majors
Designed course Summer 2020, Trinity College Hartford, CT

TOXICOLOGY
BIOL 122, An introductory-level biology course for non-science majors
Designed course Spring 2010, Trinity College Hartford, CT

HEALTH FELLOWS PROGRAM
Course on Issues in Health Care for students enrolled in clinical research program
Designed course Spring 2013, Trinity College Hartford, CT

NUTRITION: FOOD & FADS
BIOL 119, An introduction-level 0.5-credit course for non-science majors
Designed course January term 2015, Trinity College Hartford, CT

SCIENCE AND ASTHMA: A GLOBAL PERSPECTIVE, first-year seminar
Designed course Fall 2006, Trinity College Hartford, CT

ENVIRONMENTAL CHEMISTRY
CHEM 360 Advanced Environmental Chemistry (for senior chemistry majors)
CHEM 260 Introductory Environmental Chemistry (for non-chemistry majors)
Designed both courses and labs for CHEM 260 in 1999
8/99 to 12/02, Bucknell University, S04, S05, and S07 Trinity College (CHEM 230)

ENVIRONMENTAL TOXICOLOGY Hartford, CT
CHEM 430, Taught Spring 06 & 09, Trinity College

PAIN AND ECSTASY: SELF-MEDICATION, first-year seminar
Fall 2000 and Fall 2001, Bucknell University Lewisburg, PA

THE TOXIC BIOSPHERE, senior capstone course
Spring 2001, Bucknell University Lewisburg, PA

ORGANIC and INTRO CHEMISTRY, 1998-9
Department of Chemistry, Sacramento City College Sacramento, CA

NURSING PHARMACOLOGY, 1994 and 1995 (Section on Chemotherapy)
University of Kansas Medical Center Kansas City, KS

Grant Support

ARNOLD AND MABEL BECKMAN FOUNDATION
1/22 to 10/25
Beckman Scholars Program, Trinity College Hartford, CT

NATIONAL SCIENCE FOUNDATION
10/15 to 10/20 Trinity College Hartford, CT
Summer STEM Teaching Experiences for Undergraduates from Liberal Arts Institutions

CONNECTICUT HEALTH & EDUCATIONAL FACILITIES AUTHORITY (CHEFA)
Summer 2015, Trinity College Hartford, CT

PETIT FAMILY FOUNDATION
AAUW Tech Savvy Conference for 6-9th grade girls, 2015-20

HOWARD HUGHES MEDICAL INSTITUTE Undergraduate Sciences Education Grant
9/04 to 9/08 (Program Director) Trinity College Hartford, CT

HENRY B. LUCE FOUNDATION: Clare Boothe Luce Professorship
9/99 to 12/02 Bucknell University Lewisburg, PA

NIEHS POSTDOCTORAL FELLOWSHIP No. 1 F32 ES05808-01 Davis, CA
8/97 to 8/99 Immune Biosynthesis of Cytotoxic Linoleate Oxylipids

American Liver Foundation-Amgen Postdoctoral Fellowship Davis, CA
7/98 to 7/99 Biosynthesis of Linoleate Oxylipids by Activated Kupffer Cells

Society Memberships

Society of Environmental Chemistry and Toxicology
National Science Teachers Association
Association of College Science Teachers
Council on Undergraduate Research

Awards and Honors

Southside Institutions Neighborhood Alliance Trinity College 2017 Institutional Award for work with Hartford students inspiring them to STEM careers

Trinity College Trustee Award for Staff Excellence, 2015

Forrest D. Brown Award (given to faculty, staff, or administration for outstanding commitment to community service and fostering an ethic of service among students).
Bucknell University, April 2002 Lewisburg, PA

2002 Ohaus – National Science Teachers Association Award for Innovation in Science Teaching – College Level

Student Travel Award for 1996 Annual Meeting
American Society for Pharmacology and Experimental Therapeutics

Academic Service

KUMC Student Governing Council, President 1994-5, Member 1993-1996
Student Advisory Committee to the Kansas Board of Regents 1994-5
Search Committee for the KUMC Executive Vice Chancellor 1994-5
KUMC Student Health Center Advisory Committee 1994-5
KUMC Faculty Assembly Library Committee 1994-5
Department of Pharmacology, Sub-Committee on Student Recruitment 1994
KUMC Student Research Forum, Co-chair 1993-4

KUMC Graduate Student Council, Secretary 1993-4
KUMC Student Union Board of Directors 1992-4
Bucknell Environmental Studies Advisory Committee 1999-2002
Bucknell Biomedical Engineering Committee, 1999-2001
Bucknell Brigade to Nicaragua (Hurricane Mitch relief effort), 1999-2002
Led brigades of faculty and students, Spring Break 2001 and 2002
Bucknell Faculty and Academic Personnel Committee, 2000-2002
Bucknell VPAA/Provost Search Committee, 2000-2001
Bucknell Community Judicial Board, 2001-2002
Bucknell Equal Employment Opportunity Committee, 2001-2002
Bucknell Task Force on Faculty Performance Review, 2002
Presented philosophy and proposals to Board of Trustees and Faculty
Bucknell Search Committees for positions in chemistry and environmental studies, 99-02
Trinity Curriculum Task Force, 2003
Trinity Curriculum Subcommittees on General Education and Enhanced Science Requirement, 2003
Trinity Equity Scorecard Task Force, 6/04-12/04
Trinity Classroom Committee, 1/06-7/06
Trinity Retention Committee, 9/05-4/07, 8/10-5/13
Trinity Facilities Committee, 9/05-4/07
Trinity First-Year Council, 1/03-4/07
Trinity Science Advisory Council, 1/03-present, Chair
Trinity Retention Team, 1/03-5/16
Trinity Environmental Science Advisory Committee, 1/03-5/13
Trinity College Firefighting Robotics Contest, Local Advisory Committee, 9/03-2012
Trinity June Advising Days Committee, 11/03-2015
Trinity Representative to Consortium on High Achievement and Success, 2/04-2015
Trinity HHMI Program Steering Committee, 8/04-8/08, Chair
Trinity Science Facilities Steering Committee, 9/05-5/07
Trinity Health Professions Advising Committee, 4/06-present
Trinity Trustee Charter Committee on the Campus Master Plan, 9/06-5/07
Trinity Faculty Committee on Admissions & Financial Aid, 9/07-5/10, 9/16-present, Chair
Trinity Committee on Presidential Scholars, 9/07-2015
Trinity Hartford Magnet Trinity College Academy Steering Group, 1/11-5/14
Trinity Committee on Institutional Advancement, 9/11-5/14, 8/17-5/18 (Chair, 9/12-1/14), 7/20-present
Trinity Special Advisor to Illinois Scholars, 9/11-present
Trinity Special Advisor to Questbridge Scholars, 10/11-2016
Trinity Implementation Committee for First-Year Experiences, 12/12-4/14, Chair
Trinity Accreditation Academic Program Committee, 2/15-3/17
Trinity search committees for many faculty and staff positions

Professional Service
Reviewer of manuscripts for *Environmental Toxicology and Chemistr*y, 2001-2008
Reviewer of manuscripts for *Journal of Chemical Education*, 2003-2015

Publications

Peer-Reviewed Manuscripts

Bullock, P., Pearce, R., Draper, A., Podval, J., Bracken, W., Veltman, J., Thomas, P., and A. Parkinson. (1995) Induction of liver microsomal cytochrome P450 in cynomolgus monkeys. *Drug Metabolism and Disposition*, **23**: 736-748.

Pearce, R., McIntyre, C.J., Madan, A., Sanzgiri, U., Draper, A.J., Bullock, P.L., Cook, D.C., Burton, L.A., Latham, J., Nevins, C., and A. Parkinson. (1996) Effects of freezing and storing human liver on microsomal cytochrome P450. *Archives of Biochemistry and Biophysics.* **331**: 145-169.

Draper, A.J., Madan, A., and A. Parkinson. (1997) Inhibition of coumarin 7-hydroxylase (CYP2A6) activity in human liver microsomes. *Archives of Biochemistry and Biophysics.* **341**: 47-61.

Draper, A.J., Madan, A., Smith, K., and A. Parkinson. (1998) Development of a non-HPLC assay to determine testosterone hydroxylase (CYP3A) activity in human liver microsomes. *Drug Metabolism and Disposition.* **26**: 299-304.

Draper, A.J., Madan, A., Latham, J. and A. Parkinson. (1998) Development of a non-HPLC assay to determine ^{14}C-chlorzoxazone 6-hydroxylase (CYP2E1) activity in human liver microsomes. *Drug Metabolism and Disposition.* **26**: 305-312.

Draper, A.J., and B.D. Hammock. (1999) Soluble epoxide hydrolase in rat inflammatory cells is indistinguishable from soluble epoxide hydrolase in rat liver. *Toxicological Sciences.* **50**:30-35.

Draper, A.J., and B.D. Hammock. (1999) Inhibition of soluble and microsomal epoxide hydrolase by zinc and other metals. *Toxicological Sciences.* **52**:26-32.

Draper, A.J., and B.D. Hammock. (2000) Identification of CYP2C9 as a human liver microsomal linoleic acid epoxygenase. *Archives of Biochemistry and Biophysics.* **376**:199-205.

Yu, Z., Xu, F., Huse, L.M., Morisseau, C., Draper, A.J., Newman, J.W., Parker, C., Graham, L., Engler, M.M., Hammock, B.D., Zeldin, D.C., and D.L. Kroetz. (2000) Soluble epoxide hydrolase regulates hydrolysis of vasoactive epoxyeicosatrienoic acids. *Circulation Research* **87**:992-8.

Draper, A.J. (2004) Integrating Project-Based Service Learning into an Advanced Environmental Chemistry Course. *J. Chem. Ed.* **81**:221-4.

Draper, A.J. (2005) Supplemental Instruction addresses student learning in introductory science courses. Conference Proceedings: Innovations in the Scholarship of Teaching and Learning, Carleton and St. Olaf Colleges, Northfield, MN.

Parkinson, A., N. Leonard, A. Draper and B. W. Ogilvie (2006) On the mechanism of hepatocarcinogenesis of benzodiazepines: Evidence that diazepam and oxazepam are CYP2B inducers in rats, and both CYP2B and CYP4A inducers in mice. *Drug Metab. Rev.* **38**:235-259.

Selected Abstracts with Undergraduate Co-authors

Bryan, D.P. and A.J. Draper. Zinc as a marker for the presence of tire particles. Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, May 11, 2001, West Chester, PA. **Winner of the Undergraduate Research Award

Dennison, G.L. and A.J. Draper. Effect of tire rubber leachate on green algae (*Selanastrum capricornutum*). Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, May 11, 2001, West Chester, PA.

Juma, R.M. and A.J. Draper. Benzothiazoles are toxic to aquatic organisms. *(Selenastrum capriconatum, Lemna minor, Ceriodaphnia dubia*). Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, May 11, 2001, West Chester, PA.

Li, R. and A.J. Draper. Toxicity of rubber tire leachate to duckweed (*Lemna minor*). Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, May 11, 2001, West Chester, PA.

Oesterling, E.G. and A.J. Draper. Effect of car tire wear particle leachate on daphnia. Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, May 11, 2001, West Chester, PA.

Porter, B.D. and A.J. Draper. Effect of tire wear particles on human alveolar macrophages. Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, May 11, 2001, West Chester, PA.

Robinson, J.L. and A.J. Draper. The effect of tire leachate on fathead minnows (*Pimephales promelas*). Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, May 11, 2001, West Chester, PA.

Draper, A.J. and J.L. Robinson. Tire rubber leachate causes induction of cytochrome P450 activity in fathead minnows (*Pimephales promelas*). *Environmental Toxicology and Chemistry.* PH013, 323, 2001.

Barrall, E., C.H. Witte, Jr., A.J. Draper, and S.K. Hammond. Exposure to environmental tobacco smoke in local restaurants and bars. Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, April 25, 2002, Lyndhurst, NJ.

Benson, S.N., E. Pefanis, and A.J. Draper. Dewart Township: Analysis for gasoline contamination in soil. Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, April 25, 2002, Lyndhurst, NJ.

Dennison, G.L., and A.J. Draper. Effect of tire leachate on various strains of algae. Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, April 25, 2002, Lyndhurst, NJ.

Ditzler, J.M. and A.J. Draper. Dewart Township: Assessment of particulate matter sources. Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, April 25, 2002, Lyndhurst, NJ.

Li, R. and A.J. Draper. Toxicity of tire leachate to duckweed (*Lemna minor*). Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, April 25, 2002, Lyndhurst, NJ.

Malcolm, J. and A.J. Draper. The effect of benzothiazoles on aquatic organisms (*Selanastrum capricornutum, Ceriodaphnia dubia* and *Daphnia magna*). Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, April 25, 2002, Lyndhurst, NJ.

Smith, E.M. and A.J. Draper. Dewart Township: Analysis of drinking water quality. Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, April 25, 2002, Lyndhurst, NJ.

Stark, S. A.J. Steckbeck, and A.J. Draper. Assessment of water quality in the Nueva Vida, Nicaragua medical clinic. Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, April 25, 2002, Lyndhurst, NJ.

Henry, T.E. and A.J. Draper. Induction of CYP1A by tire leachate in fathead minnows. Presented at the Hudson-Delaware Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, May 1, 2003, Stockton, NJ.

LaBella, N. and A.J. Draper. Toxicity of histamine antagonists on aquatic organisms. Presented at the Annual meeting of the Society of Environmental Toxicology and Chemistry, Baltimore, MD, November 2005.

Benevento, S. M. and A.J. Draper. Analysis of tire rubber leachate with a bacterial mutagenesis assay. Presented at the Annual meeting of the Society of Environmental Toxicology and Chemistry, Baltimore, MD, November 2005.

Shakya, P., R.S. Kim and A.J. Draper. Synergism and antagonism in toxicity of mixtures of pharmaceuticals to *Daphnia magna.* Presented at the North Atlantic Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, June 3, 2010, Narragansett, R.I.

Kim, R.S. and A.J. Draper. Food contamination: analysis for mercury and cockroach antigen in foods. Presented at the North Atlantic Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, June 3, 2010, Narragansett, R.I.

James, A.A. and A.J. Draper. Synergism in toxicity of mixtures of pharmaceuticals to Daphnia Magna. Presented at the North Atlantic Chapter of the Society of Environmental Toxicology and Chemistry Annual Meeting, June 8, 2012, West Greenwich, R.I.

Abstracts on Pedagogy

Draper, A.J. and Bisaccio, D. STEM Education = Undergraduate Recruitment + Teacher Leadership. Submitted and accepted for the National Science Teachers Association April 2020 annual meeting, cancelled due to COVID.

Love, K., Draper A. and Cotto Jr., R. Science Education Course Development in a Summer STEM Teaching Experiences for Undergraduates Program. Presented at the American Educational Research Association annual meeting in New York City, NY, April 2018.

Draper, A.J. Integrating Project-Based Service Learning into an Advanced Environmental Chemistry Course. *Environmental Toxicology and Chemistry.* 451, 2002.

Draper, A.J. An Applied Approach to Teaching Introductory Environmental Chemistry for Non-majors. Presented at the National Science Teachers Association annual meeting in Philadelphia, PA, March 2003.

Draper, A.J. Literature-based case studies stimulate debate and critical thinking in an undergraduate environmental chemistry course. Presented at the Annual meeting of the Society of Environmental Toxicology and Chemistry, Baltimore, MD, November 2005.