

PRADEEP MAXWELL DASS
Dean, College of Education and Psychology
Professor of Education
University of Texas at Tyler
Tyler, TX, USA

ACADEMIC & PROFESSIONAL PREPARATION

- Ph.D. Science Education, 1997**
The University of Iowa, Iowa City, Iowa, USA
Dissertation title: *The Collier Chautauqua Program: A formative evaluation of the implementation of the Iowa Chautauqua Model of professional development and its effectiveness in improving science teaching.*
Dissertation Advisor: Dr. Robert E. Yager
Comprehensive Areas: Science Education, Environmental Studies, Biological Sciences.
Corroborative Area: History and Philosophy of Science
- M.S. Science Education, 1990**
The University of Iowa, Iowa City, Iowa, USA
- M.Sc. Botany, 1978**
Deen Dayal Upadhyay Gorakhpur University, Gorakhpur, Uttar Pradesh, India
- Teaching Certificate: Secondary Biology, North Carolina, USA.** Last renewed 2011

LEADERSHIP ROLES & EXPERIENCES

Academic Leadership & Administrative Experiences

- 2023 – present: Dean, College of Education and Psychology, University of Texas at Tyler, Tyler, TX
2021 – 2023: Chair, Department of STEM Education, Northern Arizona University, Flagstaff, AZ
2013 – 2021: Director, Center for Science Teaching and Learning, Northern Arizona University, Flagstaff, AZ
2016 – 2020: Member, Executive Committee, Academic Chairs Council, Northern Arizona University, Flagstaff, AZ
2013 – 2023: Co-Director, NAUTeach Program (an undergraduate secondary science and mathematics teacher education program based on the UTeach model)
2014 – 2015: Participant, University Leadership Program, Northern Arizona University, Flagstaff, AZ
2000 – 2013: Coordinator, Secondary Biology Teacher Education Program, Appalachian State University, Boone, NC
1998 – 2000: Coordinator, Secondary Teacher Education Program (involving 8 teacher certification disciplines), Northeastern Illinois University, Chicago, IL
1984 – 1985: Science Department Chair, Woodstock School, Mussoorie, Uttarakhand, India
1982: Headmaster, Methodist High School, Batala, Punjab, India

Leadership in Professional Organizations

- 2016 – 2019: Regional Director, Far West Region (AK, AZ, CA, HI, NV), Association for Science Teacher Education (ASTE)
2015 – 2018: Presidential Term (President Elect, President, Immediate Past President), National UTeach STEM Education Association (USEA)
2012 – 2013: Vice-President, Phi Delta Kappa (PDK) State Chapter of North Carolina
2007 – 2010: Presidential Term (President Elect, President, Immediate Past President); North Carolina Science Leadership Association (NCSLA)
2006 – 2007: District Director, North Carolina Student Academy of Science
2000 – 2005: Secretary & Treasurer, World Council of Curriculum and Instruction (WCCI), North America Chapter (Region VI)

INSTRUCTIONAL EXPERIENCES

College/University

Northern Arizona University, Flagstaff, Arizona, USA (2013 – 2023)

J. Lawrence Walkup Distinguished Professor of Science Education

Teaching Assignments (all in Science Teacher Education):

Graduate Level: Philosophy of Biology; Advanced Science Teaching Methods; Perspectives on Science; Survey of Literature in Science Education; History of Science.

Undergraduate Level: Perspectives on Science; Knowing and Learning in Science; Classroom Interactions; Project-Based Instruction.

Appalachian State University, Boone, North Carolina, USA (2000 - 2013)

Assistant Professor (2000 – 2004); Associate Professor (2004 – 2010); Professor (2010 - 2013)

College Science Instruction course for graduate students in the sciences (a graduate level pedagogy course for future college science instructors).

Science Teacher Education: Middle & secondary science teaching methods courses; The Meaning & Nature of Science; secondary biology field experience internship; secondary biology student-teaching supervision; graduate professional development and independent study courses for K-12 in-service teachers.

Biology: The Biology strand of the General Science course sequence for non-majors (Contemporary Biology, both Lecture & Lab); two-course Introductory Biology sequence for non-majors; Concepts of Biology Lab for majors; independent study courses for undergraduate and graduate students; Master's Thesis supervisor for Biology Education students.

University Honors Program: Honors thesis supervisor for a project focused on comparison of school science curricula of selected countries regarding inclusion of Nature of Science topics (2010 – 2011); and The Meaning & Nature of Science course.

Summer Ventures: Environmental Biology course (Summer 2001).

Northeastern Illinois University, Chicago, Illinois, USA (1997 - 2000)

Assistant Professor:

Secondary Education: **Coordinator of the Program in Secondary Teacher Education**, involving certification in eight academic disciplines (1998 - 2000); and Secondary teaching methods course (General).

Science Education: Elementary and secondary science teaching methods courses; supervision of secondary science clinical experiences and student-teaching.

Biology: Introduction to Biology; The Changing Natural Environment; and History of Science.

The University of Iowa, Iowa City, Iowa, USA

Coordinator: **The Iowa Chautauqua Program-National Diffusion Network (NDN) Project**, a professional development program for K-12 in-service science teachers. Responsible for program presentations at conferences, communication with teachers and administrators nationwide, organization of annual summer training conferences, follow-up communication and technical support to states and districts who adopt the program, communication with state facilitators and the federal department of education, participation in the NDN national annual conferences, production of project publications, and write-up of continuation grants and annual performance reports for yearly renewal of project funding (1993 - 1997).

Assistant Instructor: *Secondary Science Methods III* course. Responsible for contribution to regular class discussions; organizing class activities to illustrate exemplary science teaching approaches; and supervision of field-based teaching practicum in elementary and middle schools (Fall 1996).

Instructor: *Leadership And Change In School Science*, a graduate course for in-service science teachers (Summer 1996).

Doctoral Intern: *Secondary Science Methods I, II, and III* courses. Responsible for contribution to regular class discussions; organizing class activities to illustrate exemplary science teaching approaches; supervision of field-based teaching practica in elementary, middle, and secondary school classrooms; and development of an extensive research-based rationale for pre-service science teacher education (1995 - 1996).

Teaching Assistant: *Secondary Science Student-Teaching Program*. Responsible for weekly classroom observations and mentoring of student-teachers; communication with host school supervising teachers and administrators as well as the university professor-in-charge; contribution to a weekly seminar; and maintenance of assignments, grade records, and evaluation reports (1989 - 1990).

Baring Union Christian College, Batala, Punjab, India (1979 - 1981)

Taught pre-university, pre-medical, and undergraduate biology and botany courses including both lecture and laboratory sections.

Organized yearly intramural and varsity biology debates and paper presentation contests.

Organized biology excursions and field trips for flora collection and field studies.

Developed plant taxonomy laboratory manuals for pre-medical and undergraduate botany laboratory courses.

Secondary School

Woodstock (International) School, Mussoorie, Uttarakhand, India (1983 - 1993)

(Accredited by the Middle States Association of Colleges and Secondary Schools, USA)

Classroom Instruction

Taught grades 6-12 biology, chemistry, general science, health, and physical education courses.

Prepared students for the Biology Advanced Placement (AP) examination, Biology 'Ordinary' (O) and 'Advanced' (A) level examinations of London University, and Biology entrance examinations of Colleges of Medicine in India.

Developed a new high school elective course, *Science In Society*, based on the Science/Technology/Society (STS) approach to teaching science.

Developed an independent study program for high school seniors interested in the *History and Philosophy of Science*.

Completed an on-campus staff development training program, *Instructional Theory into Practice*, conducted by Seattle Pacific University, Seattle, Washington.

Teacher Education

Supervised up to two student-teachers every fall from St. Olaf College, Northfield, Minnesota.

Responsible for classroom supervision and mentoring of student-teachers; maintenance of assignments, grade records, and evaluation reports; and communication with the student-teaching supervisor at St. Olaf College.

Supervised a Health Education course of the *Distance Education Program for In-Service Teachers*, offered by California State University. Responsible for guiding and supervising the work of Woodstock faculty enrolled in the program.

Institutional Service

Chair of the science department on a rotating basis.

School representative at the South Asian International Schools Association Annual Conference in Kathmandu, Nepal (January 1989).

External examiner for the ISC Biology Practical examination of the Council for the Indian School Certificate Examinations.

Faculty representative on a variety of School Board sub-committees.

Methodist High School, Batala, Punjab, India (1982)

Interim Headmaster.

Taught grades 6-10 science courses.

Wynberg-Allen School, Mussoorie, Uttarakhand, India (1981 - 1982)

Taught grades 7-12 biology, chemistry, and general science courses.

Prepared students for the Biology ISC and ICSE examinations of the Council for the Indian School Certificate Examinations.

Baring High School, Batala, Punjab, India (1979 - 1981)

Taught grades 9 and 10 biology courses leading to ICSE examination of the Council for the Indian School Certificate Examinations.

RESEARCH EXPERIENCES/PROJECTS

EDUCATION (GENERAL)

Factors involved in starting a new school and implementing a new instructional approach.

The University of Iowa, College of Education, with Dr. Carolyn Wanat (Fall 1994)

A qualitative case study of implementing the Boyer philosophy in a new school in the local school district from the perspectives of teachers, staff, parents, and community members.

Research findings were reported back to the school community in a special meeting.

SCIENCE/STEM TEACHER EDUCATION

Strengthening STEM teaching in Native-serving schools through long-term, culturally responsive professional development.

Northern Arizona University (2019 – 2023)

A proposal to implement the Yale National Teacher Initiative model of professional development to enhance STEM content knowledge, curriculum development skills, and culturally responsive pedagogy in teachers of native serving schools and students in the Colorado Plateau area. Funds awarded by the NSF DRK-12 Program. Project currently in progress. Two articles published, two in review, two state level presentations made, two national presentations made at Spring 2022 AERA annual Conference, two international presentations made—one at NARST 2023 and another at END 2023.

Integration of Scientific Inquiry and Mathematical Problem Solving using INSPIREDATA in Middle Grades (Project SMILE).

Appalachian State University (2009 – 2012)

An NSF funded project designed to investigate the effectiveness of INSPIREDATA in promoting the integration of scientific inquiry and mathematical problem solving; and to investigate the instructional impact of this integration on students' ability to conduct scientific inquiry and mathematical problem solving. Project progress and accomplishments were presented at the Mid-Atlantic Association for Science Teacher Education (MA-ASTE) annual regional conferences, 2010, 2011 and 2012; Biology Department seminar at Appalachian State University, Spring 2013; ASTE Annual International Conference, 2016; and NSTA National Conference, 2016. Results have also been published in *School Science Review* (journal of the British Association of Science Education) and in the edited book *Improving K-12 STEM Education Outcomes through Technological Integration*.

Professional Development of Middle Grades Science Teachers: A study of the “coaching” model.

Appalachian State University (2007 – 2010)

A project funded by the Mathematics & Science Partnership Program of the US Dept. of Education but awarded and administered by the NC Department of Public Instruction. Middle grades science teachers from Cleveland, Rutherford and McDowell counties participated in the project, with Cleveland County as the fiscal home of the project. A year-long coaching model was employed along with summer institutes focused on both content and pedagogy. The study focused on teacher enhancement in both content and pedagogy by comparing teachers who attended the summer institutes with those who did not attend the summer institute. A presentation of the project design was made at the NSTA Regional Conference, 2008, Charlotte, NC, and a presentation of the “coaching” model was made at the 2009 North Carolina Science Teachers Annual Conference, Greensboro, NC, and the 2010 North Carolina Association for Supervision & Curriculum Development Annual Meeting, Pinehurst, NC. Results of the overall

change in teacher practice and student achievement were presented at the 2010 North Carolina Science Teachers Annual Conference, Greensboro, NC and subsequently published in the second edition of the NSTA Exemplary Science Programs monograph on Professional Development.

Pre-service science teachers' perceptions of ideal science classrooms.

Appalachian State University (2002 – 2013)

A project designed to investigate the impact of the science teaching methods course on secondary and middle grades pre-service teacher candidates' perceptions of ideal science classrooms. Through a short essay given as pre and post-test, the impact was assessed with regard to what the teacher candidates consider to be important elements of a science classroom, before and after participating in the methods course organized around the Learning Cycle pedagogy. Results were presented at the 18th Annual Hawaii International Conference on Education, Honolulu, HI, January 2020.

Impact of STS Approaches on Science Teachers' Professional Development.

Appalachian State University (2002 – 2007)

A project designed to investigate the impact of STS based professional development on science teachers. Pre-Post data on several aspects of school science instruction were collected from participants of the STS professional development project (Summer 2002 – Spring 2003; funded by an Eisenhower Professional Development Grant) using a Likert-type survey instrument. Results of the survey data were presented at the annual international conference of the Association for the Education of Teachers in Science, 2004, Nashville, TN. A follow-up study (funded by the AppState University Research Council) of the implementation of STS instructional strategies by these teachers was also conducted. Results of the follow-up study were presented at the annual international conference of the Association for Science Teacher Education, 2006, Portland, OR. Full results of the entire project were presented at 'epiSTEME-7': The seventh international conference on research trends in Science, Technology, and Mathematics Education, 2018, Mumbai, India.

STS Approaches to School Science Instruction.

Appalachian State University (2001 – 2004)

A project designed to investigate the implementation of the Science-Technology-Society (STS) approach to school science instruction by teachers participating in an STS instructional course. Factors related to classroom implementation were investigated through in-depth individual interviews of participating teachers. The impact of STS approaches on teachers and their students was investigated through Likert-type survey instruments. Preliminary results of the project were presented at the 2002 annual conference of North Carolina Science Teachers Association. Final results were presented at National Science Teachers Association annual conference, 2004, Atlanta, GA, in a research session sponsored by National Association for Research in Science Teaching. This project was funded by the AppState University Research Council.

Pre-service science teachers' understanding of reform-oriented science teaching.

Northeastern Illinois University (Fall 1997 – Fall 2001)

A project designed to investigate the effects of a technology-rich, Science-Technology-Society (STS) approach on pre-service science teachers' understanding of reform-oriented science teaching (as envisioned by the *National Science Education Standards* and the *Benchmarks for Scientific Literacy*). Data were collected through several Likert-type survey instruments, student journals, and in-depth individual interviews. Preliminary findings were presented at the Association for the Education of Teachers in Science (AETS) Annual Conference, 1999, Austin, TX. Final results were presented at the annual international conference of the Association for the Education of Teachers in Science, 2002, Charlotte, NC, and were subsequently published in *Issues in Teacher Education*.

Science Literacy and the GER Student: How much science? What kind of science?

The University of Iowa, Science Education Center (1995 - 1996)

Qualitative research study of university professors' perceptions of the role of science in liberal arts education, success of college science courses in developing scientific literacy, and ways of improving these courses. Research findings were presented at the University of Iowa Science Education Conference, Iowa Science Teachers Annual Conference, and National Association for Research in Science Teaching annual conference (1997). They were also published in *Iowa Educational Leadership*.

BIOLOGY/BIOLOGY EDUCATION

Investigating instructional behaviors and expectations of college biology instructors.

Northern Arizona University (2014 – 2015)

A project designed to investigate the differences in instructional behaviors and expectations between male and female biology instructors in undergraduate courses at a doctoral granting university and a community college. This 'mixed methods' research study was part of a masters' degree thesis, which I supervised (awarded May 2015). Results were presented at the 2017 *National Association of Biology Teachers (NABT) Annual Conference*, St. Louis, MO.

Nature of Science in Introductory Biology: The impact of Instructor perceptions and instructional practices on student perceptions of the nature of science in non-majors Introductory Biology course.

Appalachian State University (2004 – 2007)

A project designed to investigate how college instructors' perceptions of science are reflected in their instructional practices in a non-major introductory biology course and the impact they have on student perceptions of the nature of science. Instructor data were collected through the use of VOSTS questionnaire, in-depth individual interviews, and observations and video recording of selected class sessions. Student data were collected through pre-post administration of the VOSTS questionnaire and individual interviews of a selected sample of students. Results were part of a masters' degree thesis, which I supervised (awarded August 2007). Results were also presented at the 9th International Conference of the International History, Philosophy, and Science Teaching Group, 2007, Calgary, AB, Canada, and subsequently published in the *International Journal of Biology Education*.

Non-major students' perceptions of the Usefulness of Biology: The impact of specific assignments in Introductory Biology course.

Appalachian State University (2003 – 2010)

A project designed to investigate the impact of specific assignments (relating biology to real-life situations) on student perceptions of the usefulness of biology in a non-major biology course. Data were collected through a short essay given as pre and post-test. Since the assignments were optional, comparison of pre-post essays of students doing the assignments with those not doing the assignments may indicate the impact of these assignments on student perceptions, hence, reflect the value of such assignments in a non-majors course. Results were presented in a biology department seminar in Spring 2012, and at the East Asian Association of Science Education (EASE) conference, 2016, in Tokyo, Japan.

Student understanding of the nature of the scientific enterprise (NOSE).

Northeastern Illinois University (Spring 1998 – Spring 2000)

A project designed to investigate the effects of a history of science course (offered in the biology department) on undergraduate and graduate students' understanding of the nature of the scientific enterprise. Data were collected through pre-post administration of the VOSTS instrument and various course assignments. Preliminary findings were presented at the Sigma Xi 1999 Forum & Annual Meeting, Minneapolis, MN. Final results were presented at the 6th International Conference of the International History, Philosophy, and Science Teaching Group, 2001, Denver, CO, and were subsequently published in the *International Journal of Science and Mathematics Education*.

Conservation and Restoration of Prairies in Iowa: The regeneration niche of successful and unsuccessful prairie forbs.

The University of Iowa, Department of Biological Sciences, with Dr. Stephen D. Hendrix (Spring 1995)

Data collection at experimental field plots and statistical analyses of field data.

Assisted with electrophoresis experiments to assay isozyme variations in selected forb species.

OTHER PROFESSIONAL/SCHOLARLY ACTIVITIES

Funded Grant Proposals

National Science Foundation

Collaborative Research: Learning Software Engineering by Contributing to real projects with the help of a chatbot: Proposal submitted to the Research on Emerging Technologies for Teaching and Learning Program (CoPI with Marco Gerosa and Igor Steinmacher; Submitted October 2022; \$561,999; **Awarded May 2023**).

Collaborative Research: IUSE EHR - Scaffolding Computational thinking in Introductory CS through a conversational agent: Proposal submitted to the IUSE Program (CoPI with Igor Steinmacher and Marco Gerosa; Submitted July 2022; \$405,000; **Awarded December 2022**).

SOS+: Scholarship Opportunities for Student Retention and Degree Attainment in Undergraduate Engineering and Computer Science Programs: Proposal submitted to the S-STEM Program (CoPI with Constantin Ciocanel; Submitted April 2021; \$1,493,224; **Awarded August 2021**).

Strengthening STEM teaching in Native-serving schools through long-term, culturally responsive professional development: A proposal to implement the Yale National Teacher Initiative model of professional development to enhance STEM content knowledge, curriculum development skills, and culturally responsive pedagogy in teachers of native serving schools and students. Submitted to the DRK-12 Program (CoPI with Angelina Castagno; Submitted November 2018; \$934,784, **Awarded July 2019**).

Science and Mathematics Integration for Literacy Enhancement (Project SMILE): An Exploratory Project submitted to the Discovery Research K – 12 Program (PI [CoPI: Tracy Goodson-Espy]; Submitted January 2009; \$449,827; **Awarded September 2009, ended August 2012**).

U.S. Department of State

Fulbright Teacher Exchange Program — Pakistani Secondary-Level Biology Educators: A professional development project for Pakistani Biology teachers focusing on biology content and pedagogy; instructional technology and media literacy; and English as a foreign language of instruction (CoPI with J. Spagnolo, and L. McCallister, PI: J. Lutabingwa; \$143,727; **Awarded March 2008**).

Fulbright Teacher Exchange Program — Pakistani Secondary-Level Biology Educators: A professional development project for Pakistani Biology teachers focusing on biology content and pedagogy; instructional technology and media literacy; and English as a foreign language of instruction (CoPI with B. Moser, J. Spagnolo, and L. McCallister, PI: J. Lutabingwa; \$119,736; **Awarded March 2007**).

U.S. Department of Education

The Iowa Chautauqua Program-National Diffusion Network Project: Wrote successful continuation grants for yearly renewal of funding (1994 - 1996). Grants **awarded** by the National Diffusion Network (NDN) Program-US Department of Education.

State Level Education Agencies

Teachers and Principals Together – A team approach to implementing Arizona’s College and Career-Ready Standards (AZCCRS) in mathematics and the vision of effective Science Education as outlined in ‘A Framework for K-12 Science Education’. **Awarded in May 2015** by the Arizona State Board of Regents. (CoPI with M. Schwanenberger; \$311,127; an **Improving Teacher Quality Project**).

Quality Teaching and Learning = High Levels of Science Instruction (QTL = ^S): A Mathematics and Science Partnership (MSP) grant project between Cleveland, McDowell, and Rutherford County Schools and Appalachian State University. Awarded by the Mathematics and Science Partnerships Program administered through North Carolina Department of Public Instruction, Raleigh, NC. (CoPI as the Appalachian State University partner; total budget \$820,076; **Awarded April 2007**.)

Content Area Reading—Alleghany (Round II): Awarded through the NC Quest Program at Center for School Leadership Development, Chapel Hill, NC. (CoPI with W. Trathen, College of Education; \$135,400; **Awarded January 2005**.)

Content Area Reading—Alleghany: Awarded through the NC Quest Program at Center for School Leadership Development, Chapel Hill, NC. (CoPI with W. Trathen, College of Education; \$291,581; **Awarded January 2004**.)

Promoting Standards Based Science Education in Middle Grades using the Science-Technology-Society (STS) Approach: Awarded by the Eisenhower Professional Development Program-US Department of Education, administered through UNC Mathematics and Science Education Network. (PI; \$29,759; **Awarded November 2001.**)

Appalachian State University

Science 'Strands' in the North Carolina Standard Course of Study and the STS Instructional Approach: A Study of Classroom Implementation. **Awarded** by the University Research Council in **February 2004** (PI; \$2,776).

STS Approaches to School Science Instruction: **Awarded** by the University Research Council in **November 2001**(PI; \$1,500).

Textbook Grant to compile a laboratory manual for use in Contemporary Biology (GSB 1040) course. **Awarded** by the Hubbard Center for Faculty & Staff Support in **Spring 2005** (\$375).

External Scholars Grant to organize a workshop on inquiry-based instruction in college science and science related disciplines. Workshop open to faculty and graduate students in 11 science and science-related departments across campus. **Awarded** by the Hubbard Center for Faculty & Staff Support in **Spring 2005** (\$500).

Registration Grants, ranging between \$100 – 300, to participate in professional conferences (Fall 2000 – Fall 2006). **Several awarded** by the Hubbard Center for Faculty & Staff Support.

Grant Proposals Currently in Review

National Science Foundation

HSI Implementation and Evaluation Project: Strengthening degree attainment pathways for Pre-Engineering and Mechanical Engineering majors in rural southwestern U.S.: Proposal submitted to the IUSE Program (CoPI with Constantin Ciocanel, Claudia Rodas, Jill Nelipovich, and Marlie Meza; Submitted August 2023; \$1,084,218).

Declined Grant Proposals

National Science Foundation

IUSE/PFE:RED Innovation: The making of an agile, adaptable and inclusive Mechanical Engineering department for the 21st century: Proposal submitted to the IUSE Program (CoPI with Constantin Ciocanel; Submitted July 2022; \$1,999,680).

HSI Implementation and Evaluation: Designing an inter-disciplinary major to improve undergraduate success. Proposal submitted to the IUSE-HSI Program (CoPI with Julie Mueller, P. Gremillion, and A. Springer; Submitted March 2022; \$499,939).

RET Site: REMSITNA: Research Experiences for Minority Serving Institution Teachers in Northern Arizona. Proposal submitted to the RET in Engineering and Computer Science Program (CoPI with Kyle Winfree and Marco Gerosa; Submitted November 2021; \$595,765).

Improving knowledge retention and application in engineering undergraduate programs through a combination of curricular and extra-curricular learning intervention: Proposal submitted to the IUSE Program (CoPI with Constantin Ciocanel; Submitted July 2021; \$596,569).

Improving knowledge retention and application in engineering undergraduate programs through faculty professional development on active learning pedagogies: Proposal submitted to the IUSE Program (CoPI with Constantin Ciocanel; Submitted December 2020; \$595,339).

SOS+: Scholarship Opportunities for Student Retention and Degree Attainment in Undergraduate and Graduate Engineering Studies: Proposal submitted to the S-STEM Program (CoPI with Constantin Ciocanel; Submitted April 2020; \$999,987).

Future of Effective STEM Education (Project FEST): A proposal to improve retention and graduation of STEM undergraduate students via the development of effective collegiate STEM instructors. Submitted to the IUSE Program (CoPI with Pauline Entin and Lawrence Gallagher; Submitted February 2014).

Investigating Systemic Processes In Researching Effectiveness of Developing STEM-focused Schools (The INSPIRED STEMS Project): A proposal to investigate processes that contribute to successful development of STEM focus in elementary/middle schools. Submitted to the REAL Program (CoPIs: Joelle Clark, Jane Kirkley, Nena Bloom; Submitted January 2014; \$498,614).

Roots of Innovation through STEM Education (Project RISE): A proposal to enhance middle school students and teachers interest and competence in STEM education, careers, and environmental impacts in the context of local situations. Submitted to the ITEST Program (CoPI with Joan Conway, McDowell County Public Schools, and Jerianne Taylor, AppState Dept. of Technology; Submitted May 2011; \$1,038,106).

TECH-Know Too! After-School and Summer Experiences Developing Technological Literacy: Submitted to the Innovative Technology Experiences for Students and Teachers (ITEST) Program (PI: Jerianne Taylor; CoPIs: G. Dewey, L. McCalister, M. Hoepfl, **P. M. Dass**; Submitted, May 2007; \$897,101).

Nature of Science in Introductory Biology (NOSinIB Project): A 'research on undergraduate STEM teaching and learning' project submitted to the Course, Curriculum, and Laboratory Improvement (CCLI) Program (PI [CoPI: M. Windelspecht]; May 2005; \$144,330).

Enhancing K-8 Science Instruction through Teacher Engagement (EKSITE Project): Pre-Proposal submitted to the Teacher Professional Continuum (TPC) Program (PI [CoPIs: C. Eagle, T. Smith, W. Straits]; May 2004; \$2,476,436).

Science Teaching in the Triad and Appalachian Regions (STTAR Project; a comprehensive K-12 science education project involving two universities, four school districts, two science museums, the Northwest Regional Educational Service Alliance, and Science section of North Carolina Dept. of Public Instruction): Proposal submitted to the Math & Science Partnership (MSP) Program (PI [CoPIs: T. Carroll, J. Callahan, M. Pritchard, M. Roesch]; January 2003; \$9,505,819).

Development of Technological Resources to Enhance Introductory Biology Instruction: Proposal submitted to the Instructional Materials Development (IMD) Program (CoPI with M. Windelspecht and E. Harris; June 2001; \$72,292).

The Iowa SS&C Project-Enhancing and Networking Professionals to achieve Scientific Literacy. (Summer 1996). Wrote the professional development methodology section of the proposal.

U.S. Department of Education

Teacher Resilience and Retention in Rural Areas (T-R3) Research Partnership: A research partnership project between Coconino County Educational Services Association, College of Education at NAU and the NAU Center for Science Teaching and Learning (CSTL). Submitted to the Institute for Educational Sciences (IES). (CoPI as the CSTL Partner; total budget \$484,023; Submitted August 2016)

State Level Education Agencies

Institutionalizing shared Principal-Teacher Leader instructional leadership to achieve academic rigor in a comprehensive K-12 curriculum. Submitted June 2016 to the Arizona State Board of Regents. (CoPI with M. Schwanenberger; \$275,272; an Improving Teacher Quality Project).

Quality Teaching and Learning Equals High Levels of Science Instruction Throughout Western North Carolina: A Mathematics and Science Partnership grant project between Avery, Cleveland, McDowell, and Mitchell County Schools and Appalachian State University. Submitted to the Mathematics and Science Partnerships Program administered through North Carolina Department of Public Instruction, Raleigh, NC. (CoPI as the Appalachian State University partner; total budget \$987,747; Submitted January 2010.)

Project for Rurally Relevant Instruction in Science and Mathematics (PRRISM): A project for teacher professional development and enhancement of student achievement in science and mathematics in rural school districts of northwestern region of North Carolina. Proposal submitted to Education Research Grants program of the US Dept. of Education, under the Mathematics and Science Education section of the Teacher Quality component. (CoPI with K. Mawhinney and T. Salinas; \$1,458,840; November 2006.)

Quality Teaching and Learning = High Levels of Mathematics and Science Instruction (QTL = ^MS): A Mathematics and Science Partnership grant project between Cleveland County Schools and Appalachian State University. Proposal submitted to the Mathematics and Science Partnerships Program administered through North Carolina Department of Public Instruction, Raleigh, NC. (PI on the Appalachian State University subcontract of the partnership, \$400,551; total budget \$1,439,483; March 2006.)

Appalachian State University

Cratis D. Williams Graduate School:

Graduate Research Associate Mentoring Program: An Internal grant to support and mentor a graduate student in research apprenticeship. (April 2011)

Graduate Research Associate Mentoring Program: An Internal grant to support and mentor a graduate student in research apprenticeship. Proposal declined but invited for resubmission in Spring 2010 (April 2009).

University Research Council:

Science 'Strands' in the North Carolina Standard Course of Study and the STS Instructional Approach: A Study of Classroom Implementation. Proposal declined but invited for resubmission in Spring 2004 (PI; October 2003; \$5,000).

STS Approaches to School Science Instruction, Part II. (PI; September 2002; \$2,500.)

Hubbard Center for Faculty & Staff Support:

Appalachian Foundation Fellows Grant: Professional Development to Provide Professional Development. (Spring 2008; \$5,000)

External Scholars Grant to organize an 'Inquiry Based Teaching' workshop for biology department faculty and graduate students. (Fall, 2004, \$694.75, Declined but forwarded to the College of Arts & Sciences Dean for possible funding.)

Program Evaluation/Consultation

PT-ASK (NSF funded project to investigate preparedness of undergraduate level pre-service teacher candidates entering the STEM teaching workforce, Center for Astrophysics, Harvard & Smithsonian): Advisory Board Member (2020 – 2023).

Consultant, Woodstock School, Mussoorie, India, for improving the school's STEM education focus (2015 - 2019). The work included three consultation visits to the school involving onsite workshops for teachers, staff, and students, conducting capacity surveys, and providing written evaluation reports including recommendations for improvements.

External Reviewer, Master of Science in Science Education Program Proposal, SUNY College Buffalo, NY. (Fall 2011)

Physical Science Comes Alive! (An NSF funded elementary science curriculum development project involving City University of New York, Vanderbilt University, and Appalachian State University): External evaluation consultant and assessment resource person (2007 – 2010).

Integrating Mathematics and Statistics into the Biology Curriculum (An NSF funded undergraduate education project involving the Biology and Mathematics departments at Appalachian State University): Independent internal evaluator and assessment resource person (2002 – 2005).

Collaborative Authentic Learning about the Environment (A summer enrichment program for middle school students of Chicago Public Schools): Responsible for conducting assessment of student growth in aspects of Illinois Learning Standards via both quantitative and qualitative means and writing a summative assessment report (1997 - 1998).

Collier Chautauqua Program (An in-service science professional development program of Collier County Public Schools, Naples, Florida): Independent internal evaluator and assessment resource person (1995 - 1997). Responsibilities included mentoring the Collier assessment team, communicating with county administrators, collecting qualitative as well as quantitative data on program implementation and teacher change, and writing both formative and summative program evaluation reports for the county.

Conference/Workshop Organization

Using Tablet Technology to Enhance the Teaching and Learning of Science and Mathematics: Organized a one-day workshop on effective uses of tablet technology in preparing pre-service science and mathematics teachers for effective instruction. Center for Science Teaching and Learning, Northern Arizona University. (December 2013)

Promoting Inquiry in College Science Instruction: Organized a one-day workshop on inquiry-based college science instruction, through the External Scholars Grant Program of Hubbard Center for Faculty and Staff Support, Appalachian State University. (December 2005)

- NC DPI Summer Science Leadership Institute:* Helped host this state level annual institute at Appalachian State University for middle and secondary science teachers. Organized board and lodge for all participants and leaders on ASU campus. Also conducted two sessions on inquiry-based science instruction—one for middle school teachers and one for secondary teachers. (July 2003)
- Science Literacy and the GER student:* Helped organize this special science education conference at the University of Iowa. Also served as the moderator for a panel discussion during the conference. (April 1996)
- National Diffusion Network-Chautauqua Leadership Conference:* Organized and hosted three annual summer training conferences at the University of Iowa. Responsible for organizing all logistical and instructional aspects of the conference. (1994 - 1996)

Involvement in Graduate Student Scholarly Work

- Mentor and Chair, MAST Portfolio (6 students).* Department of STEM Education, Northern Arizona University, Flagstaff, AZ (2022 - 23).
- Committee Member, MAST Portfolio (3 students).* Center for Science Teaching and Learning, Northern Arizona University, Flagstaff, AZ (2019 – 2021).
- Mentor and Chair, MAST Portfolio (4 students).* Center for Science Teaching and Learning, Northern Arizona University, Flagstaff, AZ (2017 – 2020).
- Mentor and Chair, MAST Thesis Research. Investigating instructional behaviors and expectations of college biology instructors.* Center for Science Teaching and Learning, Northern Arizona University, Flagstaff, AZ (2014 – 2015).
- Mentor and Chair, MAST Portfolio (4 students).* Center for Science Teaching and Learning, Northern Arizona University, Flagstaff, AZ (2013 – 2014).
- Major Advisor and Committee Chair, Master's Thesis Research: Impact of an undergraduate history of science course on student understanding of the nature of science (gender-based comparison of students).* Department of Biology, Appalachian State University, Boone, NC (2011 – 2013).
- Major Advisor and Committee Chair, Master's Thesis Research: Student perceptions of the nature of science (NOS) in relation to instructors' perceptions and portrayal of NOS in introductory college biology courses.* Department of Biology, Appalachian State University, Boone, NC. (2004 – 2007)
- Committee member, Doctoral Dissertation Research: Exemplary Science Teachers: Characteristics and Practice.* Department of Leadership & Educational Studies, Reich College of Education, Appalachian State University, Boone, NC. (2006 – 2009)
- External Examiner, Doctoral Dissertation: Effectiveness of constructivist approach on students' achievement in science, scientific attitude, and perception of nature of science at secondary level.* Regional Institute of Education (National Council of Educational Research and Training), University of Mysore, India. (Fall 2005)
- Mentor to a Doctoral Student through Research Assistantship in Science Education.* Department of Leadership & Educational Studies, Reich College of Education, Appalachian State University, Boone, NC. (2002 – 2003)

PUBLICATIONS

Laboratory Manuals

- Dass, P. M. (2009). *Laboratory and Field Investigations in Contemporary Biology, Third Edition.* Oceanside, NY: Whittier Publications, Inc.
- Dass, P. M. (2007). *Laboratory and Field Investigations in Contemporary Biology, Second Edition.* Boone, NC: Appalachian State University, Hubbard Center for Faculty and Staff Support.
- Dass, P. M. (2005). *Laboratory and Field Investigations in Contemporary Biology.* Boone, NC: Appalachian State University, Hubbard Center for Faculty and Staff Support.
- Dass, P. M. (1980). *Laboratory Manual of Floral Botany for Premedical Students.* Batala, India: Baring Union Christian College.
- Dass, P. M. (1980). *A Manual of Practical Taxonomy for Degree Students.* Batala, India: Baring Union Christian College.

Book Chapters

- Dass, P. M.** & Spagnolo, J. T. (2016). STEM Learning in middle grades by technology-mediated integration of science and mathematics: Results of Project SMILE. In M. J. Urban & D. A. Falvo (Eds.), *Improving K-12 STEM education outcomes through technological integration*, pp. 187 – 205. Hershey, PA: IGI Global (Information Science Reference).
- Dass, P. M.**, Wilbanks, L., Goforth, J., Graham, L., Francis, J. (2013). “Doing Science” in Middle Grades: Instructional Coaching and Modeling of a Learning Cycle Approach promote Scientific Practices. In S. Koba & B. Wojnowski (Eds.), *Exemplary science: Best practices in professional development, Second Edition*, pp. 51 - 82. Arlington, VA: National Science Teachers Association Press.
- Dass, P. M.**, Hofstein, A., Mamlok, R., Dawkins, K., Penick, J. E. (2008). Action Research as Professional Development of Science Teachers. In Ingrid V. Eriksson (Ed.), *Science Education in the 21st Century*, pp. 205 - 240. Hauppauge, NY: Nova Science Publishers, Inc.
- Dass, P. M. (2005). Facilitating improvement through year-long professional development: Teachers rising to the occasion. In R. E. Yager (Ed.), *Exemplary science: Best practices in professional development*, pp. 55 – 74. Arlington, VA: National Science Teachers Association Press.
- Dass, P. M. (2003). New science coaches: Preparation in the new rules of science education. In J. Weld (Ed.), *The game of science education*, pp. 48-79. Boston, MA: Allyn & Bacon Publishers.
- Dass, P. M. (2001). Dressed in Green but Nowhere to Go? Exploring the life of leaves. In S. Dyche & G. Madrazo, Jr. (Eds.), *Exciting plant science activities for the elementary classroom*, pp. 44-49. University of North Carolina, Chapel Hill: UNC Mathematics & Science Education Network.

Refereed Journal Articles

- Joseph, D., Keene, C., Castagno, A., **Dass, P.M.**, Macias, C. (In Review). Methodological Complexity: A both/and Approach to Address Tool Validity and Reliability for Assessment of Cultural Responsiveness in Indigenous Serving Schools. *AERA Open*.
- Castagno, A.E., **Dass, P.M.**, Joseph, D.H., Keene, C., Macias, C. (2023). Strengthening STEM Teaching in Rural, Indigenous-Serving Schools through Long-term, Culturally Responsive Professional Development. *Education Sciences*, 13(8), 825. <https://doi.org/10.3390/educi13080825>.
- Dass, P. M. (2022). STEM and STEM Education: Collaboratively addressing global challenges of the 21st century. *Southeast Asian Journal of STEM Education*, 3(1), 32 – 40. <https://seameo-stemed.org/journal>
- Castagno, A.E., Joseph, D.H., Kretzmann, H., Dass, P.M. (2021). Developing and piloting a tool to assess culturally responsive principles in schools serving indigenous students. *Diaspora, Indigenous, and Minority Education*, 16(2), pp. 133 – 147. Available at <https://www.tandfonline.com/toc/hdim20/16/2> or <https://doi.org/10.1080/15595692.2021.1956455>
- Dass, P. M.**, Moore, Jr., E. (2015). Integrating science, mathematics and technology in middle grades. *School Science Review*, 97(359), 109 – 115.
- Dass, P. M. (2015). Teaching STEM effectively with the Learning Cycle Approach. *K-12 STEM Education*, 1(1), 5 – 12.
- Tuberty, B.I., **Dass, P.M.**, Windelspecht, M. (2011). Student Understanding of Scientific Hypotheses, Theories & Laws: Exploring the influence of a non-major college introductory Biology course. *International Journal of Biology Education*, 1(1), 23 – 44.
- Dass, P.M.**, Yager, R.E. (2009). Professional development of science teachers: History of reform and contributions of the STS-based Iowa Chautauqua Program. *Science Education Review*, 8(3), 99 - 111.
- Bost, R., Ritchie, L., Miller, L., **Dass, P.M.**, Straits, W., Trathen, W., Kucan, L. (2008). Mastering Scientific Vocabulary: Three approaches to vocabulary instruction. *School Science Review*, 89(329), 115 – 120.
- Miller, L., Straits, W., Kucan, L., Trathen, W., **Dass, P.M.** (2007). Literature circle roles for science vocabulary. *The Science Teacher*, 74(5), 52 – 56.
- Dass, P.M.**, Deal, D.V. (2007). Environmental education through community action projects. *School Science Review*, 88(325), 51 – 55.

- Dass, P.M.,** Bradley, A. (2006). High school students as crime solvers: Experiencing a practical application of genetic technology. *Science Education International*, 17(1), 5 - 12.
- Dass, P.M.,** Kilby, D., Chappell, A. (2005). Scientific inquiry and real-life applications bring middle school students up to standard. *Middle School Journal*, 36(5), 20 - 29.
- Dass, P. M. (2005). Using a Science/Technology/Society approach to prepare reform-oriented science teachers: The case of a secondary science methods course. *Issues in Teacher Education*, 14(1), 95 – 108.
- Dass, P. M. (2005). Understanding the nature of scientific enterprise (NOSE) through a discourse with its history: The influence of an undergraduate ‘history of science’ course. *International Journal of Science and Mathematics Education*, 3(1), 87 – 115.
- Dass, P. M. (2003). Lessons learned during a district level professional development effort for improving science instruction. *Science Education International*, 14(3), 7 - 13.
- Dass, P. M. (2001). Implementation of instructional innovations in K-8 science classes: Perspectives of in-service teachers. *International Journal of Science Education*, 23(9), 969-984.
- Dass, P. M. (2000). Preparing coaches for the changing game of science: Teaching in multiple domains. *The Clearing House*, 74(1), 39-41.
- Dass, P. M. (1999). Science education for the 21st century: Challenges and promising approaches. *International Journal of Curriculum and Instruction*, 1(2), 264-277.
- Dass, P. M. (1999). Evaluation of a district-wide in-service professional development program for teaching science: Challenges faced and lessons learned. *Electronic Journal of Science Education*, 4(2).
- Dass, P. M. & Yager, R. E.** (1999). The Iowa Chautauqua Program: Advancing reforms in K-12 science education. *Science Education International*, 10(2), 33-38.
- Dass, P. M. (1999). Contemporary environmental issues: Creating curricular connections in K-12 education. *Bulletin of Science, Technology, & Society*, 19(2), 147-154.
- Dass, P. M. (1997). Organizing high school biology experiences around contemporary bioethical issues: An STS approach. *Bulletin of Science, Technology, & Society*, 17(5&6), 325-330.
- Dass, P. M. (1996-97). The role of science courses in liberal arts education: Perspectives of faculty at a state university. *Iowa Educational Leadership*, 13(1), 60-66.
- Dass, P. M. (1996). Professional Development: The Iowa Chautauqua Model. *Science Education International*, 7(1), 18-21.
- Yager, R. E., Blunck, S. M., & **Dass, P. M.** (1995). Science as a way of knowing. *Thrust for Educational Leadership*, 25(2), 22-25.

Non-Refereed Articles

- Dass, P.M. (2009). Revolutions of leadership. *SuperViews* (The NCSLA Newsletter), Spring 2009. Available at www.ncsla.net.
- Dass, P.M. (2008). Leadership and learning: What’s the connection? *SuperViews* (The NCSLA Newsletter), Fall 2008. Available at www.ncsla.net.
- McMillan, C., Robello, C. T., & **Dass, P. M.** (1997). Three educators discuss action research. *SciencePlus Communicator*, #12, 6-7.
- Dass, P. M. (1996). The 1996 NDN-Chautauqua Conference. *Chautauqua in Action, Vol. III*, pp. 2-3. Iowa City, Iowa: The University of Iowa Science Education Center.
- Dass, P. M. (1996). Professional Development toward science education reform: The Chautauqua approach. *Chautauqua Notes*, 12(1), C—1, C—3-C—4.
- Dass, P. M. (1996). Chautauqua presented to international community. *Chautauqua Notes*, 11(4), C—4.
- Dass, P. M. (1996). Chautauqua follow-up during the Fall of 1995. *Chautauqua Notes*, 11(3), C—2-C—4.
- Dass, P. M. (1995). Science in-service education: Making commitment through the Chautauqua Program. *Chautauqua Notes*, 11(2), C—1-C—4.
- Dass, P. M. (1995). The Iowa Chautauqua Program: Reaching far and wide. *Chautauqua Notes*, 11(1), C—1-C—2, C—4.
- Dass, P. M. (1995). The 1995 NDN-Chautauqua conference. *Chautauqua in Action, Vol. II*, p. 2. Iowa City, Iowa: The University of Iowa Science Education Center.
- Dass, P. M. (1995). Chautauqua: Mentoring across states. *Chautauqua Notes*, 10(5), 3, 9.
- Dass, P. M. (1995). Goals 2000 and the Iowa Chautauqua Program. *Chautauqua Notes*, 10(4), 3.

- Dass, P. M. (1994). Chautauqua to Michigan. *Chautauqua Notes*, 10(3), 3.
- Dass, P. M. (1994). Chautauqua on the move. *Chautauqua Notes*, 10(2), 5, 7, 9, 11.
- Dass, P. M. (1994). The Iowa Chautauqua Program: An overview. *Chautauqua in Action*, Vol. I, pp. 2-3. Iowa City, Iowa: The University of Iowa Science Education Center.
- Dass, P. M. (1994). Conference highlights. *Chautauqua in Action*, Vol. I, pp. 6-7. Iowa City, Iowa: The University of Iowa Science Education Center.
- Dass, P. M. (1994). The Iowa Chautauqua Program reaches out to the nation. *Chautauqua Notes*, 9(6), 6.
- Dass, P. M. (1994). The Iowa Chautauqua Program hits NDN charts. *Scope, Sequence, & Coordination: Iowa News*, 4(3), 7.

Commentary

- Dass, P. M. (2001). Journaling and Concept Mapping via Electronic Media in Science Teaching Methods Classes: A Commentary on Germann, Young-soo, and Patton. *Contemporary Issues in Technology and Teacher Education*, 1(3). Available: <http://www.citejournal.org>

Book Reviews

- Dass, P. M. (2000). The forgiving air: Understanding environmental change (R. C. J. Somerville). *Science Education*, 84(3), 418-420.
- Dass, P. M. (1999). Reconstructing nature: The engagement of science and religion (J. Brooke & G. Cantor). *Perspectives on Science and Christian Faith*, 51(3), 191-192.
- Dass, P. M. (1999). Inventing science education for the new millennium (P. D. Hurd). *The American Biology Teacher*, 61(4), 312-313.
- Dass, P. M. (1998). Philosophy of biology (M. Ruse, Editor). *Perspectives on Science and Christian Faith*, 50(4), 296-297.
- Dass, P. M. (1995). Reforming Science Education (R. W. Bybee). *Perspectives on Science and Christian Faith*, 47(1), 60-62.

Technical Reports

- Dass, P. M. (2022). *Undergraduate Secondary Science Education Initial Teacher Certification Program: Accreditation Review Report*. Submitted to the Arizona Department of Education through Northern Arizona University Professional Education Programs (for State and CAEP Accreditation)
- Castagno, A. & **Dass, P. M.** (2020, 2021, 2022, 2023). Annual Reports of *Strengthening STEM teaching in Native-serving schools through long-term, culturally responsive professional development project*, submitted to the National Science foundation, Washington, DC.
- Dass, P. M. & Goodson-Espy, T. (2010, 2011, 2012). Annual and Final Reports of *Project SMILE* submitted to the National Science foundation, Washington, DC.
- Lutabingwa, J., **Dass, P. M.**, Moser, B., Spagnolo, J., McCalister, L. (2007). *Fulbright Teacher Exchange Program: Training Program for Pakistani Biology Teachers*. Submitted to International Institute, USDA Graduate School, Washington, DC.
- Dass, P. M. (2006). *Undergraduate Secondary Biology Teacher Education Program at Appalachian State University: Program Review Report*. Submitted to North Carolina State Department of Public Instruction, through Appalachian State University College of Education (for NCATE and State Accreditation).
- Dass, P. M. (2005). *Science 'Strands' in the North Carolina Standard Course of Study and the STS Instructional Approach: A Study of Classroom Implementation*. URC Grant project report. Submitted to Cratis D. Williams Graduate School, Appalachian State University.
- Dass, P. M. (2002, 2003, 2004). Admissions Partnership Program (APP)—Biology: Annual Evaluation Reports. Submitted to the Biology Department Chair, Appalachian State University.
- Dass, P. M. (2003). *Promoting Standards Based Science Education in Middle Grades using the Science-Technology-Society (STS) Approach: Final Project Report*. Submitted to the UNC Mathematics and Science Education Network Central Office, UNC Chapel Hill, NC.
- Dass, P. M. (2002). *STS Approaches to School Science Instruction: URC Grant project report*. Submitted to Cratis D. Williams Graduate School, Appalachian State University.

- Dass, P. M. (2001). *Undergraduate Secondary Biology Teacher Education Program at Appalachian State University: Program Review Report*. Submitted to North Carolina State Department of Public Instruction, through College of Education, Appalachian State University (for NCATE and State Accreditation).
- Rozario, C. W., **Dass, P. M.**, & Schultz, A. (1998). *Collaborative Authentic Learning about the Environment (CALE): 1998 Final project report*. Submitted to the Illinois Board of Education, Springfield, Illinois.
- Dass, P. M.** & Yager, R. E. (1997). *The Iowa Chautauqua Program—National Diffusion Network Project: Final performance report*. Submitted to the U. S. Department of Education, Washington, DC.
- Dass, P. M. (1996). *Collier Chautauqua Program: Final report of evaluation phase I*. Submitted to Collier County Public Schools, Naples, Florida.
- Dass, P. M. (1996). *The Iowa Chautauqua Program—National Diffusion Network Project: Annual performance report*. Submitted to the U. S. Department of Education, Washington, DC.
- Dass, P. M. (1995). *Evaluation of the Florida Chautauqua Program: Interim report of phase I*. Submitted to Collier County Public Schools, Naples, Florida.

Educational Resources Information Center (ERIC) Database: Electronic Documents

- Dass, P. M. (2001). Evaluation of a district-wide in-service professional development program for teaching science: Challenges faced and lessons learned. ERIC Document Number ED 444 839.
- Dass, P. M. (2001). Preparing “professional” science teachers: Critical goals. ERIC Document Number ED 443 684.
- Dass, P. M. (2001). An STS approach to organizing a secondary science methods course: Preliminary findings. ERIC Document Number ED 443 672.

Conference Proceedings/Abstracts

- Dass, P. M., Castagno, A., Joseph, D., Keene, C., & Macias, C. (2023). Enhancing STEM Education in Indigenous serving schools using culturally responsive pedagogy. In Carmo, M. (Ed.), *Education and New Developments 2023*, Volume 2, pp. 47 – 51. inScience Press, World Institute for Advanced Research and Science, Lisbon, Portugal.
- Dass, P. M. (2021). STEM and STEM Education: Collaboratively addressing global challenges of the 21st Century. In *Proceedings of the 2021 East Asian Association for Science Education International Conference*, pp 25 - 27. Shizuoka University, Shizuoka, Japan.
- Dass, P. M. (2018). In-service teacher enhancement for improved science curriculum transaction: The Appalachian STS Project. In Ladage, S. & Narvekar, S. (Eds.), *epiSTEME – 7 Proceedings*, pp. 195 – 203. Mumbai, India: Homi Bhabha Center for Science Education.
- Dass, P. M. (2013). Instructional modeling and coaching enhance science teachers’ inquiry-oriented teaching skills. In Nagarjuna, G., Jamakhandi, A., & Sam, E. M. (Eds.), *epiSTEME – 5 Proceedings*, pp. 207 – 212. Mumbai, India: Homi Bhabha Center for Science Education.
- Tuberty, B. G. & **Dass, P. M.** (2007). Understanding the nature of science through college introductory biology. In *Abstracts, Papers, & Slides of the 9th International History, Philosophy, & Science Teaching Conference*, Calgary, Alberta, Canada.
- Dass, P. M. (2004). Professional development of K-12 science teachers: History of reform and effects of a Science-Technology-Society (STS) approach in bringing about the reform. In *Abstracts of Presentations of epiSTEME - 1* (an international conference to review research on Science, **T**Echnology and **M**athematics Education, organized by Homi Bhabha Center for Science Education, Tata Institute of Fundamental Research, Mumbai, India).
- Dass, P. M. (2003). Understanding the nature of scientific enterprise (NOSE) through a discourse with its history: The influence of an undergraduate ‘history of science’ course. In W. F. McComas (Ed.), *Proceedings of the 6th international history, philosophy, & science teaching conference* (Denver, CO, USA). [File 34 on CD-ROM]. Available from the International History, Philosophy, and Science Teaching Group, www.ihpst.org.
- Dass, P. M. (2000). Student understanding of the nature of the scientific enterprise (NOSE): Influence of an undergraduate History of Science course. *Reshaping undergraduate science and engineering education: Tools for better learning (1999 Sigma Xi Forum Proceedings)*, 157-158. Research Triangle Park, NC: Sigma Xi, The Scientific Research Society, Inc.

- Dass, P. M. (Ed.) (1996). *Chautauqua in Action, Vol. III*, Proceedings of the National Diffusion Network-Chautauqua Leadership Conference. Iowa City, Iowa: The University of Iowa Science Education Center.
- Dass, P. M. (Ed.) (1995). *Chautauqua in Action, Vol. II*, Proceedings of the National Diffusion Network-Chautauqua Leadership Conference. Iowa City, Iowa: The University of Iowa Science Education Center.
- Dass, P. M. (Ed.) (1994). *Chautauqua in Action, Vol. I*, Proceedings of the National Diffusion Network-Chautauqua Leadership Conference. Iowa City, Iowa: The University of Iowa Science Education Center.

PRESENTATIONS

International

- Enhancing STEM Education in Indigenous serving schools using culturally responsive pedagogy.* At the Education and New Developments (END) Annual International Conference of the World Institute for Advanced Research and Science (WIARS), Lisbon, Portugal, June 2023. (With Angelina Castagno, Darold Joseph, Chesleigh Keene, and Crystal Macias)
- Promoting culturally responsive STEM education in Indigenous serving schools through in-service teacher professional development.* At the National Association for Research in Science Teaching Annual International Conference, Chicago, IL, April 2023. (With Angelina Castagno, Darold Joseph, Chesleigh Keene, and Crystal Macias)
- Piloting a tool to assess culturally responsive principles of instruction in schools serving Indigenous students.* At the American Educational Research Association (AERA) Annual International Conference, San Diego, CA, April 2022. (With Darold Joseph and Angelina Castagno)
- Strengthening STEM teaching in rural, Indigenous-serving schools through long-term, culturally responsive professional development.* At the American Educational Research Association (AERA) Annual International Conference, San Diego, CA, April 2022. (With Angelina Castagno and Darold Joseph)
- Developing and piloting a tool to assess culturally responsive principles in STEM instruction in schools serving Indigenous students.* At the Association for Science Teacher Education (ASTE) Annual International Conference, Greenville, South Carolina, January 2022.
- STEM and STEM Education: Collaboratively addressing global challenges of the 21st century.* **Invited Keynote Address** at the East-Asian Association for Science Education Biennial International Conference, hosted virtually from Shizuoka, Japan, June 2021.
- Exploring the Impact of the 5E Model of Learning Cycle on the Preparation of Secondary Pre-Service Science Teachers.* At the 18th Annual Hawaii International Conference on Education, Honolulu, HI, January 2020.
- In-service Teacher Enhancement for Improved Science Curriculum Transaction: The Appalachian STS Project.* At the epiSTEME-7 International Conference on review of research in Science, Technology and Mathematics Education, Mumbai, India, January 2018.
- Connecting Biology to Real Life in a College Non-majors Course.* At the East Asian Association for Science Education (EASE) Biennial Conference, Tokyo, Japan, August 2016.
- Science Teaching and Teacher Preparation in the Era of STEM Education.* An **invited lecture** at Shizuoka University, Shizuoka, Japan, August 2016.
- Stem Learning in Middle Grades by Technology Mediated Integration of Science and Mathematics: Results of Project SMILE.* At the Association for Science Teacher Education (ASTE) Annual International Conference, Reno, Nevada, January 2016.
- Early Career Faculty Mentoring.* Symposium Panelist at National Association for Research in Science Teaching Annual Conference, Chicago, Illinois, April 2015.
- HEAR Science, SEE Science, or Do Science? Enlivening Students' Science Learning Experiences.* An Invited Special Presentation at The International Science, Mathematics and Technology Education Conference (ISMTEC), Bangkok, Thailand, January 2013.
- Experiencing Science in the Classroom: The Learning Cycle Approach.* A hands-on workshop at The International Science, Mathematics and Technology Education Conference (ISMTEC), Bangkok, Thailand, January 2013.

- Instructional modeling and coaching enhance science teachers' inquiry-oriented teaching skills.* At the epiSTEME-5 International Conference on review of research in Science, Technology and Mathematics Education, Mumbai, India, January 2013.
- Science Education Research Around the World: Why Should NARST Care? **Keynote presentation*** at the Equity & Ethics Committee Pre-conference Workshop, National Association for Research in Science Teaching Annual Conference, Orlando, Florida, April 2011.
- Understanding the Nature of Science through College Introductory Biology.* At the 9th International Conference of the International History, Philosophy, and Science Teaching Group, Calgary, Alberta, Canada, June 2007. (With Bridget Tuberty)
- In-service teacher enhancement for improved science curriculum transaction: The Appalachian STS project.* At the epiSTEME-2 Conference (An international conference to review trends in research in Science, TEchnology and Mathematics Education), Mumbai, India, February 2007. (Paper accepted but session had to be cancelled)
- STS-based Professional Development: Impact on Instructional Practices with regard to State Science Standards.* At the Association for Science Teacher Education Annual International Conference, Portland, Oregon, January 2006.
- Working in Two Worlds: Perspectives on Joint Appointments.* At the Association for Science Teacher Education Annual International Conference, Portland, Oregon, January 2006. (With D. Hanuscin, P. Friedrichsen, J. Gess-Newsome, R. Nehm, C. Ohana, R. Schwartz, and J. Weld)
- Professional development of K-12 science teachers: History of reform and effects of a Science-Technology-Society (STS) approach in bringing about the reform.* At the epiSTEME-1 Conference (An international conference to review research in Science, TEchnology and Mathematics Education), Goa, India, December 2004.
- STS as a Vehicle for Standards based Professional Development: Some Recent Results.* At the Association for the Education of Teachers in Science Annual International Conference, Nashville, Tennessee, January 2004.
- Science Education in the 21st Century: What Destination and what Road Map?* At the World Council for Curriculum & Instruction North American Regional Conference, Nashville, Tennessee, October 2003.
- Science Teacher Education in the 21st Century: Perspectives on the Potential of the Science-Technology-Society (STS) Approaches.* At the Association for the Education of Teachers in Science Annual International Conference, St. Louis, Missouri, January 2003. (With R. E. Yager, J. Koch, C. Eick, R. McGinnis, G. Varrella, and J. Hargis)
- Rationale Papers in Methods Courses: Part IV.* At the Association for the Education of Teachers in Science Annual International Conference, St. Louis, Missouri, January 2003. (With R. L. Harris, J. E. Penick, R. Bonstetter, S. Enger, J. W. Tillotson, G. F. Varrella, P. Veronesi, J. Weld, M. Clough, and J. Olson)
- Action Research: Involving Classroom-Related Studies and Professional Development Studies.* At the Annual International Conference of the National Association for Research in Science Teaching, New Orleans, Louisiana, April 2002. (With A. Hofstein, R. Mamlok, J. Penick, and K. Dawkins)
- Preparing new science teachers to accomplish the vision of the National Science Education Standards: An STS approach to organizing a secondary science methods course.* At the Annual International Conference of the Association for the Education of Teachers in Science, Charlotte, North Carolina, January 2002.
- Understanding the Nature of Science through a discourse with its History: The influence of an Undergraduate 'History of Science' course.* At the 6th International Conference of the International History, Philosophy, and Science Teaching Group, Denver, Colorado, November 2001.
- Science education for the 21st century: Challenges and promising approaches.* At the World Council for Curriculum & Instruction, Region VI Interdisciplinary Education Conference, San Antonio, Texas. October 1999.
- The Iowa Chautauqua Program: A professional development model for collaborative approach to science education reform.* At the National Science Teachers Association Global Summit on Science and Science Education, San Francisco, California. December 1996. (With R. E. Yager)

Science teacher in-service education in Iowa and the U. S. A.: The Iowa Chautauqua Model. At the Korean Science Teachers Overseas Training Conferences, The University of Iowa, Iowa City, Iowa. July 1996 and July 1995.

The Iowa Chautauqua Program: A professional development model for collaborative approach to science education reform. At the World Council for Curriculum and Instruction Triennial World Conference, Amritsar (Punjab), India. January 1996.

Science teacher in-service education in Iowa and the U. S. A.: The Iowa Chautauqua Model. At the Malaysian Science Educators Overseas Training Program, The University of Iowa, Iowa City, Iowa. October 1995.

National

Developing and piloting a tool to assess culturally responsive principles in STEM instruction in schools serving Indigenous students. At the national webinar organized by CADRE (NSF funded Program), April 2022.

Strengthening STEM teaching in Native-serving schools through long-term, culturally responsive professional development. At the NSF DRK-12 PI Conference Online, June 2021. (With A. Castagno and D. Joseph)

Investigating instructional behaviors and expectations of college biology instructors. At the National Association of Biology Teachers (NABT) Annual Conference, St. Louis, MO, October 2017. (with Spenser Beihler)

Center for Science Teaching and Learning: STEM Education and Research across the Teacher Learning Continuum. At the 2017 Annual National Conference of Network of STEM Education Centers (NSEC), New Orleans, Louisiana, June 2017.

Transformative Teacher Education: What Research Tells us about Developing Pedagogical Reasoning. At the UTeach Annual National Conference, Austin, Texas, May 2017. (with Kirsten Daehler)

Considering the Integration of Principles of Ambitious Teaching into the NAUteach Program. At the UTeach Annual National Conference, Austin, Texas, May 2017. (with the NAUteach Program Faculty Team)

Three-Dimensional Science Instruction using the Learning Cycle Approach. At the National Science Teachers Association (NSTA) Annual Conference, Los Angeles, California, March 2017.

Teaching a Culturally Responsive Pedagogy in Science. At the National Science Teachers Association (NSTA) Annual Conference, Los Angeles, California, March 2017. (an NSELA Diversity Committee Presentation)

Integrated Middle Grades STEM Instruction. At the National Science Teachers Association (NSTA) Annual Conference, Nashville, Tennessee, March 2016.

NSTA's Exemplary Science Program (ESP) Symposium: "Doing Science" in Middle Grades: Instructional coaching and modeling of a Learning Cycle Approach to promote scientific practices. At the NSTA Annual Conference, Nashville, Tennessee, March 2016.

Plugging in the USB: A Partnership Model for STEM Systemic Change Among University, School, and Business. At the National Science Teachers Association (NSTA) Annual STEM Expo & Forum, New Orleans, Louisiana, May 2014.

Science and Mathematics Integration for Literacy Enhancement (Project SMILE): Poster session at the National Science Foundation DR-K12 PI's Meeting, Washington, DC, June 2012, December 2010, November 2009. (With John Spagnolo)

Teacher enhancement for Evolution instruction: A Content and Pedagogy Nexus. At the National Association of Biology Teachers Annual Conference, Atlanta, Georgia, December 2007. (With Zack Murrell)

Professional Development Share-the-Wealth—Scientific Inquiry and Language: Enhancing Vocabulary Instruction. At the National Science Teachers Association Annual Conference, Anaheim, California, April 2006. (Session Coordinator: Joyce Tugel. Presenters: Bolick, M.; Coleman, D.; **Dass, P. M.**; and Miller, A.)

NSTA's Exemplary Science Program (ESP)...Realizing the visions of the National Standards—Professional Development. At the National Science Teachers Association Annual Conference, Anaheim, California, April 2006. (Symposium Coordinator: Robert E. Yager. Symposium Panelists: Akerson, V. L.; Hanuscin, D. L.; **Dass, P. M.**; Petto, A. J.; Stepan, J. I.; Saigo, B. W.; and Gaston, J. L.)

- Connecting Science to the Real World: Some Middle School Examples.* At the National Science Teachers Association Annual Conference, Atlanta, Georgia, April 2004.
- Connecting science to real life: Perspectives of middle and secondary school science teachers on the use of Science-Technology-Society (STS) approach.* At the National Science Teachers Association Annual Conference, Atlanta, Georgia, April 2004. (With Alice Krueger)
- A welcome and orientation for AETS new members and first-time conference attendees.* At the Association for the Education of Teachers in Science Annual Meeting, Costa Mesa, California. January 2001. (With J. R. McGinnis, P. Gilmer, J. Schmukler, G. Stefanich, J. K. Sweeney, and P. Veronesi)
- Student understanding of the nature of the scientific enterprise: Influence of an undergraduate History of Science course.* At the Sigma Xi Forum & Annual Meeting, Minneapolis, Minnesota. November 1999.
- Evaluation of a district-wide inservice professional development program for science teachers: Challenges faced and lessons learned.* At the National Association for Research in Science Teaching Annual Meeting, Boston, Massachusetts. March 1999.
- Implementation of instructional innovations: Perspectives of inservice teachers.* At the Association of Teacher Educators Annual Conference, Chicago, Illinois. February 1999.
- An STS approach to organizing a secondary science methods course: Preliminary findings.* At the Association for the Education of Teachers in Science Annual Meeting, Austin, Texas. January 1999.
- Rationale papers in methods courses: A discussion.* At the Association for the Education of Teachers in Science Annual Meeting, Austin, Texas. January 1999. (With R. Bonnstetter, S. Enger, R. L. Freedman, J. E. Penick, J. W. Tillotson, G. F. Varrella, and P. Veronesi)
- Professional development of science teachers: Results of using the Iowa Chautauqua Model in Collier County, Florida.* At the National Association for Research in Science Teaching Annual Meeting, San Diego, California. April 1998.
- Preparing professional science teachers: Critical goals.* At the Association for the Education of Teachers in Science Annual Meeting, Minneapolis, Minnesota. January 1998.
- The Iowa Chautauqua Model of Staff Development for Implementing the Tenets of SciencePlus.* At the Holt Rinehart Winston Annual Summer Science Leadership Institute, The University of Iowa, Iowa City, Iowa. June 1997.
- District-wide professional development of science teachers: Factors influencing the implementation of the Chautauqua Model.* At the National Association for Research in Science Teaching Annual Meeting, Oak Brook, Illinois. March 1997.
- Student and teacher perceptions of natural science general education requirement courses.* At the National Association for Research in Science Teaching Annual Meeting, Oak Brook, Illinois. March 1997. (With R. J. Freedman, J. O. Lewis, and D. Wick)
- Professional development of science teachers: Fruits of using the STS approach.* At the National Association for Science, Technology and Society Annual Conference, Worcester, Massachusetts. March 1997.
- The Iowa Chautauqua Program & the Iowa SS&C Project: National Diffusion Network models for enhancing in-service science teachers.* Poster sessions at the National Institute for Science Education Annual Forum, Washington, DC. March 1996. (With G. F. Varrella)
- Bioethical Issues: Organizers for high school biology instruction.* At the National Association of Science, Technology, and Society Annual Science, Technology, Society meeting & Technological Literacy Conference, Arlington, Virginia. January 1994.
- A National Diffusion Network model for restructuring science in-service education.* At the National Association of Science, Technology, and Society Annual Science, Technology, Society meeting & Technological Literacy Conference, Arlington, Virginia. January 1994. (With S. M. Blunck)
- The Iowa Chautauqua Program.* At the National Diffusion Network Orientation Conference, Washington, DC. October 1993.
- An International School in India: Science education in a multicultural context.* Poster session at the National Science Teachers Association National Convention International Forum, Atlanta, Georgia. April 1990.

Regional/State/Area

- DEI in STEM Teacher Education at NAU.* An AZ DEI Group Presentation at Phoenix College STEAM Days Meeting, Presented virtually in November 2021.
- 5E Model of the Learning Cycle in 3D Science Instruction.* At the Arizona Science Teachers Association Annual Conference, Phoenix, AZ, November 2021.
- Culturally responsive teacher professional development through the Diné Institute for Navajo Nation Educators.* At the Bi-Annual Navajo Research Conference Online, October 2021. (with Angelina Castagno and Darold Joseph)
- STEM Teacher Workforce Enhancement: Contributions of a university-based Center.* At the 21st Century STEM: Integrate 2 Innovate Conference, Phoenix, Arizona, January 2016 (with Joelle Clark and Sharon Cardenas)
- Integrated Middle Grades STEM Instruction.* Poster presentation at NSTA Regional Conference, Reno, Nevada, October 2015.
- NSTA's Exemplary Science Program (ESP) Symposia: "Doing Science" in Middle Grades: Instructional coaching and modeling of a Learning Cycle Approach to promote scientific practices.* At the NSTA Regional Conferences: Denver, Colorado, December 2013; Long Beach, California, December 2014.
- Professional Development: Challenges and opportunities for meeting the NGSS.* At the Arizona Science Teachers Association State Conference, Phoenix, AZ, October 2013. (with panel from the Center for Science Teaching and Learning, Northern Arizona University, Flagstaff, AZ)
- Integrating Science and Mathematics through Technology: Results of Project SMILE.* At the Mid-Atlantic ASTE Regional Conference, Pembroke, VA, September 2012. (With John Spagnolo)
- Project SMILE: A nexus of Science, Mathematics and Technology in Middle Grades.* At the Mid-Atlantic ASTE Regional Conference, Pembroke, VA, September 2012. (Poster presentation with John Spagnolo)
- Inquiry: Changing the teaching of science.* NSTA's Exemplary Science Programs (ESP) Symposium Coordinator. At the NSTA Area Conference, New Orleans, LA, November 2011. (With Susan Koba)
- Leveraging Technology for Online Collaborative Learning of Teachers to Integrate Math and Science in Middle Grades: Efforts of Project SMILE.* At the Mid-Atlantic ASTE Regional Conference, Olive Hill, KY, September 2011. (With John Spagnolo)
- NSTA's Exemplary Science Program (ESP) Symposia: Facilitating Improvement through Professional Development.* At the NSTA Regional Conference, Nashville, TN, December 2010.
- Learning Cycle, Inquiry, and Student Achievement in Middle Grades Science.* At the Annual Conference of North Carolina Science Teachers Association, Greensboro, North Carolina, November 2010. (With John Goforth & Lori Wilbanks)
- Scientific Theories, Hypotheses, Laws, and Facts: What's the difference (and why you should care)?* At the Annual Conference of North Carolina Science Teachers Association, Greensboro, North Carolina, November 2010.
- Science and Mathematics Integration for Literacy Enhancement: Project SMILE.* At the Mid-Atlantic ASTE Regional Conference, Johnson City, TN, September 2010.
- The "Coaching" Model of Professional Development: Essential Elements for Success.* At the Annual Conference of North Carolina Association for Supervision & Curriculum Development, Pinehurst, North Carolina, March 2010. (With John Goforth, Lori Wilbanks, Jill Francis, Luanne O'Neill, & Lynn Huskey)
- The "Coaching" Model of Professional Development: Essential Elements for Success.* At the Annual Conference of North Carolina Science Teachers Association, Greensboro, North Carolina, November 2009. (With John Goforth, Lori Wilbanks, Jill Francis, & Luanne O'Neill)
- Professional Development through a Partnership Focus Group.* At the National Science Teachers Association Regional Conference, Charlotte, North Carolina, October 2008. (With members of the Appalachian Public Schools Partnership Science Professional Learning Community)
- Enhancing Middle Grades Science Instruction: A Coaching Model.* At the National Science Teachers Association Regional Conference, Charlotte, North Carolina, October 2008. (With John Goforth, Lori Wilbanks, Jill Francis, & Luanne O'Neill)

NSTA's Exemplary Science Programs (ESP)...Realizing the visions of the National Standards: It takes ESP to find Exemplary Science Programs. At the National Science Teachers Association Regional Conference, Charlotte, North Carolina, October 2008. (Symposium Organizer: Robert E. Yager. Symposium Coordinator: Timothy Cooney. Symposium Panelists: Sondra Akins, **Pradeep Dass**, Daniel Heuser, Marilyn Morey, & Elizabeth Mulkerrin)

Engaging Student Minds for Authentic Scientific Inquiries. At the Annual Conference of North Carolina Science Teachers Association, Greensboro, North Carolina, November 2007.

An Inquiry Approach to Teaching Evolution. At the Annual Conference of North Carolina Science Teachers Association, Greensboro, North Carolina, November 2005.

Creating Authentic Scientific Inquiries: The Learning Cycle Approach to Science Instruction. At the Annual Conference of North Carolina Science Teachers Association, Greensboro, North Carolina, November 2004.

Improving Student Achievement in Middle Grades Science: The Contribution of STS Approaches. At the Annual Conference of North Carolina Science Teachers Association, Greensboro, North Carolina, November 2003. (With D. Kilby, A. Chappell, and A. Krueger)

Students' Perspectives on STS-Driven Science Classes. At the Annual Conference of North Carolina Science Teachers Association, Greensboro, North Carolina, November 2002. (With R. Bilodeau and C. Buckman)

Enlivening School Science Parts I & II. At the Annual Conference of North Carolina Science Teachers Association, Greensboro, North Carolina, November 2002. (With a team of middle and high school science teachers)

Professional Advancement: The graduate program in biology education at Appalachian State University. At the Annual Conference of North Carolina Science Teachers Association, Greensboro, North Carolina. November 2001.

Raising the spirit of school science: Bold ventures of seven science teachers. At the Annual Conference of North Carolina Science Teachers Association, Greensboro, North Carolina. November 2001. (With seven middle and high school science teachers)

Science for life: Strategies for making science come alive in K-12 classrooms. At the Archdiocese of Chicago Education and Technology Conference, Chicago, Illinois. February 1999.

Technology rich pre-service teacher education methods class. At the 2nd Annual Teacher Education and Technology Conference, Cedar Falls, Iowa. Spring 1999. (With H. Andersen, L. Bohr, L. Ehman, R. Knuth, B. Kochmann, R. Robinson, C. Rodriguez, and C. Rop)

Bulletin Boards: Classroom decorations or instructional tools? At the Illinois Science Teachers Association Annual Convention, Rosemont, Illinois. October 1998.

Interdisciplinary science courses for college general education requirements: What do university professors think? At the Iowa Science Teachers Section of the Iowa Academy of Sciences Fall Conference, Des Moines, Iowa. October 1996.

Developing Science/Technology/Society experiences for elementary, middle, and high school. At the North Central Regional Education Laboratory Science Resource Fair, Lederman Science Education Center, Fermilab, Batavia, Illinois. March 1996. (with C. L. Lawrence)

The Iowa Chautauqua Program: A National Diffusion Network model for restructuring science in-service education. At the Colorado Association of Science Teachers Annual Conferences, Denver, Colorado. November 1995 and November 1994.

The Iowa Chautauqua Program: A professional development model for collaborative approach to science education reform. At the California Science Teachers Association Annual Conference, San Jose, California. September 1995.

The Iowa Chautauqua Program: A constructivist model for professional development of science teachers. At the Berrien County ISD Annual 'm&m Day' Conference, Berrien Springs, Michigan. October 1994.

The Iowa Chautauqua Program: A constructivist model for professional development of science teachers. At the Kalamazoo Valley ISD In-Service Day, Kalamazoo, Michigan. October 1994.

A National Diffusion Network project for enhancing in-service science teachers: The Iowa Chautauqua Model. Poster session at the Association of California School Administrators Annual Conference, Santa Clara, California. March 1994.

The Iowa Chautauqua Program: A constructivist model for professional development of science teachers. At the National Science Teachers Association Area Convention, Orlando, Florida. December 1993.

Science education in a multicultural context: The example of an international school in India. At the Iowa Academy of Sciences Annual Conference, Drake University, Des Moines, Iowa. April 1990.

Creation/Evolution. Discussion leader at the Iowa Junior Science and Humanities Symposium, Iowa City, Iowa. March 1990.

Local

Cultural Relevance and STEM Education: Tenets of high quality instruction. **Invited lecture** at the DINÉ Teacher Institute, Northern Arizona University, Flagstaff, AZ, Summer 2022.

Cultural Relevance and the Moral Imperative of STEM Education: Tenets of high quality instruction. **Invited lecture** at the Teacher Leadership Shilgozhóó Institute, Northern Arizona University, Flagstaff, AZ, Summer 2022.

Arizona STEM Ecosystem: Activities of the Working Groups of the Arizona Diversity, Equity, and Inclusion in STEM Committee. A committee presentation at the Phoenix College Virtual STEAM Days Conference hosted by the Phoenix College, Phoenix, AZ, November 2021.

STEM & STEM Education: A nexus of mindset and pedagogy for culturally relevant Indigenous education in the 21st century. **Invited lecture** at the DINÉ Teacher Institute, Northern Arizona University, Flagstaff, AZ, Summer 2021.

STEM: A pedagogy, mindset, and culture for Indigenous education in the 21st century. **Invited lecture** at the DINÉ Teacher Institute, Northern Arizona University, Flagstaff, AZ, Summer 2019 and 2020.

Science, Mathematics, Technology, and Society (SMTS): Making Connections through Integrated Instruction. At the Biology Department Seminar, Appalachian State University, Boone, NC, March 2013.

Teaching Science from a Scientific Perspective. An **invited presentation** at the Appalachian State University Sigma Xi Chapter Meeting, Boone, NC, March 2013.

Biology & Life: What's the connection? At the Biology Department Seminar, Appalachian State University, Boone, NC, February 2012.

India. Panel Discussant at WASU Radio Program, "Let's Talk International", November 2011.

Hypotheses, Theories, Laws & Facts in Science: What's the Big Deal and Why should You Care? At the North Carolina Science Festival, Appalachian State University, Boone, NC, September 2010.

Professional Learning of In-service Science Teachers: What difference does it make? Seminar, Biology Department, Appalachian State University, Boone, NC, October 2009.

India: Cultural, Social, Political and Religious Perspectives. At the AIESEC Student Organization, Appalachian State University, November 2008. (With Priya Dass)

Formative Assessment of Student Learning. At the Student Teaching Seminar, Appalachian State University, October 2008, February 2009, October 2009.

Computer Applications in Science Teaching and Learning. An **invited presentation** at the Computer Science, Engineering, & Mathematics Scholars (CSEMS) Seminar, Computer Science Department, Appalachian State University, February 2007.

Migrations within India and Abroad: A personal journey. Guest Lecture in History 1103-106 course (Migrations in World Civilization), Appalachian State University, November 2005.

Secondary Biology Teacher Preparation at Appalachian State University. At the AppState College of Education Orientation for NC Teaching Fellows, February 2004, 2006 - 2013.

General Education in the 21st Century; Changes: Who Cares & Why? At the ASU College of Arts & Sciences Chair Retreat, August 2003. (With H. Buchanan, E. Maiden, D. Parks, P. Petschauer, C. Ryan, & S. Sigmann).

Being a Science Teacher. 'Job Ready' Career Presentation, Grade 3, Parkway Elementary School, October 2001

Science Careers with special emphasis on Biology. A Career Fair Presentation at Avery County High School, Newland, North Carolina. April 2001.

Iowa Chautauqua in Collier County, Florida. At the Science Education Center Departmental Seminar, The University of Iowa, Iowa City, Iowa. April 1997.

Iowa Connections—Chautauqua in Action: Panel discussant at the University of Iowa Public Radio Interview. February 1997.

Navigating a graduate program in science education. Panel discussant at the Science Education Center Departmental Seminar, The University of Iowa, Iowa City, Iowa. September 1996.

Interdisciplinary science courses for college GERS: Perspectives of university professors. At the Science Education Center Annual Conference, The University of Iowa, Iowa City, Iowa. April 1996.

Iowa Connections—GERS for Science Education: Panel discussant at the University of Iowa Public Radio Interview. April 1996.

The Iowa Chautauqua Program-NDN Project: Panel discussant at the University of Iowa Public Radio Interview. November 1993.

Education: A world view. Panel discussant at the College of Education Round Table Discussion, The University of Iowa, Iowa City, Iowa. October 1993.

Science Education in India. At the Science Education Center Departmental Seminar, The University of Iowa, Iowa City, Iowa. October 1993.

Science education in an international setting: Woodstock School's science program. At the Science Education Center Departmental Seminar, The University of Iowa, Iowa City, Iowa. September 1989.

Workshops/Institutes Taught

Knowing and Learning in Science and Mathematics: A 4-hour on-line workshop on the Knowing and Learning course of the UTeach Secondary Science and Mathematics Teacher Education Program for nation-wide UTeach Program faculty, September 23, 2022. (Co-taught with Jeff Hovermill, Mathematics Education, Northern Arizona University.)

Instructional Strategies for the College Classroom: Organized and taught a series of four 90-minute professional development sessions, focused on promoting active learning in the college classroom, for a group of faculty members from Kyushu University, Fukuoka, Japan, hosted at Northern Arizona University, Flagstaff, AZ, November 2019.

From Misconceptions to Scientific Conceptions: Effectively Teaching Major Biological Concepts: A 5-day Summer Institute for middle and high school biology teachers. Offered through the Appalachian State University Mathematics & Science Education Center, Boone, NC, July 2012.

Project SMILE: 3- week summer institute for participant of the NSF funded Project SMILE. Appalachian State University, Boone, NC; July 2010, July 2011, and June 2012.

Water World: A 3-day institute for middle grades teachers of Cleveland, McDowell, and Rutherford counties participating in the Mathematics and Science Partnership grant funded QTL project. Appalachian State University, Boone, NC, June 2010.

North Carolina Standard Course of Study, Goal 4. A workshop for Cleveland County Secondary Biology Teachers Professional Learning Community, Shelby, NC. February 2010.

Statewide Institute for Teacher Enhancement (SITE): High School Biology. A 5-day institute for high school biology teachers, designed and sponsored by the NC Department of Public Instruction, offered under the auspices of the Appalachian State University Mathematics & Science Education Center, Boone, NC, July 2009 and June 2011.

Quality Teaching and Learning = High Levels of Science Instruction: Middle Grades Science. A 10-day institute for middle grades teachers of Cleveland, McDowell, and Rutherford counties participating in the Mathematics and Science Partnership grant funded project. East Rutherford Middle School, Bostic, NC, June & August 2009.

North Carolina Standard Course of Study, Goal 2. A workshop for Cleveland County Secondary Biology Teachers Professional Learning Community, Shelby, NC. March 2009.

Rubrics for Assessing Student Learning. A semester long Faculty Learning Community with bimonthly meetings at Appalachian State University. Organized by the Hubbard Center for Faculty Development, Fall 2008.

Quality Teaching and Learning = High Levels of Science Instruction: Middle Grades Science. A two-week institute for middle grades teachers of Cleveland, McDowell, and Rutherford counties participating in the Mathematics and Science Partnership grant funded project. Berns Middle School, Lawndale, NC, August 2008.

- Inquiry-based Biology Instruction: The Learning Cycle and Science-Technology-Society (STS) Approaches.* Instructional workshops for Pakistani Fulbright Teacher Exchange & Training Project funded by the US Department of State and held at Appalachian State University, Boone, NC, July – August 2008.
- Rubrics for Authentic Assessment.* A professional development workshop for university faculty at Appalachian State University. Organized by the Hubbard Center for Faculty Development, February 2008.
- Quality Teaching and Learning = High Levels of Science Instruction: Middle Grades Science.* A one-week institute for middle grades teachers of Cleveland, McDowell, and Rutherford counties participating in the Mathematics and Science Partnership grant funded project. East Rutherford Middle School, Bostic, NC, August 2007. (Co-taught with Jill Francis and Bridget Tuberty)
- Inquiry-based Biology Instruction: The Learning Cycle and Science-Technology-Society (STS) Approaches.* Instructional workshops for the Pakistani Fulbright Teacher Exchange & Training Project funded by the US Department of State and held at Appalachian State University, Boone, NC, July – August 2007.
- Middle School Science: Inquiry on a shoe-string.* A five-day professional development institute for middle grades science teachers. Organized by the Mathematics & Science Education Center at Appalachian State University, Boone, NC, June 2006. (Co-taught with Gail Bastarache, Biology Department, Appalachian State University.)
- Teaching Evolution: Strategies and Activities.* A Professional Development workshop for middle and high school science teachers of counties served by the Appalachian State University Public Schools Partnership and the Mathematics & Science Education Center, January 2006.
- Teaching Evolution: Concepts, Strategies, and Activities.* A five-day professional development institute for grades 6 – 12 science teachers. Organized by the Mathematics & Science Education Center at Appalachian State University, Boone, NC, June 2005. (Co-taught with Dr. Z. Murrell, Biology Department, Appalachian State University.)
- Bottle Biology.* A Professional Development workshop for middle and high school science teachers of counties served by the Appalachian State University Public Schools Partnership and the Mathematics & Science Education Center, February 2005.

SERVICE

Institutional Service

Northern Arizona University

- Member, Search Committee for Career and Technical Education faculty position, College of Education (Spring 2023)
- Co-Chair, Diversity and Equity Committee, College of Education (Spring 2022 – present)
- Member, Search Committee for Computer Education faculty position, College of Engineering, Informatics, and Applied Sciences (AY 2021 - 2022)
- Mentor, Faculty Development Program (AY 2021 – 2022)
- Member, Search Committee, Associate Dean for Professional Education Programs, College of Education (AY 2021 – 2022)
- Chair, Search Committee, Educational Specialties Department Chair, College of Education (Spring 2021)
- Member, Search Committee, Associate Dean, College of Education (Fall 2019)
- Member, Strategic Goals Committee, College of Education (2020 – 2021)
- Member, Executive Committee, Academic Chairs Council (2016 – 2020)
- Member, Interdisciplinary Advisory Committee, Institute for Human Development (2017 – present)
- Member, Executive Committee, Diné Institute for Northern Arizona Éducators (DINÉ; a local institute of the Yale National Initiative; 2017 - 2020)
- Member, University Advisory Council, Diné Institute for Northern Arizona Éducators AND Institute for Native-serving Educators (2016 - present)
- Member, Professional Education Programs Coordinating Council (both Initial Licensure and Advanced Programs, 2013 – present)
- Member, Ad Hoc Committee for College of Engineering, Forestry and Natural Sciences Faculty Promotion, Tenure and Annual Review Guidelines Revision (2013 – 2015)

UGRADS Poster Judge, College of Engineering, Forestry and Natural Sciences (Spring 2014, 2015, 2016, 2017)

Appalachian State University

University Level

Member: South Asia Committee (Office of International Education and Development, 2008 – 2013)

Member: Provost's Council on Math/Science Teacher Education (Ad Hoc, 2006 – 2008)

Member: Search Committee for the Director of Mathematics and Science Education Center (2004 – 2005)

Vice President: International Faculty & Staff Association (2004 – 2007)

Member: University Council on Teacher Education (2002 – 2013)

Member: University Teaching Enhancement Committee (2001 - 2004)

College Level

Member: NCATE Standard 1 (Candidate Assessment) Re-Accreditation Committee (College of Education, Spring 2012 – 2013)

Member: Student Teaching Professional Development Plan (Electronic Evidence 5) Rubrics Review Committee (College of Education, Spring 2012)

Member: Teacher Education Recruitment & Retention Advisory Committee (College of Education, 2008 – 2013)

Member: Student Teaching Revisioning Committee (College of Education, Spring 2009 – Spring 2010)

Member: Methods Revisioning Task Force (College of Education, Spring 2009 – Spring 2010)

Member: Secondary Education Advisory Committee/Task Force (College of Education, 2006 – 2013)

Member: NCATE/DPI Committee on Standard II (Accreditation of Teacher Education, 2004 – 2006)

Member: College of Arts & Sciences Search Committee for Distinguished Professor of Science Education (2004 – 2005)

Member: College of Education Committee on Student Teaching Handbook Revision (2004 – 2005)

Member: College of Arts & Sciences Committee on General Education (2003 – 2004)

Member: College of Arts & Sciences General Education Study Group (Summer 2003)

Department Level

Coordinator: Undergraduate Secondary Biology Teacher Education Program (2000 – 2013)

Biology Instructional Advisor for the Admissions Partnership Program (APP) in area high schools (2000 – 2005)

Biology/Science Representative at North Carolina Teaching Fellows Recruitment Fair (2001 – 2011)

Biology/Science Representative at Freshmen Teacher Education Recruitment Fair (Spring 2012 and 2013)

Biology Department Committees:

STRATEGIC PLANNING (2012 – 2013)

CAPSTONE COURSE (ad hoc, 2010 – 2013)

ASSESSMENT (2009 – 2013)

BUDGET (2009 – 2011)

SEARCH COMMITTEE, Science Education Tenure-track position (Chair, 2009 – 2010)

SEARCH COMMITTEE, Science Education Tenure-track position (Co-Chair, 2008 – 2009)

HONORS PROGRAM (Ad Hoc, 2008 – 2010)

TECHNOLOGY (2007 – 2009)

LIBRARY (2000 - 2007)

ADVISING (2000 - 2004)

FRESHMAN BIOLOGY (2001 - 2008)

SCHOLARSHIP (2001 – 2003, 2009 – 2010, Co-Chair 2010 – 2011, Chair 2011 – 2012 & 2012 - 2013)

TEACHING EVALUATION (Ad Hoc, 2000 – 2003)

FACULTY EVALUATION/MERIT REVIEW (Ad Hoc, 2001 – 2003)

CHAIR ADVISORY COMMITTEE (Ad Hoc, 2003 – 2004)

SEARCH COMMITTEE, Animal Physiology Instructor (2004)

P & T DOCUMENT, Teaching Section Committee (Ad Hoc, 2004 – 2006)

DEPARTMENT PERSONNEL COMMITTEE, Voting Member (2004 – 2005), Non-Voting Alternate Member (2012 – 2013)

SEARCH COMMITTEE, Multiple Tenure-track Positions (2004 – 2005)
ACADEMIC POLICIES & PROCEDURES, (2005 – 2007)
CURRICULUM REFORM GROUP – SCIENCE EDUCATION (2005 – 2008)
SCIENCE TEACHING (Ad Hoc, 2006 – 2008)
Post-Tenure Review Committee of One Tenured Faculty Member (Spring 2009)
Peer Teaching Evaluation of One Tenured Faculty Member (2007 – 2008) and Ten Untenured Faculty Members (2003 – 2004; 2004 – 2005; 2008 – 2009; 2009 – 2010; 2010 – 2011; 2011 – 2012; 2012 - 2013)
Mentor to One Untenured Faculty Member (2010 – 2013)

Northeastern Illinois University

Coordinator: Program in Secondary Education in the Department of Teacher Education (1998 - 2000).

Member of several departmental, collegiate, and university committees and task forces.
Chair of FOUR Secondary Education Faculty Search Committees.

The University of Iowa

Departmental Evaluation

Interviewed in focus group for the University of Iowa Science Education Center evaluation by internal and external review committees (1995 - 1996).

Interviewed for evaluation self-study of the University of Iowa Science Education Center (1994).

Cultural Consultant

Consultant for the University of Iowa International Education and Services program. Activities included round-table discussions and conferences on inter-cultural topics and issues, and presentations of culture of India in Iowa public schools (1993 - 1997).

Professional Service

Arizona SciTech Institute: AZ STEM Ecosystem

Member, Arizona Diversity, Equity, and Inclusion in STEM Committee

Association for Science Teacher Education

Regional Director, Far West ASTE Region (2016 – 2019)

Member, Equity Committee (2006 – 2009)

Member, Publications Committee (2006 – 2009)

Member, Program Committee for 2004 annual conference

Member, Membership and Participation Committee (2000 - 2003)

Proposal Reviewer for 2003 annual conference

Organized a poster session for new members/graduate students at 2003 annual conference

Member, Program Committee for 2002 annual conference

Welcome and Orientation Session for New AETS Members and First time Attendees at 2001 annual conference

Association of Southeastern Biologists

Member, Posters and Audiovisuals Committee for 2002 annual conference

Benjamin Cummings Publishers

Chapter Reviews for *Essential Biology, 2nd Ed.* (Campbell, Reece, and Simon), (2002)

Garland Science Publishing (Taylor & Francis Publishers)

Textbook Proposal and Chapter Reviews for a non-majors biology textbook (2003, blind review)

Illinois Science Teachers Association

Session Presider at Annual Conference (1998)

Illinois Science Olympiad

Judge (2000)

Institute for Promotion of Science Teaching (Bangkok, Thailand)

Member, Editorial Review Board, *K-12 STEM Education* (2015 – 2019)

International Council of Associations for Science Education

Member, Manuscript Review Panel for the *Research on Curriculum, Teaching, and Learning* section of the journal *Science Education International* (2002 – 2008)

International History, Philosophy and Science Teaching Group

Manuscript reviewer for the journal *Science & Education* (2006 – 2013)

Journal Referee

Manuscript Reviewer for *Diaspora, Indigenous, and Minority Education* (2021 – present)

Manuscript Reviewer for the science section of the electronic journal *Contemporary Issues in Technology and Teacher Education* (available at <http://www.citejournal.org/>) (2000 - Present)

Member of the Editorial Review Board of the *Electronic Journal of Science Education* (available at <http://ejse.southwestern.edu>) (1997 - 2006)

Member of the Review Panel for *The Books* section of the journal *Science Education* (1998 - 2001)

Manuscript Reviewer for *International Journal of Science Education* (2010 – present)

Manuscript Reviewer for *International Journal of Science & Mathematics Education* (2011 – present)

Manuscript Reviewer for *Journal of Science Education and Technology* (2010 – present)

Macmillan/McGraw-Hill Publishers

Unit reviews for 5th and 6th grade science textbook series (2004, blind review)

National Association of Biology Teachers

Manuscript Reviewer for *The American Biology Teacher* (1994 - 2004)

Member of the Review Panel for the *Book Reviews* section of *The American Biology Teacher* (1998 - 2004)

National Association for Research in Science Teaching

Member, NARST International Committee (2008 – 2011)

Publication Mentor for International Members (2005 – 2007)

Proposal Reviewer for 2004 Annual International Conference, Strand 3: Teaching

Member, NARST Research Committee (2000 - 2003)

Senior Reviewer for the *Journal of Research in Science Teaching* (1998 - 2013)

Proposal Reviewer for Annual Conferences, Strand 4: Teacher Education (1999, 2000)

Session Presider at Annual Conferences (1998, 1999)

Mentor for new participants at Annual Conference (1999)

National Association of Science, Technology & Society

Liaison for professional societies (1998 - 2001)

National Science Education Leadership Association

Member, Diversity Committee (2015 – 2018)

Chair, Sponsors Committee for 2008 Summer Leadership Institute (Asheville, NC)

National Science Foundation

Member, Grant Proposal Review Panel, DR-K12 Program (Spring 2011)

Member, Grant Proposal Review Panel, CAREER Program-STEM Education Section (Fall 2008)

National Science Teaching Association

Member, *The Science Teacher* Advisory Board (2011 – 2014)

Member, Review Panel for Exemplary Science Programs Monograph Series (2010 – 2013)

Member, Review Panel for NCATE/NSTA Program Accreditation Review (2005 – 2010)

Guest Reviewer, *The Science Teacher* theme issue on Professional Development (2004)

Member of the Publication Review Panel for *Journal of College Science Teaching* (2003 – 2006; 2006 - 2009)

Member, Committee on Professional Development in Science Education (2003 – 2006)

Member of the Review Panel for *NSTA Recommends* section of *The Science Teacher* (2001 - 2003)

Near East South Asian Schools Association (NESAs)

International Virtual Science Fair Mentoring with the secondary science teaching methods students (Spring 2007 and Spring 2008, entire class; Spring 2010, only two students)

North Carolina Department of Public Instruction

Member, Science Panel to develop new “specialty area content standards” for teacher education program evaluation and accreditation (Spring 2008)

Reviewer for State Accreditation of Science Teacher Education Programs (2006 – 2009)

North Carolina Science Leadership Association

District Director (2003 – 2004)

Director at Large (2004 – 2007)

President: Elect (2007 – 2008); Current (2008 – 2009); Past (2009 – 2010)

North Carolina Student Academy of Science

District Director (2006 – 2007)

Phi Delta Kappa

Vice President, State Chapter of North Carolina (2012 – 2013)

Prentice Hall Publishers (Pearson Education)

Chapter Reviews for *Life 101: The Biology of Everyday Living* (J. C. Herron), (2004)

Southeast Asian Ministers of Education Organization (Bangkok, Thailand)

Member of the Editorial Review Board of *Southeast Asian Journal of STEM Education* (2020 – present)

The College Board

Member, Instrument Development Panel (Biology), AP Study of College Level Best Practices, Conducted by the University of Oregon Center for Educational Policy Research (2005 – 2006)

US Department of Education

Review Panelist for the GEAR UP grant applications (1999)

UTeach STEM Education Association (USEA)

President Elect (2015 - 16), President (2016- 17), Immediate Past President (2017 – 18)

Member, Equity and Racial Justice Research and Standards Committee

World Council for Curriculum and Instruction

Secretary/Treasurer, Region VI - North America Chapter of WCCI (2000 – 2003; 2003 - 2005)

Member of the Board of Directors for Region VI - North America Chapter of WCCI (1997 - 2000)

Session Presider at Annual Conference, Region VI (1997)

WGBH-TV, Boston, MA (Programming for Public Broadcasting)

Focus Group member for evaluating the “Teaching High School Science” video-library series (1999)

WH Freeman Publishers

Chapter Reviews of *What is Life? A Guide to Biology*, 2nd Edition (J. Phelan) (Spring and Summer 2012)

Media Review of *What is Life? A Guide to Biology*, 2nd Edition (J. Phelan) (March 2013)

Community Service/Outreach

Science Enrichment Activities:

- Keams Canyon Elementary School, 4th grade class, Keams Canyon, AZ, April 2021
- Second Mesa Day School, 5th grade class, Second Mesa, AZ, March 2021

Member, Flagstaff STEM City Board of Directors (2016 – 2018)

Science Fair Judge, NC Regional Science Fair, Region 7, Stone Center, North Wilkesboro, NC (my science methods class, GS 4403, served as volunteers to help at the fair), February 2012

Organized Two Rivers Community School 8th Grade Science Field Trip to ASU Microscopy Facility and Microbiology Research Labs, November 2011.

Science Education representative, ASU-Public Schools Partnership Program—Middle and Secondary Science Professional Learning Community, 2000 - 2013

Proctor, NC End-of-Grade Examination, Two Rivers Community School, May 2009

Proctor, NC End-of-Course Examination, Watauga High School, May 2008

Proctor, NC End-of-Grade Examination, Two Rivers Community School, May 2008

Science Fair Judge, Central Wilkes Middle School (along with the entire ‘science methods’ class), January 2008

Earthworm Dissection Lesson, Grade 3, Two Rivers Community School, Spring 2007

Science Fair Judge, Parkway School (along with the entire ‘science methods’ class), March 2007

Scorekeeper, “Battle of the Books”, Watauga County Schools, March 2006

Science Fair Judge, Avery Middle School (along with the entire ‘science methods’ class), April 2005

‘Job Ready’ Career Presentation, Grade 3, Parkway Elementary School, October 2001

Career Fair Presentation, Avery County High School, April 2001

Science Fair Judge, Watauga County Schools, March 2001, March 2004

Science Fair Judge, Bethel Elementary School, February 2001

PROFESSIONAL MEMBERSHIPS (both current and past)

American Educational Research Association
American Scientific Affiliation
Arizona Science Education Leadership Association
Arizona Science Teachers Association
Association for Science Teacher Education
Association for Supervision and Curriculum Development
Illinois Science Teachers Association
International History, Philosophy, and Science Teaching Group
National Association of Biology Teachers
National Association of Research in Science Teaching
National Association of Science, Technology, and Society
National Science Education Leadership Association
National Science Teaching Association
North Carolina Science Leadership Association
North Carolina Science Teachers Association
Phi Delta Kappa
Sigma Xi
World Council for Curriculum and Instruction (both International and North America Chapters)

PROFESSIONAL STRENGTHS

Instructional Experience in International and Culturally Diverse settings
Academic Administration and Leadership
Extensive Experience in Accreditation Procedures
Faculty Development
Program Management, Coordination and Evaluation
Collaborative Teaming and Organizational Skills
Strong Interpersonal and Communication Skills
Instructional Design for In-service and Pre-service Science Teacher Education
Qualitative Research Design and Methodology
STEM and Integrated Science Instructional Methods

RESEARCH INTERESTS

Interdisciplinary/Integrated Science Instruction
Culturally Responsive Pedagogy
College Science Instruction
Integrated STEM Education
Engineering Education
Environmental and Biology Education
In-Service Science Teacher Education Program Development, Implementation, and Evaluation
Pre-Service Science Teacher Education
History and Philosophy of Science

HONORS AND AWARDS

Flagstaff STEM City Board of Directors, Nominated and elected to the board, June 2016.
Association for Science Teacher Education Far West Regional Chapter, Nominated and elected as Regional Director, January 2016.
UTeach STEM Education Association, Nominated and elected Vice President/President Elect, December 2014.
Phi Delta Kappa, State Chapter of North Carolina, Nominated and elected Vice President, August 2012.
Appalachian State University, College of Arts & Sciences, Nominated for Richard N. Henson Outstanding Advisor Award, April 2012 and April 2009.
North Carolina Science Leadership Association, Nominated and elected President-Elect, April 2007.
North Carolina Student Academy of Science, Invited and accepted to serve on the governing board as a District Director for western North Carolina region, September 2006.

National Science Teachers Association, Nominated and selected to be on the election ballot for Director of Professional Development Division, October 2005.

National Science Teachers Association, Nominated and selected to be on the election ballot for District Director position for District VI (North Carolina, South Carolina, Tennessee), November 2004.

North Carolina Science Leadership Association, Nominated and Elected for Director-at-Large position, April 2004.

Appalachian State University, College of Arts & Sciences, Nominated for W. C. Strickland Outstanding Young Faculty Award, 2003 – 2004.

World Council of Curriculum & Instruction, North America Regional Chapter, Nominated for Vice President's position, October 2003.

World Council of Curriculum & Instruction, North America Regional Chapter, Nominated and elected Secretary, October 2000.

North Carolina Science Leadership Association, Nominated and Elected for District Director's position, May 2003.

North Carolina Science Leadership Association, Nominated and selected to be on the ballot for Treasurer's position, January 2003.

Project Kaleidoscope, Nominated for Faculty for the 21st Century Network, April 2002.

Sigma Xi Inductee, The University of Iowa Chapter, April 1996.

Phi Delta Kappa Inductee, The University of Iowa, Chapter 005, February 1995.