



The University of Arkansas College of Education and Health Professions is committed to improving science teaching and learning at all levels through the development of science educators for careers in the classroom, as curriculum innovators, as policy leaders, as science teacher educators and as professors of science education.

**William F. McComas, Ph.D.** is the inaugural holder of the *Parks Family Endowed Professorship in Science and Technology Education*. He is involved in many areas of science education research and policy development and is widely published in the areas of the history and philosophy of science. Dr. McComas has held leadership roles in the *National Science Teachers Association*, the *International History, Philosophy and Science Teaching Group* and the *Association for Science Teacher Education*. He has received the NABT Evolution Education and Research awards, the Ohaus honor for innovations in college science teaching and the ASTE award as Outstanding Science Teacher Educator. He is also the education adviser to the new UATeach undergraduate program for science and mathematics teacher preparation.

**Stephen R. Burgin, Ph.D.** is an assistant professor with interests related to the impact of participation in authentic practices of science by learners on a variety of outcomes including the development of both identity and understandings of the ways in which scientific knowledge is constructed. Dr. Burgin is passionate about the preparation of secondary science teachers and is particularly interested in recruiting future physical science teachers. He teaches in both the M.Ed. and UATeach programs.

**Cathy Wissehr, Ph.D.** is the UA expert in elementary science education. Her research interests focus on teacher misconceptions, environmental education and science teacher preparation. She is active on the advisory panels for *Science and Children* and *The Rural Educator* and on the editorial board for the *Journal of Research in Rural Education*. Dr. Wissehr also works in the CIED elementary integrated-STEM teacher preparation program.

**The University of Arkansas Center for Mathematics and Science Education** is an important element of our science education program. The CMASE outreach center offers professional development for pre-service and in-service teachers and supplies a wide range of science teaching curriculum materials and related resources.

## ADMISSION

Students seeking admission to any of the science education options discussed in this brochure must first apply for admission to the University of Arkansas Graduate School. Information is available online at <http://uark.edu/depts/gradinfo> or by calling (479) 575-4401 or (866) 234-3957.

## FINANCIAL ASSISTANCE

Financial aid information is available online at <http://uark.edu/admin/fininfo> or by calling (479) 575-3806. Information about scholarships from the College of Education and Health Professions is available online at <http://coehp.uark.edu/scholarships> or at (479) 575-5117.

For information regarding science education studies or doctoral assistantships at the University of Arkansas please visit <http://scienceeducation.org> or contact:

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# SCIENCE Education



College of Education and Health Professions  
*Department of Curriculum and Instruction*

## SCIENCE EDUCATION

The Department of Curriculum and Instruction in the University of Arkansas College of Education and Health Professions is home to the Project to Advance Science Education (PASE). We focus on the “S” in STEM education. PASE is dedicated to enhancing science instruction in the nation’s education infrastructure through basic research, the preparation of science teachers for school service, and the development of science education leaders and professors who will positively impact science teaching in K-12 schools and higher education settings.

Ongoing research endeavors include the investigation of the actual and ideal states of hands-on instruction, authentic science apprenticeships in professional laboratory and field settings, the application of constructivist learning theory to informal science education, the identification of key science misconceptions among K-12 learners, problems associated with the observational skills of students in laboratory settings, environmental literacy, the determination of core elements of the nature of science, along with design of instructional methods for enhancing understanding of the history and philosophy of science.

## SCIENCE EDUCATION COURSES

The M.Ed. and Ph.D. degrees with a focus in Science Education feature core graduate classes (CIED 6313, 6333 and 6343) and several options:

- CIED 6313 Issues, History and Rationale of Science Education (3 credits)
- CIED 6333 Nature of Science: Philosophy of Science for Educators (3 credits)
- CIED 6343 Advanced Science Teaching Methods (3 credits)
- CIED 5510 Science Instructional Strategies (1-6 credits)
- CIED 6323 Science Seminar (Independent study)

For full course descriptions, please consult the syllabi posted at <http://www.scienceeducation.org>.

## GRADUATE DEGREE PROGRAMS

The Department of Curriculum and Instruction offers three graduate degree programs for those interested in science teaching and learning and other courses for those with an interest in integrated STEM instruction:

The **MASTER OF ARTS IN TEACHING (M.A.T.)** with a focus in secondary science teaching is a one year intensive program leading to a master’s degree and Arkansas teaching credential. Some prerequisites and successful completion of the Praxis II exam must be completed before entry. This is the degree of choice for graduates who plan to teach in grades 7-12. Contact Dr. Freddie Bowles ([fbowles@uark.edu](mailto:fbowles@uark.edu)) for more information.

The **MASTER OF EDUCATION degree in Curriculum and Instruction (M.Ed. CIED)** provides options to focus in a variety of fields including science. This advanced professional coursework is designed for educators who already hold teaching credentials for service in PK-12 environments and for educators who do not require formal licensure such as those working in community colleges, informal educational settings such as zoos, nature centers and museums; private schools; or business-based educational enterprises.

The M.Ed. may be used as a gateway to the Ph.D. (for those interested in research or higher education positions) or the Ed.D. (for educational administrative roles).

The M.Ed. is primarily designed as a non-thesis program but for students with prior experience in research design, a thesis option exists. M.Ed. students will take additional classes in the College of Education and Health Professions or may pursue advanced science study with courses from the J. William Fulbright College of Arts and Sciences.

All students – including those with science interests in elementary and postsecondary education – should apply to the UA Graduate School for the M.Ed. in Curriculum and Instruction (CIED) and note an interest in science education on the application.

The **DOCTOR OF PHILOSOPHY (Ph.D.)** degree in Curriculum and Instruction emphasizes the generation of new knowledge or the reformulation of existing knowledge as the basis for the development of educational theory and practice.

The Ph.D. is designed for highly motivated individuals with interests in improving science teaching and learning through contributions in research and/or faculty positions in higher education settings or in leadership roles in school science teaching environments. The degree provides rigorous coursework and mentorship experiences in research methods, internships in teaching and research supported by the three core integrated science education classes. Assistantships are available for highly qualified full time students.

Completion of graduate studies in science education will enable motivated individuals to:

- Engage in a range of professional development opportunities through completion of a general core of educational studies and focused experiences in science education.
- Enter the professional network of science education in research and practice at the statewide and national levels.
- Gain enhanced ability and practice skills relevant to teaching and educational leadership.
- Acquire a broad and deep knowledge of curriculum models, education programs, educational standards, human growth and development and learning theories.
- Understand and impact science teaching by gaining knowledge of its history, nature, trends and politics.
- Expand content knowledge with courses in the discipline (where appropriate and practical).
- Integrate theory and practice.
- Demonstrate leadership in the application of research and inquiry skills to analyze and evaluate trends, problems and practices in science teaching and learning.
- Expand knowledge of the diversity of learners and plan instructional experiences responsive to the intellectual, psychological, social and physical needs of individual students.