

# Iowa Sciences Academy

## Director

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**Faculty:** <https://isa.uiowa.edu/people>

**Website:** <https://isa.uiowa.edu/>

The Iowa Sciences Academy (ISA) is home to a range of programs that support the success of undergraduate students interested in research and scientific communication. Through ISA programs, students have access to hands-on research, professional development, and scientific outreach opportunities, with the goal of developing a cohort of undergraduates who complete their baccalaureate degree and transition into research-focused graduate programs.

The Science Alliance Internship program supports qualified second, third, and fourth-year students interested in exploring research on campus. The program aims to enrich the undergraduate experience through coursework, mentor matching, career guidance, and creating a cohort of students with similar interests in science and research. Competitive wages to carry out research in laboratories and access to a summer program for science alliance interns are provided.

The mission of the National Science Foundation (NSF) funded UI-IINSPIRE Alliance is to support and increase the nation's STEM workforce, broaden undergraduate participation in research, and create a sense of community and support for students with a declared major in science, technology, engineering, mathematics, and pre-health professions. The UI-IINSPIRE Alliance facilitates professional development and finding laboratory experiences for STEM majors transferring from community colleges. Selected students receive stipends for each term.

The Latham Science Engagement Initiative (LSEI) provides the opportunity for sophomore, junior, and senior students to interact with highly talented undergraduate students across science disciplines. The program prepares students to communicate science in the public sphere, work in multidisciplinary settings, and demonstrate the broader impact of scientific research. Students selected for the program complete two courses, design and implement science outreach projects, and participate in an event that highlights their achievements.

## Admission

Students must apply for each program individually to be considered for admission. Requirements for admission vary from program to program. Admission to some programs may require an interview. For more information, including the online application forms, visit the Iowa Sciences Academy website.

In general, applicants should:

- have a strong interest in pursuing a research career;
- have a qualifying academic major;
- have a strong academic record (e.g., a grade-point average of at least 3.00); and
- meet additional requirements as specified by the individual program.

## Courses

### Iowa Sciences Academy Courses

#### ISA:1040 Exploring Research **1 s.h.**

Professional and career development; tours of scientific research facilities and laboratories on campus; network with professors and graduate students; explore different types of research environments on campus; learn how to identify and contact potential research mentors.

#### ISA:1041 Entering Research **1 s.h.**

Complement to independent scientific research experience; students meet weekly to share research experiences; students gain experience searching peer-reviewed literature databases; reading and summarizing peer-reviewed scientific papers.

#### ISA:2040 Professional Skills for Scientific Research **1 s.h.**

Introduction to the culture and expectations of scientific research; exploration of how research groups operate, developing communication and collaboration skills needed to work effectively in laboratory and research environments; topics may include mentor-mentee relationships, responsible conduct of research, and strategies for communicating ideas clearly with research mentors and peers.

#### ISA:2041 Career Exploration and Specification **1 s.h.**

Students define career goals, increase knowledge about the process of obtaining a graduate or professional degree, and create personal plans for future academic and research endeavors.

#### ISA:3040 Critical Analysis of Primary Literature **1 s.h.**

Development of critical thinking and research skills through analysis of primary scientific research literature to demystify and humanize research science; how to analyze components of a good empirical article; students present a research paper from literature in their field of interest as preparation to contribute to future empirical manuscripts. Requirements: minimum of 60 s.h. earned and junior or senior standing.

#### ISA:3041 Pathways to Post-Undergraduate Education **1 s.h.**

Successful preparation for graduate school application process; students learn how to write their own curriculum vita, personal statements, research statements, and graduate school application action plan. Requirements: minimum of 60 s.h. earned and junior or senior standing.

#### ISA:3042 Decoding Science: From Papers to PhD Pathways **1 s.h.**

Introduction to the critical reading, analysis, and communication skills essential for engaging with primary scientific literature; preparation of competitive materials and development of clarity about pathways into PhD-level study through journal club presentations and guided exploration of research careers. Requirements: minimum of 60 s.h. earned and junior or senior standing.

#### ISA:3992 Iowa Sciences Academy Undergraduate Research **0 s.h.**

Registration in a section taught by student's research mentor. Requirements: participation in Iowa Sciences Academy.

**ISA:4040 Teaching Your Undergraduate Research 1 s.h.**

Scientific teaching principles (e.g., backwards design, active learning, formative assessment); students develop a teaching unit based on some aspect of their research and teach it to the class in preparation for future interviews where the ability to explain the background and significance for their research is a highly valued skill. Requirements: minimum of 60 s.h. earned, junior or senior standing, and undergraduate research experience.

**ISA:4041 Senior Capstone Project 1 s.h.**

Structure for development, planning, and implementation of a culminating project for the Iowa Sciences Academy; students dedicate three to five hours per week to the project and are encouraged to connect their projects to community issues or problem; integration of external learning experiences and activities including interviews, scientific observations, or internships.