Undergraduate Research Experiences

Director
• Robert F. Kirby

Undergraduate Research Experiences includes areas of study that serve to enhance science, research, and laboratory experiences for undergraduate students: Research Experience for Undergraduates in Microbiology and the Summer Undergraduate MSTP Research Program.

Research Experience for Undergraduates in Microbiology

Website: https://medicine.uiowa.edu/microbiology/education/summer-research-experience-undergraduates-reumicrobiology

The Department of Microbiology and Immunology offers URES:4130 Research Experience for Undergraduates in Microbiology, a 10-week summer program for qualified undergraduate students who are studying microbiology or other biological sciences and are interested in pursuing careers in science. Participants conduct research on a project they select, under the direct supervision of a faculty member.

Each participant receives a stipend and an allowance for incidental expenses. The program also pays for travel expenses and provides housing.

Applicants must be U.S. citizens or permanent residents who are enrolled in a university, college, or community college, and have at least one semester of undergraduate study remaining toward a bachelor’s degree in the biological sciences. Application materials must include a completed online application, transcript, and two letters of recommendation. Application deadline is mid-February for the following summer.

Visit the program’s website or contact the Department of Microbiology and Immunology (Carver College of Medicine) for more information.

Summer Undergraduate MSTP Research Program

Website: https://medicine.uiowa.edu/mstp/sumr

The Summer Undergraduate MSTP Research Program is an intensive 8-week experience for undergraduates interested in becoming physician scientists. Participants gain experience in research laboratories and exposure to clinical medicine and medically relevant research in preparation for careers in academic medicine.

Students conduct research in any one of a variety of research areas, including the biomedical sciences, public health, and biomedical engineering. In addition, students shadow physician scientists in clinical settings, participate in career development seminars, and attend a weekly seminar series focusing on the intersection of science and medicine.

Participants receive a stipend and are reimbursed for most of their travel expenses. The program provides lodging on campus in University housing.

Applicants must be U.S. citizens or permanent residents who will have completed their sophomore or junior year in a bachelor’s degree program in the biological or physical sciences by the summer of entry. Applicants should submit an application (available on the program’s website), an official college transcript, a curriculum vitae, and two letters of recommendation. Application deadline is mid-January for the following summer.

Contact the Medical Scientist Training Program (Carver College of Medicine) for more information.

Courses

Undergraduate Research Experiences Courses

URES:1000 First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities); research focus allows students to actively discover new information with guidance from instructor, pursue research in small groups, learn the “how to” of a field, and share their findings; no prior research knowledge or experience required. Requirements: first- or second-semester standing.

URES:2100 Louis Stokes Alliances for Minority Participation STEM Scholars 1 s.h.
Preparation for success in transferring into a STEM major at UI; exposure to undergraduate research opportunities; develop skills of scientific inquiry and communication; presentation of products; connect with current transfer students, active research faculty, campus support services, and program staff members. Requirements: application and acceptance to UI LSAMP program.

URES:2200 Discover Research 1 s.h.
Introduction to research at the University of Iowa; exploration of life as a researcher through a mixture of lecture, faculty and student guest speakers, and virtual lab tours; process of finding and contacting potential research mentors, interviewing for research positions, and making the most out of a research experience; for first-year undergraduates.

URES:3001 Introduction to Translational Research 0-3 s.h.
Array of scientific studies translated into clinical solutions, creative ideas balanced with practical strategies for implementation at bedside, and expansive number of career opportunities becoming available in translational sciences; opportunity to learn how translational research is conceived and developed; interpreting student research in a translational paradigm; survey of translational biomedicine research program covering the scope of interdisciplinary teams and breadth of T1 to T4 research applications. Requirements: enrollment in clinical and translational science certificate program, and engagement in mentored research activity. Recommendations: successful completion of EPID:4400 highly recommended.
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**Course Descriptions**

- **URES:3002 Practicum in Clinical and Translational Science**
  How research experience translates into clinical practice; translational impact of independent research; summary of research accomplishments; outline of a translational paper that is mutually acceptable to student, preceptor, and faculty; submission of paper and completion of poster presentation describing research project and translational application of research. Prerequisites: URES:3001. Requirements: enrollment in clinical and translational science certificate program.

- **URES:3100 Iowa Center for Research by Undergraduates Research Ambassador**
  Promotion of undergraduate research from all disciplines within campus community; hosting various on-campus events, leading workshops, presentations at student organization meetings and in-class; leadership and public speaking; regular meetings with ICRU staff.

- **URES:3500 Skill Development for Undergraduate Researchers**
  Introduction to research across disciplines, research communication (i.e., poster preparation, research presentation), curriculum vitae and résumé development, letters of recommendation, institutional structure, and more; focus on soft skill development for undergraduates currently involved in mentored research and creative scholarship.

- **URES:3992 Undergraduate Research and Creative Projects**
  Independent research or pursuit of a creative project under mentorship of a faculty supervisor.

- **URES:3993 Undergraduate Research and Creative Projects**
  Independent research or pursuit of a creative project under mentorship of a faculty supervisor.

- **URES:3994 Undergraduate Research and Creative Projects**
  Independent research or pursuit of a creative project under mentorship of a faculty supervisor.

- **URES:3995 ICRU Research Fellow**
  Recognition of undergraduates involved in scholarly efforts of UI faculty and research staff; work on specific research and/or creative projects under selected mentors; funded annually by the Iowa Center for Research by Undergraduates (ICRU) through a competitive application process. Requirements: selection as ICRU Fellow.

- **URES:4110 Computational Bioengineering Summer Research Experience for Undergraduates**
  Immersive research experience focused on fundamental concepts of computational bioengineering and application of concepts to solve challenging biomedical problems; work on mentored research projects and showcase research at a University-wide presentation opportunity.

- **URES:4120 Research Experience for Undergraduates: Computing for Health and Well-Being**
  Research experience in using computer science methods to study and solve current problems in health, well-being, and health care systems; work on mentored research projects and showcase research at a UI presentation opportunity.

- **URES:4130 Research Experience for Undergraduates in Microbiology**
  Explorative hands-on experience in a research lab; students create digital exhibits in collaboration with the UI Museum of Natural History and present their research at a University-wide poster presentation.

- **URES:4140 Research Experiences for Undergraduates in Evolutionary Biology**
  Intensive hands-on experience in research for students in environmental fields.

- **URES:4150 Undergraduate Medical Scientist Training Program Research**
  Immersive medical research experience with focus on gathering, analyzing, and interpreting health data; writing a manuscript for publication.

- **URES:4160 Research Experiences for Undergraduates in Geospatial Approaches to Watershed Science**
  Mentored research experience to create new discoveries in biomedicine; preparation to pursue careers in science and clinical practice; translation of current knowledge into new educational materials; discussions, conferences, workshops, training sessions, lectures; university-wide presentation opportunity and a FUTURE in biomedicine symposium.

- **URES:4220 University of Iowa Premed Student Summer Research Internship**
  Mentored research experience to create new discoveries in biomedicine; preparation to pursue careers in science and clinical practice; translation of current knowledge into new educational materials; discussions, conferences, workshops, training sessions, lectures; university-wide presentation opportunity and a FUTURE in biomedicine symposium.

- **URES:4240 Fostering Undergraduate Talent: Uniting Research and Education (FUTURE) in Biomedicine**
  Mentored research experience to create new discoveries in biomedicine; preparation to pursue careers in science and clinical practice; translation of current knowledge into new educational materials; discussions, conferences, workshops, training sessions, lectures; university-wide presentation opportunity and a FUTURE in biomedicine symposium.

- **URES:4900 Topics in Engagement**
  Exploration of topics in undergraduate research, academic, social, and community engagement; small discussion class; topics selected by instructor.