

College of Science – Fall Undergraduate Research Fair 2017

Welcome!

The purpose of this event is to provide science students with an opportunity to get many of their questions answered about undergraduate research. Not only about how to get more involved in research, but also how to get more out of the research experience itself.

Throughout and beyond the College of Science there are many different ways in which students can get involved in research. Often it's just a question of looking in the right places and being persistent in the hunt for the right opportunity. However, getting the right opportunity is also about getting as much information as possible from a diversity of sources. This could be as simple as a fellow student but there are many organizations, institutes, and centers on campus that are also more than willing to help a student find and support their research endeavors. Furthermore, there are many ways for students to get even more out of their research experience, through publishing and presenting their research to their peers.

Through a combination of listening to speakers, poster presenters, and representatives from various institutions, students should be able to get some ideas about how best to get started looking for research opportunities. Also, students should be able to see how they can add value to their research experience by participating in other related activities. The sooner a student begins the search, the sooner they will be able to start participating in undergraduate research and getting the most from that experience!

Schedule and Table of Contents

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6 - 7 pm	Undergraduate Research Opportunities in Chemistry – Jordan 101
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Information Tables - Jordan Galleria

Advanced Diagnostics and Therapeutics (advanceddiagnostics.nd.edu)

[Advanced Diagnostics & Therapeutics](http://advanceddiagnostics.nd.edu) is a community of affiliated researchers who tackle a wide range of biomedical and environmental health through innovation, invention, and real-world applications.

Each year, AD&T awards two undergraduate [Feinstein Institute for Medical Research](#) (FIMR) - [Precision Medicine](#) Research Fellowships These fellowships are competitive awards given to highly qualified undergraduate and graduate students from Notre Dame that enable them to spend eight weeks in summer

residence conducting laboratory and clinical research at the Feinstein Institute in Manhasset, New York. The fellowships are concurrent with FIMR's existing visiting scholars program, which takes place from approximately June 1 to July 31 each year. Each student receives a stipend to cover daily living expenses. The cost of transportation to and from FIMR and their home or campus is covered (within reason and subject to approval). The Feinstein Institute provides apartment housing on the institute's campus, which is a 30-minute train ride from New York City, at no cost to the fellows. These fellowships afford Notre Dame students an opportunity to experience hands-on research in a world-class setting. The summer 2018 application will open November 1st with an information session planned for Wednesday, November 8th. Contact: Corrine Hornbeck (chornbec@nd.edu), Administrative Assistant

Career Center (careercenter.nd.edu)

The Career Center provides undergraduate students with career counseling and career development services, self-assessments, workshops, presentations for academic departments, career fairs, and mock interviews, in addition to other services. We encourage students to take ownership of their career direction, and be willing to devote the time and energy necessary to conduct a successful search for jobs, internships, fellowships, and/or the identification of graduate school programs. Students have the opportunity to utilize our online databases, including Go IRISH, to pursue postgraduate opportunities, sign up for interviews, and conduct career-related research. Contact: Robyn Centilli (Robyn.O.Centilli.1@nd.edu)

Center for Nano Science and Technology (nano.nd.edu)

NDnano is a world-class, collaborative research center that includes faculty from seven departments across the colleges of Engineering and Science. The Center is focused on developing, characterizing, and applying new nanotechnology-based materials, processes, devices, and solutions that will better society. Each year, NDnano awards several paid fellowships to undergraduate students who spend 10 weeks of their summer engaged in a research project, mentored by an NDnano faculty member in science or engineering. Summer 2017 will mark the NURF program's ninth year. To date, nearly 200 students from Notre Dame and several other universities in the U.S. and abroad have participated in the program, gaining valuable research skills and experience. The 2017 application process will open the first day of classes in January. Contact: Heidi Deethardt (deethardt.1@nd.edu), Administrative Assistant.

Eck Institute for Global Health (globalhealth.nd.edu)

The Eck Institute for Global Health (EIGH) is a university-wide enterprise that recognizes health as a fundamental human right and endeavors to promote research, training, and service to advance health standards for all people, especially people in low and middle-income countries, who are disproportionately impacted by preventable diseases. The EIGH is a cross-disciplinary group of faculty whose research and teaching are dedicated toward finding and implementing solutions to global health challenges. Over 85 faculty serve the Institute's global mission to promote research, training and service. Programs within the EIGH include the professional degree of Master of Science in Global Health, dual degree program with Indiana University School of Medicine, and the Global Health Research Associate program. The EIGH also offers funding for faculty members including graduate student fellowships, Pilot Project Grants, Building Multidisciplinary Teams Grants, Travel Grants for Research and Training, Building Institutional Partnerships Grants and an Undergraduate Research Support Program. Contact: Sarah Craig (Craig.20@nd.edu), Communications.

FindScience Research Website (findscience.nd.edu)

FindScience is a student-run resource for students who are looking for research opportunities with current Notre Dame professors in the College of Science. The website includes a page where students can search for research opportunities in specific subject areas, with certain professors, or for a specific semester. Each professor has a page which outlines their current research projects, their laboratory availability, and any qualifications that a student needs to participate. FindScience also includes information about different research subject areas and tips for contacting professors. The FindScience club is looking for student members to help keep the website up to date. Contact: Claire Hagerstrom (findsci@nd.edu) Co-President of FindScience

Flatley Center for Undergraduate Scholarly Engagement (CUSE, cuse.nd.edu)

CUSE has a mission to promote the intellectual engagement of Notre Dame students through (1) creating opportunities for undergraduate research, scholarship, and creative endeavors in all colleges by connecting students to resources such as faculty mentors, projects, funding, and venues for presenting and publishing their work undergraduate research and (2) encouraging and facilitating applications for national fellowships like the Rhodes Scholarship, National Science Foundation Graduate Research Fellowship, Truman Scholarship, and Goldwater Scholarship. Contacts: Yvonne Mikuljan (ymikulja@nd.edu), Assistant Director of Undergraduate Research, or Jeffrey Thibert (jthibert@nd.edu), Associate Director.

First Year of Studies (fys.nd.edu)

First Year of Studies (FYS) supports and promotes research in two ways. First, through the ND Ignite Research Fellowship, for which FYS can award up to \$1000 to current first year students to conduct research or present at a conference during their first year or summer between freshman and sophomore years. Second, through a one-credit class (FYS 10406 Introduction to the Research Process) which is offered during the spring semester as a way to help current first year students understand how the research process works to better prepare them for possible research opportunities during their time at Notre Dame. Contact: Sean Wernert (swernert@nd.edu), Director of ND Ignite; Darlene Hampton (dhampto1@nd.edu), Coordinator of ND Ignite Research Initiative.

Harper Cancer Research Institute (HarperCancer.nd.edu)

Investigators in the Harper Cancer Research Institute (HCRI) are dedicated to conducting innovative and integrative basic cancer research that confronts the complex challenges of cancer. HCRI utilizes an interdisciplinary approach to cancer research. Students in our labs work across scientific fields on project collaborations. Over sixty HCRI faculty members bridge the College of Science, College of Engineering, College of Arts and Letters, and the Indiana University School of Medicine-South Bend. Some of the research projects currently taking place on campus involve using nanotechnology to better target chemotherapeutics, searching for new cancer markers and targets, reducing side effects of chemotherapy, and developing less expensive and more accurate diagnostics. Research cures cancer. Contact: Angela Cavalieri (cavalieri.2@nd.edu), External Relations and Special Events Program Coordinator.

Hesburgh Libraries (library.nd.edu)

The Hesburgh Libraries comprise the main Hesburgh Library and eight campus libraries, including the O'Meara Mathematics Library in Hayes-Healy, the Engineering Library in Fitzpatrick, the Chemistry-

Physics Library in Nieuwland, the Mahaffey Business Library in Mendoza, and the Architecture Library in Bond Hall. In addition, the Hesburgh Libraries' Center for Digital Scholarship (CDS) leverages digital library expertise (e.g., GIS, data management planning, and statistical analysis) and state-of-the-art technologies (such as LaTeX, R, and MATLAB) to help manage and accelerate the research process. In an effort to further its core mission of "connecting people to knowledge," the Libraries offer a vast array of expertise, services, resources and spaces to ensure the academic success of the undergraduate student community. Whether through the expertise of subject librarians and specialty services or the access to various sources of knowledge, we strive to meet the ever-changing needs of students in the 21st century. The Hesburgh Libraries provide critical support for your research, including access to online databases, thousands of journals, DVDs, books, maps, and more. Librarians are prepared to assist you with your research through individual consultations, or library workshops and in-class instructional sessions. In addition, each spring semester we sponsor the Undergraduate Library Research Award (ULRA) designed to honor students who best leverage the integrated suite of library services throughout their research process. Contact: Parker Ladwig (ladwig.1@nd.edu), Mathematics and Biology Librarian, or Thurston Miller (tmiller5@nd.edu), Chemistry and Physics Librarian.

Learn more:

Biology, Environmental Sciences, Medicine: library.nd.edu/biology

Chemistry-Physics Library: library.nd.edu/chemistry-physics-library

O'Meara Mathematics Library: library.nd.edu/mathematics

Engineering Library: library.nd.edu/engineering

Center for Digital Scholarship: cds.library.nd.edu

Subject Librarian Guide: resources.library.nd.edu/documents/Selectors.pdf

Registration for library workshops: library.nd.edu/workshops

Undergraduate Library Research Award: library.nd.edu/ulra

IDEA Center (ideacenter.nd.edu)

Standing for **Innovation, De-Risking and Enterprise Acceleration**, the IDEA Center is the fundamental resource for all commercialization and entrepreneurial activities at the University of Notre Dame. It provides the necessary space, services and expertise for idea development, commercialization, business formation, prototyping, entrepreneurial education and student entrepreneurial efforts. It is designed to bring the best Notre Dame faculty, staff and student ideas and innovations to market.

IDEA Center initiatives support aspiring student entrepreneurs in many ways. We seek to create meaningful opportunities for you to learn and experience entrepreneurship first hand. Perhaps you want to learn more about entrepreneurship through our academic programs. You may hope to connect with startups through internships or immersive learning opportunities - outstanding opportunities exist! Perhaps you already have your own idea for a startup and are looking for help. Good news! Our resources and opportunities to engage are vast - we exist to support you and to help set you up for success!

Exciting academic programs in entrepreneurship and innovation are available at the graduate and undergraduate levels through the IDEA Center. [The ESTEEM program](#) is an innovative 1-year experiential master's degree in commercialization. By placing students with real-time startups they are able to hone and develop the mindset and skills crucial for successful launches.

Outstanding new academic programs are in the works as well, including our new cross-disciplinary minor in entrepreneurship, available to every undergraduate student on campus, will launch in 2018 - stay tuned!
Contact: Charles W. Powell, M.Div., Program Manager

Indiana University School of Medicine – South Bend (medicine.iu.edu/southbend)

Indiana University School of Medicine – South Bend (IUSM-SB) is a regional campus of the Indiana University School of Medicine. This four-year regional campus is located on the corner of Angela Blvd. and Notre Dame Avenue across from the main entrance to the University of Notre Dame (UND) campus. Our campus offers research opportunities for undergraduates in the basic sciences, Biology, Chemistry, and Biochemistry with an emphasis on medically related research projects in cancer, infectious disease, and neurosciences. The research programs are led by IUSM-SB faculty members who have adjunct ND faculty positions and consist of ND undergraduates, ND graduate students, and IUSM-SB post-doctoral fellows and technical staff. Information on research opportunities and the various laboratories can be found at medicine.iu.edu/southbend/research/research-faculty. Contact: Jenifer Proserpi (jprosp@nd.edu or jrprospe@iupui.edu), Assistant Professor.

Institute for Scholarship in the Liberal Arts (ISLA, isla.nd.edu)

The Undergraduate Research Opportunity Program (UROP) provides grants to students who wish to pursue independent research or creative projects. The UROP program, which is open to any student pursuing a major or a minor in the College of Arts and Letters, offers four major types of grant: the Conference Presentation Grant; the Research and Materials Grant; the Senior Thesis Grant; and the Summer Grant. Students who wish to apply must submit a proposal, budget and a letter of recommendation to urapply.nd.edu. Together with the College of Science, UROP also offers Science, Arts and Letters, and Engineering students Summer Grants for those students who wish to engage in research or creative projects that cross the traditional boundaries between the sciences and the liberal arts. These grants are open to College of Science/Arts and Letters double majors as well as those students who have a minor in the College of Arts and Letters. Contact: Karla Cruise (kcruise@nd.edu), Assistant Director.

Kellogg Institute for International Studies (kellogg.nd.edu)

The Kellogg Institute for International Studies engages an interdisciplinary community of scholars in research and education on the critical challenges of democracy and human development around the globe. Kellogg Institute student programs allow exceptional undergraduates to focus and develop their international interests and scholarly abilities. Research grants, fellowships and internships complement the Kellogg International Scholars Program, which matches students with faculty in a unique research perspective. Internships and fellowships provide undergraduates with hands on experiences in the developing world that can be transformative. Such encounters prepare students for the International Development Studies minor and for independent field research. Students can present their research at the annual Human Development Conference in the spring. More information about the Institute can be found at kellogg.nd.edu. Contact: Holly Rivers (hrivers@nd.edu), Associate Director, or Rachel Thiel (rthiel@nd.edu), Program Coordinator.

Minor in Sustainability

The Minor in Sustainability is open to Notre Dame students in all majors and include courses drawn from

all five undergraduate colleges and the Law School. Through a multidisciplinary approach, the minor prepares students to serve as leaders in their communities - local, national, and international - by making constructive contributions to the development of more sustainable practices in their own personal and professional lives, the lives of others, and the lives of future generations. Through the Sustainability & Stewardship Alumni Network, we connect students with Notre Dame alumni in a wide variety of sustainability careers and assist students in identifying internships, study abroad programs, and graduate schools that match their interests. The minor also supports undergraduates, graduate students, and faculty who are interested in conducting research in sustainability by connecting them with relevant community partners, government agencies, and national and international research programs. Contact: Rachel Novick (rnovick@nd.edu), Director.

Museum of Biodiversity (biodiversity.nd.edu)

The Museum of Biodiversity, located near the northern end of Jordan Hall, showcases the Department of Biological Sciences' extensive collection of fossils, amphibians, fishes, birds, mammals, and insects that have been collected over the last 150 years. As part of the museum, the herbarium preserves the scientifically important collection of dried and pressed plants of the Greene-Nieuwland Herbarium. There are many opportunities for undergraduate research projects including identification and organization of specimens contained in museum collections, development of databases of plants and animals and their distributions, identification of rare, endangered, or invasive species, and development of thematic displays. Projects can be supported by the Robert E. Gordon Museum of Biodiversity Undergraduate Research Support Fund. Contacts: Barbara Hellenthal (bhellent@nd.edu), Curator, and Ron Hellenthal (Ronald.A.Hellenthal.1@nd.edu), Director and Emeritus Professor.

Nanovic Institute for European Studies (nanovic.nd.edu)

The Nanovic Institute for European Studies is committed to enriching the intellectual culture of Notre Dame by creating an integrated, interdisciplinary home for students and faculty to explore the evolving ideas, cultures, beliefs, and institutions that shape Europe today. We help students from the College of Science plan and conduct focused, original scientific research in Europe. We support your high-quality European internships in laboratories and other scientific settings and make it possible for you to immerse yourself in local languages, to live among Europeans, and to see the world from a different perspective. Our students return to Notre Dame transformed with a new sense of confidence, awareness, and maturity that helps them to succeed. For more information on the Nanovic Institute and our undergraduate grant programs, please go to nanovic.nd.edu, or contact Chris Stump. Contact: Chris Stump (cstump@nd.edu), Student Coordinator.

ND Energy (Center for Sustainable Energy at Notre Dame, energy.nd.edu)

ND Energy is a University Research Center whose mission is to build a better world by creating new energy technologies and systems and educating individuals to help solve the most critical energy challenges facing our world today. ND Energy engages undergraduate students in energy-related research and educational opportunities through programs such as the Slatt Endowment for Undergraduate Research in Energy Systems and Processes, the Energy Studies Minor, and the Student Energy Board. These programs help prepare students to become successful leaders who will understand the complexities of society's energy challenges and make a difference in the global energy economy. Learn more at energy.nd.edu. Contact: Anne Berges Pillai (apillai@nd.edu), Education and Outreach Associate Program Director, or Barbara Villarosa (bvillaro@nd.edu), Business and Communications Program Director.

Scientia (scientia.nd.edu)

Scientia, ND's own student-run Undergraduate Journal of Scientific Research, is looking for student reviewers and news writers for this year's publication. Reviewers should have some research experience and be interested in reading, critiquing, and commenting on student research writing. News writers can be from any discipline and must simply want to write about some of the important and interesting things happening in the College of Science. Contacts: Elizabeth McGough (Elizabeth.B.McGough.9@nd.edu) and Candice Park (Candice.K.Park.100@nd.edu) Editors.

University of Notre Dame Environmental Research Center (UNDERC, underc.nd.edu)

Celebrating forty years of environmental education and research, UNDERC provides students with a unique opportunity to not only take part in hands-on field courses in environmental biology, but also the chance to gain invaluable experience in field research. UNDERC consists of two 9½ week, 3 credit summer programs. The first, UNDERC-East, is located on over 8000 acres of university-owned forest in northern Wisconsin and the Upper Peninsula of Michigan. The second summer of the program, UNDERC-West, takes place on the grasslands and montane forests of the Flathead Reservation in western Montana. Each course is composed of a set of modules (East: insect, forest, aquatic, and vertebrate ecology; West: environmental history tour, grassland/wildlife, montane, and Native American ecology) as well as an independent research project for each student mentored by a faculty member or graduate student. Admission to East is open to sophomores and above, while West requires previous participation in East. Apply by early November on the UNDERC webpage and decisions are announced in early December to enroll in the preparatory course (1 credit, spring semester). Contacts: Michael Cramer (mcramer@nd.edu), Assistant Director-East, David Flagel (dflagel@nd.edu), Assistant Director-West, and Gary Belovsky (belovsky.1@nd.edu), Director.