Contents

Welcome  
   Letter from our Director  
   History & Mission  
   pages 2–3

Why Undergraduate Research?  
   An Undergraduate Research Experience  
   Making an Impact  
   pages 4–5

The Value of the Office of Undergraduate Research  
   Our Capabilities  
   Year at a Glance  
   pages 6–9

Research Spotlight  
   Student Outcomes  
   pages 10–13

Looking Ahead  
   page 14

Cover photo of undergraduate symposium presenter  
Danny Reise/WUSTL Photos
A Letter from our Director

I am pleased to present this year in review for the Office of Undergraduate Research at Washington University in St. Louis. We remain committed to fulfilling our mission on campus—helping students discover the intellectual spark that sets them on a research path and supporting all aspects of the undergraduate research endeavor.

This year we highlight, through the stories of several alumni, long-term positive impacts of engaging in undergraduate research. The positive impact of undergraduate research experiences has been widely studied and measured. As a result, undergraduate research has been named a “high impact practice” by the American Association of Colleges and Universities. Washington University is a leader and innovator in the area of undergraduate research, and has contributed greatly to the creation of a culture of valuing undergraduate research experiences in all academic disciplines nationwide. The successful outcomes of the programs of the Office of Undergraduate Research, as well as our in-depth alumni spotlights, illustrate clearly how important undergraduate research is to a rich and robust undergraduate educational experience.

Undergraduate research experiences bring a student’s academic curriculum alive in real-world settings and teach critical skills that are applicable in solving the many global challenges our student will face. I hope that you enjoy reading about the many gains we have made in the last year, as well as some of the positive impacts our alums are making as we continue to improve and expand our capacity to realize our mission.

Joy Zalis Kiefer, PhD
Director of Undergraduate Research
Associate Dean in the College of Arts & Sciences

OUR History

Founded in 2005 by a forward-thinking donor, the Office of Undergraduate Research (OUR) serves as a valuable resource for students beginning to explore the concept of undergraduate research. In addition to advising, the office provides funding to students to conduct research. We also help student researchers share their work through conference travel funding, symposia, and publications.

OUR Mission

The mission of Washington University in St. Louis is to discover and disseminate knowledge, and protect the freedom of inquiry through research, teaching, and learning.

The Office of Undergraduate Research supports the larger mission of Washington University in St. Louis to advance and protect the process of inquiry by facilitating and promoting faculty-mentored undergraduate research experiences across the university, serving all undergraduates, in all disciplines, in all schools.
Why Undergraduate Research?

“More than any research she was able to amass, which was plentiful, my student got a rare and illuminating taste of the research “process,” the rituals and rhythms of the archive, and I could tell how thrilling she found this.”

An Undergraduate Research Experience

The benefits of undergraduate research for students are well documented. In 2008, a report from the Association of American Colleges and Universities (AACU) identified undergraduate research as a “high-impact practice” that fosters deep learning, emphasizing both acquiring information and understanding its underlying meaning. Furthermore, its benefits span many facets of a student’s academic experience and contribute greatly to their growth and development.

Undergraduate research enhances student learning through mentoring relationships with faculty. Students engaged in faculty-mentored research experiences are making a significant impact on their fields of study before they even graduate, contributing to the knowledge base of their disciplines, and in many cases, using this knowledge for the betterment of society at large.

Undergraduate research contributes to greater development of deep-thinking, creativity, problem solving, and intellectual independence. An undergraduate research experience also gives students a competitive advantage when applying for graduate and professional schools and opens the door to publishing, conference experience, and travel opportunities.

Making an Impact

Washington University in St. Louis recognizes the importance of undergraduate research and continues to be a leader in helping provide valuable opportunities for students from across the university to engage in research within a wide variety of disciplines and fields of study.

According to the most recent Senior Survey, the percentage of undergraduate students participating in faculty-mentored research at WashU has increased since 2002. Since 2008 alone, participation has increased by nearly 10%.

A 2019 WashU PULSE Survey indicated an increase in the number of students who have conducted or plan to conduct research with a faculty member compared to a 2013 survey. Students also indicated that they believe their experience at WashU greatly contributed to their knowledge, skills, and personal development in thinking critically, formulating/creating original ideas and solutions, and also expanding their breadth of knowledge across a number of fields, among other key areas.

Mentored by dedicated faculty, WashU students conduct research that leads to solutions to many of today’s pressing social problems, to new interpretations of the past, and to the creation of new knowledge. In many cases, students’ research may even lead to new questions to be studied by future investigators.
The Value of the OUR

“My summer research experience gave me the opportunity to explore my research subject from several different lenses, and I ultimately reached a focused topic for my senior honors thesis, which I will be writing this year.”

We help students discern their own research paths:

We offer guidance for students in choosing an area of research interest and finding a mentor.

We provide opportunities for students to meet potential mentors and to talk with current student researchers.

We connect students to current research opportunities at WashU and other universities and institutions.

We offer a robust resource for students seeking research opportunities through the OUR website, including detailed information about the benefits of research, how to get started and find a mentor, as well as opportunities to share their research and more.

We provide resources for students undertaking research projects:

We offer financial support for undergraduate research pursued on campus or anywhere in the world in the form of competitively awarded Summer Undergraduate Research Awards (SURA), as well as other funding sources, for WashU students performing research under the guidance of a faculty mentor.

We provide funding in the form of Conference Travel Awards for students to present their research findings at conferences in their discipline, helping provide presentation and networking experience.

We developed a committee dedicated to teaching ethics in research, which provides training and ongoing support to both students and mentors.

Our annual Mentor Connections event allows students to explore research topics, practice networking, and meet faculty mentors.

We facilitate workshops and provide tools related to creating posters, writing abstracts, and research ethics.

We offer guidance and poster printing services to students presenting research.

We share and disseminate new knowledge gained through research:

We sponsor the Undergraduate Research Symposium in the fall and spring as a venue for students to present their research to the greater WashU community. OUR symposia provide opportunities for students to share their research, to engage in peer networking and cross-disciplinary conversations, and to develop presentation skills.

We offer guidance for students in preparing their research for presentation, either as a poster or as an oral presentation.

We publish articles and abstracts written by undergraduates in the Washington University Undergraduate Research Digest (WUURD).

We publish senior honors theses abstracts in the Washington University Senior Honors Thesis Abstracts (WUSHTA).

We pursue partnerships and seek collaborations with departments through the university to promote excellence, enrich the research experience, and publicize the many resources available to students on campus:

We actively work to broaden undergraduate participation with faculty in research areas across all disciplines by working with all campus departments, acting as an overarching resource and effective campus partner.

We facilitate information sessions and open houses for prospective students, current students, and parents to learn more about research.

We provide funding, as well as facilitate funding, for research opportunities.

“We share and disseminate new knowledge gained through research:

We sponsor the Undergraduate Research Symposium in the fall and spring as a venue for students to present their research to the greater WashU community. OUR symposia provide opportunities for students to share their research, to engage in peer networking and cross-disciplinary conversations, and to develop presentation skills.

We offer guidance for students in preparing their research for presentation, either as a poster or as an oral presentation.

We publish articles and abstracts written by undergraduates in the Washington University Undergraduate Research Digest (WUURD).

We publish senior honors theses abstracts in the Washington University Senior Honors Thesis Abstracts (WUSHTA).

We pursue partnerships and seek collaborations with departments through the university to promote excellence, enrich the research experience, and publicize the many resources available to students on campus:

We actively work to broaden undergraduate participation with faculty in research areas across all disciplines by working with all campus departments, acting as an overarching resource and effective campus partner.

We facilitate information sessions and open houses for prospective students, current students, and parents to learn more about research.

We provide funding, as well as facilitate funding, for research opportunities.

“During my poster presentation, a professor helped me think more broadly about my results and understand that the context in which we present information to research participants may impact their responses.”
In 2019, 145 student research abstracts from nearly 25 disciplines were published in the annual Washington University Senior Honors Thesis Abstracts (WUSHTA) publication.

456 participants in the two AY2018-19 Undergraduate Research Symposia

In 2019, the OUR directly funded or facilitated funding for 175 undergraduate students from 34 disciplines.

In 2018-19, generous donations from alumni, parents, and friends included 24 gifts, 5 annual named awards, and 4 named awards building towards endowment, helping students embark on their unique and valuable research experiences.

The Office of Undergraduate Research has accomplished much over the last year:

A 2019 anonymous survey of undergraduate researchers found that 37% of students conducting summer research would not have been able to without OUR funding, while more than 20% would have had to pursue research only part-time while working, illustrating that OUR funding is critical to providing students with the opportunity to conduct research.

Through our funding and facilitation of 175 summer research experiences from more than 30 disciplines, students reported gains in the following areas:

In AY2018-19, generous donations from alumni, parents, and friends included 24 gifts, 5 annual named awards, and 4 named awards building towards endowment, helping students embark on their unique and valuable research experiences.

In addition to funding and awards, the OUR has implemented changes to programming based on strategic assessments and reporting completed throughout the academic year to ensure we continuously meet the ever-changing research needs of our students and continued growth in demand for our programs and resources.

The OUR continues to expand opportunities and enhance resources for students across all disciplines by offering specialized ethics training specific to disciplines in the humanities and social sciences in addition to STEM, as well as recruiting faculty from more disciplines at our annual Mentor Connections event.

We continue to provide students with opportunities to present their research via our biannual symposia, which have significantly grown since 2005 (see chart below), as well as through conference travel awards. We also continue to publish student research within WashU Undergraduate Research Digest and WashU Senior Honors Thesis Abstracts publications.

Washington University undergraduate researchers continue to make an impact across the globe. In the last year alone, Summer Undergraduate Research Award recipients traveled to 30 cities and 15 countries, from places like Athens, Greece, to Beijing, China, and Sama, Peru, to London, United Kingdom.

34 students awarded funds to travel to present their research at national conferences in 2019

In 2019, 145 student research abstracts from nearly 25 disciplines were published in the annual Washington University Senior Honors Thesis Abstracts (WUSHTA) publication.

37 percent of award recipients said they could not have conducted summer research without OUR funding.

In 2019, 34 students awarded funds to travel to present their research at national conferences in 2019

In 2019, 145 student research abstracts from nearly 25 disciplines were published in the annual Washington University Senior Honors Thesis Abstracts (WUSHTA) publication.

37 percent of award recipients said they could not have conducted summer research without OUR funding.

In AY2018-19, generous donations from alumni, parents, and friends included 24 gifts, 5 annual named awards, and 4 named awards building towards endowment, helping students embark on their unique and valuable research experiences.

In addition to funding and awards, the OUR has implemented changes to programming based on strategic assessments and reporting completed throughout the academic year to ensure we continuously meet the ever-changing research needs of our students and continued growth in demand for our programs and resources.

The OUR continues to expand opportunities and enhance resources for students across all disciplines by offering specialized ethics training specific to disciplines in the humanities and social sciences in addition to STEM, as well as recruiting faculty from more disciplines at our annual Mentor Connections event.

We continue to provide students with opportunities to present their research via our biannual symposia, which have significantly grown since 2005 (see chart below), as well as through conference travel awards. We also continue to publish student research within WashU Undergraduate Research Digest and WashU Senior Honors Thesis Abstracts publications.

Washington University undergraduate researchers continue to make an impact across the globe. In the last year alone, Summer Undergraduate Research Award recipients traveled to 30 cities and 15 countries, from places like Athens, Greece, to Beijing, China, and Sama, Peru, to London, United Kingdom.

The Office of Undergraduate Research has accomplished much over the last year:

A 2019 anonymous survey of undergraduate researchers found that 37% of students conducting summer research would not have been able to without OUR funding, while more than 20% would have had to pursue research only part-time while working, illustrating that OUR funding is critical to providing students with the opportunity to conduct research.

Through our funding and facilitation of 175 summer research experiences from more than 30 disciplines, students reported gains in the following areas:

In AY2018-19, generous donations from alumni, parents, and friends included 24 gifts, 5 annual named awards, and 4 named awards building towards endowment, helping students embark on their unique and valuable research experiences.

In addition to funding and awards, the OUR has implemented changes to programming based on strategic assessments and reporting completed throughout the academic year to ensure we continuously meet the ever-changing research needs of our students and continued growth in demand for our programs and resources.

The OUR continues to expand opportunities and enhance resources for students across all disciplines by offering specialized ethics training specific to disciplines in the humanities and social sciences in addition to STEM, as well as recruiting faculty from more disciplines at our annual Mentor Connections event.

We continue to provide students with opportunities to present their research via our biannual symposia, which have significantly grown since 2005 (see chart below), as well as through conference travel awards. We also continue to publish student research within WashU Undergraduate Research Digest and WashU Senior Honors Thesis Abstracts publications.

Washington University undergraduate researchers continue to make an impact across the globe. In the last year alone, Summer Undergraduate Research Award recipients traveled to 30 cities and 15 countries, from places like Athens, Greece, to Beijing, China, and Sama, Peru, to London, United Kingdom.
Research Spotlight
Student Outcomes

The Office of Undergraduate Research helps fund or facilitate funding through a number of WashU research programs for students spanning all disciplines undertaking research projects over the summer.

These research experiences offer students the opportunity to pursue their passions within their individual fields of study while gaining knowledge and skills that prepare them for life beyond graduation.

In the pages that follow, several recent WashU alumni reflect on their own WashU undergraduate research experiences. Each story, from what sparked their interest in research and the type of research they pursued to what they learned and how it prepared them for their current postgraduate academic and professional pursuits, highlights the distinctive opportunities and resources undergraduate research has provided them, and perhaps most importantly, illustrates how research has led them to where they are and what they are doing today.

Hannah Rabinowitz
Bachelor of Arts in Earth and Planetary Sciences, Geophysics Concentration, Minor in Economics, WashU 2012
Ph.D. from Columbia University
Current Profession: AAAS Science and Technology Policy Fellow at the United States Department of Energy

What sparked your interest to begin research at WashU?
I began research as a freshman through the Phage Hunters Focus Program. I switched gears towards Earth and Sciences later that year, prompted by our freshman orientation book called “Field Notes on a Catastrophe.” Through my classes, I found a professor that I really wanted to work with and ended up completing my undergraduate thesis with him.

What type of funding did you receive to pursue research?
I received a summer undergraduate research fellowship between my junior and senior years. This allowed me to concentrate on research and spend full days in the lab, and really contributed to me having enough data to include in my thesis. I also received a grant to help me travel to the American Geophysical Union Fall Meeting during my senior year to present my research.

How has your research experience impacted you?
At WashU, I had research experiences beyond my Earth Sciences-focused ones. The breadth of hands-on science experiences has been instrumental in helping me have a broad scientific understanding, especially as I am transitioning to a more science policy-oriented path.
Research Spotlight

Student Outcomes

Aakash Yogesh Gandhi
Bachelor of Arts in Chemistry, Biochemistry Concentration, WashU 2016
Current Institution: UT Southwestern Medical Center M.D./Ph.D. Medical Scientist Training Program

What type of research did you pursue with your funding?
I worked from my post-freshman summer through graduation in the lab of Dr. Audrey Odom John, a physician-scientist established in WashU School of Medicine's Pediatrics and Molecular Microbiology departments. I was directly supervised by Dr. Ann Guggisberg, who was at that time a graduate student studying drug resistance in malaria. The two were my most important teachers and advocates during my undergraduate years. While I did work during the school year, my most formative training experiences in the lab occurred during summers. The summer months, free from exams and classes, were a precious time where I could truly immerse myself in the laboratory and learn how to take ownership over my project. I would not have been able to take full advantage of this time without the financial support of undergraduate fellowships by WashU and the Office of Undergraduate Research.

How did your research experience prepare you for life after graduation?
The mentorship I received from the Odom John Lab at WashU emboldened me to pursue a career as a biologist and physician. As I was applying, Dr. Odom John and her lab consistently stressed the importance of seeking out a community that would be excited to train me as a graduate student. With their guidance, I was lucky to find a near-perfect fit in the M.D./Ph.D. program at UT Southwestern Medical Center in Dallas.

Greg Harrison
Bachelor of Arts in Biology, Biochemistry Concentration, and in Religious Studies, WashU 2016
Current Institution: WashU DBBS Molecular Microbiology and Microbial Pathogenesis Ph.D. Program

How has your research experience impacted you?
Because of my research experiences at WashU, I ended up pursuing research as a career!

Were there specific people at WashU that gave you significant support and/or helped propel your interest in research?
My single greatest supporter at WashU was my undergraduate PI Barbara Kunkel. I also received incredible support from the faculty in the Biology department, and I have them to thank for getting me interested in pursuing Ph.D. work and opening the field up for a long-term career. Additionally, I was part of a student group called JCUBES, a journal club for undergraduates interested in biological research. This group served as an outlet for science communication and critical thinking about science. Many of my critical thinking skills and ability to do scientific analysis come directly from this opportunity to practice in JCUBES.

How did your research experience prepare you for life after graduation?
Aside from the technical skills that I learned doing bench work in lab, I also learned how to think through research problems and carry out a plan to address a research question.

“I chose WashU over other universities I was considering because of the availability and focus on opportunities for undergraduate research.”
Looking Ahead
Assessing what we do

“I love seeing students get excited about the field; using their own experiences as WashU students they are able to bring greater knowledge to our research on teaching and learning.”

WashU students conducting undergraduate research continue to demonstrate through their accomplishments that deep intellectual inquiry, exploration, and innovation are hallmarks of the WashU undergraduate experience.

The Office of Undergraduate Research continues to keep pace with students’ burgeoning interests by assessing student needs, seeking feedback from students and mentors, and adjusting and adding programs to keep up with the changing landscape of undergraduate research.

As we focus on the year ahead, we will continue to strive to:

• Provide valuable resources and tools to students interested in and/or participating in research through our many award programs, events, and publications.

• Listen to the evolving needs of our students through strategic assessment tools like online surveys and focus group discussions, and make changes to our programs and opportunities to reflect those needs, including the restructure of communications, timing, and resources for OUR summer awards programming.

• Develop and enhance communications to improve awareness and understanding of the Office of Undergraduate Research and its capabilities to students, faculty, and mentors, including an updated website redesign to mirror new College of Arts & Sciences department websites.

• Build new relationships while strengthening existing relationships with faculty mentors from across the university through strategic outreach initiatives to targeted departments.

• Partner with Alumni & Development to seek new sources of funding and help enhance giving opportunities to meet the increased demand for undergraduate research experiences.

• Act as an effective campus partner and leader to promote research opportunities to all undergraduates, in all disciplines, in all schools.

“Undergraduate research is one of the most powerful learning strategies for undergraduate students. Undergraduate research is also a significant contributor to American innovation and economic development. The skills students can develop through engagement in research will serve them well in their future careers.”

Council on Undergraduate Research