A Letter from our Director

I am delighted to present this year in review for the Office of Undergraduate Research at Washington University in St. Louis. We are committed to fulfilling our mission on campus—helping students find the intellectual spark that sets them on a research path, connecting them with faculty mentors, and providing funding to support all aspects of the undergraduate research endeavor.

This year we highlight the importance and impact of undergraduate research. 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 student 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 students will face. I hope that you enjoy reading about the many gains we have made in the last year 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.
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.

According to the 2018 Senior Survey, WashU students who participated in research with a faculty member or other research experiences were equally satisfied with their experiences compared to peer institutions. Furthermore, WashU students in Arts & Sciences were equally satisfied with the number of opportunities to participate in research with a faculty member compared to peer institutions.

A recent WashU PULSE Survey indicated an increase in the number of students who have or plan to conduct research with a faculty member, as well as an increase in the number of students who felt that WashU contributed to their knowledge, skills, and personal development in conducting scholarly research compared to a 2013 survey.

Undergraduate students at WashU engage in research in a wide variety of disciplines and fields of study. Mentored by dedicated faculty, students conduct research that may lead 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.

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

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.

Why Undergraduate Research?

“Learning about other students’ work has helped broaden my horizons and see how extensive research is here at WashU.”

Danny Reise/WUSTL Photos
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.

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The Value of the OUR

“Looking back with my mentor to see exactly how much we accomplished was the best moment of my research experience, because it was much more than I realized. You tend to get lost when you’re so deep in focus from day to day.”

Sid Hastings/WUSTL Photos

Sid Hastings/WUSTL Photos
In 2018, 138 student research abstracts from nearly 30 disciplines were published in the annual Washington University Senior Honors Thesis Abstracts (WUSHTA) publication.

In 2018, the OUR directly funded or facilitated funding for 160 undergraduate students from 24 disciplines.

24 students awarded funds to travel to present their research at national conferences in 2018

In AY2017-18, generous donations from alumni, parents, and friends included more than 30 gifts, 5 annual named awards, and 4 named awards building towards endowment.

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

In 2018, 138 student research abstracts from nearly 30 disciplines were published in the annual Washington University Senior Honors Thesis Abstracts (WUSHTA) publication.

In AY2017-18, generous donations from alumni, parents, and friends included 33 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.

Among these changes, 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 recruitment of 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, SURA recipients traveled to more than 20 cities and nearly 10 countries, from places like Cape Town, South Africa to Kyoto, Japan and Israel to the Kibale National Park in Uganda.
“Not only did I learn a lot about crop-raiding, but I gained cross-cultural skills that I never would have been able to acquire had I not been given the opportunity to go to Uganda and work with community members on this project.”

Kayce Sorbello
Graduation Year: 2019
Majors: International and Area Studies, Anthropology

Research Funding:
WashU Summer Undergraduate Research Award (SURA)

What type of research did you pursue with your funding?
My research focused on a community action project, which addresses crop-raiding in communities surrounding Kibale National Park in western Uganda. This project has been ongoing for a few years, but the data has yet to be analyzed. I mostly worked on cleaning up the data and analyzing it so that the project can continue to adapt to the communities’ needs.

Have there been specific people here at WashU that gave you significant support and/or helped propel your interest in research?
Dr. Jeremy Caddel in International and Area Studies helped me in the beginning stages of my interest in research and guided me on the realities of conducting research, like getting IRB approval, funding opportunities, etc. Once I solidified the logistics, I sought the advice of Dr. Krista Milich in Anthropology who informed me of a project in Uganda she was working on and told me about several research opportunities there. She worked with me to develop a research topic that was not only beneficial to her overarching project, but also one that would be of interest to me and help me prepare for life after graduation.
Research Spotlight
Student Researcher Experiences

Anneliese Ceisel
Graduation Year: 2021
Majors: Biology (Computational and Genomics Track), Spanish

Research Funding:
uSTAR Summer Scholars Program

How has your research experience impacted you?
My summer research experience verified for me that I would like to pursue research full-time post-graduation. The structure of the uSTAR program helped open my eyes to the different pathways within biological research. It helped me network, not only amongst my peers—with whom I developed a strong friendship—but also amongst other WashU researchers and PI’s.

What have you learned from your research experience?
I learned so much during my summer research experience. Between learning general techniques in the lab, different pathways and topics of research in our uSTAR program meetings, and developing networking skills, I have gathered enough skill to advance my career to the next level, where I can continue to learn.

“My end goal is an MD/PhD, so my research skills are directly applicable in providing me with the foundation of knowledge I need to jump start my own personal research projects.”

Rory Mather
Graduation Year: 2019
Major: Biology (Neuroscience Track)
Minor: Electrical Engineering

Research Funding:
WashU Biology Summer Undergraduate Research Fellowship (BioSURF)

What initially sparked your interest in beginning research at WashU?
After finishing my first year of college and taking all of the introductory science courses, I realized that I wasn’t satisfied with just learning about or applying what has already been discovered. I knew that I needed to be at the forefront of the field and so I figured that I’d get started earlier rather than later by doing research.

How has your research experience impacted you?
My research experience has given me a true understanding of not only how to conduct research, but also has given me basic life skills like how to communicate what I am saying in a concise way, how to make proposals to people about ideas in order to obtain support and resources, how to work on a timeline, and how to maintain efficiency with a large team.
Research Spotlight
Student Researcher Experiences

Victoria Collins
Graduation Year: 2019
Majors: Anthropology, Psychological and Brain Sciences

Research Funding:
WashU Summer Undergraduate Research Award (SURA)

What type of research did you pursue with your funding?
I spent the summer after my sophomore year interviewing midwives, mothers, and traditional birth attendants in Iganga, Uganda. With the guidance of a local research team, I examined how women make decisions about where to seek care, what barriers they face in accessing health care, and where gaps in understanding exist between biomedical professionals and the communities they serve.

How do you feel your research experiences and opportunities have impacted you and/or prepared you for life after graduation?
The opportunity to do research in college has equipped me with a set of skills that I can apply in any field after college. After returning from Uganda, I learned of a non-profit architecture firm in Boston that was creating innovative solutions to health care problems. Although I had no background in architecture, the research skills and maternal health background I gained at WashU allowed me to take on a summer position as a research intern. I spent the summer conducting project impact analysis and proposing design solutions for problems in behavioral health care.

“...Dr. Parikh about my interest in her research, she was enthusiastic and invited me to join her team in Uganda the following summer. We discussed my interests at length, and she encouraged me to develop my own research question."

Blake Bordelon
Graduation Year: 2019
Majors: Systems Engineering (Applied Science), Physics
Minor: Computer Science

Research Funding:
WashU Physics Summer Fellowship

What type of research did you pursue with your funding?
Last summer I worked on supervised learning rules for spiking neural networks under the mentorship of Dr. Ralf Wessel. We used a time-dependent spike pairing scheme to update the weights of a network to represent a map from input stimulating currents to output spike trains. This summer I worked with the nuclear physics group, calculating elastic electron cross sections for exotic nuclei like Ca-40, Ca-48, and Pb-208. Cross sections were calculated for the Dispersive Optical Model (DOM) as well as some model independent densities obtained from the experiment.

How has your research experience impacted you?
Research has made me more creative in both research and academic course work. When I learn a new technique in a math, physics, or engineering course, I now imagine possible applications to the problems I am trying to solve. Performing research also taught me the importance of persistently acquiring new skills and tools to solve difficult problems.

“When I took Physics of the Brain my sophomore year, I realized for the first time that many of the most interesting and important questions in the natural sciences and engineering remain to be answered, which helped spark my interest in research.”

Danny Reise/WUSTL Photos
Looking Ahead
Assessing what we do

“Undergraduate research is a valuable learning experience. It is not necessarily about the end goal, but the skills that you learn along the way.”

WashU students conducting undergraduate research continue to help demonstrate through their many accolades and accomplishments that deep intellectual inquiry, exploration, and innovation is a hallmark 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.
• Develop communications to improve awareness and understanding of the Office of Undergraduate Research and its capabilities to students, faculty, and mentors.
• Build new relationships while strengthening existing relationships with faculty mentors from across the university.
• Listen to the evolving needs of our students and make changes to our programs and opportunities to reflect those needs.
• 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