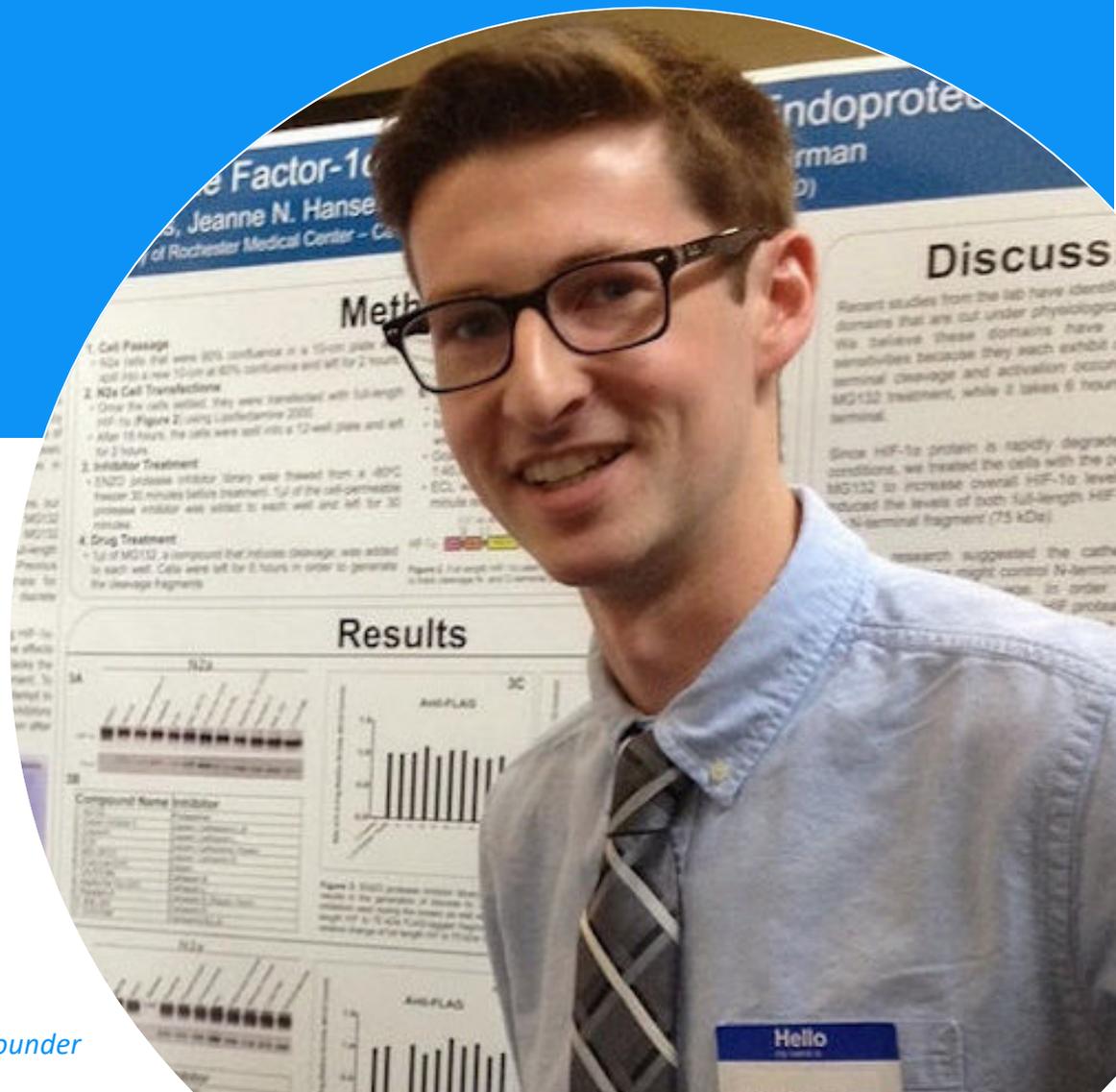


UNIVERSITY OF ROCHESTER UNDERGRADUATE PLACEMENT PROGRAM



PROGRAM REPORT SPRING 2018



Max Sims ('16), UR-UPP co-founder

OUR MISSION

Undergraduate research provides students a unique, authentic space for mentored growth, exploration, and professional learning. The Undergraduate Placement Program (UR-UPP) was established with the aim of lowering barriers to accessing high-quality undergraduate research experiences. Through a collaborative partnership between Dr. Marc Halterman of the Center for Neurotherapeutics Discovery and the Office of Undergraduate Research, UR-UPP began connecting students with faculty members in the Neuroscience Department at the University of Rochester Medical Center in Spring 2016. This pilot program of 11 students has grown into a comprehensive system of supports and streamlining benefitting over 200 students across life and health science departments at the University.

As its structure and reach continue to evolve to the needs and wants of students and faculty, UR-UPP hopes to serve as a campus-wide model for increasing participation and quality of undergraduate research experiences. This report will detail the progress UR-UPP has made in strengthening intercampus connections, increasing student opportunity to prepare for and participate in research, and furthering the University's mission to lead through research.

We invite you to explore data and feedback in each of UR-UPP's identified areas of impact:

- 1 Characterizing student attitudes surrounding participation in life and health science research
- 2 Increasing early, targeted student engagement with research
- 3 Identifying and responding to faculty and mentor needs
- 4 Increasing intra- and intercampus collaboration through research

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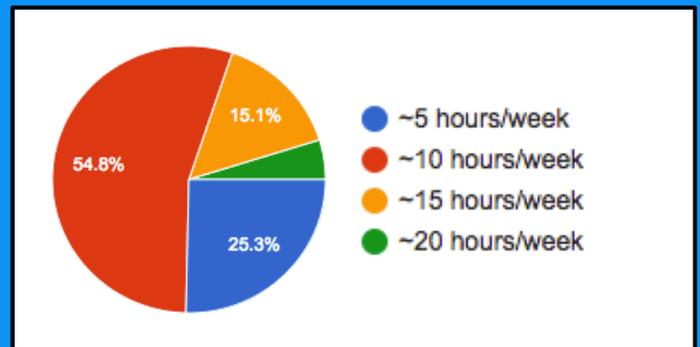
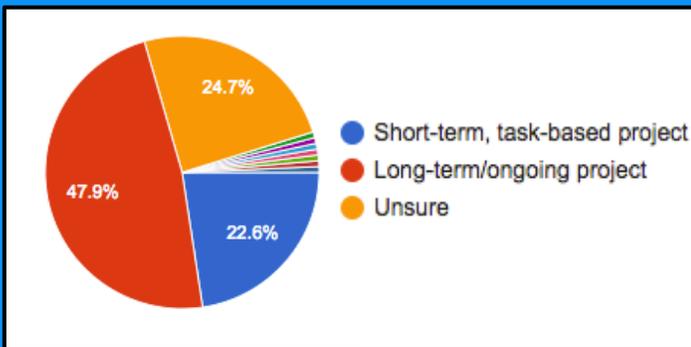
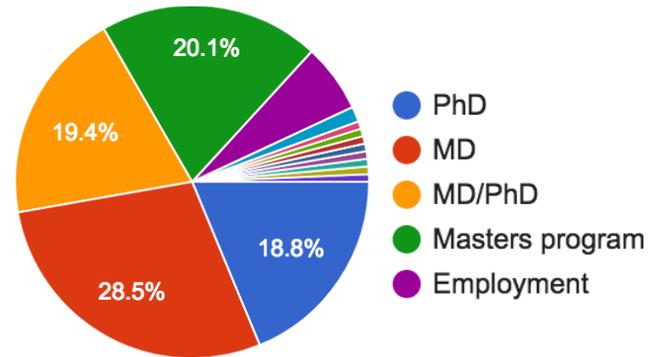
Characterizing student attitudes surrounding participation in life and health science research

Students recognize the potential of an undergraduate research experience to enrich their coursework and help them shape their future goals. Many students are unsure of what types of research are available or what might be the best match for their nascent interests.

When asked to identify the best descriptors of their stance on research topics, a survey of 144 students who came in for research advising between September 2017 and March 2019 shows

- **72%** of survey respondents noted that they wanted to “have a research experience help [them] define what [their] future interests might be.”
- **47%** of students surveyed were “not exactly sure what topic [they are] interested in researching, while only **19%** of respondents “have a clearly defined topic in mind that [they are] interested in researching.”
- **20%** of students surveyed have “tried research...and want to switch to a different type/topic.”

Conversations with students about the alignment of research with their anticipated post-graduation plans have shown a desire to push boundaries and apply knowledge learned in class, in tandem with an underlying pressure to meet admissions expectations for graduate and professional schools.

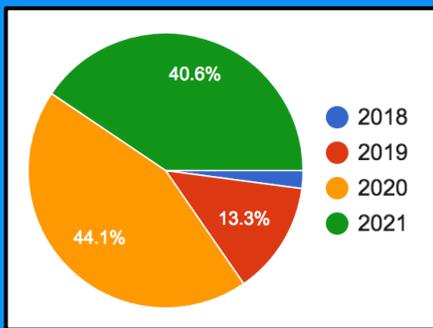


Students surveyed were primarily looking for long-term research experiences. Those wanting short-term projects were either looking for clinical research, exposure to different techniques, or a “trial period” to see if they enjoyed research. **55%** of students expected to spend around 10 hours per week on research during the academic year; however, **25%** expected to devote only about 5 hours per week to a research experience.

2

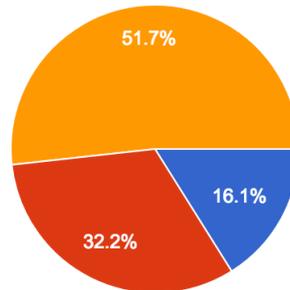
Increasing early, targeted student engagement with research

UR-UPP seeks to increase students' engagement with research by providing targeted individual advising, showcasing undergraduate research opportunities and the desired skills to complete them, and clearly communicating options for exploring research in life and health science. We want to make these supports available to all University students—from their first day on campus to their last. UR-UPP's inclusive student outreach initiative, housed in the Office of Undergraduate Research since September 2017, more than tripled the number of Fall student appointments made with the Office (**27** meetings in Fall 2015, **37** in Fall 2016, **126** in Fall 2017).

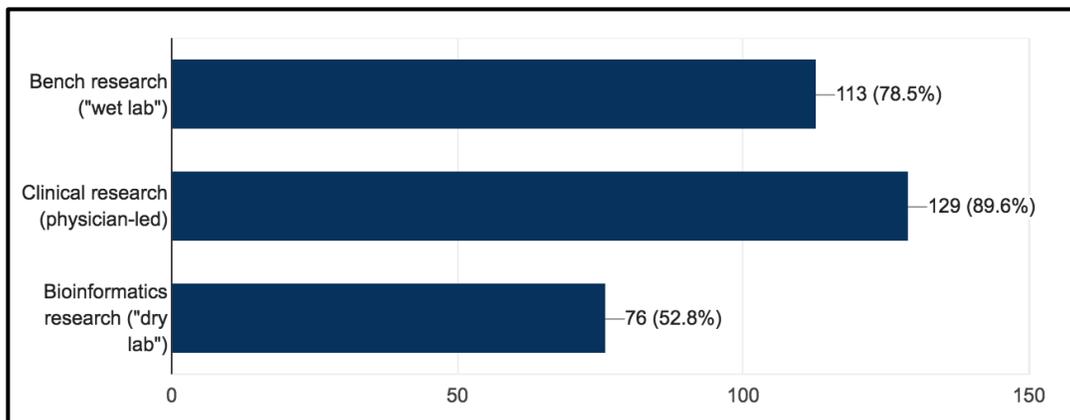


Over 80% of students seeking individualized UR-UPP support between September 2017 and March 2018 were in their first or second year at Rochester.

More than half of these students had no previous research experience or computer programming knowledge. A common fear amongst these students is that they have no skills to offer a prospective mentor.



- I currently work with a lab or research group.
- I have had research experience in the past.
- I have no research experience.



Despite high initially reported interest in bench, clinical, and computational research, students tended to shift and specify their interest after a **clear, personalized conversation** on what different research types looked like and involved. Younger students are likely to underreport a lack of understanding about what different types of research entail.

An informal survey of 34 students making use of UR-UPP supports provided preliminary feedback on students' needs and wants for finding and making the most of a research experience.



1 – not at all confident

2 – slightly unconfident

3 – neutral

4 – fairly confident

5 – fully confident

Task	Actively looking for research	Connected with research	Class of 2018	Class of 2019	Class of 2020	Class of 2021
Exploring the different types of research taking place at the university	3.53	4.13	5	4.25	3.94	3.42
Identifying mentors you'd be interested in working with	3.44	4.19	5	3.5	3.75	3.64
Contacting prospective mentors through email with a specific, targeted message	3.06	4.06	5	4	3.56	3.27
Talking with research faculty (in a one-on-one meeting)	3.24	4.25	5	3.75	3.94	3.33
Reading discipline-specific journal articles	3.71	4.00	4.5	3	4.06	3.58
Understanding the skills required for entry into a specific lab/research team	4.18	3.88	4.5	4.25	3.88	4.17
Completing trainings and requisite paperwork for research in a specific area	4.24	4.19	4.5	4.5	3.94	4.50
Balancing coursework with a 10-15 hour per week research commitment	4.19	3.88	5	4	3.93	4.08
Registering and receiving course credit for research	3.13	3.13	5	3.5	3.07	2.92
Finding summer research opportunities appropriate for you	3.63	3.56	5	4.25	3.47	3.33
Finding ways to share your research (conferences, poster sessions, etc.)	3.46	3.00	4.5	4.5	3.0	2.89
Proposing independent research questions	2.67	2.73	4.5	4.25	2.50	2.27

3

Identifying and responding to faculty and mentor needs

The foundation of undergraduate research at Rochester is a faculty and staff-driven willingness to support students in their efforts to “dig deep” into problems and ideas outside of classroom walls. The UR-UPP project coordinator has spoken with over 60 faculty and staff members about undergraduate participation in research. Hearing directly from mentors about what is going well—and what isn’t—in undergraduate research has enabled UR-UPP to make meaningful shifts in programming, identify new collaborators, and better understand the climate for undergraduate research across the University.

UR-UPP student survey: Do you have any programming knowledge or experience?



Many faculty members are interested in reaching students outside of the “traditional” majors that might be looking at their research teams: an RNA biologist, for example, looking for a data scientist. Brain and cognitive scientists often seek students with computational or statistical backgrounds. UR-UPP provides an avenue for these prospective mentors to be explicit when they are looking for students with specific backgrounds or skill sets. Moreover, it provides awareness and motivation for students to seek out—early!—workshops, courses, or trainings that will benefit them or enrich their experience as they pursue research in their area of interest.

Given the proximity of the University’s many clinical departments and research centers and the high reported student interest in clinical research, UR-UPP is working to better understand what could facilitate more clinical mentor-undergraduate partnerships. Together with the Gwen M. Greene Center for Career Education and Connections, we are seeking to:

- Streamline the compliance and onboarding process that discourages many clinical faculty from incorporating undergraduates into their work
- Establish partnerships with the Clinical and Translational Science Institute to assist with onboarding, education, and clinical “orientation” for undergraduate students
- Incentivize faculty, residents, and current medical students to take on mentorship roles with students who have completed requisite training and preparation for clinical projects

UR-UPP has defined examples of how undergraduates might contribute to clinical projects and put together a preliminary onboarding protocol for mentors to help pull together information from different offices and centers—something that, until this academic year, had been left undocumented.

4

Increasing intra- and intercampus collaboration through research

Having roots in the Neuroscience and Neurology departments at the University of Rochester Medical Center, UR-UPP has continued to build on its goal to strengthen ties between the River Campus and Medical Center communities. After a year of working exclusively with neuroscience students and faculty, the program expanded to reach out to those interested in life and health sciences more generally.

62

mentors have requested students through the UR-UPP infrastructure

90%

of mentor requests were made by faculty working in the medical center

79

students have found research placements using UR-UPP postings

Assessing student needs and avenues for increasing access to undergraduate research opportunities has generated fruitful collaborations with other River Campus staff and offices, as well as faculty, staff, and programs within the Medical Center.

Survey-identified need	Collaborative relationship
Skills workshops	UR-UPP is working with graduate and postdoctoral students of URBEST to develop online resource guides and prospective in-person workshops for students. Carlson Library has reached out to Undergraduate Research and the Biology Department for collaboration on the “Pathways to Research” soft-skills workshop
Meet-and-greet opportunities with professors and students	UR-UPP teamed with the Kearns Center to host an undergraduate research session for over 50 students with faculty guests. UR-UPP publicizes grand rounds and department seminars to advised students through a biweekly newsletter.
Previewing different types of research	UR-UPP is working together with the Society for Undergraduate Biology Students (SUBS) and URBEST to establish a formal, peer-led lab visitation program.
Summer research info sessions	With input from several international students, UR-UPP compiled a list of summer internships in the life and health sciences that accepted international applicants.
More publicized clinical research opportunities	Working together with the Gwen M. Greene Center and URM’s CTSI, UR-UPP is focusing on the systemization of making clinical research placements. The partnership aims to improve marketing and outreach to faculty while streamlining student training and paperwork completion and collection.