



2020 UNDERGRADUATE RESEARCH DAY

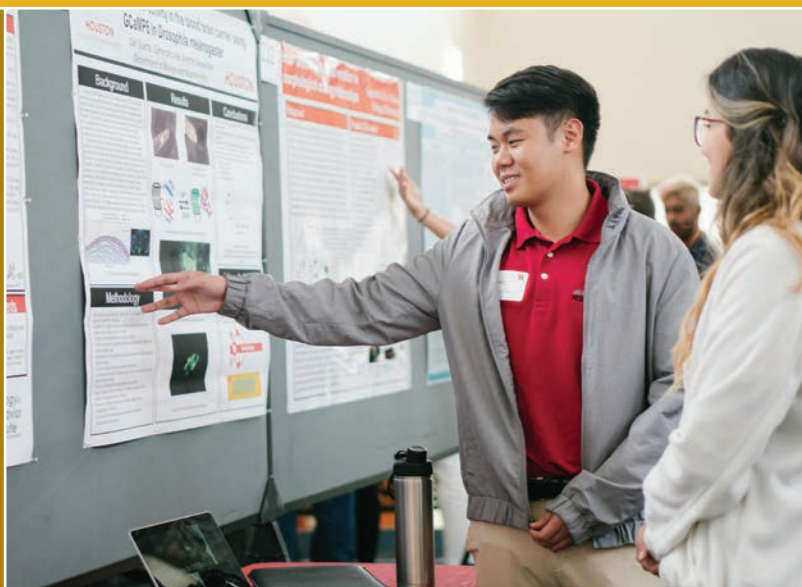
Tuesday, September 29, 2020 10 a.m.

Online www.uh.edu/urday

LISTSERV

Subscribe to the Undergraduate Research Listserv

Send an email to **undergrad-research@uh.edu** with your full name and email address to receive information about events and deadlines related to undergraduate research opportunities and national fellowships and major awards.



DEADLINES

Senior Honors Thesis

To enroll in the **Senior Honors Thesis** program for Spring 2021, students must submit their Verification of Eligibility Form and General Petition by **December 1, 2020**.

Students continuing in the thesis program must register for 4399 (or department equivalent) for Spring 2021.

PURS

The Spring 2021 Provost's Undergraduate Research Scholarship deadline is **November 2, 2020**.

Visit **uh.edu/PURS** for more information.

SURF

The 2021 Summer Undergraduate Research Fellowship deadline is **March 12, 2021**.

Visit **uh.edu/SURF** for more information.

2020 UNDERGRADUATE RESEARCH DAY

September 29, 2020

www.uh.edu/urday

10 a.m. | Viewing of Student Posters

Welcome and Remarks to Presenters

Paula Myrick Short, Ph.D.

Senior Vice Chancellor for Academic Affairs, University of Houston System
Senior Vice President for Academic Affairs and Provost, University of Houston

Amr Elnashai, FEng

Vice Chancellor for Research and Technology Transfer, University of Houston System
Vice President for Research and Technology Transfer, University of Houston

Stuart A. Long, Ph.D.

Associate Dean of Undergraduate Research and the Honors College,
University of Houston

Brittni MacLeod, M.Ed.

Associate Director, Office of Undergraduate Research and Major Awards,
University of Houston

Thank you to the Office of the Provost, the Division of Research, the Honors College, the Cullen College of Engineering, and the College of Liberal Arts and Social Sciences for their generous support of the Office of Undergraduate Research and Major Awards.

Special thanks to the Gerald D. Hines College of Architecture and Design for printing the posters for the event.

WELCOME

Welcome to Undergraduate Research Day.

Welcome to the 15th Annual Undergraduate Research Day.

This year has been a whirlwind, to say the very least. We planned to hold Undergraduate Research Day in the spring semester and were looking forward to seeing posters placed throughout the Honors College, the Elizabeth D. Rockwell Pavilion, and M.D. Anderson Library. As COVID-19 cases appeared in the United States, we postponed our spring research event until September 29th, with hopes that we might be able to have some type of on-campus event. However, cases continued to climb in the U.S., and we made the decision to take the event 100% online. In order to bring you the most engaging research event possible, we have partnered with ForagerOne to bring Undergraduate Research Day to you virtually, wherever you may be at this time. In selecting the format for today, our team took into consideration how you might interact with posters beyond simply viewing them online. We encourage you to comment or reach out to individual presenters with any questions about their work.

Undergraduate Research Day is an event that showcases the diverse range of impressive research projects completed by University of Houston undergraduate students. Today's presenters include students from the Summer Undergraduate Research Fellowship (SURF) Program, the Mellon Research Scholars Program, and many others who conducted research under the guidance of University of Houston faculty during the past year. We are incredibly proud of our undergraduate researchers' accomplishments, and they are eager to share their research projects with you.

Over the past year and a half, the Office of Undergraduate Research and Major Awards has supported students from across the University of Houston through faculty-mentored research programs. The SURF program had over 100 participants in 2019 and over 140 in 2020. The Provost's Undergraduate Research Scholarship was awarded to over 85 students between Spring 2019 and Spring 2020. In 2019 and 2020, over 90 exceptional students learned how to conduct effective and ethical research through the Houston Early Research Experience (HERE). The Mellon Research Scholars Program welcomed two more dynamic cohorts of students seeking to contribute to their fields and promote diversity and inclusion in the humanities. Our undergraduate researchers come from a variety of majors and have innovative research ideas that can leave a positive, lasting impact.

Our students have worked with faculty mentors from 11 colleges and more than 30 departments on campus; their efforts contribute to the broad range of research projects on display here today. Our faculty mentors are devoted to supporting students in the pursuit of advancing knowledge and excellence in their chosen fields. Students who participate in faculty-mentored research programs such as SURF and PURS have opportunities to develop and sharpen their problem solving, critical thinking, and communication skills. They also gain new perspectives by working with graduate students and faculty on research teams and learn how their work contributes to the greater good. These skills were made apparent to the Office of Undergraduate Research and Major Awards team when meeting with each undergraduate researcher over the past year.

In our second and third years of the Mellon Research Scholars Program, the Office of Undergraduate Research and Major Awards worked with 42 vibrant scholars pursuing research in disciplines across the humanities. Funded by a grant from the

Andrew W. Mellon Foundation and committed to building a diverse academy, the program includes faculty-led seminars, an intensive preparatory graduate school workshop, and a full-time summer research experience for students. While several 2019 Mellon Scholars traveled in the United States and abroad for fieldwork, to access sources for their research, and to improve their language and translation skills, the 2020 cohort of Mellon Scholars have adapted to the challenges of conducting their research remotely. From processing an archival collection, to presenting their research at national conferences, to applying for nationally-competitive fellowships, the Mellon Research Scholars are on the move. Please visit the Mellon Research Scholars website for more information.

Undergraduate research continues to play a major role in preparing UH students to apply for national fellowships and major awards. Last year, UH set a number of institutional records. For the first time since 2014, two undergraduates received the prestigious Barry Goldwater Scholarship for excellence in STEM. In addition to three Boren Scholars, UH also recorded its first Critical Language recipients for Urdu and Persian, and its second ever Udall Scholar. Most notably, with the supportive leadership of Provost Paula Myrick Short, 12 students were named Fulbright recipients, thus establishing the University of Houston as a Top Producing Fulbright Institution for 2019-2020. The University of Houston joins an elite group of research institutions to receive this honor and is only one of two schools in Texas to claim such a distinction.

The Office of Undergraduate Research and Major Awards welcomed two new staff members in 2019. Brittni MacLeod joined as the Associate Director and provides guidance and support to students who wish to pursue research opportunities at the University of Houston. She has previously served in advising roles and managed student leadership, campus involvement, and academic support programs. Please contact Mrs. MacLeod to learn more about getting started in research, the SURF, PURS, and ARC programs, and the Senior Honors Thesis program.

Dr. Rikki Bettinger joined as the Program Manager and serves as the Associate Director of the Mellon Research Scholars Program. Dr. Bettinger works directly with the Mellon Scholars as they conduct individual research projects in the humanities and apply to competitive graduate programs and national fellowships. For more information about the Mellon Research Scholars Program and Houston Early Research Experience, please contact Dr. Bettinger.

The Office of Undergraduate Research and Major Awards would like to thank the Office of the Provost, the Division of Research, the Honors College, the Cullen College of Engineering, the College of Liberal Arts and Social Sciences, and the many other colleges and departments on campus for their support of undergraduate research programming at the University of Houston. The programs featured here today would not be possible without the support of our campus partners. (Please see page 4 for listing of supporters.)

Thank you for joining this year's virtual celebration of the University of Houston's undergraduate research community. As you engage with the 281 presenters online, we hope you learn something new and make lasting connections rooted in scholarship. A strong, resilient research community is more important than ever before, and that is the type of community we believe you will witness today through our students' work.



Stuart Long



Ben Rayder



Brittni MacLeod



Rikki Bettinger

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OFFICE OF UNDERGRADUATE RESEARCH AND MAJOR AWARDS

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September 29, 2020

10 a.m. Poster Presentations

Online

www.uh.edu/urday

The Office of Undergraduate Research and Major Awards

The Honors College

University of Houston

M.D. Anderson Library

4333 University Drive, Room 212W

Houston, TX 77204-2001

(713) 743-6433

UndergraduateResearch.uh.edu

undergrad-research@uh.edu

Booklet created by

Julia Brown,

Communications Coordinator,

The Honors College

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OFFICE OF UNDERGRADUATE RESEARCH AND MAJOR AWARDS



OUR MA PROGRAMS

THE HOUSTON EARLY RESEARCH EXPERIENCE (HERE) is a two-week research program in May intended to orient rising sophomore and junior undergraduates to the fundamentals of conducting research. HERE awards \$1,000 scholarships to students with at least a 3.5 GPA. uh.edu/hereprogram

THE SUMMER UNDERGRADUATE RESEARCH FELLOWSHIP (SURF) is a full-time, ten-week summer research program for students and provides a \$4,000 scholarship to conduct research under the mentorship of a UH faculty member. Students from all disciplines with at least a 3.0 GPA are encouraged to apply. uh.edu/surf

THE PROVOST'S UNDERGRADUATE RESEARCH SCHOLARSHIP (PURS) is a part-time, semester-long research program for juniors and seniors and awards a \$1,000 scholarship for students to work one-on-one with a faculty mentor. This scholarship is open to students from all colleges and disciplines. Candidates must have at least a 3.0 grade point average to apply. uh.edu/purs

THE MELLON RESEARCH SCHOLARS PROGRAM is for underrepresented juniors interested in conducting research and attending graduate studies in the humanities. Mellon Scholars participate in a faculty-led seminar series to learn more about research opportunities in the humanities, receive \$1,100 to participate in a two-week camp on applying to graduate school, earn \$3,900 to conduct a full-time summer

research project under the mentorship of a University of Houston faculty mentor, and conclude the program by either completing an independent study or senior honors thesis during their senior year. uh.edu/mellonscholars

THE SENIOR HONORS THESIS is a capstone program for a student's undergraduate career in research. Student participants enroll in 3399 and 4399, a total of six hours of coursework, which is typically applied toward their major degree requirements during their senior year. For more information, visit the thesis website at uh.edu/seniorhonorsthesis.

THE ACTION RESEARCH IN COMMUNITIES (ARC) PROGRAM at the University of Houston is a collaborative effort supported by the Cougar Initiative to Engage and the Office of Undergraduate Research and Major Awards. ARC is a one-year research program that awards a \$1,500 scholarship and offers exceptional undergraduates with opportunities to conduct faculty-mentored action research based on service projects in the Greater Houston Community. The goal of action research is continuous improvement, reflection, and growth. Students from all majors with at least a 3.0 GPA are encouraged to apply. uh.edu/arc

Contact Information:

Brittni MacLeod, Associate Director
bsmacleod@uh.edu

A special thanks to our campus and community partners for their support of the Office of Undergraduate Research and Major Awards over our 15 years of serving undergraduate researchers:

- Office of the Provost
- Division of Research
- Cullen College of Engineering
- Honors College
- Andrew W. Mellon Foundation
- Biology & Biochemistry
- Biology of Behavior Institute (BoBI)
- Biomedical Engineering
- Chemical & Biomolecular Engineering
- Chemistry
- Civil & Environmental Engineering
- College of Education
- College of Liberal Arts and Social Sciences
- College of Natural Sciences and Mathematics
- College of Pharmacy
- College of Technology
- Computer Science
- Construction Management
- Data Analytics in Student
- Hands (DASH) and Honors in Community Health (HICH)
- Earth & Atmospheric Sciences
- Electrical & Computer Engineering
- Engineering Technology
- Gerald D. Hines College of Architecture and Design
- Health & Human Performance
- Hobby School of Public Affairs
- Industrial Engineering
- Mathematics
- Mechanical Engineering
- Medicine & Society Program
- Physics
- Political Science
- Psychology
- Texas Center for Superconductivity (TcSUH)
- Texas Obesity Research Center (TORC)
- The Writing Center
- University of Houston/MD Anderson Cancer Program

THE HONORS COLLEGE

THE HONORS COLLEGE PHILOSOPHY

The Honors College at the University of Houston serves the intellectual needs of gifted undergraduates in more than 100 fields of study. We provide the careful guidance, flexibility, and personal instruction that nurture excellence. We offer the University's finest students ***the best of both worlds***—the community and advantages of a small college together with the resources and rich diversity of a large research university. Our faculty and staff believe that a university education should offer more than the acquisition of skills for the workplace. The Honors College challenges students to develop the attributes of mind and character that enhance all facets of life.

HONORS CURRICULUM

Our curriculum is designed to coordinate with all majors and degree plans offered at the University of Houston. You will fulfill many of your University core requirements through Honors courses that take the place of regular required classes. One key sequence of courses, The Human Situation, is team-taught by Honors faculty and is designed to ensure that you are introduced to the great books of the Western tradition. For many Honors students, the Senior Honors Thesis represents the exciting culmination of a bachelor's degree. A thesis provides an excellent opportunity for you to work under the direction of faculty in your chosen field of study, applying your skills and knowledge toward the completion of a scholarly or creative project.



THE HONORS COLLEGE COMMUNITY

Special Classes and Course Selection

We draw on the talents of the brightest faculty members within the University to provide a wide range of special courses with limited enrollment. Honors courses encourage student participation, interaction, and discussion.

Membership in a Community

You will enjoy special privileges, including Honors College scholarships, priority course registration, computer facilities, reserved lounge and study areas, study abroad opportunities, and special housing in Honors College residence halls. Many intangible benefits also come with participation in the Honors community—the friendships that develop in the classroom carry over into other areas of student life. We foster an atmosphere of collegiality and a spirit of camaraderie through informal gatherings, social activities, and on- and off-campus cultural events.

Talented Classmates

When admitted to the Honors College, you will enter the company of the most academically talented undergraduates at the University. Members bring a variety of interests, aptitudes, and ambitions to their studies. Through daily association with other Honors students, you will discover the broad range of academic programs at the University.

Apply Now at www.TheHonorsCollege.com/apply

Contact Information:
Honors College
Office for Student Recruitment
(713) 743-1766
honorsadmissions@uh.edu

NATIONALLY COMPETITIVE SCHOLARSHIPS

Consider applying for one of these opportunities.

BARRY GOLDWATER SCHOLARSHIP

For sophomores and juniors who demonstrate academic excellence and intend to pursue research careers in mathematics, the natural sciences, or engineering. This competitive scholarship covers eligible expenses for undergraduate tuition, fees, books, and room and board, up to a maximum of \$7,500 annually.

Campus Deadline: Nov 2, 2020

HARRY S. TRUMAN SCHOLARSHIP

For college juniors with exceptional leadership potential who are committed to careers as change agents in government, the nonprofit or advocacy sectors, education, or elsewhere in public service. Each Truman Scholar receives up to \$30,000 for graduate study.

Campus Deadline: Nov 2, 2020

MORRIS K. UDALL & STEWART L. UDALL SCHOLARSHIP

For sophomore and junior level students committed to careers related to the environment, tribal public policy or tribal health care. Awards of up to \$7,000 and access to the Udall Alumni Network.

Campus Deadline: Feb 1, 2021

CRITICAL LANGUAGE SCHOLARSHIP

Language immersion program for undergraduates from all academic disciplines. Sponsored by the U.S. Department of State, this summer program allows students to study one of 15 critical languages abroad, including Arabic, Chinese, Korean, and Russian.

National Deadline: Nov 17, 2020

NSF GRADUATE RESEARCH FELLOWSHIP

For graduating seniors who intend to pursue a research-based master's or doctoral degree in the natural sciences, engineering, mathematics, or STEM education. The award includes a \$34,000 living stipend and \$12,000 cost-of-education allowance.

National Deadline: Oct 19-23, 2020

FULBRIGHT U.S. STUDENT PROGRAM

For graduating seniors, current graduate students, and alumni. Students may apply to teach English, enroll in a graduate degree program, or conduct research for one year in more than 140 countries. Recipients are awarded a living stipend, travel accommodations, and basic health insurance.

Campus Deadline: Aug 31, 2021



Application for these awards requires a strong academic, leadership, and service record. In some instances, you must be nominated to apply. For more information, visit the Office of Undergraduate Research and Major Awards or contact Dr. Ben Rayder (btrayder@uh.edu).

FULBRIGHT GRANTS FOR TEACHING ASSISTANTSHIPS OR STUDY/RESEARCH ABROAD



Layla Kratovic
Fulbright Study/Research Grantee
Bosnia and Herzegovina



Chelsea Sanchez
Fulbright English Teaching Assistant
South Korea

The Fulbright U.S. Student Program provides grants for individually designed Study/Research projects or for English Teaching Assistant Programs. During their grants, Fulbrighters meet, work, live with, and learn from the people of the host country to foster mutual understanding. Fulbright is one of the largest academic exchanges in the world, providing approximately 2,200 grants annually in more than 140 participating countries.



Crystal Tran
Fulbright English Teaching Assistant
Taiwan



Johnny Zapata
Fulbright English Teaching Assistant
Turkey

2021 CAMPUS DEADLINE:

August 31, 2021

FOR MORE INFORMATION, CONTACT:

Dr. Benjamin Rayder

Director, Office of Undergraduate Research and Major Awards

btrayder@uh.edu

www.us.fulbrightonline.org



UNDERGRADUATE RESEARCH MENTOR AWARDS

The Office of Undergraduate Research and Major Awards congratulates the 2019 Undergraduate Research Mentor Award recipients: **Aaron Becker**, **Jakoah Brgoch**, and **Hanako Yoshida**.



AARON BECKER

Assistant Professor Aaron Becker has made a substantial impact on his field of swarm robotics, as well as the Electrical and Computer Engineering Department in the Cullen College of Engineering at UH. His work has been recognized by numerous NSF grants, including the prestigious NSF CAREER Award in 2016-2021, seven NSF REU awards, and participation in a three-professor team that was awarded a one million dollar grant from the Office of Naval Research. Many of these awards have been used to further undergraduate research at UH, and he has trained numerous undergraduates through the PURS and SURF programs. In his lab, Professor Becker works on the theory and foundational tool set for swarms of under-actuated robots. Professor Becker's investment in undergraduate students is among his top priorities. His students have been coauthors in seven high-quality, peer-reviewed journal publications,

six conference papers, four software products, and countless presentations. "Our students at the University of Houston have great potential," writes Professor Becker. "The best of our undergraduates rival the best at any university I have worked at."



JAKOAH BRGOCH

Assistant Professor Jakoah Brgoch's research in materials chemistry explores topics ranging from luminescent materials to super hard molecular compounds. His research has garnered significant funding through a National Science Foundation CAREER award, a Petroleum Research Fund grant, two National Science Foundation grants, as well as three highly competitive internal grants at UH. His research has generated 22 publications, including contributions to prestigious, peer-reviewed journals such as *Nature Communications* and *Journal of the American Chemical Society*. In 2018, Professor Brgoch received a Young Chemist Award from the American Chemical Society. The undergraduate research conducted in Professor Brgoch's lab has resulted in six peer-reviewed publications, two of which have a UH undergraduate listed as the first author. He encourages all of his students to apply for awards,

fellowships, and study abroad opportunities, and he frequently introduces his students to future graduate research advisors and employers. Whenever possible, he provides support for students to present at national conferences, to help them, as he says, "learn the true scope of the scientific community."



HANAKO YOSHIDA

Associate Professor Hanako Yoshida is an experimental developmental psychologist at UH who investigates the early role of attention in language development by studying infants and young children. In her lab, she uses a variety of innovative techniques and technologies, including a baby-head camera, in order to study attention, memory, and learning. She has received funds from NICHD, NSF, and a variety of internal grants from UH to support her research. Her students are involved in every aspect of research, from design to data collection and coding, to analysis and writing. In her 12 years of teaching at UH, she has mentored over 130 undergraduates, 46 of whom were underrepresented minority students. In addition, 20% of her students have received scholarships to work in her lab. Moreover, 35 of her students have gone on to graduate study in a STEM discipline. "I am committed to fostering research

programs that provide a nurturing environment for undergraduate students," writes Professor Yoshida. "I genuinely enjoy watching our students grow, especially in the context of research and supervision."

UNDERGRADUATE RESEARCH MENTOR AWARDS

The Office of Undergraduate Research and Major Awards congratulates the 2020 Undergraduate Research Mentor Award recipients: **Lars Grabow**, **Donald Kouri**, and **Thomas Teets**.



LARS GRABOW

Dan Luss Professor Lars Grabow has served as a research mentor in the Department of Chemical and Biomolecular Engineering at UH for nine postdoctoral fellows, 18 Ph.D. students, and 30 undergraduate students. He mentors in the area of computational heterogeneous catalysis with applications in chemicals synthesis, clean energy, and environmental sustainability. His scholarly work has appeared in 64 peer-reviewed publications—with 4,648 citations—and his research has been funded by a blend of federal agencies (NSF, DOE), foundations (Petroleum Research Fund of ACS), and industry sponsors (Shell, Sabic, ExxonMobil). Professor Grabow is among the few academics to have received both a NSF CAREER grant and a DOE Early Career Award—both of which he received in the same year. His undergraduate mentees have co-authored two peer-reviewed publications and won many awards, including nine PURS

scholarships and a highly competitive presentation award at an ACS National Meeting. “My general attitude toward mentoring is to be supportive and readily available,” writes Professor Grabow, “but I also give students room to explore their own ideas, so that they eventually become independent researchers. My role as a mentor is to inspire and encourage my students.”



DONALD KOURI

Professor Donald Kouri has been teaching at UH for 53 years—first in the Chemistry Department, then in the Physics Department, where he has been a distinguished faculty mentor since 1972 and where he is a Hugh Roy and Lillie Cranz Cullen Distinguished Chair of Physics, Chemistry, Mathematics, and Mechanical Engineering. Professor Kouri has published over 500 peer-reviewed research papers, and he has personally mentored 21 undergraduate students in the past 17 years. His students have received many awards, including NSF Graduate Fellowships and the prestigious Goldwater Scholarship, and they have gone on to graduate work at Harvard, MIT, and other top programs in the country. Professor Kouri has a passion for research and mentoring. Not only does he work closely with his undergraduate researchers, he also makes sure they mentor each other. “I strive for my students to enjoy research as an integral part of their education,” writes Professor Kouri. “The students who work with me are among the brightest at UH.”



THOMAS TEETS

Associate Professor Thomas Teets manages a large and productive research group at UH, working in the areas of organometallic chemistry and photochemistry. During his last six years in the Department of Chemistry, Professor Teets has mentored two postdoctoral researchers, 14 graduate students, 11 undergraduate students, three visiting students, and five high school students. In his own research, Professor Teets has published 37 peer-reviewed papers, with a few more in review, and his creative research has led to external funding from the National Science Foundation (CAREER award in 2019), Army Research Lab, Robert A. Welch Foundation, and Petroleum Research Fund. In 2019, the UH College of Natural Sciences and Mathematics honored Professor Teets with the Junior Faculty Award for Research Excellence. Many of his undergraduate students are co-authors on papers that have been published, and two are first

authors. Professor Teets is passionate about mentoring. “My role in helping undergraduate students prepare for their future careers is as important as the research mentorship they experience while in my group,” writes Professor Teets. “I work closely with each of my undergraduate mentees to make sure they put together strong applications and succeed in whatever they plan to do after UH.”

Senior Honors Thesis

The Senior Honors Thesis is a capstone research experience under the guidance of a faculty mentor. Students of all majors can participate—membership in the Honors College is not required. The Office of Undergraduate Research and Major Awards collaborates with The Honors College and the College of the student's major to oversee the thesis process and approval.

Get Started!

Participants must have:

- a 3.25 cumulative GPA
- a 3.5 major GPA
- departmental approval
- Honors College approval

Step 1:

Ask your professors about their research interests to see if they align with yours. Don't be afraid to ask for advice!

Step 2:

Talk to students currently enrolled in the Senior Honors Thesis program about their experiences with research.

Step 3:

Ask a faculty member to serve as your thesis advisor.

Step 4:

Complete the Verification of Eligibility Form and a General Petition Form (<http://www.uh.edu/academics/forms/>).

Step 5:

Enroll in 3399 (or equivalent) Senior Honors Thesis course.

Step 6:

Write your prospectus and identify a second reader for your committee. Then, submit the Prospectus Approval Form to the Office of Undergraduate Research and Major Awards.

Step 7:

Review and submit the Senior Honors Thesis Checklist to the Office of Undergraduate Research and Major Awards.

Step 8:

Create goals for writing and communicate regularly with your readers (and visit <http://www.uh.edu/honors/undergraduate-research/honors-thesis/>).

Graduate!

For more information, contact:

Brittini S. MacLeod, M.Ed.

Associate Director

Office of Undergraduate Research
and Major Awards

bsmacleod@uh.edu

Successfully complete and defend your thesis, and graduate with an Honors designation on your transcript!

UNIVERSITY of HOUSTON

OFFICE OF UNDERGRADUATE
RESEARCH AND MAJOR AWARDS

UNIVERSITY OF HOUSTON LIBRARIES



The University of Houston Libraries form a community nurtured by curiosity and creativity that drives lifelong learning and scholarship. With access to more than 3.2 million physical and digital volumes, over 159,000 journals and serial subscriptions, and over 400 databases, the UH Libraries makes research possible!

You can find past works of undergraduate research in the UH Institutional Repository. The UHIR collects, preserves, and distributes scholarly output and creative works produced by the University of Houston community. Collections include “Undergraduate Research Day Projects” and “Senior Honors Theses.”

Contact your Subject Librarian today who can assist you with all of your research needs. They are available by appointment, virtually, or in person: <https://libraries.uh.edu/experts/>

Thank you to the UH Libraries for supporting Undergraduate Research at the University of Houston.

THE WRITING CENTER

Writing is thinking. It is an indispensable activity for every discipline conducting research within a university setting and an essential component of a university education. Ongoing instruction in writing helps to initiate students into the changing intellectual demands of university life and introduces them to the complexities of their chosen disciplines and professions. Because writing provides the tools to discover and articulate solutions to intellectual problems, improved writing remains a continual goal of university education.

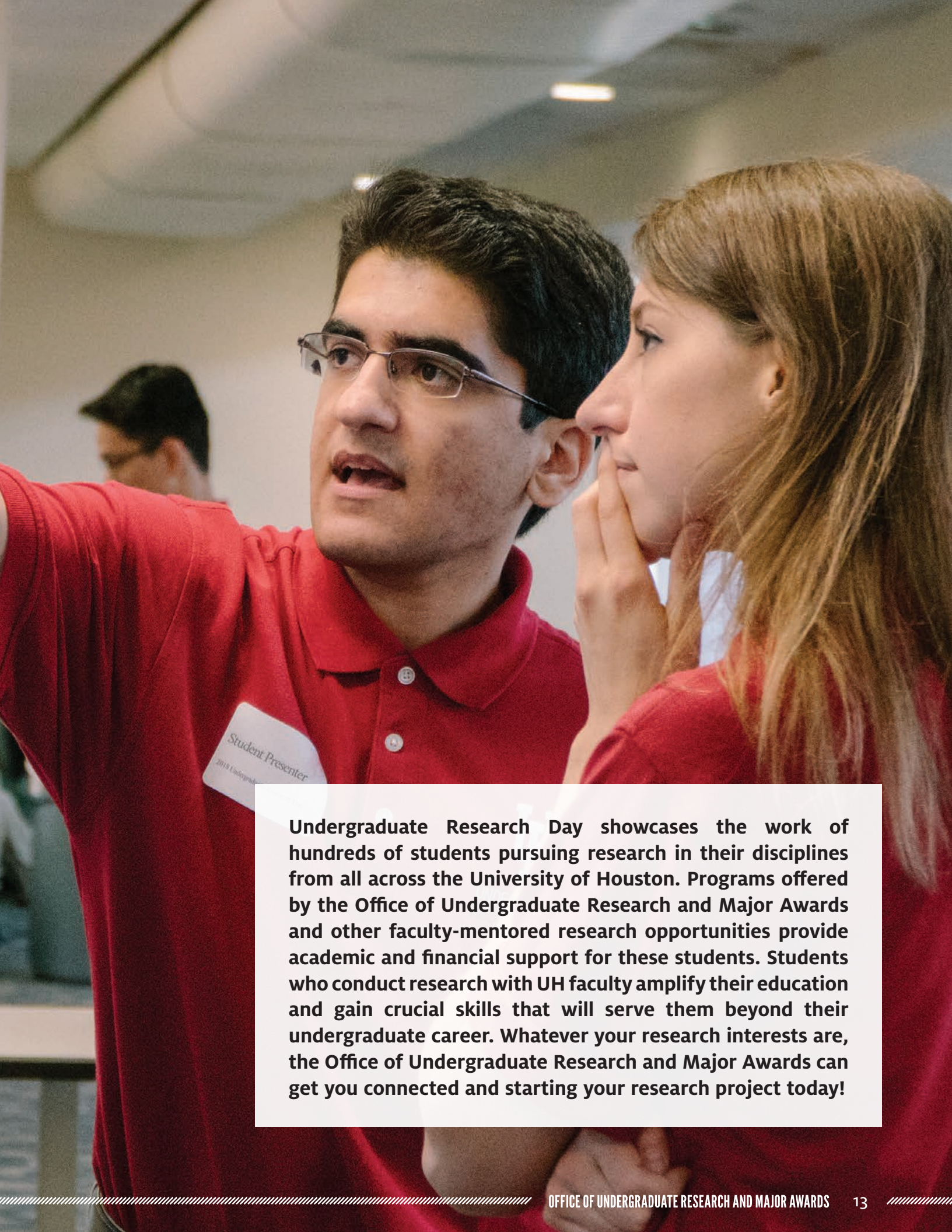
To address these concerns, the mission of the **University of Houston Writing Center** includes Assessment, Writing Instruction, Curricular Innovation, Community Outreach, Professional Development, and Research in the Teaching of Writing. Website: writingcenter.uh.edu



Thank you to the Writing Center for supporting Undergraduate Research at the University of Houston.

A hand in a red sleeve points to a research poster. The poster features two bar charts. The top chart has orange and teal bars, with the teal bar being significantly taller. The bottom chart has blue and orange bars. The background is a blurred indoor setting.

UNDERGRADUATE RESEARCH PROGRAMS AND PRESENTERS



Undergraduate Research Day showcases the work of hundreds of students pursuing research in their disciplines from all across the University of Houston. Programs offered by the Office of Undergraduate Research and Major Awards and other faculty-mentored research opportunities provide academic and financial support for these students. Students who conduct research with UH faculty amplify their education and gain crucial skills that will serve them beyond their undergraduate career. Whatever your research interests are, the Office of Undergraduate Research and Major Awards can get you connected and starting your research project today!

HOUSTON EARLY RESEARCH EXPERIENCE

The **Houston Early Research Experience (HERE)** program recognizes freshman and sophomore students who excel both inside and outside the classroom. This two-week seminar series engages students from all majors in various research methodologies through faculty-led small group discussions and research presentations. Students receive a \$1,000 scholarship for participating in HERE.



HERE 2019

Forty-nine students participated in the 2019 HERE Program, which focused on flooding and storms in the city of Houston.

HERE Faculty Mentors:

Dan Burleson
Marc Hanke
Kelly Hopkins
Ryan Kennedy
Luis Medina
Anna Vershynina
Liza Watkins
Matthew Zelisko

HERE 2020

Forty-eight students participated in the 2020 HERE Program, which focused on urbanization in the city of Houston.

HERE Faculty Mentors:

Charlie Becker
Christiana Chang
Marc Hanke
Kelly Hopkins
Amin Kiaghadi
Rita Sirrieh
Marina Trninic



The 2021 theme for HERE will be inequality in Houston, and we look forward to welcoming our next cohort! For more information on future HERE programming, contact Dr. Rikki Bettinger at rbettinger@uh.edu.

PROVOST'S UNDERGRADUATE RESEARCH SCHOLARSHIP



The **Provost's Undergraduate Research Scholarship (PURS)** program provides talented University of Houston juniors and seniors with the opportunity to participate in a semester-long research project under the guidance of a UH faculty mentor. Students from all disciplines are encouraged to apply. PURS recipients receive a \$1,000 scholarship to conduct a one-semester research project with their faculty mentors. For more information, contact Brittini MacLeod at bsmacleod@uh.edu.

ACTION RESEARCH IN COMMUNITIES PROGRAM

The Office of Undergraduate Research and Major Awards, in partnership with the Cougar Initiative to Engage (CITE), offers the **Action Research in Communities (ARC) Program**. ARC provides selected students with a \$1,500 scholarship to pursue a year-long, faculty-mentored action research project focused on a past or current service project the student has participated in. The goal of action research is continuous improvement, reflection, and growth.

ARC participants will develop research questions around issues observed in the community and gain a better understanding of why these issues exist. They will then use that knowledge, coupled with their own service experiences and reflections, to develop an action plan to improve outcomes within the Greater Houston Community. Toward the end of their year in ARC, students will be given the opportunity to present their service-based research projects and apply for an implementation grant of up to \$750 to support turning their action plans into reality. Faculty mentors of ARC recipients also receive a \$500 stipend.



GEORGE PHARIS FELLOWS PROGRAM

Students from the Honors Biomedical Sciences joined **Pharis Fellows**, working with Drs. Peggy Lindner and Dan Price to create community health models that showed the effects of diverse community health interventions at an individual level and across the city. They learned how to construct mathematical models using the computer program R and applied them to a simulated Houston called Sam City, and showed how each intervention would affect individuals within the city. The modeling is the first step in a multi-year project that will enable the visualization of health as a hypergraph—connected individuals acting in community and embedded in the city’s multifaceted social and physical reality.

2019 FELLOWS



Row One: Sarah Ahmed, Christina Gligorova, Surbhi Gupta, Deborah Isola, Kishon Joseph

Row Two: Anut Kandhadai, Amber Nguyen, Helen Nguyen, Layla Shawareb
Not Pictured: Christina Pham, Nicholas Randall, Juventino Valdez

2020 FELLOWS



Row One: Ariel Abudu, Kayla Baham, Rishi Chitturi, Joshua Garcia, Maham Gardezi, Cameron Green, Anjali James, Claire Juhas

Row Two: C. Griffin Litwin, Sakina Mandviwala, Sondos Moursy, Saloni Patel, Madhumitha Periyasamy, Daniel Phu, Salar Sanati, Nabeela Siddeeqe

Row Three: Sameer Sidiq, Gundeep Singh, Elaine Tran, Pichvyda Tuy, Manushi Vatani, Brandon Warner

Not Pictured: Ashley Jimenez

UHAND SCHOLARS

UHAND (University of Houston/MD Anderson) Scholars are paired with faculty members from the University of Houston and The University of Texas MD Anderson Cancer Center. Mentors engage scholars in their research projects focused on cancer risk, social determinants of health, clinical, and population cancer research in minority populations. Scholars also participate in various learning experiences (e.g., career and leadership conversations, cancer disparity seminars, and ethics trainings) focused on topics designed to enhance their preparation for future careers in cancer disparities related fields. Please visit UHANDpartnership.com for more information.

2019 SCHOLARS



UH Undergraduates: Shreya Desai, Basant Gamal, Sean Reuven, and Sara Flores (not pictured)

2020 SCHOLARS



Stephanie Ramirez



Karina Serrano



Matthew Taing

MELLON RESEARCH SCHOLARS PROGRAM

In Summer 2019, the following 20 University of Houston **Mellon Research Scholars** participated in a full-time faculty-mentored summer research experience. They will be presenting their posters at Undergraduate Research Day.



Maria Amador

*Mentored by Gabriela Baeza Ventura
Marta Pérez de Perales' Historical Footprint*

Gilbert Baca

*Mentored by Roberto Tejada
Against Visibly Disappearing: Rethinking the Last
Work of David Wojnarowicz*

Justin Bui

*Mentored by Robert Cremins
Exploring the Serialized Comic Book as a Narrative
Medium*

Matt Flores

*Mentored by Roberto Tejada
Poetics of Spiritual Activism*

Jacob Foreman

*Mentored by Margot Backus
Radical Faerie Relationality*

JaNae Freeman

*Mentored by Caryn Tamber-Rosenau
Jewish Feminism in the United States: A Cultural
and Historical Analysis*

Syd González

*Mentored by Keith McNeal
Queer Culture in Wellington, Aotearoa*

Lida Hedayatpour

*Mentored by Christine LeVeaux-Haley
Epistemic Violence and Black Histories*

Wafa Kazmi

*Mentored by Hayan Charara
Voices from the Iraq War: Civilian Narratives
Through Oral History*

Manuel Martinez Alvarenga

*Mentored by Mark Goldberg
Finding Home in the Sunbelt: A Study of the
Organized Salvadoran Diaspora in Houston Since
1970*

Layla Mayorga

*Mentored by Luis Oliveira
How Does 'God' Refer?*

Mariah Miller

*Mentored by Richard Mizelle
Space, Time, and a Toxic Environment: The
Relationship Between Industry and Residents of
Pleasantville*

Kiara Minotta

*Mentored by Dustin Gish
Simon Bolivar's Political Culture*

Andrea Orozco

*Mentored by Christina Sisk
The Rebirth of a Nationality*

Suad Othman

*Mentored by Sebastian Lecourt
Knowledge + Acknowledgment = Wisdom: The
Theoretical Framework for Attaining Wisdom in
The Pilgrim's Progress*

Jordanna Park

*Mentored by Alexey Golubev
Comrade Mother: Gender Inequality in Soviet and
Post-Soviet Russia*

Grayson Parks

*Mentored by Hosam Aboul-Ela
Postcolonial Travel Literature: A Comparative View*

Devion Reed

*Mentored by Marina Trninic and Julia Brown
Across the Partition: A Creative Exploration of
Black Queer Identity*

Lizeth Rivas

*Mentored by Matthew Clavin
How Influential Were Mexican-Americans?:
Mexican-Americans and School Desegregation in
the United States During the 20th Century*

Keagan Wheat

*Mentored by Michael Snediker
FTM Poetry*

MELLON RESEARCH SCHOLARS PROGRAM

During Summer 2020, the following 22 University of Houston **Mellon Research Scholars** participated in a full-time faculty-mentored summer research experience. They will be presenting their posters at Undergraduate Research Day.



Ranyah Atwan

Mentored by Tshepo Masango Chéry
State of Defiance: Women's Role in the Moroccan Liberation Movement

Freisha Burke

Mentored by Wei Wang
Between Languages: A Sociolinguistic Analysis of Code-Switching in Bilingual Communication

Kaleb Clark

Mentored by William Monroe
Tolkienian Fantasy in the Modern Era: The Role of Traditional Literature in the Twenty-First Century

Daniela Contreras

Mentored by J. Bryan Cole
Religiosity, Partisanship, and Race: The Effect of History on Contemporary American Voting Patterns

Antonio Enriquez

Mentored by Norah Gharala
La Gran Chichimeca: Chichimecan Place in New Spanish Society

Paulina Ezquerro

Mentored by Iain Morrison
The Intellectual and Moral Virtues: Against a Consequentialist Account

Paulina Fernandez

Mentored by Johanna Luttrell
Environmental Justice in Houston: A Virtue Ethics Approach

Marco Garcia

Mentored by Johanna Luttrell
The Conception of Freedom in the Green New Deal

Maya Garza

Mentored by Lorraine K. Stock
Giants, Incubi, and Monstrous Sisters: Ethnocentrism and Sexism in the British Legends of Albion

Karla Grado

Mentored by Jason Casellas
The Creation of the Latine Voter Through Political Advertisement in Traditional Media: What Does the Latine Voter Really Want? A Literary Analysis

Stefanie Guzman

Mentored by Richard Mizelle
Why Don't You Matter: Missing White Women, Black Women's Sexuality

Nicole Hart

Mentored by A. Gary Dworkin
Racial Disparities in Black-White Education: A Sociological Conflict Theory Explanation

Alyssa Holt

Mentored by Maurice Wilson
Grammar and Power: The Role of the Student Consultant in the Writing Center

Mỹtràng Huỳnh

Mentored by Christy Mag Uidhir
On the Moral and Aesthetic Evaluations of Artists and Their Artworks

Nancy Katz

Mentored by Mark Goldberg
The Memory of Being Hidden: Crypto-Jews in the 20th Century

Rana Mohamad

Mentored by Hosam Aboul-Ela
Black, Arab, Other: The Sudanese Migrant Woman's Articulation of Identity

Kat Newman

Mentored by Guillermo De Los Reyes
The Cisnormative Wall: Distinguishing Gazes & Transgender Representations in POSE and Dallas Buyers Club

Veronica Ordonez

Mentored by Steven Long and Teresa Chapman
When Words Fail: Narrative and Dance in Post-traumatic Stress

Pishoi Rafaile

Mentored by Tshepo Masango Chéry
Let Us Speak! South African Women as Activists and Revolutionaries in the Anti-Apartheid Movement

Jaden Urdiales

Mentored by Andrew Pegoda
Twitterstorians: An Examination of History as It Is Portrayed on Social Media

Jaelynn Walls

Mentored by Natilee Harren
Contemporary Black Portraiture and the Vitality of Self-Making

Naomi Zidon

Mentored by Robert Cremins
Agnes Varda and the Reinvention of the Flaneuse: The Movement Through Paris

HOUSTON SCHOLARS

Supported by the Office of the Provost and the Honors College, the **Houston Scholars** program is for high-achieving freshmen and sophomores to receive mentorship and scholarship funding to pursue research, internships, and other distinctive experiential learning opportunities. Through targeted programming, participants benefit from honing their academic and professional skills, developing connections with faculty, engaging in scholarly endeavors, and preparing to apply for nationally competitive scholarships and top graduate school programs.



Houston Scholars are encouraged to participate in self-reflection, critical thinking, passionate inquiry, and the application of theory and research to real-world problems. During the course of the academic year, Houston Scholars will have the opportunity to engage with current events through research, seminar series lectures, and debate activities.

For additional information about the Houston Scholars, please contact Dr. Ben Rayder at btrayder@uh.edu in the Office of Undergraduate Research and Major Awards.



HOUSTON SCHOLARS



The 2019-20 Houston Scholars program investigated the theme of “Urbanization.” Students attended seminars from academic experts, developed projects intended to address a challenge associated with urbanization in Houston, and independently researched their subjects during the Houston Scholars Research Week in January.

The Houston Scholars theme for the academic year 2020-2021 is Inequality: Creating A More Equitable Houston. In this context, Houston Scholars will explore the challenges and opportunities associated with the rapid changes affecting our city. Students will be encouraged to identify and research contemporary problems such as income disparity, poor infrastructure, lack of access to affordable healthcare, racial discrimination, and many other subjects. Cohort members will present their research findings and policy proposals to a panel of experts on Undergraduate Research Day. We hope that you will join us to learn more about their findings and potential solutions to some of Houston’s most important issues.

Houston Scholars Participants:

Amaris Bobbio-Tarco
Abby Chopra
Cade Coligan
Ricardo Del Rio
Benjamin Diaz Villa
Cristobella Durrette

Carlos Fuentes
Marco Garcia
Christina Gligorova
Nikki Hammond
Kristen Harris
David Paul Hilton

Vincent Laroche
Daniel Lee
Clara Martin
Anushka Oak
Jordan Pemberton
Jocelyn Ramos

Sharan Sabu
Salar Sanati
Carl Suerte
Leonard Wang
Summer Willig



FRAMEWORKS

FrameWorks is a co-curricular program that offers sophomores and juniors a supportive community of peers and faculty mentors as they conceive, research, write, present, and ultimately publish critical essays that draw on the interdisciplinary humanities. The program will culminate every spring with the FrameWorks Symposium at which FrameWorks Fellows will publicly present their work. Essays that meet editorial standards will be included in the *FrameWorks Journal*, which will be published around Convocation every fall. The best essay will be awarded the FrameWorks Prize for Excellence in Humanities Research valued at \$1,000.

In 2019/2020, FrameWorks Fellows were asked to interpret the theme of “Wall.”

2019 FELLOWS

Zoie Buske (*Faculty mentor: Bhavja Tiwari*) writes about the democratization of artistic expression via murals with a focus on the “Be Someone” Bridge across the I-45 and “People of the Community” mural in South Central Houston.

Cristobella Durette (*Faculty mentor: Laura Bland*) situates Joe Sacco’s *Footnotes from Gaza* as an example of long-form comics journalism and that genre’s capacity to engage readers on critical and empathetic levels.

Paulina Ezquerro (*Faculty mentor: Robert Zaretsky*) reads Franz Kafka’s *The Castle* as an allegory through which to understand the experience of immigrants in the era of President Donald Trump’s southern border wall.

Matt Flores (*Faculty mentor: Roberto Tejada*) theorizes mourning as an aesthetic practice that responds to the humanitarian crisis on the southern border drawing on Teresa Margolles and Ángel Lartigue’s *Forensic Burial Maps of Cadavers after Exhumation* (Studies 1-5).

Marco Garcia (*Faculty mentor: Iain Morrison*) thinks through the implications of Friedrich Nietzsche’s analogy in *On the Genealogy of Morals* between the mind’s digestion of experience (inpsychation) and the body’s digestion of food (incorporation).

Rebecca Hentges (*Faculty mentor: David Rainbow*) argues against historical claims that Russia should be geographically, politically, ideologically, and culturally understood as “Eurasian” based on Moscow’s Western-European-inspired treatment of Siberia as a colony.

Ayania Hicks (*Faculty mentor: Marina Trninic*) reads Zora Neale Hurston’s short story “Sweat” as an act of defiance against the creative limitations W.E.B. Du Bois’s notion of “The Talented Tenth” placed on African-American writers during the Harlem Renaissance.

Allison Lee (*Faculty mentor: Richard Garner*) challenges more traditional feminist readings of Sylvia Plath’s *The Bell Jar* by drawing on Existentialist philosophy to re-frame Esther’s struggle against the patriarchy and search for identity.

Kat Newman (*Faculty mentor: Jess Waggoner*) explores the complex representational politics of transgender characters in contemporary television, with particular focus on *The Danish Girl*, *Orange is the New Black*, and *Euphoria*.

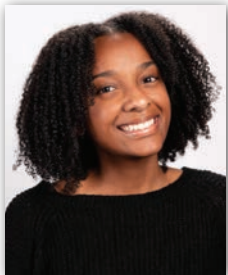
FRAMEWORKS

The FrameWorks Prize for Excellence in Humanities Research



FIRST PRIZE: Paulina Ezquerra
“Reading Kafka in the Age of Trump”

Ezquerra reads Kafka’s *The Castle* as an immigration narrative in which the protagonist, K, a new arrival, is subject to a system that will not legitimate his presence and locals who will not accept him. Ezquerra argues that the novel has profound contemporary resonances.



SPECIAL MENTION: Ayania Hicks
“Breaking Artistic Boundaries: Zora Neale Hurston and the Harlem Renaissance”

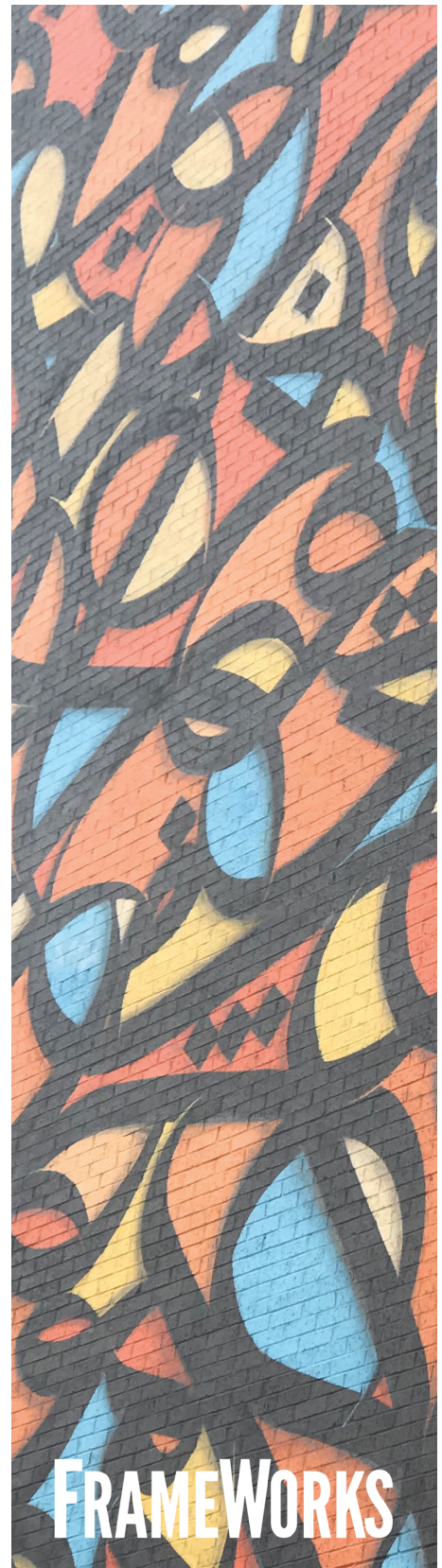
Hicks reads Hurston’s short story “Sweat” as evidence of a radical refusal to sanitize African American experience for the sake of mainstream acceptance. Hurston’s heartfelt rendering of rural African American experience, Hicks argues, insists on the humanity of all African Americans, regardless of their station and circumstance.

What FrameWorks Fellows have said about their experience:

“Participation in the FrameWorks program has allowed me to explore my interdisciplinary research interests while also giving me the chance to refine my writing and editing skills.” – Cristobella Durette

“The FrameWorks Program has provided me with an opportunity to explore a topic of my choice in-depth. Prior to this program I had very little research experience, and this program has been an exceptional introduction into the world of extensive research.” – Ayania Hicks

The 2020/2021 FrameWorks theme is “Unknown.” If you are interested in learning more, please check out thehonorscollege.com/frameworks for more information and links to the application form.



SUMMER UNDERGRADUATE RESEARCH FELLOWSHIP

Students participating in the **SURF** program come together each week to learn from UH faculty and staff who present on a wide range of issues, including topics such as research ethics, applying to graduate and professional school, and developing an effective research poster. The Office of Undergraduate Research and Major Awards thanks our 2019 presenters for their participation in the Brown Bag Lecture Series.



2019 SURF BROWN BAG LECTURE SERIES

WEEK 1

Research Ethics and Conducting Research Responsibly

Hanako Yoshida
Psychology

Jeremy May
Chemistry

WEEK 2

Campus Research Tours

Kerri Crawford
Biology and Biochemistry

Jason Tarkington (Zufall's Lab)
Biology and Biochemistry

Luca Pollonini
Computer Engineering Technology

Anka Vujanovic
*Trauma and Stress Studies Center,
Psychology*

John Craft
*Biology and Biochemistry
Drug Discovery and Texas Heart Institute*

WEEK 2

Campus Research Tours (continued)

Behzad Khajavi (Kirill Larin's Lab)
Biomedical Engineering

Michi Umetani
*Center for Nuclear Receptors and Cell
Signaling*

Elizabeth Cruces
*Special Collections Tour From Mesopotamia
to DJ Screw, M.D. Anderson Library*

WEEK 3

Applying for Competitive Fellowships

Ben Rayder
Office of Undergraduate Research

WEEK 4

Building an Effective CV and Résumé

Caitlin Deis and Morgan Akogyeram
University Career Services

WEEK 5

July 4th Holiday

WEEK 6

Research Lecture

Jakoah Brgoch
Chemistry

WEEK 7

Roundtable Discussions on Applying to Graduate School

Faculty from Various Fields of Study

WEEK 8

Data Science Across Disciplines

Claude Willan
Digital Research Commons

WEEK 9

Developing an Effective Research Poster

Stuart Long and Karen Weber
Office of Undergraduate Research

WEEK 10

Celebratory SURF Luncheon for Research Students and Faculty Mentors

2019 SURF PARTICIPANTS



Richard Adams

Mentored by Luca Pollonini
Engineering Technology
Estimation of Inertial Measurement
Unit Locations for Neuroimaging
Applications



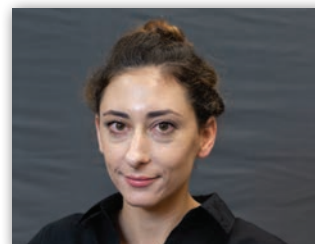
Sehrrish Ahmed

Mentored by Katerina Kourentzi
Chemical and Biomolecular
Engineering
Development of a Lateral Flow Assay
for the Detection of β -actin in Whole
Cell Extracts



Christian Bernard Alarcon
Mentored by Jose Contreras-Vidal
Electrical and Computer
Engineering

18-Month Mobile Brain-Body Imaging
(MoBI) Data Correlating with Daily
Tasks: Findings in Alpha-band
Frequencies



Rachel Altman

Mentored by Michael Nikolaou
Chemical and Biomolecular
Engineering
A More Robust Assessment of
Antibiotic Combinations by Dynamic
Susceptibility Model



Emilio Ames

Mentored by Jerrod Henderson
Chemical and Biomolecular
Engineering
Photovoice: Investigating Barriers in
STEM Retention



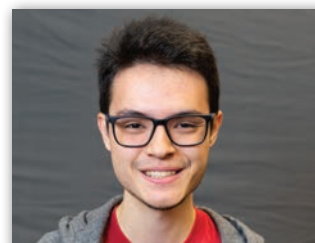
Dharun Anandayavaraj

Mentored by Bhavin Sheth
Electrical and Computer
Engineering
An Electrical Circuit Model of Circle of
Willis to Predict Stroke



Devon Bellman

Mentored by Jose Contreras-Vidal
Electrical and Computer
Engineering
Data Collection for a Longitudinal
Mobile Brain-Body Imaging (MoBI)
Study of the Creative Process Over
the Span of 18 Months in Real-World
Settings



Calvin Betzner

Mentored by Rohith Reddy
Electrical and Computer
Engineering
Increasing the Scale of Scanning
3D Objects with Optical Coherence
Tomography



Neha Bobby

Mentored by Marc Hanke
Biology and Biochemistry
The Superior Substrate: The Effect of
Shell Type on Oyster Restoration



Victoria Brown

Mentored by Roberto Tejada
English
An Afrofuturism Genre Study Using
Computational and Literary Methods



Logan Butcher

Mentored by Robert Shimko
Theatre
Dramaturgical Research



Aparna Calindi

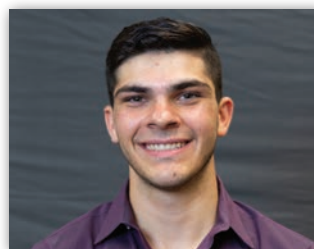
Mentored by Tai-Yen Chen
Chemistry



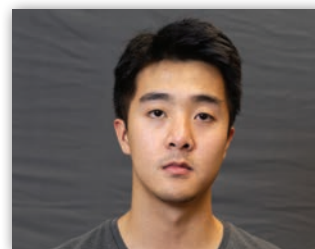
Javier Carretero Murillo
Mentored by Zheng Chen
Mechanical Engineering
Mimicking the Motion of a Seahorse



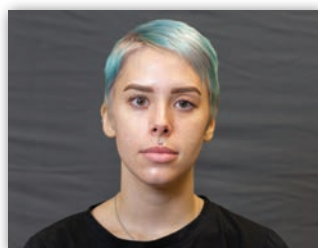
Sammie Chen
Mentored by Stacie Louie
Civil and Environmental
Engineering
Characterizing Physicochemical
Properties of Texas Soil Organic Matter



Jakob Claret
Mentored by Jeffrey Rimer
Chemical and Biomolecular
Engineering
Tailoring the Physicochemical Properties
of SSZ-13 Zeolite with Polyquat Growth
Modifiers



Dang Dang
Mentored by Sheereen Majd
Biomedical Engineering
Preparation of Nanoliposomes Filled
with Alginate Hydrogels for Drug
Delivery Application



Natasha Eades
Mentored by Michael Zvolensky
Psychology
Mindful Attention and Eating
Expectancies Among Trauma-Exposed
Latinx College Students



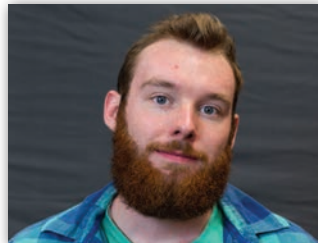
Jonathan Ezemba
Mentored by Alin/Ndifeke
Fumurescu/Ette
Political Science



Lance Fegan
Mentored by Daniel Onofrei
Mathematics
Two Approaches for Optimal Synthesis
of a Thin Wire Antenna



Diego Figueroa
Mentored by Mehmet Orman
Chemical and Biomolecular
Engineering
Evolution of Resistant Mutants in
Antibiotic Treated Bacterial Cultures



Keegan Freeman
Mentored by Shishir Shah
Computer Science
Linguistic Analysis, Data Mining, and
Clustering to Predict Document Age



Joshua Garcia
Mentored by Jonathan Schwartz
Psychological, Health, and
Learning Sciences
The Influence of Violent Media
Exposure on Male Aggression



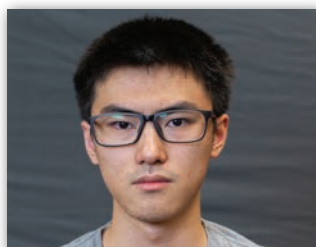
Ersie-Anastasia Gentzis
Mentored by C. "Chip" Raymond
Knee
Psychology
The Impact of Relatedness on
Academic Engagement in Middle-
School Students



Christina Gligorova
Mentored by Dan Price
Honors in Community Health
Be Free. Beat H. Pylori.



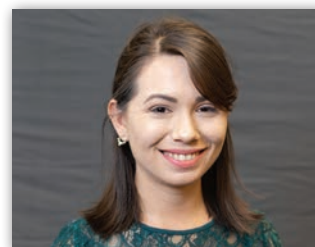
Ethan Goode
Mentored by Christopher Clarke
Economics
Light Rail Effect on Neighborhood
Incomes: A Case Study of Houston's
METRO Rail



Larry Guan
Mentored by Daniel Onofrei
Mathematics
Defect Analysis of 1D Spring-Mass
Systems via Laplace Transform and
Asymptotics



Samantha Havens
Mentored by Rose Faghieh
Electrical and Computer
Engineering
A Mind Controlled MiniDrone with
Stress Feedback



Kirsten Hilson
Mentored by Matthew Clavin
History
All Men Are Created Equal: Symbols,
Slaves, and the Making of American
Freedom



Mariam Hosseini
Mentored by Michihisa Umetani
Biology and Biochemistry



Vinh Huynh
Mentored by Rohith Reddy
Electrical and Computer
Engineering
Imaging Techniques on Ovarian Cells



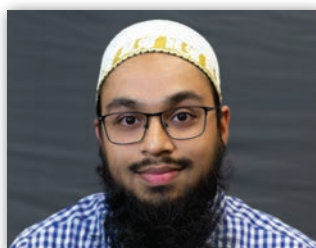
Sunkyung Jung
Mentored by Tai-Yen Chen
Chemistry
Synthesis of SOD1-SNAP Fusion
Proteins through Molecular Cloning



Anuttham Kandhadai
Mentored by Daniel Price
Honors in Community Health
Be Free. Beat H. pylori



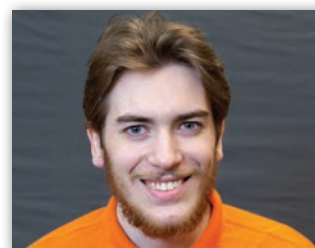
Damian Kao
Mentored by Haleh Ardebili
Mechanical Engineering
Modelling Thermal Runaway in a
Lithium Ion Battery



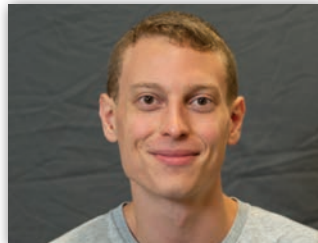
Taher Kapadia
Mentored by Yuhong Wang
Biology and Biochemistry
Amino Acid Purification and
Single-Molecule FRET Study of tRNA
Translocation



Clare Keating
Mentored by Jack Young
Theatre



Christopher Kessinger
Mentored by Cedric Tolliver
English
Rednecks Without Race: The Forgotten
History of Cross-Racial Working-Class
Solidarity at Blair Mountain, 1921



John King
Mentored by Melissa Zastrow
Chemistry
The Effect of Zinc and Copper on
Probiotic Lactobacillus



Rosemarie Le
Mentored by Michihisa Umetani
Biology and Biochemistry
Interaction between the Proteins Liver
X Receptor Beta and Estrogen Receptor
alpha Isoforms in vitro



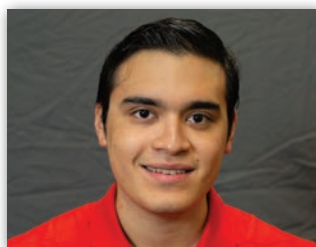
Leandro Ledesma
Mentored by Gunes Avci
Psychology
Would Drawing Boost Testing Effect?



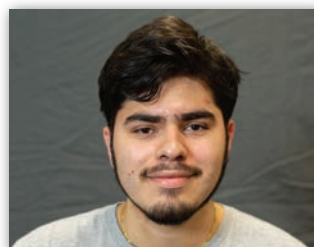
Kai Loh
Mentored by Zheng Chen
Mechanical Engineering



Madeline Luong
Mentored by Kerri Crawford
Biology and Biochemistry
Identification and Isolation of Indicator
Fungal Endophytes in Alpine Plants
Species



Austin Marin
Mentored by Ling Zhu
Political Science
Latino Political Preference



Jordy Martinez
Mentored by Arne Lekven
Biology and Biochemistry
Characterization of Conserved Non-
Coding Elements essential for wnt1
expression in zebrafish



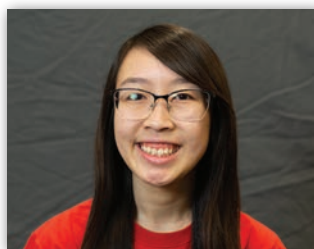
Paulomi Modi
Mentored by Gao Xiaolian
Biology and Biochemistry
To examine the combinatorial
therapeutic effects of EGFR inhibitor
and mTORC2 inhibitor for treatment of
pancreatic cancer



Sobia Mohammad
Mentored by Craig McAndrews
Marketing and Entrepreneurship
Impact of Social Media Platforms on
Sales and Engagement, for Walmart
and Target



Kelsey Mussio
Mentored by Kirill Larin
Biomedical Engineering
Evaluating Changes in Murine Fetal
Brain Vasculature Due to Maternal
Nicotine Exposure Using In Utero
Optical Coherence Tomography



Alexis Thuy Nguyen
Mentored by Chin-Yo Lin
Biology and Biochemistry
Targeting Phospholipid Metabolism in
Pancreatic Cancer Using Novel LXR β
Ligands



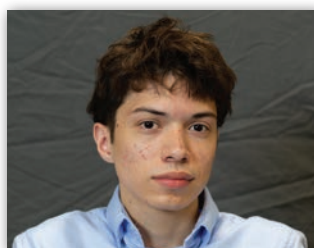
Matthew Nguyen-Lanau
Mentored by Anka Vujanovic
Psychology
Women in the Fire Service: Mental
Health Correlates of Workplace Sexual
Harassment



Christina Nnabuife
Mentored by Robert Comito
Chemistry
Synthesis of Substituted Pyrazoles and
Imidazolium Salts



Gabrielle Olinger
Mentored by Eric Bittner
Chemistry
Quantum Transport in Driven Spin
Chains



Cristian Oviedo
Mentored by Mehmet Orman
Chemical and Biomolecular
Engineering
Targeting DNA Repair Mechanisms in
Bacterial Persisters



Praneet Paidisetty
Mentored by Shoujun Xu
Chemistry
Thermostability of Drug-DNA
Complexes Revealed by Force Induced
Visualization



Kinal Patel
Mentored by John Craft
Biology and Biochemistry
The SRF/NKX 2.5 Regulatory Node



Sunny Patil
Mentored by Anjali Kanojia
Modern and Classical Languages
Effectiveness of Therapy and Virtual
Support Networks



Elizabeth Perez
Mentored by Ferenc Bunta
Communication Sciences and
Disorders
Speech Sound Production of Bilingual
Children With Cochlear Implants



Kristopher Pham
Mentored by Nikolaos Malamataris
Chemical and Biomolecular
Engineering
Finite Element Mesh Design With
Quadrilateral Transition



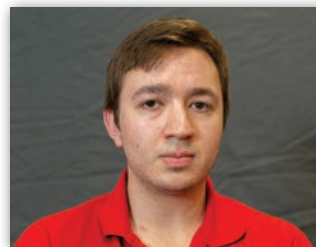
Rahul Pillai
Mentored by Bhavin Sheth
Electrical and Computer
Engineering
Exploring the Role of Heritability in
Human Disease



Karissa Plum
Mentored by Rebecca Zufall
Biology & Biochemistry
Rapid Adaptation to Extreme
Temperatures



Sangeetha Ranadeeve
Mentored by Elizabeth Fletcher
Decision and Information Sciences
Heroes Unseen: A Supply Chain
Approach to Post-Traumatic Stress
Disorder Treatment at the Veterans
Healthcare Administration



Devon Rodriguez
Mentored by Muna Naash
Biomedical Engineering
Optimization of DNA Nanoparticle
Mediated Gene Therapy for Inherited
Ocular Diseases

**Justus Rooker**

Mentored by Aaron Becker
Electrical and Computer
Engineering

Neutralization of Mosquito Larvae with
Acoustic Larvasonics

**Akeil Shams-ul-hooda**

Mentored by Charles Layne
Health and Human Performance

Exploring the Relationship between
Postural Control and Brain Activity
using Dual-Task Methodology

**Nabeela Siddeeque**

Mentored by Frank McKeon
Biology and Biochemistry

The Role of IL-13 in Chronic Obstructive
Pulmonary Disease in Distal Airway
Stem Cells

**Efren Silva**

Mentored by Erin Kelleher
Biology and Biochemistry

Reduced Insulin Signaling Promotes
Germline Stem Cell Maintenance Under
P-Element Hybrid Dysgenesis

**Shubhangi Singh**

Mentored by Willa Friedman
Economics

Effect of Caste-based Reservation in
India on Employment Status of Non-
reserved Category

**Bridgett Sinquefield**

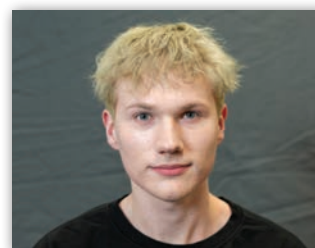
Mentored by Sheereen Majd
Biomedical Engineering

Optimization of a Single Emulsion
Method for the Encapsulation of an
Anti-Cancer Drug in Nanoparticles

**Robert Sipowicz**

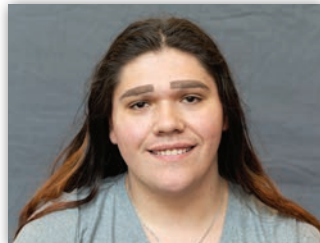
Mentored by Yan Yao
Electrical and Computer
Engineering

Lithium Niobium Oxide as a Protective
Layer on Lithium Cobalt Oxide for Solid
State Batteries

**Noah Sladek**

Mentored by Loi Do
Chemistry

Ir(III)-Catalyzed Reductive Amination
of Carbonyl Compounds with High
Selectivity

**Crista Solares-Bockmon**

Mentored by Jiming Bao
Electrical and Computer
Engineering

Toward a Molecular Orbital Field-Effect
Transistor: Sensing and Sieving with
Nanoporous Graphene

**Christopher Thang**

Mentored by Chengzhi Cai
Chemistry

Development of a High-Throughput
Flow Biofilm Reactor System for the
Study of Bacterial Interference Against
Uropathogenic Colonization on Silicone
Urinary Catheters

**Chaitanya Tolat**

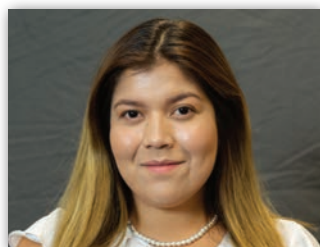
Mentored by Rodolfo Monico
Mechanical Engineering

CFD Analysis of Windcatchers

**Alejandra Torres**

Mentored by Tracey Ledoux
Health and Human Performance

Influence of Weight Gain
Recommendations on the Behavioral
Intentions of Pregnant Women

**Jennifer Torres**

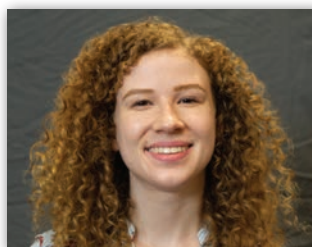
Mentored by Meghana Trivedi
Pharmacy Practice and
Translational Research

FOXA1 Genetic Alterations in Whites
versus Blacks/African Americans in
Breast and Prostate Cancer

**Tommy Tran**

Mentored by Kalyana Nakshatrala
Civil and Environmental
Engineering

Predicting High-Performance Concrete
Compressive Strength Using Machine
Learning

**Madison Troxler**

Mentored by Sanghyuk Chung
Biology and Biochemistry

The Effect of the E7 Oncoprotein and
PKM2 on the Growth of HPV-Induced
Cervical Cancer

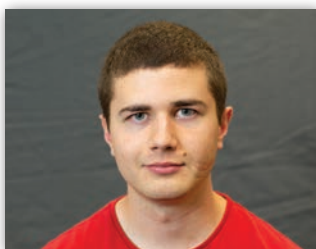
**David Wang**

Mentored by Chandra Mohan
Biomedical Engineering

Flow Cytometric Analysis of ALCAM-
CD6 Expression Profiles in Lupus
Kidney Immune Cells



Davis Webb
Mentored by Jason Draper
Hotel and Restaurant Management
Houston Destination Image Study



Christopher Williams
Mentored by Loi Do
Chemistry
Heterobimetallic Complex for Homo-
and Copolymerization



Maggie Yip
Mentored by Daphne Hernandez
Health and Human Performance
Instructional Video for Collecting
Saliva Samples (Video Instructivo para
Recolectar Muestras de Saliva)



2020 SURF

Despite the challenges presented by COVID-19, the 2020 Summer Undergraduate Research Fellowship (SURF) program launched in June with 87 SURF recipients. When submitting their applications earlier this spring, students were asked to provide remote research and communication plans in the event that social distancing measures continued into the summer months. The students came together on Zoom each week for the virtual lecture series and learned about data science and management, how to seek out and apply to competitive fellowships and graduate programs, and how to develop posters and present their work.



2020 SURF BROWN BAG LECTURE SERIES

WEEK 1

Responsible Conduct of Research

Laura Gutierrez and Penny Maher
Division of Research

WEEK 2

Data Science Across the Disciplines

Lars Grabow
Chemical and Biomolecular Engineering

Claude Willan
University of Houston Libraries

Lorena Gauthereau
Arte Público Press

Dan Price
Honors College

WEEK 3

University of Houston Library Resources

Wenli Gao, Andrea Malone, Irene Ke, Edward Gloor, Erica Lopez, and Mea Warren
University of Houston Libraries

WEEK 4

Building an Effective CV and Résumé

Tanya Farirayi and Adalia Espinosa
University Career Services

WEEK 5

July 4th Holiday

WEEK 6

Applying for Fellowships and Major Awards

Ben Rayder
Office of Undergraduate Research and Major Awards

WEEK 7

Applying to Graduate School Faculty from Various Fields of Study

WEEK 8

Expectations and Challenges in Research

Lorraine Reitzel
Psychological, Health, and Learning Sciences

WEEK 8

Expectations and Challenges in Research (continued)

Xinli Liu
College of Pharmacy

Marc Hanke
Honors College

Saman Essa
Counseling Psychology

WEEK 9

Developing an Effective Poster and Presentation Etiquette

Stuart Long, Brittini MacLeod, and Ben Rayder
Office of Undergraduate Research and Major Awards

WEEK 10

Virtual Fellowship Celebration

2020 SURF PARTICIPANTS

Ariel Abudu

Mentored by Peggy Lindner
Data Science

Analyzing Counselor Usage in Texas Elementary Schools

Bolatito Adeyeri

Mentored by Christopher Arellano
Health and Human Performance

Quantifying the Net Cost of Transport Curve During Human Walking: How Much Time Is Required?

Dania Amarneh

Mentored by Anka Vujanovic
Psychology

The Role of Anxiety Sensitivity in the Relationship Between Childhood Maltreatment and Sleep Disturbance

Sarah Attia

Mentored by Jen Vardeman
Communication

Understanding the Perceptions Surrounding Pelvic Floor Disorders within Arab American Communities

Rabin Bhattarai

Mentored by Rodolfo Monico
Mechanical Engineering

Blood Flow Simulation through a Rat's Aortic Arch

Anna Bibikova

Mentored by Jeff Feng
Industrial Design

Adjustable Smart Limb Socket

Drew Boagni

Mentored by Shaun Zhang
Center for Nuclear Receptors and Cell Signaling

Utilizing Neoantigens to Reinforce the Immune Response in Cancer

Luay Boulahouache

Mentored by Bradley McConnell
Pharmacological and Pharmaceutical Sciences

Biased Agonist Modulation of Carvedilol & Metoprolol in β -arrestin Pathway

Linh Bui

Mentored by Michihisa Umetani
Biology and Biochemistry

Impact of 27-Hydrocholesterol on Brown Adipose Tissue at the Single Cell Level

Nathan Cao

Mentored by Oomman Varghese
Physics

Machine Learning for Metal Oxide Gas Sensor Analysis

Josiah Cherian

Mentored by Ognjen Miljanic
Department of Chemistry

Energy and Sustainability

Jared Davis

Mentored by Jerrod Henderson
First Year Engineering Experience

Increasing the Number of Black Male Engineering Graduate Students

Krishna Sarvani Desabhotla

Mentored by Jose Contreras-Vidal
Electrical and Computer Engineering

Automation Process of 3D Scan Based Brace Design

Benjamin Diaz Villa

Mentored by Ralph Metcalfe
Mechanical Engineering

Numerical Study of Wing Morphing Aerodynamic Properties in Low Reynolds Number Flow

Ariel Durham

Mentored by Irene Guenther
History

Restructuring Elementary School Social Studies Curriculum to Include Black Female Activists

Cristobella Durette

Mentored by Max Rayneard
Honors

Zombies, Werewolves, and Vampires, Oh My!: The History of Horror in Comics

Joanna Elhaj

Mentored by Melissa Zastrow
Chemistry Department

Effects of Metals on Probiotic Lactobacillus

Shereen Enan

Mentored by Chandra Mohan
Biomedical Engineering

Urine Protein Biomarkers of Bladder Cancer Arising from Aptamer-based Screening of 1300 Proteins

Monica Enriquez

Mentored by Kerri Crawford
Biology and Biochemistry

Effects of Microplastics and Soil Microbes on Dune Grass Performance

Queen Epomba

Mentored by Melody Li
Modern and Classical Languages

The Color of COVID-19: Analyzing Racism During the COVID-19 Outbreak

2020 SURF PARTICIPANTS

Aisha Farooque

Mentored by Nouhad Rizk
Computer Science

Using K-Nearest Neighbors to Classify Undergraduate
Female Self-Efficacy in Computer Science

Kevin Fleming

Mentored by Praveen Bollini
Chemical and Biomolecular Engineering

MIL-100(Cr): A Novel Adsorbent for CO₂ Capture

Christopher Franclemont

Mentored by Rohith Reddy
Electrical and Computer Engineering

Design of a Full-Field Optical Coherence Tomography
(OCT) 3D-Scene Imaging Setup

Nadia Garcia Marroquin

Mentored by Daphne Hernandez
Health & Human Performance

Childhood, Adulthood, and Cumulative Traumatic
Experiences as a Predictor of Deportation Fears

Antonella Gargurevich Espinoza

Mentored by Jaye Derrick
Department of Psychology – Social Psychology

Can Familiar Fictional Worlds Promote Health Through
Buffering Belongingness Threats?

Jon Genty

Mentored by Rose Faghieh
Electrical and Computer Engineering

Identifying High-Frequency Artifacts and Deconvolving
Electrodermal Activity Data

Kristen Harris

Mentored by Debora Rodrigues
Civil and Environmental Engineering Department

A Comparative Study of PET Microplastic Degradation by
Controlled Microbial and Photocatalytic, MoO₃, Exposure

Mohammad Hasan

Mentored by Kehe Ruan
Medicinal Chemistry and Pharmacology

How Does SARS-CoV-2 Vaccine Work in Ending COVID-19
Pandemic?

Benjamin Haverty

Mentored by Frank McKeon
Biology and Biochemistry

Protein Based Modeling of SARS-CoV-2

Jeremy Hilfiger

Mentored by Jonathan Wu
Geology

Fault Growth Analysis of the Gaoqing-Pingnan Fault,
Bohai Bay, China

Cole Hudson

Mentored by Vincent Tam
Pharmaceutics

Measuring Hydrolytic Activity of Carbapenemase-
Producing Klebsiella Pneumoniae Isolates

Katherine Kabel

Mentored by Anka Vujanovic
Psychology

Alcohol Use among Trauma-Exposed College Students:
Associations with Sleep and Distress Tolerance

Salvi Kumar

Mentored by Bradley McConnell
Pharmacology

Biased Antagonist Modulation Mechanism Effectiveness
of Carvedilol and Metoprolol

Tammy Lam

Mentored by William Ott
Mathematics

Is Chaos Predictable? Learning to Predict Chaotic Systems

Tahimy Landestoy Acosta

Mentored by Mehmet Orman
Chemical and Biomolecular Engineering

Gene Expression Data Analysis of Persister Cancer Cells

Vincent Laroche

Mentored by Di Yang
Mechanical Engineering

Development of a Flow Visualization Model Using the
Transport Tube Method for Application in Vertical Axis
Wind Turbine Analysis

Daniel Lim

Mentored by Sen Mehmet
Biology and Biochemistry

Structural and Functional Decomposition of Universal
Stress Protein A from *M. luteus*

Uzma Maknojia

Mentored by Frank McKeon
Biology and Biochemistry

Using CRISPR-Cas9 Applications for ACE2 Knockout in
Liver Epithelial Stem Cells and Impact on SARS-CoV-2

Andre Martinez

Mentored by Greg Cuny
Pharmacological and Pharmaceutical Sciences

Azaporphines: Creating a Novel Subclass of Aporphine
Alkaloid Derivatives

Rael Memnon

Mentored by Bin Guo
Pharmaceutics

The Delivery of siRNA Using Exosomes to Treat Different
Types of Cancers

Deep Modi

Mentored by Kevin Garey
Pharmacy Practice and Translational Research

Literature Review of External Influences on the Oral
Microbiome

Shailee Modi

Mentored by Marc Hanke
Honors

The Effects of Hurricane Harvey on Oyster Restoration

Nhung Nguyen

Mentored by Konstantinos Kostarelos
Department of Petroleum Engineering

Two Different Methods to Treat Unwanted Associated
Gas - Reasons to Consider Zero Gas Flaring Future in the
Permian Basin

Nicholas Nguyen

Mentored by Robert Comito
Department of Chemistry

How Phenolic Based Compounds Can Increase
Productivity in the Pharmaceutical Industry

Emily Nham

Mentored by Michael Newman
Department of Accountancy & Taxation

Demographic Differences in Professional Ethical Behavior

Vijay Nitturi

Mentored by Lorraine Reitzel
Psychological, Health, and Learning Sciences

Anxiety Sensitivity and Fast-Food Ordering Habits Among
African-American Adults

Vinay Nuka

Mentored by Alamgir Karim
Chemical and Biomolecular Engineering

Shearing of Islands and Holes in Block Copolymer Thin
Films

Kaylie O'Connell

Mentored by William Ott
Mathematics

Modeling Pedestrian Dynamics and Panic Scenarios using
Kinetic Theory

Arafat Oladipo

Mentored by Megan Robertson
Chemical Engineering

Morphology Evolution During Curing of Thermoset Blends

Dwija Parikh

Mentored by Thamar Solorio
Computer Science

Analyzing Errors of Neural Models in Named Entity
Recognition

Jo-Anne Pham

Mentored by Hanako Yoshida
Psychology

Contextual Effect on Parent-Infant Interactions During
Object Play

Hiba Rabieh

Mentored by Pranav Parikh
Department of Health and Human Performance

Impairment in Leg Muscle Activity During a Balance Task
Following a Stroke

Laura Rossodivita

Mentored by Mehmet Orman
Chemical and Biomolecular Engineering

Analysis of CRP-Mediated Persister Cell Metabolism in
Bacteria

Urvi Sakhuja

Mentored by Hanako Yoshida
Psychology

Attentional Behaviors During Social Interaction in Children
with Autism

Ritu Sampige

Mentored by Leslie Frankel
Psychological, Health, and Learning Sciences

The Relationship Between Parent Anxiety
Symptomatology and Feeding Behaviors

Sheel Shah

Mentored by Pranav Parikh
Health and Human Performance

Contribution of Weight Asymmetry to Balance Control in
Stroke

Damon Spencer

Mentored by Daniel Onofrei
Mathematics

On Passive Backscatter Cloaking in One-Dimensional
Oscillation Phenomena

Nicholas Summerfield

Mentored by Anthony Timmins
Department of Physics

Viscosity of the Quark Gluon Plasma – Nature's Most
Perfect Fluid

Conlan Taylor

Mentored by Aaron Becker
Electrical Engineering

Sensor Implementation in Autonomous Narrative-Capturing Robot

Jessica Tran

Mentored by Sanghyuk Chung
Biology and Biochemistry

HDAC Inhibitor TSA Induces Cell Death and Morphological Changes in Cervical Cancer Cells

Olivia Tran

Mentored by Gomika Udugamasooriya
Pharmacological and Pharmaceutical Sciences

Optimizing Dimer Linker Length of an Anti-Cancer Peptoid Drug-Lead

Phuongthy Tran

Mentored by Chandra Mohan
Department of Biomedical Engineering

The Role of Genetics and the Environment in Systemic Lupus Erythematosus Pathogenesis: A Review of the Past Decade

Ryan Tran

Mentored by Islam Rizvanoglu
Economics

A Model to Compare Market Intervention vs. Information to Address Climate Change Using Substitute Goods

Varshini Vakulabharanam

Mentored by Russell Larsen
Chemistry

Seasonal Temperature and COVID Mortality

Paul Vaughan

Mentored by Steven Craig
Economics

Against Many Tides: The Impact of the Great Recession, Gig Work & COVID-19 on the Millennial Workforce

Veera Venkata Ramprajwal Vempatti

Mentored by Lars Grabow
Chemical and Biomolecular Engineering

Passive NO_x Adsorption – Pd/ZSM-5

Tung Vu

Mentored by Bhavin Sheth
Electrical and Computer Engineering

Exploration of the Relationship Between Rapid Eye Movement Sleep and Slow Wave Sleep through Electroencephalogram Data

Josiah Willingham

Mentored by Alexander Statsyuk
Medicinal Chemistry

Using Multi-step Chemical Synthesis to Form Covalent Protease Inhibitors

2020 POSTER PRESENTATIONS

Undergraduate Research Day celebrates the achievements of all University of Houston undergraduates pursuing faculty-mentored research. Congratulations to the following students.

Michael Allison

Mentored by Greg Morrison and Hana Jaafari
Physics, Rice University Wolynes Research Lab

AWSEM Studies of Cyclophilin A Evolving Pseudogenes

Nabeeha Asim

Mentored by Carla Sharp
Psychology

Dating Violence in Adolescents with and without
Borderline Personality Disorder

Kayla Baham

Mentored by Andrew Kapral
Engaged Data Science

Analyzing the Effectiveness of Houston's Complete
Communities Initiative

Olivia Baker

Mentored by Pinky Shani
Nursing

Does Spirituality Play a Vital Role in the Recovery of
Patients with Cancer?

Karina Bhattacharya

Mentored by Mark Kimbrough and Jon Kelly
Industrial Design, Iowa State University Human Computer
Interaction

Reducing Disorientation in Teleportation: Improving
Navigation in Virtual Reality

Kareema Broussard

Mentored by Anita Schulte
Nursing

The Effect of Video Direct Observation Therapy on
Medication Compliance on Tuberculosis Patients

Leanna Castaneda

Mentored by Pinky Shani
Nursing

Does Spirituality Play a Vital Role in the Recovery of
Patients with Cancer?

Luis Cavazos

Mentored by John Craft
Biology and Biochemistry

Trajectories and Comparative Analysis of
Compounds that Bind $\alpha 4\beta 1$ and $\alpha 4\beta 7$

Olga Cerda

Mentored by Michael Zvolensky
Psychology

The Explanatory Role of Insomnia in the Relationship
between Pain Intensity and Posttraumatic Stress Symptom
Severity among Trauma Exposed Latinos in a Federally
Qualified Health Center

Sampada Chaudhari

Mentored by Pranav Parikh
Center for Neuromotor and Biomechanics Research, Health
and Human Performance

Sensorimotor Control of Balance After Stroke

Njideka Chidoka

Mentored by Anita Schulte
Nursing

The Effects of Tight Perioperative Control on Surgical Site
Infections

Lena Craven

Mentored by Alison Leland
Honors

Analyzing Credibility Percentages of Online Sources

Ashley Cruz

Mentored by John Craft
Biology and Biochemistry

Computational Analysis of 1XTC and Mutant 1XTC D229E

Ricardo Del Rio

Mentored by Gabriela Jaramillo
Mathematics

The Effects of Nonlocal Interactions in a Simple Cellular
Automata Model for Neural Tissue

Shravani Deo

Mentored by Gabriela Jaramillo
Mathematics

The Effects of Nonlocal Interactions in a Simple Cellular
Automata Model for Neural Tissue

Sakethram Desabhotla

Mentored by Alison Leland
Honors

Legal and Legislative Remedies Against the Chinese
Government for Its Handling of COVID-19

2020 POSTER PRESENTATIONS

Shreya Desai

Mentored by Rosenda Murillo

Psychological, Health, and Learning Sciences

Work-related Exertion and Standing/Walking are Associated with Leisure-time Physical Activity in Latinos

Marie Douge

Mentored by Johanna Bick

Psychology

Associations Between Objective and Subjective Socioeconomic Status, Perception of Family Resources, and Child Psychopathology Symptoms in Preschool Years

Cristobella Durrette

Mentored by Benjamin Rayder

Honors

Components of Comics: From Sketches to Finished Product

Cristobella Durrette

Mentored by Laura Bland

Honors

Panels and Gutters: Empathy, Comics Journalism, and Joe Sacco's Footnotes in Gaza

Cristobella Durrette

Mentored by Alison Leland

Honors

The Impact of Microloan Programs on the Lives of Palestinian Women in the Gaza Strip

Cristobella Durrette

Mentored by Alison Leland

Honors

The Role of Communication in Museum Security Operations

Alex Ferrer

Mentored by Daphne Hernandez

Health and Human Performance

The Impact of Undergraduate Research Training on Students' Perceived Level of Skills

Jennifer Flores

Mentored by Holly Hutchins

Human Development & Consumer Sciences

Don't Believe Everything You Think: Applying a Cognitive Processing Therapy Intervention to Disrupt Imposter Phenomenon

Cynthia Galdamez

Mentored by Cheryl Brohard

Nursing

Types of Contraceptives and Risk for Blood Clot Development

Joshua Garcia

Mentored by Jonathan Schwartz

Psychological, Health and Learning Sciences

Barriers to Health and Housing in Houston Communities

Maham Gardezi

Mentored by Bhavin Sheth and Ian Mendez

Electrical and Computer Engineering, The University of Texas at El Paso School of Pharmacy

The Effect of Nicotine Vapor from E-Cigarettes on Cue-Induced Motivation

Nikita Gidh

Mentored by Hanako Yoshida

Psychology

Infants' Visual Experiences During Noun and Verb Learning

Niell Gorman

Mentored by Jeff Feng

Industrial Design

Enhancing Prosthetic Dexterity by Integrating Multi-Material Printing and Design

Janhavi Govande

Mentored by Herb Agan and Amy Hair

Psychology, Texas Children's Hospital Department of Neonatology, Section of Pediatrics

Comparison of Outcomes of Preterm Infants Who Received Human Milk-Based vs. Bovine-Milk Based Human Milk Fortifier

Marco Guajardo

Mentored by Paul Mann

Earth and Atmospheric Science

Miocene Uplift of the Southern Appalachian Mountains inferred from the Geomorphic History of the Tennessee River

Shana Hardin

Mentored by Ling Zhu

Political Science

Factors That Determine Women's Electoral Success in Running for Congress

Rebecca Hentges

Mentored by Alison Leland

Honors

Smithsonian Internships

Trinh Hoang

Mentored by Anita Schulte

Nursing

The Effects of Tight Perioperative Control on Surgical Site Infections

Natalie Hosseini

Mentored by Johanna Bick
Psychology

Associations Between Objective and Subjective
Socioeconomic Status, Perception of Family Resources,
and Child Psychopathology Symptoms in Preschool Years

Taylor Howard

Mentored by Maria Burns
Supply Chain and Logistics Technology
DHS Strategy: A Study On Combating Cyber Crimes

Brittany Ikner

Mentored by Kevin Hoff
Psychology

Automation in the Workplace: Can We Trust Its Use in
Human Resources?

Muhammad Jamal

Mentored by Alison Leland and Danee Adams
Honors, Smithsonian Institution Office of the Chief
Information Officer
Internet of Things: Pepper's Privacy Risks

Ashley Jimenez

Mentored by Andrew Kapral
Engaged Data Science

An Investigation into the Correlation Between PM 2.5 and
Low Birth Weight Rates in Texas

Kishon Joseph

Mentored by Daniel Price
Honors

Understanding Preeclampsia, Through Community
Outreach, to Suggest Possible Interventions

Claire Juhas

Mentored by Daniel Price
Honors

An Investigation into the Correlation Between PM 2.5 and
Low Birth Weight Rates in Texas

Ali Raza Khan

Mentored by J. Leigh Leasure
Developmental, Cognitive, and Behavioral Neuroscience
Influence of Sex and Stress on Perineuronal Nets in the
Prefrontal Cortex

Tanya Kumar

Mentored by Meghana Trivedi
Pharmacy Practice and Translational Research
Design, Optimization, and Validation of Multiplex
Immunofluorescence Assay for Detecting Biomarker
Expression on Circulating Tumor Cells in Breast Cancer

Michelle Ky

Mentored by Anita Schulte
Nursing

The Effects of Tight Perioperative Control on Surgical Site
Infections

Malik Ladki

Mentored by Marc Hanke and Andrew DiNardo
Biology and Biochemistry, Baylor College of Medicine
Department of Pediatrics, Section of Global and Immigrant
Health

Unraveling the Immune Metabolic Epigenetic Axis to
Improve Tuberculosis Therapy

Benita Lalani

Mentored by Alison Leland and Danee Adams
Honors, Smithsonian Institution Office of the Chief
Information Officer

Internet of Things: Pepper's Privacy Risks

Catherine Lam

Mentored by Anita Schulte
Nursing

The Effect of Video Direct Observation Therapy on
Medication Compliance on Tuberculosis Patients

Kyle Lare

Mentored by Greg Morrison
Physics

Chromosome Tethering to the Lamina Increases
Chromosome Compartmentalization

Vincent Laroche

Mentored by Steffen Beitz and Benjamin Rayder
Mechanical Engineering, Honors College

Analyzing Bulk Solid Properties for Elongated Particles of
Biomass and Recyclable Material

Gabrielle Le

Mentored by Charles Morrison
Osgood Center for International Studies

Approaching COVID-19 in East and Southeast Asia

Hannah Leggett

Mentored by Anita Schulte
Nursing

The Effect of Video Direct Observation Therapy on
Medication Compliance on Tuberculosis Patients

Valerie Lerma

Mentored by Cheryl Brohard
Nursing

Types of Contraceptives and Risk for Blood Clot
Development

Alyssa Lezcano

Mentored by Christiane Spitzmueller
Psychology

The Trickle-Down Effect of Academic Mentoring

C. Griffin Litwin

Mentored by Ioannis Konstantinidis
Computer Science

Comorbidities as Drivers of Patient Healthcare Utilization
Patterns: Uses of Administrative Data in Modeling
Disease-Mediated Interactions

Stefan Loos

Mentored by Kristina Neumann
History

The Emperor Elagabalus and the Construction of Anti-Syrian Stereotypes in Roman Historiography

Antionette Louw

Mentored by Jeff Feng and Pei-Fen Chang
Industrial Design, Texas Woman's University

High Fidelity and Objectivity in Balance Assessment

Megan Mai

Mentored by Shaun Zhang
Center for Nuclear Receptors and Cell Signaling

Utilizing Neoantigens to Reinforce the Immune Response in Cancer

Natasha Maloney

Mentored by Roya Plauché
Architecture and Design

Salvinia Sorbent Floating Unit

Sakina Mandviwala

Mentored by Daniel Price
Honors

An Investigation into the Correlation Between PM 2.5 and Low Birth Weight Rates in Texas

Lisa Martinez

Mentored by Cheryl Brohard
Nursing

Types of Contraceptives and Risk for Blood Clot Development

Lydia Martinez

Mentored by Cheryl Brohard
Nursing

Types of Contraceptives and Risk for Blood Clot Development

Lindsey McCaleb

Mentored by Anita Schulte
Nursing

The Effect of Video Direct Observation Therapy on Medication Compliance on Tuberculosis Patients

Neha Mehta

Mentored by Pranav Parikh
Center for Neuromotor and Biomechanics Research, Health and Human Performance

Sensorimotor Control of Balance After Stroke

Elizabeth Merlinsky

Mentored by John Craft
Biology and Biochemistry

Cloud Computing for Drug Discovery: Implementation and Workflow in Targeting Spleen Tyrosine Kinase/SYK

Angelica Monroy

Mentored by William Truitt
Architecture

Casablanca – Colonial & Post-colonial Urbanism

Sondos Moursy

Mentored by Daniel Price
Honors

Disparities in Educational Funding

Shelbie Muskiet

Mentored by Pinky Shani
Nursing

Does Spirituality Play a Vital Role in the Recovery of Patients with Cancer?

Anam Naik

Mentored by Daphne Hernandez
Health and Human Performance

The Impact of Undergraduate Research Training on Students' Post Graduation Plans

Vishnu Narayana

Mentored by Alison Leland and Eric Woodard
Honors, Smithsonian Institution Office of Fellowships and Internships

Exploring Fellowships at the Smithsonian Institution

Khoa Ngo

Mentored by Margaret Cheung and Vinicius Contessoto
Physics, Rice University Center for Theoretical Biological Physics

Improving the Thermostability of Enzymes Using Bioinformatics and Electrostatics Analysis

Kim Nguyen

Mentored by Anita Schulte
Nursing

The Effect of Video Direct Observation Therapy on Medication Compliance on Tuberculosis Patients

Nhung Nguyen

Mentored by Konstantinos Kostarelos
Petroleum Engineering

The Effect of Iron Bearing Minerals on Anionic Surfactant Retention in Chemical Enhanced Oil Recovery Applications

Vinay Nuka

Mentored by Alamgir Karim
Chemical and Biomolecular Engineering

Study of Dewetting in Thin Polymer Films

Emmanuel Oketunmbi

Mentored by Johanna Bick
Psychology

Effects of Prenatal Maternal Stress on Childhood Development at 6 Months Old

Daniel Palacios

Mentored by Margaret Cheung and Seth Coleman
Physics, Rice University Center of Theoretical Biological Physics

Developing a Model of Cro Regulation of Early CI Production in Bacteriophage Lambda Infections

Madison Parker

Mentored by Audrius Brazdeikis
TcSUH and Physics

Combining Biological and Physical Approaches to Cancer Treatment

Saloni Patel

Mentored by Andrew Kapral
Engaged Data Science

Evaluating the Effectiveness of Dual Language Programs for English Learners in Texas Secondary Schools

Madhumitha Periyasamy

Mentored by Daniel Price
Honors

CDI Patient Mortality Pathways

Hannah Perkins

Mentored by Pinky Shani
Nursing

Does Spirituality Play a Vital Role in the Recovery of Patients with Cancer?

Daniel Phu

Mentored by Daniel Price
Honors

Houston Bus Ridership Highlights Socioeconomic Disparities in COVID-19 Outcomes

Hiba Rabieh

Mentored by Pranav Parikh
Center for Neuromotor and Biomechanics Research, Health and Human Performance

Sensorimotor Control of Balance After Stroke

Jahnvi Rajput

Mentored by Yu Liu
Biology and Biochemistry

Cardiomyopathy Progression Due to Overexpression of miRNA-322/503

Stephanie Ramirez

Mentored by Chiara Acquati
Graduate College of Social Work

Young Women with Breast Cancer: Preliminary Results from a Cross-Sectional Study of Unmet Needs

Catherine Ramos

Mentored by Johanna Bick
Psychology

The Relationship Between Poverty and Dorsolateral Prefrontal Activation

Jocelyn Ramos

Mentored by Julien Leclerc
Electrical and Computer Engineering

Simulation Pipeline of Milli-scale Magnetic Robots for Blood Clot Removal

Shreyas Ranganath

Mentored by Bradley McConnell
Pharmacological and Pharmaceutical Sciences

Cardiac AKAP12 Signalosome Overexpression Exacerbates Effects of Induced Heart Failure via Decreased SERCA2 Expression

Isabella Raschke

Mentored by Sujata Sirsat
Hotel and Restaurant Management

FoSTT: Food Safety Training Toolkit for Novice Food Service Workers

Lorissa Saiz

Mentored by Erin Kelleher
Biology and Biochemistry

Bruno and P-element Transposition: Positive Regulator or Cellular Responder?

Salar Sanati

Mentored by Daniel Price
Honors

An Investigation into the Correlation Between PM 2.5 and Low Birth Weight Rates in Texas

Andres Sarmiento

Mentored by Maria Burns
Supply Chain and Logistics Technology

TSA & Airport Security: A Case on Weapons Smuggling in the U.S.

Taegen Senawong

Mentored by Sheila Singh
Sociology

Perceptions of Comparative Mind-Body Interventions Among Pregnant Women in Texas

Karina Serrano

Mentored by Chakema Carmack
Psychological, Health, and Learning Sciences

Understanding How to Address Cervical Cancer Disparities in African American and Hispanic Populations

Layla Shawareb

Mentored by Daniel Price
Honors

Using SAM to Model the Prevalence of Preeclampsia, its Risk Factors, and Mortality

Angela Shipman

Mentored by James Meen
Chemistry

Influence of Metals' Redox States on Lunar Evolution

Tuba Shiwani

Mentored by Alison Leland and Nancy McInerney
Honors, Center for Conservation Genomics at Smithsonian's National Zoo

Borneo Bird Sexing at the Smithsonian National Park

Raima Siddiqui

Mentored by Shaefali Rodgers and Jayson Jay
 Psychology, The University of Texas Medical Branch
 Department of Surgery
 Topical Mast Cell Stabilizer Cromolyn Sodium Reduces
 Post-burn Hypertrophic Scars in the Female Red Duroc Pig

Sameer Sidiq

Mentored by Andrew Kapral
 Engaged Data Science
 Evaluating the Impact of Uncompensated Care
 Reimbursement on Texas' Rural Hospital Closures

Elise Steward

Mentored by Maria Burns
 Supply Chain and Logistics Technology
 TSA & Airport Security: A Case on Weapons Smuggling in
 the U.S.

Seth Stokes

Mentored by Art Smith
 Global Energy Management Institute, Finance Department
 Vaca Muerta's Role in the Energy Transition

Carl Suerte

Mentored by Brigitte Dauwalder and Robert Campbell
 Biology and Biochemistry, University of Tokyo Chemistry
 Two Prototype Genetically Encoded Caz+ Indicators

Irisha Suhaimi

Mentored by Art Smith
 Finance
 "New Energy Era" – The Rise of Sustainability Initiatives
 and Strategic Alternatives in the Oil & Gas Industry

Sara Syed

Mentored by Marcel de Dios
 Psychological, Health, and Learning Sciences
 Religious Identity and the Use of Alcohol and Marijuana in
 a Sample of Diverse Young Adults

Matthew Taing

Mentored by Lorraine Reitzel
 Psychological, Health, and Learning Sciences
 Implementation of a Comprehensive Tobacco Free
 Workplace Program in Agencies Serving the Homeless and
 Vulnerably Housed

Elaine Tran

Mentored by Andrew Kapral
 Engaged Data Science
 Estimating Health Education Instructional Time Within a
 Texas Public School District

Mallika Tripathy

Mentored by Chandra Mohan
 Biomedical Engineering
 Inhibiting Fatty Acid Amide Hydrolase (FAAH) Induces
 Apoptosis in Breast Cancer Cells

Pichvyda Tuy

Mentored by Nouhad Rizk
 Computer Science
 Using Clustering Techniques to Classify Self-Efficacy of
 Women in Computer Science

Patrick Uwaezuoke, Jr.

Mentored by Maria Burns
 Supply Chain and Logistics Technology
 TSA & Airport Security: A Case on Weapons Smuggling in
 the U.S.

Manushi Vatani

Mentored by Daniel Price
 Honors
 The Role of Language Barriers in Cancer Screening &
 Diagnosis

Mallory Walters

Mentored by Kristen Capuozzo and Michelle Patriquin
 Psychology, Baylor College of Medicine The Menninger Clinic
 Examining the Relationship Between Sleep Problems,
 Trauma, Anxiety and Executive Function in Youth during
 Inpatient Psychiatric Treatment

Brandon Warner

Mentored by Daniel Price
 Honors
 Race, Class, Gender and COVID-19: Identifying Barriers
 Along Paths Leading to Equitable Health Outcomes

Olivia Wren

Mentored by Alan Brandon
 Earth and Atmospheric Science
 Nd & Sr Isotopes from the Mid Cenomanian Event (MCE)
 Derived from the Eagle Ford Group, West Texas

Yusef Zaidi

Mentored by Tracey Ledoux and Nancy Moran
 Health and Human Performance, Baylor College of Medicine
 USDA/ARS Children's Nutrition Research Center
 Carotenoid Measurement in Infant Formula Using a
 Validated Analytical Method

APRIL 2021 PRESENTATIONS

The students listed below participated in the 2020 SURF program. They have chosen to participate in the Spring 2021 Undergraduate Research Day which will take place on Thursday, April 1, 2021. We look forward to celebrating their work then.

Mariam Alshaikhly

Mentored by Kehe Ruan
Department of Pharmacological and Pharmaceutical Sciences

Americo Avila

Mentored by Norah Gharala
History

Citlali Bataz

Mentored by Muayyad Al-Ubaidi
Biomedical Engineering

Abhaya Chopra

Mentored by Emese Felvegi
Decision and Information Sciences

Monica Gebrehiwot

Mentored by Elizabeth Simas
Political Science

Shalini Ann Ghurye

Mentored by Dr. Luis Medina
Department of Psychology

Abigail Janvier

Mentored by Sheereen Majd
Biomedical Engineering

Sajid Khan

Mentored by Miao Pan
Electrical and Computer Engineering

Ted Kim

Mentored by Peter Vekilov
Department of Chemical and Biomolecular Engineering

Mariana Lopez Martinolich

Mentored by Yingchun Zhang
Biomedical Engineering

Tuan Nguyen

Mentored by Marzia Cescon
Mechanical Engineering

Anushka Oak

Mentored by Benjamin Tamber-Rosenau
Psychology

Daniel Palacios

Mentored by Pavan Hosur
Department of Physics

Dhriti Patel

Mentored by Sheereen Majd
Biomedical Engineering

Katherine Pham

Mentored by Jinsook Roh
Biomedical Engineering

Haley Rosso

Mentored by Andreas Mang
Mathematics

Nathan Smith

Mentored by Francisco Cantu
Political Science

Viet Trinh

Mentored by Jaspal Subhlok
Department of Computer Science

Sharon Zachariah

Mentored by Qin Feng
Biology and Biochemistry – Center for Nuclear Receptors and Cell Signaling



“Seeing the amazing projects my fellow Mellon Scholars have done reminds me that I am not doing all of this alone. Being in a dual degree program, taking master classes as an undergraduate, and doing an Honors Thesis is tough. But the hard work is all doable, and good preparation for students considering graduate school.”

Layla Mayorga
Philosophy Major
Mellon Research Scholar



“A supportive environment is important. As a Fulbright English Teaching Assistant in Turkey, I see that I have the opportunity to affect my students’ lives in the same way that many people at the University of Houston have affected mine.”

Johnny Zapata
History, Political Science, and Spanish Major
Fulbright U.S. Student Program

THE OFFICE OF UNDERGRADUATE RESEARCH AND MAJOR AWARDS

Whatever your research interests are, the Office of Undergraduate Research and Major Awards can get you connected and starting your research project today.



“It was the moment when I held my SURF poster on the airplane that I realized: I got to apply my skills as an engineer and I’m representing my university at an out-of-state conference. It’s all so early in my career and it linked me to many opportunities across the nation.”

Christian Alarcon
Biomedical Engineering Major
SURF, Undergraduate Research Travel Fellowship



“Houston Scholars allowed me to work with students from all backgrounds and majors to propose solutions to research questions within our own community. This program has offered me many opportunities and resources to pursue my educational endeavors and to form lifelong friendships.”

Christina Gligorova
Biology Major
SURF, Houston Scholars

University of Houston

The Honors College

Office of Undergraduate Research and Major Awards

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