

UNDERGRADUATE RESEARCH DAY

The number 2015 is rendered in a large, bold, sans-serif font. Each digit is filled with a red-tinted photograph of students in a research setting. The '2' shows a student looking at a poster. The '0' shows a student talking to others. The '1' shows a student looking down. The '5' shows a student looking to the side. The overall image has a red overlay.

Thursday, October 22, 2015 4:00 p.m.

Elizabeth D. Rockwell Pavilion & The Honors College, 2nd Floor, M.D. Anderson Library

UNIVERSITYof **HOUSTON** | OUR

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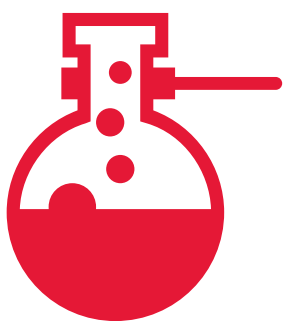


[Facebook.com/UHUndergradResearch](https://www.facebook.com/UHUndergradResearch)

Receive information regarding:

- Research opportunities
- Scholarships for research, undergraduate, and graduate studies
- Internships
- Events on and off campus

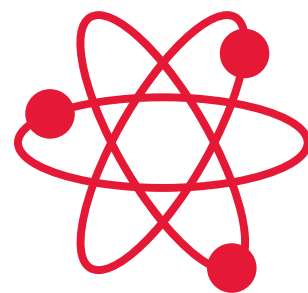
SAVE THE DATE



PURS
Spring 2016
Application Deadline:
Wednesday, December 2, 2015



**Faculty
Mentoring
Awards**
Application Deadline:
Monday, February 1, 2016



SURF
Summer 2016
Application Deadline:
Monday, March 28, 2016

UNDERGRADUATE RESEARCH DAY 2015

October 22, 2015

Elizabeth D. Rockwell Pavilion

M.D. Anderson Library

The Honors College

3:30-4:00 p.m. Welcome and Opening Remarks to Presenters

Location: Elizabeth D. Rockwell Pavilion

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

Mary Ann Ottinger, Ph.D.

Associate Vice Chancellor for Research, University of Houston System
Associate Vice President for Research, University of Houston

Stuart A. Long, Ph.D.

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

4:00-6:00 p.m. Viewing of Student Posters

Location: Elizabeth D. Rockwell Pavilion, M.D. Anderson Library,
and the Honors College

5:00-6:00 p.m. Oral Presentations

Location: The Honors College Classrooms
Rooms 212L and 212P

Thank you to the **Office of the Provost**, the **Division of Research**,
and the **Honors College** for their generous support of the
Office of Undergraduate Research.

And special thanks to the **Gerald D. Hines College of Architecture**
for printing the posters for the event.

WELCOME

Welcome to the 11th annual UH Undergraduate Research Day.

Good afternoon. At this event, you will have the opportunity to engage with and learn from the many undergraduate students who have conducted research throughout the past year. You will see research projects displayed from a wide range of academic fields. The interdisciplinary nature of Undergraduate Research Day highlights the diverse research currently being conducted by the University's talented faculty and students.

During the 2014-2015 academic year, the Office of Undergraduate Research sponsored over 200 students in mentored research programs, and hundreds more through informational sessions, scholarship applications, and online resources. These programs include our full-time Summer Undergraduate Research Fellowship (SURF) program, and the part-time Fall or Spring semester Provost's Undergraduate Research Scholarship (PURS) program. We also supported over 60 students this year in applying for external scholarship and internship opportunities—a record number of UH students participating in national competitions.

All of the scholarships and services offered to UH undergraduates would not be possible without the support of the Office of the Provost, Division of Research, and the Honors College. In addition to their generous support of our students' success, other funders and units on campus contributed financially to the Office's programs this year. To begin with, we would like to extend a special thank you both to Jeff Beauchamp and Heidi Alderman of the BASF Corporation for supporting the SURF and PURS programs this year. We also thank the Biology and Behavior Institute (BoBI) and the Texas Obesity Research Center (TORC) for their financial contributions of student scholarships. UH departments and colleges also contributed to funding our stellar students. These departments include Biology & Biochemistry, Biomedical Engineering, Chemical & Biomolecular Engineering, Civil & Environmental Engineering, Electrical & Computer Engineering, and Mechanical Engineering, as well as the College of Technology. As always, we are grateful to our faculty selection and advisory committee for their continued assistance in choosing the student and faculty recipients of our awards each year.

Just as our mentored research programs continue to grow in size and significance, so does the Office of Undergraduate Research. Earlier this fall, we welcomed creative writer and graphic designer Julia Brown. Julia has been assisting the Office for the past three years and in September became a full-time member of the Honors College. Her stellar design work is prominently featured in the Office's print publications (such as this book) and website. Dr. Jennifer Asmussen, Coordinator of Nationally Competitive Scholarships, welcomed a new addition to her family. Marin Elizabeth Asmussen was born in late September, and we trust we will see her work displayed at Undergraduate Research Day 2035!

Additionally, this past summer both Dr. Stuart Long and Karen Weber received significant recognition from the University. Dr. Stuart Long, Associate Dean of Undergraduate Research and the Honors College, celebrated his 41st year with the University of Houston. Karen Weber, Director of the Office of Undergraduate Research, received a Staff Excellence Award for her dedication and service to the campus community.

Our motivated undergraduate students are eager and ready to share and discuss their research findings with you as you explore the excitement that is Undergraduate Research Day at the University of Houston.



Stuart A. Long



Karen Weber



Jennifer Asmussen

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OFFICE OF UNDERGRADUATE RESEARCH

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October 22, 2015

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5:00 – 6:00 p.m. Oral Presentations

Elizabeth D. Rockwell Pavilion

M.D. Anderson Library

The Honors College

The Office of Undergraduate Research

The Honors College

University of Houston

M.D. Anderson Library

4333 University Drive, Room 212

Houston, TX 77204-2001

(713) 743-3367

UndergraduateResearch.uh.edu

Booklet created by:

Julia Brown, Design and Presentation Development

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OFFICE OF UNDERGRADUATE RESEARCH



OUR PROGRAMS

THE PROVOST'S UNDERGRADUATE RESEARCH SCHOLARSHIP (PURS) is a part-time semester research program for juniors and seniors, and awards a \$1,000 scholarship for students to work one-to-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. For more information, visit the PURS website at UndergraduateResearch.uh.edu/purs.

THE SUMMER UNDERGRADUATE RESEARCH FELLOWSHIP (SURF) program is a full-time, ten-week summer research program, open to all continuing students, and provides a \$3500 scholarship for students 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. The deadline for SURF is in the middle of March each year. For more information, visit the SURF website at UndergraduateResearch.uh.edu/surf.

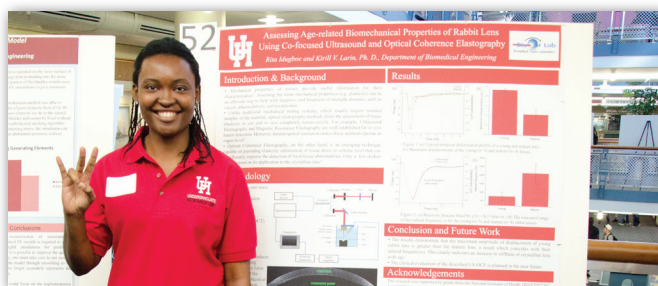
THE SENIOR HONORS THESIS is a capstone program for a student's undergraduate career in research. Student participants enroll in 3399H and 4399H, a total of six hours of coursework, which is typically applied toward their major degree requirements during their senior year. A second reader and Honors reader also serve on the student's thesis committee, offering advice during the research and writing process as well as at the student's defense of the thesis. For more information, visit the thesis website at UndergraduateResearch.uh.edu/thesis_guidelines.

HOW TO GET STARTED IN RESEARCH

- Peruse your department's website to find out about the research faculty within your discipline are conducting.
- Talk to current and past professors (during their office hours) from courses you have excelled in and have enjoyed. Even if the professor is not currently seeking an undergraduate researcher, he or she may know of a colleague who is seeking an undergraduate research assistant.
- Consult an academic advisor from your department to inquire about faculty members currently conducting research in your discipline.
- Check OUR web page of faculty members currently seeking undergraduate researchers, UndergraduateResearch.uh.edu/facultyresearch.
- Join the UH Undergraduate Research Facebook page and/or the Office of Undergraduate Research's list serve. You will receive postings on available research positions and scholarships for undergraduates.

Contact Information:

Karen Weber, Director: kweber@uh.edu



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 finest 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 The 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:

Sarah Bhojani, Director, Admissions: sabhjani@uh.edu

FACULTY MENTORING AWARDS

The Office of Undergraduate Research congratulates the 2015 Faculty Award recipients: **Dr. Albert Cheng** (Lifetime Faculty Mentoring Award) and **Dr. Samina Salim** (Early Mentoring Award).



ALBERT CHENG

Since Professor Albert M. K. Cheng joined the Department of Computer Science at the University of Houston in 1990, he's been building a track record as an industry front-runner, leading cutting edge research on the design and formal verification of real-time, embedded, and cyber-physical systems. He founded the UH Real-Time Systems Laboratory in 1990, and is a co-founder of ZapThru.com, where he is currently the Chief Strategy and Technology Director. Senior Member of the IEEE and a Fellow of the Institute of Physics (IOP), Dr. Cheng has received numerous awards (including the U.S. National Science Foundation Research Initiation Award and the Texas Advanced Research Program Grant) and authored hundreds of articles in leading journals.

Working with Undergraduate Researchers

Dr. Cheng is truly passionate about engaging undergraduates and thoroughly prepares students for the next stage in their careers. He fosters strong mentoring relationships and often involves students in high impact research projects through the Real-Time Systems Research Group, closely managing their tasks and tracking their progress. Undergraduate researchers work directly alongside graduate students, postdocs, and visiting scholars, instilling a sense of collaboration and teamwork, and are given more autonomy as their knowledge base increases. Dr. Cheng has overseen the development of dozens of undergraduate mentees; a few of his students have presented in IEEE conferences around the world, including in Berlin, Stockholm, and Korea and shared bylines on peer-reviewed national publications.



SAMINA SALIM

Dr. Samina Salim studies anxiety—a fundamental, protective emotion required to cope with potential threatening stimuli. In excess, anxiety can prove disabling; anxiety disorders affect an estimated 40 million people in the U.S. alone. Dr. Salim's research centers on the discovery of new mechanisms underlying the pathophysiology of anxiety disorders, in order to find new ways to treat it. Her work on the relevance of oxidative stress to mental health has received considerable attention. Over the last four years, her findings on this subject have led to more than 50 peer-reviewed publications. Dr. Salim has been cited not only in scientific journals, but has been featured in *Women's Health* magazine and other national news media.

Working with Undergraduate Researchers

What Dr. Salim requires from her mentees in regards to hard work and commitment, she returns to them in dedication, hands-on laboratory experience, and motivation. She takes on new students in the lab every semester, and makes it a personal challenge that each student leaves her lab with at least one peer-reviewed publication. In addition to receiving the standard university safety trainings, Dr. Salim's student researchers gain practice formally presenting in lab meetings on the schematics that depict their analysis. When discussing her personal mentoring philosophy, Dr. Salim states, "If you have the curiosity to ask challenging questions and the passion to invest time in seeking answers, I promise to be with you every step of the way."

SURF BROWN BAG LECTURE SERIES

Each summer, as part of the SURF program, the Office of Undergraduate Research offers a Brown Bag Lecture Series in which UH faculty present a wide range of interdisciplinary topics, such as research ethics, and applying to graduate and professional school. The Office of Undergraduate Research thanks our 2015 presenters for their participation in this year's lecture series.

WEEK 1

Research Ethics

*Drs. Len Trombetta and Jeremy May
Drs. Alan Witt and Donald Foss*

WEEK 2

Roundtable Chats:

Graduate and Professional School

Faculty from a wide range of disciplines

WEEK 3

Roundtable Chats:

Preparing for the Workforce

Professionals from a wide range of occupations

WEEK 4

Research Tours

Dr. Shaun Zhang:

Center for Nuclear Receptors & Cell Signaling

Dr. Patrick Peters:

Gerald D. Hines College of Architecture

Dr. Kirill Larin:

Biomedical Optics Laboratory

Dr. Hanako Yoshida:

Cognitive Development Laboratory

WEEK 5

Midpoint SURF Program Meeting

Karen Weber

WEEK 6

Presenting Scientific Data Clearly

Drs. Dan Price and Peggy Lindner

WEEK 7

Applying to and Presenting at Conferences

Drs. Tracey Ledoux and Jonathan Zecher

Drs. Zachary Kilpatrick and Tony Frankino

WEEK 8

Research Tours

Dr. Bora Gencturk:

Sustainable & Resilient Structures Group

Dr. Gregg Roman:

Drosophila Behavioral Genetics

Dr. Jason Eriksen:

Pharmacology Laboratory

Dr. Ferenc Bunta:

Communication Sciences and Disorders

WEEK 9

Creating a Research Poster

Dr. Stuart Long and Karen Weber

WEEK 10

Final SURF Buffet Luncheon

SURF Students and Faculty Mentors

2015 BASF PARTICIPANTS

The German-based company BASF was established in 1865 and originally produced dyes in addition to other chemicals used in the dye process. Today, BASF produces and supplies chemicals to a wide variety of companies, including the agricultural, pharmaceutical, paint, and petroleum industries.

We would like to thank Heidi Alderman of BASF and the Engineering Leadership Board of the Cullen College of Engineering for their generous support of the SURF program this year.



Mustafa Ali

Mentored by William Epling
Chemical & Biomolecular
Engineering

Effect of SO_2 on NH_3 Oxidation
in NH_3 -SCR Over Cu Exchanged
Catalyst



Trang Vo

Mentored by Vemuri
Balakotaiah
Chemical & Biomolecular
Engineering

Thermodynamic Analysis of
Methane Oxidative Coupling



Mustafa Ali



Trang Vo

2015 BoBI PARTICIPANTS

The **Biology of Behavior Institute (BoBI)** promotes research directed at understanding animal behavior from four different perspectives: 1. The molecular, neural, and endocrine mechanisms of behavior, 2. The acquisition or development of the behavior within the organism, 3. The function of the behavior for the organism, and 4. The evolution of the behavior within and among species.



Simon Powell

Mentored by Jokūbas Žiburkus
Biology & Biochemistry

Modeling Spreading Depression



Jennifer Reiss

Mentored by Gregg Roman
Biology & Biochemistry

Mimicking Sleep Deprivation
through Gene Manipulation

Faster progress and a more complete understanding of the biology of a behavior can only be achieved through the application of all four perspectives. Each perspective informs the other three, and together they provide deep and intellectually satisfying insights into animal behavior. BoBI provides support for undergraduates to conduct full-time summer research experiences with faculty affiliated with the Institute.

2015 TORC PARTICIPANTS



Cheryl Woolf

Mentored by Daphne
Hernandez

Health & Human Performance

Adding Social Services to Food
Pantries as a Way to Address
Community Needs and Pantry
Barriers

Launched in the fall of 2007, the mission of the **Texas Obesity Research Center (TORC)** is to conduct basic and applied research in obesity prevention, treatment and control. TORC educates students in an interdisciplinary approach to topics related to obesity and its comorbidities. TORC collaborates with members of the University community, health professionals, and social agencies on projects related to obesity. TORC provides support for undergraduates to conduct full-time summer and part-time semester research experiences with faculty affiliated with the Center.

2015 SURF PARTICIPANTS



Robert Alford

Mentored by Neal Adams
Petroleum Engineering

Tuscaloosa Marine Shale – 7
Billion Barrels of Ornerly Shale
Oil



Ashwin Antony

Mentored by Jeffrey Rimer
Chemical & Biomolecular
Engineering

Phase Behavior Study in Zeolite
ZSM-11 Synthesis



Andrew Bahlmann

Mentored by Emese Felvegi
Management Information
Systems

Real World vs. Digital World
Ethical Values



Callum Byers

Mentored by Peter Copeland
Earth & Atmospheric Sciences

Paleogeography of the
Southern Rockies: Evidence
from SW New Mexico



Kayshewa Chamupathi

Mentored by Yan Yao
Electrical & Computer
Engineering

Heavily n-Dopable
 π -Conjugated Redox Polymers
with Ultrafast Energy Storage
Capability



Sarah Chehade

Mentored by Mark Tomforde
Mathematics

Ranking Methods for Multi-
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Pietro Antonio Cicalese

Mentored by Bhavin Sheth
Electrical & Computer
Engineering

Observing Different Images
Within the Same Image
Category in Repetition



Ziba Colah

Mentored by Daniel Frigo
Biology & Biochemistry

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Garret Couture

Mentored by Loi Do
Chemistry

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Click Reaction



Juan Cuellar

Mentored by Steven Pennings
Biology & Biochemistry

Development of Orthopteran-
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Prairie Communities



Thao Do

Mentored by Alan Burns
Optometry

The Effect of Metabolic
Syndrome on Cornea



Robyn Douglas

Mentored by Carla Sharp
Psychology

The Relation Between
Suicidal Ideation, Perceived
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Kristina Duan

Mentored by Tim Cooper
Biology & Biochemistry

Mechanism and Fitness
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Maria Ferreira

Mentored by Eduardo Aleman
Political Science

Paths to Power Among Female
Presidents in Latin America



Adelle Flores

Mentored by Jason Eriksen
Pharmacological &
Pharmaceutical Sciences

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Alzheimer's Disease



Joshua Freed

Mentored by Terry Hallmark
Political Science

Stoicism, Democracy, and Cold
War Peace Rhetoric



Glenn Frutiz

Mentored by Tasneem
Bawa-Khalfe
Biology & Biochemistry

Role of Androgen Receptor
and its SUMOylation in MCF7
and Glioblastoma Breast Cancer
proliferation



Jarret Garber

Mentored by Stuart Hall
Earth & Atmospheric Sciences

Modeling Gravity Data in Luna
County, New Mexico



Anisleidys Garcia

Mentored by Ramanan
Krishnamoorti
Chemical & Biomolecular
Engineering

Improving Oil Recovery Using
Functionalized Nanoparticles



Nisha Ghayalod

Mentored by Samuel McQuillin
Psychological, Health, &
Learning Sciences

Paternal Caretakers' Acceptability
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Tarek Ghoneim

Mentored by Yashashree
Kulkarni
Mechanical Engineering

Zener Pinning: Strengthening
Nanomaterials



Cesar Gonzalez

Mentored by Yandi Hu
Civil & Environmental
Engineering

Reactivity of Cr-doped
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Wissam Harmouch

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Biology & Biochemistry

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Munjer Hashim

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Architecture & Design

Foam + Block: A Study on
Foam Building Methods



Aqib Hasnain

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Engineering Technology

Displacement Flow of Miscible
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Munib Hasnain

Mentored by Hadi Ghasemi
Mechanical Engineering

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Kristina Havens

Mentored by Arturo
Hernandez

Psychology

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Context on Fluency in Second
Language English Speakers



Joseph Hernandez

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Investigating the Seasonal
Variability of Winds on Saturn



Taylor Hinchliffe

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Biomedical Engineering

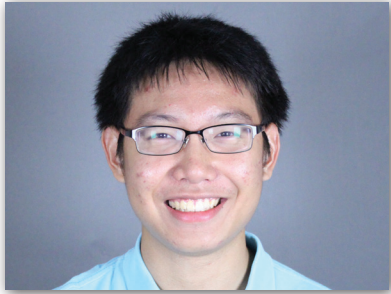
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Jennie Ho

Mentored by Qian Lu
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Jeffrey Hong

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John Hounihan

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Mapping Honors Student Success: First Year Initiatives and the Freshman Experience



Zhenyu Hu

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Sabrina Ingrid Hulipas

Mentored by Robert Talbot
Earth & Atmospheric Science

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Sara Khalil

Mentored by Xiaojing Yuan
Engineering Technology

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Arlen L'Anglois

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Troy Loftin

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Rosa Maya

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Priya Patel

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Jacob Roman

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Bilal Tariq

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Sadia Tasnim

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Gina Vaidya

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Sheiva Vakili

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In Prostate Cancer Through
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Trevor Walker

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Engineering

Self-Healing Concrete



Wu Yuqian

Mentored by Gangbing Song
Mechanical Engineering

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Monitoring On Reinforced
Concrete Pipe Using
Piezoceramic Based Active
Sensing Approach

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

- Office of the Provost
- Division of Research
- Honors College
- Heidi Alderman
- BASF Corporation
- Jeff Beauchamp
- Biology & Biochemistry
- Biology of Behavior Institute (BoBI)
- Biomedical Engineering
- Chemical & Biomolecular Engineering
- 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
- Cullen College of Engineering
- Data Analytics in Student Hands (DASH), *Summer of Apps*
- Earth & Atmospheric Sciences
- Electrical & Computer Engineering
- Engineering Leadership Board
- Engineering Technology
- Gerald D. Hines College of Architecture
- Health & Human Performance
- Susan Henning and Vikram Rao
- Hobby Center for Public Policy
- Industrial Engineering
- Mathematics
- Mechanical Engineering
- Medicine & Society Program
- Political Science
- Psychology
- Texas Obesity Research Center (TORC)

2015 SUMMER OF APPS II: HEALTH & AIR

For Summer 2015, twelve students from across the university had the opportunity to conduct a full-time, paid summer research opportunity under the mentorship of Dr. Dan Price and Dr. Peggy Lindner as part of their Data Analytics in Student Hands (DASH) program. Students are taking app development to a higher level, as they integrate data projects on health and air quality with mobile apps and browser interfaces that provide better and more relevant feedback to people who are concerned about the impact of the environment on their health. These students are continuing to work on their projects throughout the year.



Honors in Community Health (HICH)

(From Left to Right: Matthew Joseph, Fatemeh Mirgassemi, Abel Chacko)

HICH is organizing community projects for UH students including asset mapping of neighborhoods, education modules, and local health policy interventions.



Air Quality Mapping (AQM)

(From Left to Right: Huy Hoang, Nabiha Hossain)

AQM is expanding existing air quality maps for the Houston and Texas areas. When finished, the group will have a multi-pollutant map at neighborhood-relevant scales.



DASH Core Data

(From Left to Right: Chris Holley, Carlson Stephen, Visak Varghese, Binh Tran)

The core data team provides back-end solutions and implements algorithms for data processing used by the other teams.

2015 POSTER PRESENTATIONS

Saul Acevedo

Mentored by Margaret S. Cheung

Physics

High-Throughput Quantification of Frustration in Protein Interaction Networks

Yanely Alonso

Mentored by Daphne Hernandez

Health & Human Performance

Community Outreach: Addressing Community Needs and Providing Practical and Applied Research Experiences

Naomi Alphonso

Mentored by Candice Alfano

Psychology

Sleep Restriction and its Effects on Children's Emotional Memory

Adriana Ayala

Mentored by EunSook Kwon and Edward Blair

Industrial Design, Marketing & Entrepreneurship

UNO

Leilina Ayalew

Mentored by Norma Olvera

Psychological, Health, & Learning Sciences

Availability and Usage of Technology Among Early Adolescent Hispanic Girls

Ahad Azimuddin

Mentored by Bradley McConnell

Pharmacological & Pharmaceutical Sciences

Cardiac Calcium Cycling In Fortilin Deficient Mice

Dylan Bailey

Mentored by Jeff Feng and Jorge D. Camba

Industrial Design

PIXL

Anjay Batra

Mentored by Simon Bott

Chemistry

Electrostatic Component of Binding Free Energy Illuminates Interactions Between SRC3 and Androgen Receptor

Angelina Beitzel

Mentored by Tracey Ledoux

Health & Human Performance

A Parent Focused Approach to Developing Healthy Eating Behaviors Among Toddlers: A Feasibility Study

Matt Caballero

Mentored by Ziad Qureshi

Architecture & Design

Accelerated Exodus: The Intersection of Social Consumption and International Youth Migration

Alexis Carr

Mentored by Donna Pattison

Biology & Biochemistry

Functionalizing Protein-Based Materials with Gold Nanoparticles for Biosensor Applications

Jasmin Carranza

Mentored by Ziad Qureshi

Architecture & Design

Recharging Community and Space in Fifth Ward

Alejandra Cerda

Mentored by Brian Iken

Engineering Technology

Identification and Degradation Analysis of Pseudomonas Sp.

Misha Chishty

Mentored by Daphne Hernandez

Health & Human Performance

Community Outreach: Addressing Community Needs and Providing Practical and Applied Research Experiences

Gabriella Conrado

Mentored by Rupa Iyer

Biotechnology

Organophosphorus Compound Degradation and Identification of Unknown Bacterial Samples

Matthew Copley

Mentored by Robert Stewart

Earth & Atmospheric Sciences

Reinventing the Wheel... As a Seismic Motion Sensor

Han Dang

Mentored by Ziad Qureshi

Architecture & Design

Re-activating Home Away From Home

Quan Dang

Mentored by Ziad Qureshi

Architecture & Design

Satisfying Human Needs: A Space of JW Peavy Center's Senior

Francis DeBenedictis

Mentored by Simon Bott and Madlyn Frisard

Chemistry

Perilipin 5's Role in Lipid Storage Mechanisms for Skeletal Muscle

Robert Dehghan

Mentored by Driss Benhaddou

Engineering Technology

Autonomous Pool Chemical System

Denitza Dramkin

Mentored by Hanako Yoshida

Psychology

The Effects of Mothers' Speech Styles on Infants' Attention to Novel Words

Yasmina Fayed

Mentored by Anna Newman, Kristen Fousek, and Nabil Ahmed (Baylor College of Medicine, Department of Immunology)

Biology & Biochemistry

CAR T-Cell Phenotyping

Lenaya Flowers

Mentored by Margaret S. Cheung

Physics

Understanding Binding Peptide Design Using a Synthesis of Evolution and Energetic Frustration

Santos Galvan

Mentored by Mequanint Moges

Engineering Technology

Sober Wheel

Ruth Garcia

Mentored by Mequanint Moges
Engineering Technology
Sober Wheel

Terrance Garr

Mentored by Mequanint Moges
Engineering Technology
iGuide

Guillermo Gimenez

Mentored by Driss Benhaddou
Engineering Technology
Autonomous Pool Chemical System

Monique Hall

Mentored by Jay Neal
Hotel & Restaurant Management
What's In Your Salad?

Will Harrison

Mentored by Margaret S. Cheung and
Herbert Levine
Physics
Operating Principles of Coupled Cellular Decision
Making

Jessica Hedge

Mentored by Eunsook Kwon
Industrial Design
Design on Foreign Grounds

Rodney Helm

Mentored by Margaret S. Cheung
Physics
Effect of Mutations on CaM-Target Association
Dynamics

Miguel Ibanez

Mentored by Loi Do
Chemistry
Catalytic Hydrogenation Using Iridium Complex

Nancy Ibarra

Mentored by Stuart Long and Ajay Nahata
(University of Utah)
Electrical & Computer Engineering
Polarization-Dependent Terahertz Plasmonic
Structures

Donya Iranpoor

Mentored by William Paloski
Health & Human Performance
Virtual Reality as a Medium for Sensorimotor
Adaptation Training and Spaceflight
Countermeasures

Alexander Jamora

Mentored by Mequanint Moges
Engineering Technology
Sober Wheel

Nicholas Janho

Mentored by Ziad Qureshi
Architecture & Design
Reactivating a Piece of History: The Peavy Senior
Center

Ashley Jones

Mentored by Tracey Ledoux, Jose M. Garcia, and Michael E. DeBakey (Baylor College of Medicine)
Health & Human Performance

Pilot Clinical Trial of Repeated Doses of Macimorelin to Assess Safety and Efficacy in Patients with Cancer Cachexia

Navya Kartha

Mentored by Rupa Iyer
Biotechnology

Metagenomic Analysis of Soil Microbes and Degradation Genes

Radhika Khanna

Mentored by Brian Iken, Anja Karlstaedt, Hernan Vasquez, and Heinrich Taegtmeyer (University of Texas Medical School at Houston)
Biotechnology

ATP Citrate Lyase Links Mitochondrial Function and Protein Turnover in the Heart

Marwa Kharboutli

Mentored by Chandra Mohan
Biomedical Engineering

Identification of Novel Protein Biomarkers for Inflammatory Bowel Disease Using Antibodies Microarrays

Dillon Kopecky

Mentored by Steven Baldelli
Chemistry

Gold Single Crystal Electrodes as a Support for Cobalt Monolayers to Study the Electrochemical Evolution of Oxygen

Hoang Luu

Mentored by Ann Tate
Biology & Biochemistry

The Cost of Immunity on Fecundity Evolution in Infected Populations

Cameron Mace

Mentored by Mequanint Moges
Engineering Technology
iGuide

Jeannice Macklin

Mentored by Ziad Qureshi
Architecture & Design

Nurturing from the Roots

Yasmine Marquez

Mentored by Daphne Hernandez
Health & Human Performance

Community Voice Project: Addressing Homelessness and Food Insecurity

Tara Mars

Mentored by Jacinta Conrad
Chemical & Biomolecular Engineering

Flow and Transport of Complex Fluids in Porous Media

Sabrina Martinez

Mentored by Paul Mann
Earth & Atmospheric Sciences

Effect of Sea Level Change on the Extent of the Shorelines of the Caribbean During the Height of the Last Glacial Maximum (26.5 Ka)

Silvia Martinez

Mentored by Ziad Qureshi

Architecture & Design

Manifesting Identity: Activating People, Space and Memory in the Fifth Ward's JW Peavy Senior Center

Aaron McEuen

Mentored by Jeff Feng and Jorge D. Camba

Industrial Design

PIXL

Marinna Melchor

Mentored by Arturo Hernandez

Psychology

Relationship Between Bilingualism, Socioeconomic Status, and Task Switching

Taylor Moree

Mentored by Daphne Hernandez

Health & Human Performance

Is Summer an Evil Time for Children's Body Composition?

Barbara Nassif Rausseo

Mentored by Jonathan Silberg and Naresh Pandey (Rice University)

Biology & Biochemistry

Circularly Permuted Bacteriophytochromes: Directed Evolution and Development of a Protein Purification Strategy

Jamie Newcomb

Mentored by Ziad Qureshi

Architecture & Design

Spatially Investing in Our Future: JW Peavy Senior Center

Tung Nguyen

Mentored by Mequanint Moges

Engineering Technology

Project SLIP

Zachary Oakes

Mentored by Keith Lancaster

Technology

Project SLIP

Alan Ochoa

Mentored by Mequanint Moges

Engineering Technology

Project SLIP

Ugonna Odenigwe

Mentored by Mequanint Moges

Engineering Technology

iGuide

Gabriella Olson

Mentored by William Widger

Biology & Biochemistry

Study of Dormancy in *Micrococcus luteus***Staci Ouch**

Mentored by Nathan Grant Smith and

Lorraine R. Reitzel

Psychological, Health, & Learning Sciences

Racial Disparities in Cigarette Smoking among Lesbian, Gay, and Bisexual Adults

Edna Paredes

Mentored by Lorraine Reitzel

Psychological, Health, & Learning Sciences

Improving the Implementation of a Tobacco-free Workplace Policy at Mental Health Treatment Facilities

Matthew Patton

Mentored by Jeffrey Rimer

Chemical & Biomolecular Engineering

Effect of Interzeolite Conversion on Aluminum Zoning in ZSM-5 Catalyst

Ciera Perkins

Mentored by Ziad Qureshi

Architecture & Design

Generating Enthusiastic Participation: A Look Into an Activated Space

Alexander Pham

Mentored by Daniel Frigo

Biology & Biochemistry

The Role of Autophagy and Transcriptional Factor E-Box in the Progression of Prostate Cancer

Lauren Potter

Mentored by Norma Olvera and Guadalupe Palos (MD Anderson Cancer Center)

Community Health

Social Support Needs of Cancer Survivors Living in Their Communities

Yousf Radwan

Mentored by Thomas Teets

Chemistry

Electronic Modification of Cyclometalated Iridium Complexes with Substituted β -Ketoiminate and β -Diketiminato Ligands

Kristopher Reaves

Mentored by Raresh Pascali

Engineering Technology

Design Considerations for the FSAE Senior Design Project, SWRV Racing

Susan Renaud

Mentored by Norma Olvera

Psychological, Health, & Learning Sciences

Availability and Usage of Technology Among Early Adolescent Hispanic Girls

Manuel Reyes

Mentored by Driss Benhaddou

Engineering Technology

Autonomous Pool Chemical System

Cara Riffe

Mentored by Jokūbas Žiburkus

Biology & Biochemistry

Adenosine Analog Reduces Mortality and Autistic-like Comorbidities in Dravet Syndrome Model

Jessica Robinson

Mentored by Tracey Ledoux

Health & Human Performance

Effect of Intuitive Eating on Gestational Weight Gain

Sergio Rodriguez

Mentored by Mequanint Moges
Engineering Technology
Sober Wheel

Guadalupe San Miguel

Mentored by Michael Zvolensky and Chad Brandt
Psychology
The Relationship between HIV Related Symptoms
and Anxiety and Mood Disorders among Persons
Living with HIV/AIDS

Derek Scott

Mentored by Paul Mann
Earth & Atmospheric Sciences
Structural Characterization of the South Gabon Basin
Passive-Margin Fold and Thrust Belt from 2D Seismic
Interpretation

Logan Scott

Mentored by Ziad Qureshi
Architecture & Design
Revitalization of a Community Sanctuary

Sunil Shahani

Mentored by George Zouridakis and Nicholas Dias
Engineering Technology
Google Glass as a Diagnostic for Melanoma

Sonakshee Shree

Mentored by Daniel Frigo
Biology & Biochemistry
Androgens Regulate Autophagy in GFP-LC3
Transgenic Mice

David Silva

Mentored by Margaret S. Cheung, Rice University
Physics
Mechanistic Behavior of Cells During Compaction

Micah Simon

Mentored by EunSook Kwon, Adam Wells, and
Jeff Feng
Industrial Design
Embodying East and West

Satyam Srivastav

Mentored by Erin Kelleher
Biology & Biochemistry
Investigating the Role of TE Copy Number in its
piRNA Mediated Regulation by Host Genome

Brian St. Hilaire

Mentored by Margaret S. Cheung
Physics
The Meta 3D Genome Project

Andrew Steier

Mentored by Paul Mann
Earth & Atmospheric Sciences
Evaluation of Previously Published Kinematic Plate
Models for the Opening of the South Atlantic Ocean
using a GIS Compilation of Geologic and Geophysical
Information

Ebangha Tanyi

Mentored by Brian Iken

Biotechnology

Methyl Parathion Degradation in *Citrobacter freundii* and *Pseudomonas aeruginosa*

Jasmine Thomas

Mentored by Mequanint Moges

Engineering Technology

iGuide

Robert Trenary

Mentored by Mequanint Moges

Engineering Technology

Sober Wheel

Vy Truong

Mentored by Ziad Qureshi

Architecture & Design

Preservation

Daniel Vandagriff

Mentored by Mequanint Moges

Engineering Technology

iGuide

Cesar Vasquez Flores

Mentored by Richard Bannerot

Mechanical Engineering

Self-Sustainable, Mobile Fog-Collector

Steven Vaughn

Mentored by Raresh Pascali

Engineering Technology

Design Considerations for the FSAE Senior Design Project, SWRV Racing

Omar Vazquez

Mentored by Driss Benhaddou

Engineering Technology

Autonomous Pool Chemical System

Hector Vides

Mentored by Mequanint Moges

Engineering Technology

ReptEco: Smart Reptile Habitat System

Jose Viera

Mentored by Driss Benhaddou

Engineering Technology

Autonomous Pool Chemical System

Lena Younes

Mentored by Stacey Gorniak

Health & Human Performance

Assessment of Hemodynamic Function During Motor Hand and Finger Tasks in Healthy Young Adults

Cynthia Yusuf

Mentored by Simon Bott

Chemistry

An Analysis of the Electrostatic Binding Energies of Farnesyl-Galectin-CaaX-Ras and Salirasib-Galectin-CaaX-Ras Bound Complexes

Naixin Zheng

Mentored by Gangbing Song

Mechanical Engineering

Structural Health Monitoring of Multi-spot Welded Joints Using Lead Zirconate Titanate (PZT) Based Active Sensing Approach

Apply for these nationally competitive scholarships!

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: Dec 1, 2015

HARRY S. TRUMAN SCHOLARSHIP

For college juniors with exceptional leadership potential who are committed to careers 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: Dec 1, 2015

MORRIS K. UDALL & STEWART L. UDALL SCHOLARSHIP

For sophomore and junior level college students committed to careers related to the environment, tribal public policy, or Native American health care. Awards of up to \$5,000 annually.

Campus Deadline: Feb 1, 2016

Application for these awards requires a strong academic, leadership, and service record. You must be nominated to apply. For more information, visit the **Office of Undergraduate Research**.

2015 ORAL PRESENTATIONS

Oral Presentation Session 1

The Honors College, Room 212L

Moderator: Paul Mann

5:00p.m.

Maria Cardenas

Mentored by Thomas Lowder
Health & Human Performance

Exercise Training Improves Lung Function in Women
with Lymphangiomyomatosis (LAM)

5:20p.m.

David Lankford-Bravo

Mentored by Paul Mann
Earth & Atmospheric Sciences

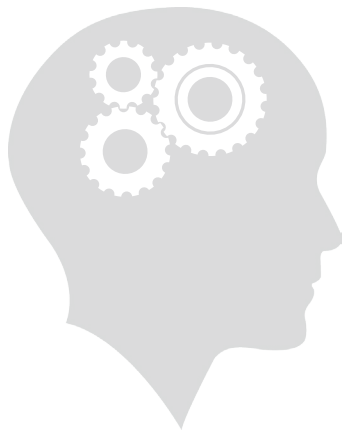
Basement Controls on the Formation of Passive
Margin Fold-Thrust Belts in the Gulf of Mexico

5:40p.m.

Aisha Deslandes

Mentored by Bruno Breitmeyer
Psychology

Visual Search Shares Attentional Resources with
Spatial but Not Color Working Memory



Oral Presentation Session 2

The Honors College, Room 212P, Martel Room

Moderator: Jafar Bakhshaie

5:00p.m.

Nubia Angelina Mayorga

Mentored by Michael Zvolensky and
Jafar Bakhshaie
Psychology

Negative Affect as the Mediator of the Effects of
Subjective Social Status on Mental Health of Latino
Attendees of a Primary Care Setting

5:20p.m.

Angela Medvedeva

Mentored by Michael Zvolensky and
Jafar Bakhshaie
Psychology

Anxiety Sensitivity as the Mediator of the Pathway
from Emotional Nonacceptance to Anxiety and
Depressive Symptoms and Disorders Among Latinos
in Primary Care

5:40p.m.

Olaguibel Sampogna

Mentored by Michael Zvolensky and
Jafar Bakhshaie
Psychology

Anxiety Sensitivity Mediates the Effects of
Experiential Avoidance on Anxiety and Mood
Problems of Latinos in a Community Health Center

2015 SURF STUDENTS IN ACTION



University of Houston

The Honors College

Office of Undergraduate Research

M.D. Anderson Library

4333 University Drive, Room 212

Houston, TX 77204-2001

Telephone: 713.743.3367

Fax: 713.743.9015

UndergraduateResearch.uh.edu

