



University of Houston-Downtown



Spring 2008 Undergraduate Research Program

UHD Scholars Academy members are eligible to apply for Student Research Stipends for Spring 2008 available within the Departments of Natural Sciences, Computer and Mathematical Sciences, and Engineering Technology. The goals of the program are to improve critical thinking and communication skills, and to provide hands-on research experiences and education to foster interest in graduate school. This research program is supported by the National Science Foundation (0336612); U.S. Army Research Office (W911NF-04-1-0024); and U.S. Department of Education (P120A050068).

Benefits:

- Semester stipends of \$600-1,200 depending on research status (see below) – half of the stipend will be received in Feb.; second half in late May after reports are received.
- Experience working closely with a faculty member on an independent research project
- Potential credit for enrollment in research courses within your respective field of study (see your academic advisor)
- Participation in research meetings to share and discuss data
- Presentation of work at the UHD Student Research Conference on April 11, 2008

Requirements:

- Must be a current SA member with a minimum UHD 3.0 GPA (attach a copy of your grade history from e-services)
- Minimum of 16 hours of coursework in your major field of study
- Must have a UHD faculty member agree to serve as your faculty research mentor and sign this application
- Citizenship or permanent residency is required; limited funding is available for internationals.

What You Need To Apply:

- Have a professor agree to serve as your faculty research mentor and sign the Undergraduate Research Proposal Form. Prior faculty research projects are attached to allow you to determine respective faculty to discuss your interests.
- Attach a 1-2 page essay describing the following topics: prior research experience/accomplishments; research interests and goals for Spring 2008; your future career goals; and how you will benefit from participating. If you have performed and been paid for research at UHD in the recent past, you must have satisfied all prior requirements (i.e. reports, 5 minute presentation, and presentation at the previous UHD SRC this past April).
- Submit this form completed with your essay to the Scholars Academy Office (725N).

Deadline to Apply is November 16, 2007.

1. SSN* and UHD Student ID _____ / _____ 2. Date of Birth _____
* Necessary to issue research stipend. (Month/Day/Year)

3. Full Name _____
(Last) (First) (Middle)

4. Gender _____ Race _____ 5. U.S. Citizen? Yes No If no, Permanent Resident? Yes** No

6. Address _____ Apt. # _____ City _____
 State _____ Zip _____ Home Phone _____ Cell/Other _____

7. Email Address _____ 8. Major _____ 9. UHD GPA _____

10. Research Status Requested Full-time (10 hrs/wk) 1/2-time (5 hrs/wk)

11. Research Field of Study _____

The **UHD Scholars Academy (SA)** is an academically competitive program in the College of Sciences and Technology (CST) that promotes scholarship and student success for undergraduate students majoring in Science, Technology, Engineering and Mathematics (STEM).

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Below is a listing of recent research projects conducted by UHD faculty and SA Members:

- Undergraduate Research in Chemistry** – Rank faculty below according to your preference.
- _____ Dr. M. Benavides – Synthesis and thermal characterization of Ionic Liquids; requires credit for CHEM 1307/1107 and CHEM1308/1108
 - _____ Dr. B. Christmas – Extracting and characterizing microbially-produced biopolymer films
 - _____ Dr. J. Grebowicz – Thermal properties of oil bearing rocks
 - _____ Dr. M. Jiang – Nanotube and polymer thin film application
 - _____ Dr. T. Montgomery – Synthesis of Phosphonium Salts; Organic Chemistry is required.

- Undergraduate Research in Computer Science** – Rank faculty below according to your preference.
- _____ Dr. Y. Chan – Mathematical models and numerical simulation; Requirement: Calculus II (Math 2402).
 - _____ Dr. P. Chen – Text mining, knowledge management, wireless security
 - _____ Dr. H. Lin – Parallel Linear Equations Solver on Grid
 - _____ Dr. O. Sirisaengtaksin – Intelligent Agent Traffic Controllers

- Undergraduate Research in Engineering Technology** – Rank faculty below according to your preference.
- _____ Dr. W. Feng – Implementing web-enabled lab experiments related to control & instrumentation systems
 - _____ Dr. A. Gomez-Rivas – Comparing results of the National Institute of Standards and Technology Fire Dynamics Simulator with a fire simulator (PYROSIM) developed by private industry
 - _____ Dr. J. Tito-Izquierdo – Development Length of Rebars in Concretes with Fly Ash

- Undergraduate Research in Environmental Science** – Rank faculty below according to your preference.
- _____ Dr. J. Flosi – Medical and veterinary entomology, such as: Mosquito biology; Mosquito population dynamics; Transmission of arboviruses by domestic species of mosquitoes; Venomous arthropods. Requires 8 hours of general biology and 8 hours of general chemistry. Also ecology, particularly bacterial pathogens often found in institutional settings which BIOL 2305/2105 is required.
 - _____ Dr. P. Gulati – Projects available: Inhibition of Biofilms with Different Antibiotics; Molecular Analysis of Mars Simulant Soil
 - _____ Dr. B. Hoge – Determining Arcellacean taphonomy in Anahuac National Wildlife Refuge; Establishing the source of the diatom primary community in the Greens Bayou Wetland Mitigation Bank; and Sampling multiple sites in the GBWMB for diatom and arcellacean assemblages.
 - _____ Dr. C. Horton – Genetic engineering of bacteria using molecular techniques
 - _____ Dr. A. Krochmal – Integrative ecology and wildlife biology. Potentials include using 1) ecological and genetic methods to investigate the population genetics of urban biota, 2) automated respirometry and bomb calorimetry to determine the metabolic costs of venom production in viperine snakes, and 3) biochemical, microbiological and immunological assays to investigate the evolution of venom in colubrid snakes.
 - _____ Dr. P. Lyons – Ecology of soil fungi in native, farmed and restoring coastal prairie; as well as projects concerning different aspects of fungal metabolism
 - _____ Dr. D. McCullough – Population Genetics of *Hymenoxys texana* (Asteraceae)
 - _____ Dr. L. Morano – Using molecular techniques for the detection of the plant pathogen *Xylella fastidiosa* which causes many agricultural diseases including Pierce's Disease in grapes
 - _____ Dr. P. Smith – Experimental methods of culturing microbes associated with mineral

- Undergraduate Research in Geology** – Rank faculty below according to your preference.
- _____ Dr. K. Johnson – Characterization of ore-forming hydrothermal fluids, environmental effects of acid mine drainage, field work, and the geochemical evolution of silicate magmas

- Undergraduate Research in Mathematics** – Rank faculty below according to your preference.
- _____ Dr. E. DeLaVina – An Investigation of mathematical properties of networks; Math 2305 is required
 - _____ Dr. E. Hodgess – Applied Functional Data Analysis and Dynamic Modeling
 - _____ Dr. R. Pepper – An introduction to Graph Theory by using the Moore method and resolving conjectures of the computer program Graffiti.pc
 - _____ Dr. E. Tecarro – Mathematical modeling of biochemical signaling pathways
 - _____ Dr. J. Yoon – Mathematical Analysis for Bacteria Growth in a Chemostat - interpreting (analytically and numerically) an ordinary differential equation model using Maple; current sophomore or junior preferred.