Purpose: The purpose of the 20th Annual UHD Scholars Academy Graduate School and Internship Fair (GSIF) is to help promote students to prospective graduate schools and internships. It additionally serves a second purpose of showcasing the academic projects undertaken by UHD students in science, technology, engineering, and mathematics. Qualifying activities are projects completed as part of internships and independent or directed study at UHD, or any undergraduate research on or off campus. This conference is sponsored by UHD Scholars Academy in the College of Sciences and Technology, and funded by The Brown Foundation, Inc.; U.S. Nuclear Regulatory Commission (NRC-HQ-7P-15-G-0003), Texas Workforce Commission Wagner-Peyser (2819WPB002), CITGO, Scholars Academy, and UHD. A limited number of research posters will be on display for invited guests.

Potential Audience: Invitations were sent to over 100 graduate schools or internship programs nationally. In addition to our faculty/students from UHD College of Sciences and Technology’s anticipated attendance at this year’s GSIF, a maximum capacity of 50 guest exhibitors representing over 40 different programs, such as Baylor College of Medicine, Midwestern State Univ., Sam Houston State Univ., Univ. of Texas at Austin, Texas A&M Health Science Center, Texas Tech Univ., Univ. of North Texas, UT Health Science Centers (Houston and San Antonio), UT M.D. Anderson Cancer Center, and UT Medical Branch will also be in attendance.

If you participated in off-campus research/internship or if you were supported in a health career shadowing or other research program or if you are a graduating senior with a senior project (fall 2019), you are invited to participate in this year’s GSIF poster presentation.

Invited Student Presenters: Scholars Academy members who will be graduating in the fall 2019 semester are required to present a poster at GSIF. All other CST posters will be by invitation only. Invitations to present a poster will be made by UHD CST faculty. Student poster presenters will also be invited to a special lunch with the visiting guests and UHD faculty following the GSIF end. All undergraduates supported in summer research/internship by Scholars Academy grant awards are required to present in the immediately following fall semester at the GSIF.

Recognition of Participation: This conference is non-competitive. Participants will receive a copy of the proceedings, presenter recognition in the proceedings, and an important experience to include within their resumes. Abstracts may be included in the proceedings.

Important Deadlines: Participants must submit an application and an electronic abstract by Monday, September 23, 2019. Late applications may not be accepted. The application form requires signatures of a UHD faculty sponsor and the student’s academic department chairperson. The faculty sponsor should review their own student’s abstract and poster before submission to the Scholars Academy office in 725N for printing.

Submission web link: http://uhd.co1.qualtrics.com/jfe/form/SV_50b4H37hSpBcMIL

Where room exists, all applicants submitting by the deadline will be accepted.

Abstracts: Abstracts must be submitted electronically with a signed application and uploaded by September 23, 2019. Please be sure to include your name and project title within the submission. Abstracts must not be more than 150 words. Ideally, the abstract should include the objective(s), problem, overview, and an interesting/enticing summary to catch a reader’s interest. Accepted abstracts will be included in the GSIF
Program. Abstracts that are poorly written will not be accepted.

Submission web link: http://uhd.co1.qualtrics.com/jfe/form/SV_50b4H37hSpBcMiL

Posters: Student posters already prepared for other purposes or conference venues, but which also satisfy the above criteria, are welcome. Participants are strongly encouraged to attend activities leading up to the day of GSIF that will be scheduled in September/October.

Students are required to prepare posters using a PowerPoint template provided by Scholars Academy. This template produces a 40-inch tall and 44-inch wide poster (maximum allowable poster size) to be displayed on bulletin boards that will be provided at the GSIF. All GSIF posters MUST have a white background (Those without a white background, unless printed elsewhere, will not be printed)! Students can obtain the template from the Scholars Academy website (www.uhd.edu/scholars).

All poster files must be submitted (in electronic format) to the Scholars Academy (Room 725N) by Friday, October 4, 2019 in order for timely printing and display. We expect to accept a maximum of 25 posters. Late poster files will not be accepted.

Prior to printing of posters, students must have a Poster Printing Approval Form signed by their faculty sponsor. Poster printing forms must accompany the GSIF poster file and must be submitted electronically. Students give SA literary license to make grammatical corrections.

These posters are expensive to print. Students will be provided only one printing opportunity in order to allow all presenters an equal opportunity to print their poster on time. If a poster needs to be reprinted, it also will be on an availability basis (see above) and at the student's cost (approx. $30).

After the poster is printed, the poster will remain in the Scholars Academy (725N). Use of posters previously printed by other summer experience programs/venues is allowable and these posters should be submitted to SA Office, Room 725N by October 4, 2019.

Upload all poster printing forms and poster PowerPoint Template files here: http://uhd.co1.qualtrics.com/jfe/form/SV_8fe5orFZMjtoFNz

Acknowledgment of Assistance and Sponsorship: Faculty advisors of these projects (or those acting as on-campus surrogates) will mentor the participants during the preparation of their posters. Participants must list all acknowledgements on their poster; this includes any assistance of individuals and/or organizations/agencies that worked on the research or sponsored the project. Proper acknowledgment of co-authorships should also be included on the poster.

Timeline of Deadlines and Events:

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>September 3, 2019</td>
<td>Applications for GSIF presenters become available</td>
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<tr>
<td>September 23, 2019</td>
<td>Electronic applications are due (including uploaded application and abstract (word only) (<a href="http://uhd.co1.qualtrics.com/jfe/form/SV_50b4H37hSpBcMiL">http://uhd.co1.qualtrics.com/jfe/form/SV_50b4H37hSpBcMiL</a>)</td>
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<tr>
<td>October 4, 2019</td>
<td>Electronic poster files are uploaded for printing (<a href="http://uhd.co1.qualtrics.com/jfe/form/SV_8fe5orFZMjtoFNz">http://uhd.co1.qualtrics.com/jfe/form/SV_8fe5orFZMjtoFNz</a>)</td>
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<tr>
<td>October 18, 2019</td>
<td>20th Annual Graduate School and Internship Fair- UHD</td>
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Property: All posters produced will become the property of UHD, unless other arrangements are made due to scheduled presentations of the poster elsewhere. These posters will be released to the faculty sponsors at a future date to be on regular display in the areas of the hosting departments.

Photographs/Publications: Photographs/videos of participants may be taken during presentations and throughout the event. These photographs/videos, abstracts, posters and release of information deemed necessary for publications may also be used in associated UHD reports and promotional media.

Sponsored by the UHD Scholars Academy.

Funded by: The Brown Foundation, Inc.; U.S. Nuclear Regulatory Commission (NRC-HQ-7P-15-G-0003), Texas Workforce Commission Wagner-Peyser (2819WPB002), CITGO, Scholars Academy, and UHD One Main Street, 725-North; Houston TX 77002-1001

Phone: 713-222-5344; Fax: 713-223-7410; scholars@uhd.edu; www.uhd.edu/scholars
# GRADUATE SCHOOL AND INTERNSHIP FAIR

University of Houston-Downtown  
Friday, October 18, 2019

Application due electronically by September 23, 2019  
(http://uhd.co1.qualtrics.com/jfe/form/SV_50b4H37hSpBcMIL)

Provide all of this information on the Qualtrics e-application (web link above)

<table>
<thead>
<tr>
<th>Presenter’s Full Name</th>
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<td>Major and Degree</td>
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<td>Career Plans</td>
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<td>Expected Graduation Date</td>
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<td>Email Address</td>
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<td>Project Supervisor(s)</td>
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<td>Project Location(s)</td>
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<td>Official Title of Project</td>
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<td>Co-authors (see guidelines)</td>
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Abstracts (150-word limit) must be sent electronically by September 23, 2019 to:  
http://uhd.co1.qualtrics.com/jfe/form/SV_50b4H37hSpBcMIL

Sample abstracts can be reviewed below this application.

**UHD FACULTY SPONSOR:**

By signing below, I agree to serve as the faculty sponsor for the above applicant. I agree to review the applicant’s abstract (due September 23, 2019) and poster file (due October 4, 2019) and ensure that these are in accordance with standards similar to those in my academic discipline. I also agree to attend the GSIF on October 18, 2019 to support this student (unless other arrangements are made) and to encourage other CST students/faculty to attend.

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<thead>
<tr>
<th>UHD Faculty Sponsor (please print name and sign)</th>
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<th>UHD Department Chair (please print name and sign)</th>
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<tr>
<th>Applicant Signature</th>
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If accepted to present, I fully intend to attend the GSIF and meet all deadlines and requirements. If accepted, I further authorize use of photos/videos, material I have submitted/completed in this application, and release of information deemed necessary for publications by the university and the GSIF staff/sponsors.
1. **Stabilization of Thiol/Acrylate Systems Using N-PAL**  
   Hilda Hinojosa, Christopher Lopez, Colin Carandang, and Lucio Patino  
   Dr. Byron Christmas, Research Mentor, Center for Applied Polymer Science Research, UHD  
   **Abstract:** Using tris-nitroso-N-phenyldihydroxyamine (N-PAL) as a free radical polymerization inhibitor, an investigation was conducted to characterize the shelf-life stability and relative reactivity of UV-polymerizable, thiol/acylate-based formulations containing various concentrations of N-PAL. These formulations were characterized for their relative reactivity using differential photocalorimetry (DPC) techniques. The shelf-life stability data generated thus far indicate that N-PAL provides adequate stability without significantly reducing the relative reactivity of the formulations.

2. **The Good Samaritan**  
   Tudon Martinez, Alisha Romero  
   Dr. Heidi Ziemer, Research Mentor, Department of Social Sciences, UHD  
   **Abstract:** We studied whether gender determines the likelihood of a driver stopping to assist a casually dressed gentleman stranded on the side of the road. Many studies report differences between men and women when helping others is involved. The probable explanation lies in the nature of the help required in the situation. Active doing, spontaneous, and anonymous acts are more likely to be carried out by men than by women. Women are more likely to help than men when helping is more planned, formal, personal, and less likely to involve direct intervention. We considered a number of variables: situation, type of help necessary, time of the day, physical condition of the person offering help, and previous experiences. Some studies have found that interveners in several kinds of dangerous events had more exposure to crime, both in personal experience and in witnessing others’ victimization, they were also taller, heavier, better trained to cope with emergencies (e.g. trained in life saving skills, medical and/or police trained) and were more likely to see themselves as physically strong, aggressive, emotional and principled.

3. **Diatoms as Indicators of Wetland Mitigation Success**  
   David Lang  
   Dr. Brad Hoge, Research Mentor, Department of Natural Sciences, UHD  
   **Location:** UHD, Greens Bayou Wetlands Mitigation Bank, and Anahuac National Wildlife Refuge  
   **Abstract:** Diatoms were chosen to assess wetlands mitigation success in The Greens Bayou Wetlands Mitigation Bank, a project of The Harris County Flood Control District. Diatoms respond rapidly to environmental changes, thus diatom succession provides a good model of wetland mitigation success. Samples were collected from surface water and the first 10 centimeters of soil at the GBWMB and The Anahuac National Wildlife Refuge, a relatively undisturbed wetland comparable to those at the GBWMB. Results show statistically different assemblages at the GBWMB compared the ANWR. These results suggest the GBWMB, although planted with climax community plants, is still undergoing succession.

4. **Combating Spam Through Proofs of Effort**  
   Cyril Harris III  
   Dr. Ping Chen, Research Mentor, Department of Computer and Mathematical Sciences, UHD  
   **Abstract:** Spam is rapidly degrading the value of the Internet. Current methods to block spam are becoming less and less effective. Because of this several researchers from Microsoft Research proposed a new type of solution at Crypto 2003. To combat spam these researchers proposed that prices be accompanied with the act of sending email. These prices are easy to verify proofs of computational effort which would be hard to compute for the sender but easy to verify for the receiver.

5. **Lower Bounds on the Matching Number of Bipartite Graphs**  
   Iride Gramajo  
   Dr. Ermelinda DeLaVina, Research Mentor, Department of Computer and Mathematical Sciences, UHD  
   **Abstract:** This presentation is a summary of an undergraduate research project in graph theory that involved resolving conjectures on the matching number of bipartite graphs generated by a computer program called Graffiti.pc, designed by Dr. Ermelinda DeLaVina. One main objective of this project was to obtain a collection of lower bounds on the matching number involving other easily computed graph invariants, which collectively predict the matching number of bipartite graphs. We present the collection of lower bounds obtained. A couple of the results were found in texts and research papers, and some were mathematical applications of Hall's Marriage Theorem and Berge's M-Augmenting Path Theorem; however, many were resolved with seemingly original strategies.

6. **Cheating: Yes unicellular Organisms Do It Too**  
   Tek Williams and Vedangi Sample  
   Dr. Akif Uzman, Faculty Mentor, Department of Natural Sciences, UHD  
   Dr. Gad Shaoulsky, Research Mentor, Department of Molecular and Human Genetics, Baylor College of Medicine  
   **Abstract:** Altruistic behavior is exhibited in *Dictyostelium* during reproduction. This form of group selection, also observed in higher organisms, ensures that genetic traits shared by a related group of individuals persist through subsequent generations via the sacrifice of some members. Certain mutations often become over-represented compared to other mutants. Mutants were created using restriction enzyme-mediated integration. Cultures containing different mutants were randomly mixed, then allowed to undergo 10 rounds of replication. Cultures were then characterized using cheating assays to screen for dominant mutants. *Dictyostelium* strain AX4 was used to compare the level of cheating. Swindling ones way into the spores ensures that your genetic make up will be directly passed on to the next generation.