



# 11<sup>TH</sup> ANNUAL STUDENT RESEARCH CONFERENCE



University of Houston-Downtown

Friday, April 13, 2012

Wilhelmina Cullen Robertson Auditorium and Special Events Center, A300  
8:00 AM – 3:30 PM

## SRC CONFERENCE GUIDELINES

**Purpose:** The purpose of the 11<sup>th</sup> Annual UHD Student Research Conference is to showcase special academic projects undertaken by UHD students and recent UHD graduates. **Qualifying activities** are projects completed as part of internships, independent or directed study at UHD, service learning, upper-level research-oriented lab courses, senior type or graduate level projects, or any other research on or off-campus. This conference is sponsored by the UHD Scholars Academy with funding from The Brown Foundation, Inc., National Science Foundation, and UHD. For more information, visit [www.uhd.edu/scholars/src.html](http://www.uhd.edu/scholars/src.html).

**Targeted Participants:** Any UHD student or team of students or recent UHD graduate who has/have completed a research/creative activity-type project associated with independent or directed study, upper-level research courses, senior-type or graduate level activities, service learning, internships, or any other form of research/creative activity on or off-campus. The scope of this conference is broad, and we invite participation by students from **all academic areas at UHD – both undergraduate and graduate**.

- **Posters on research and other academic creative activities**
- **Posters on corporate/ teaching internships or interdisciplinary applications**
- **Selected student oral presentations** (10 min., with 3-5 min. for questions).

**Recognition of Participation:** This conference is non-competitive. Participants will receive a copy of the proceedings, a certificate of participation, a special memento, and an important experience to include within their resumes. Abstracts included in the proceedings may be listed as a publication.

**Oral Presenters:** Applicants for an Oral Presentation must also attend a mandatory audition during February 22-23 (time TBA and by appt.); auditions will only be 5 minutes each in length. A workshop will also be held in March to provide guidance. Final selections of oral presenters will be made by March 2. A speaker fee stipend will be provided to the 6-8 oral presenters who are selected, who attend the mandatory audition and dry-runs, and who present orally (**and a poster**) on April 13, 2012.

**Poster Presenters & Important Deadlines:** Early Submission Deadline is Dec. 6, 2011 for poster applications (these may later apply for oral presentations). Final Deadline is Friday, February 17, 2012 for oral and poster applicants. The application form requires signatures of a UHD faculty sponsor and the student's academic department chairperson. The faculty sponsor should agree to review their student's abstract and poster before submission to the Scholars Academy in 725N.

Applicants will be notified of acceptance by March 2, 2012 (by December 12 for early submissions). If accepted, posters must be submitted (in printed and electronic format) to the Scholars Academy (Room 725N) by March 30, 2012 in order to categorize and display. We expect to accept approximately 100 posters. Each take 20-100 minutes to print (hence only 10-12 posters can be printed each day without any printer issues). Participant sign-up sheets to schedule printing will become available on March 12 (in 725N).

**Abstracts:** Abstracts must also be submitted electronically to [scholars@uhd.edu](mailto:scholars@uhd.edu). Include your name and project title within the submission. **Abstracts must not be more than 200 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 published online in the SRC conference proceedings and may be listed by the student as a publication. Abstracts that are poorly written will not be accepted.

Sponsored by the UHD Scholars Academy.

Funded by: The Brown Foundation, Inc.; National Science Foundation (0728408); and UH-Downtown.

One Main Street, 725-North; Houston TX 77002-1001  
Phone: 713-222-5344; Fax: 713-223-5356; [scholars@uhd.edu](mailto:scholars@uhd.edu); [www.uhd.edu/scholars](http://www.uhd.edu/scholars)

**Posters:** Student posters already prepared for other purposes or conference venues, but which also satisfy the below criteria, are welcome. Participants are strongly encouraged to attend workshops for poster construction to be scheduled in early March 2012; prior workshop videos are also provided online.

Students are required to prepare posters using an online PowerPoint template. This template produces a 40-inch tall and 44-inch wide poster (maximum allowable poster size) to be displayed on provided poster bulletin boards. Students may obtain the template from the SA website ([www.uhd.edu/scholars/src.html](http://www.uhd.edu/scholars/src.html)).

Prior to printing of posters, students must have a **Poster Printing Approval Form** signed by their faculty sponsor. Participant sign-up sheets to schedule printing will become available on March 12 (725N). At the scheduled appointment to print, be sure to bring the electronic poster and the completed printing form. Students are not to simply drop off their file. Time needs to be allotted to work with the office staff to ensure that there are no complications with the poster (improper dimensions, graphical issues, etc.). If there are complications, the student may be asked to reschedule.

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 the student has to reschedule their appointment for any reason, it will be on an availability basis (over 100 posters will be printed within a short timeframe on a scheduled basis, and each takes 20-90 minutes to print). If a poster needs to be reprinted, it also will be on an availability basis (see above) and at the student's cost (approx. \$20).

After the poster is printed, the poster will remain in the Scholars Academy (725N). Posters already previously printed for other venues should be submitted to Room 725N by Friday, March 30.

**Acknowledgment of Assistance, Sponsorship, and Resources:** Faculty advisors of these projects (or those acting as on-campus surrogates) will mentor participants during the preparation of their posters and also presentations if selected as an oral presenter. 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 citations (software, images, resources, etc.) and proper acknowledgment of co-authorships should also be included on the poster.

#### **Timeline of Deadlines and Events:**

November 2011	Applications for Presenters become available
December 6, 2011	<u>Early submission date for poster presentation application</u>
December 12, 2011	Applicants for early submission are notified of acceptance
February 17, 2012	<u>Final Deadline for oral &amp; poster presentations application</u>
February 22-23, 2012	Auditions (5 minutes in length) in 725N for Oral Presenter applicants
March 2, 2012	Applicants are notified of acceptance
March 2012	Workshops on 'Preparing Research Presentation Posters'
March 2012	Workshop for Oral Presenter applicants (an hour in length)
March 12, 2012	Sign-up sheets to schedule poster printing become available in 725N
March 30, 2012	<u>Posters are due by 5PM</u> (in printed and electronic format)
April 11-12, 2012	Mandatory Oral Presentation dry-runs (in auditorium) by appointment
April 13, 2012	UHD Student Research Conference

#### **Program Schedule for April 13:**

8:00 - 9:00 AM	Registration / Continental Breakfast
9:00 - 9:50 AM	Introduction Remarks and Keynote Speaker
9:50 - 11:00 AM	Oral presentations, Session 1, Auditorium
11:10 - 12:20 PM	Oral presentations, Session 2, Auditorium
LUNCH	Complimentary lunch provided for Presenters and their Faculty Mentor
1:30 - 3:30 PM	Open Poster Sessions, A300; Networking and mentoring session; A300

**Potential Invitees:** UHD community; Greater Houston Area corporate and academic community; undergraduates from other Houston campuses; and teachers/administrators from local high schools.

**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 will be taken during presentations and throughout the event. These photographs/videos, abstracts, posters and release of information deemed necessary for publications may be used in associated UHD promotional media.

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## TEAM PROJECT ENTRY FORM (2 PAGES)

**Early Submission Deadline: December 6, 2011**

**Final Deadline: February 17, 2012**

Type of Presentation	<input type="checkbox"/> <b>Poster Presentation</b> <input type="checkbox"/> Oral <b>AND</b> Poster Presentation – <b>audition on Feb. 22/23</b> (TBA) and also a poster at SRC. Speaker fee stipends will be provided to selected orals.
Category of Project	<input type="checkbox"/> Research and other academic creative activities <input type="checkbox"/> Corporate/teaching internships or interdisciplinary applications
Listing of Student Presenters	<input type="checkbox"/> List the Presenters in the Proceedings <u>alphabetically by last name</u> <input type="checkbox"/> List the Presenters in the Proceedings <u>in the order listed below</u>
Official Title of Project	
Project Supervisor(s) Full Name, Title, & Email	
Project Location(s)	
Co-authors' Full Name & Affiliation (see guidelines)	

**Up to 3 student presenters are allowed to jointly present the project.**

Others should be included along with co-authors and are encouraged to attend the conference.

Student Presenter 1 Name & UHD ID	
Major and Degree	
Career Plans	
Expected Graduation Date	
Email Address	
Phone Number(s)	

Student Presenter 2 Name & UHD ID	
Major and Degree	
Career Plans	
Expected Graduation Date	
Email Address	
Phone Number(s)	

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## SAMPLE ABSTRACTS

### 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-phenylhydroxylamine (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/acrylate-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 Shaulsky, 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.

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