



STUDENT RESEARCH CONFERENCE

University of Houston-Downtown

Friday, April 11, 2008



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

SRC CONFERENCE GUIDELINES

Purpose: The purpose of the 7th 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, 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, National Science Foundation, U.S. Army Research Office, U.S. Department of Education, and UHD.

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, special internships, or any other form of research/creative activity on campus 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 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 attend a mandatory audition on Friday, February 22 (time TBA); 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 5. An honorarium will be provided to the 6-8 oral presenters who are selected, who attend the mandatory audition and dry-runs, and who present orally on April 11, 2008.

Important Deadlines: Participants must submit an application and an electronic abstract by Friday, February 20, 2008. Late applications will not be accepted. 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 5, 2008. If accepted, posters must be submitted (in printed and electronic format) to the Scholars Academy (Room 725N) by April 7, 2008 in order to categorize and display. We expect to accept approximately 100 posters. Each take 20-100 minutes to print (hence only 12-14 posters can be printed each day). Participant sign-up sheets to schedule printing in the TTLC will become available on March 18 (place TBA).

Abstracts: Abstracts must also be submitted electronically to scholars@dt.uh.edu by February 20. 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 published in the SRC conference proceedings and may be listed by the student as a publication. Abstracts that are poorly written will not be accepted.

Posters: Any posters already prepared for other purposes, but which also satisfy the below criteria, are welcome. Participants are strongly encouraged to attend workshops for poster construction that will be scheduled in March 2008.

Sponsored by the UHD Scholars Academy.

Funded by the Brown Foundation; Expanding Pathways to Success in Science (National Science Foundation: 0336612); Urban Center for Student Success in Science, Technology, Engineering & Mathematics (U.S. Army Research Office: W911NF-04-1-0024); University of Houston-Downtown.

Students are required to prepare posters using a PowerPoint template provided by the UHD Scholars Academy (SA). This template produces a 40-inch tall and 46-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).

Prior to printing of posters, students must have a **Poster Printing Approval Form** signed by their faculty sponsor and the Scholars Academy. Participant sign-up sheets to schedule printing in the TTLC (Room A700, UHD Academic Building) will become available on March 18 (place TBA). 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 TTLC representative 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 20-100 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 student needs to submit it in person (in printed and electronic format) to the Scholars Academy (Room 725N) by Monday, April 7, 2008.

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:

October 2007	Applications for Presenters become available
Feb. 20, 2008	<u>Application and electronic abstracts are due for oral & poster presentations</u>
Feb. 22, 2008	Auditions (5 minutes in length) for Oral Presenter applicants (in auditorium)
March 5, 2008	Applicants are notified of acceptance
March 2008	Workshops on 'Preparing Research Presentation Posters'
March 2008	Workshop for Oral Presenter applicants (an hour in length)
March 18, 2008	Sign-up sheets become available for poster printing
April 7, 2008	<u>Posters are due by 5PM</u> (in printed and electronic format)
April 9-10, 2008	Mandatory Oral Presentation dry-runs (in auditorium)
April 11, 2008	UHD Student Research Conference

Program Schedule for April 11:

8:30 - 9:30 AM	Registration / Continental Breakfast
9:30 - 10:10 AM	Introduction Remarks and Keynote Speaker
10:15 - 11:15 AM	Oral presentations, Session 1, Auditorium
11:20 - 12:20 AM	Oral presentations, Session 2, Auditorium
LUNCH	
1:30 - 3:00 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 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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INDIVIDUAL PROJECT ENTRY FORM

Deadline: Application (hardcopy to room N725) and Abstract (via email) by February 20, 2008.

Student Presenter's Full Name	
Major and Degree	
Career Plans	
Expected Graduation Date	
Email Address	
Phone Number(s)	
Project Supervisor(s)	
Project Location(s)	
Official Title of Project	
Co-authors (see guidelines)	
Category of Project	<input type="checkbox"/> Research and other academic creative activities <input type="checkbox"/> Corporate/teaching internships or interdisciplinary applications
Type of Presentation	<input type="checkbox"/> Poster Presentation <input type="checkbox"/> Oral and Poster Presentation – requires audition on Feb. 22 and also a poster at SRC. If approved for an oral, you will receive an honorarium.

Abstracts (150 word limit) must be sent electronically by February 20, 2008 to scholars@dt.uh.edu. Sample abstracts are attached; for more information, visit www.uhd.edu/scholars/src.html.

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 Feb. 20), poster (due April 7), and oral presentation (if applying and/or selected) and ensure that these are in accordance with standards similar to those in my academic discipline. I also agree to attend the Conference on April 11, 2008 to support this student (unless other arrangements are made) and to encourage other students and faculty to attend.

UHD Faculty Sponsor (please print name and sign) Date

UHD Department Chair (please print name and sign) Date

Applicant Signature Date

If accepted to present, I fully intend to attend the SRC on April 11 and meet all deadlines and requirements. If accepted, I further authorize use of photos/videos, submitted material, and release of information deemed necessary for publications by the university and the SRC staff/sponsors.



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TEAM PROJECT ENTRY FORM (2 PAGES)

Deadline: Application (hardcopy to room N725) and Abstract (via email) by February 20, 2008.

Type of Presentation	<input type="checkbox"/> Poster Presentation <input type="checkbox"/> Oral and Poster Presentation – requires audition on Feb. 22 and also a poster at SRC. If approved for an oral, you will receive an honorarium.
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)	
Project Location(s)	
Co-authors (who will not be present at the conference)	

Student Presenter's Full Name	
Major and Degree	
Career Plans	
Expected Graduation Date	
Email Address	
Phone Number(s)	

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APPLICANTS SIGNATURES:

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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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