Being An Undergraduate Research Ambassador
by Martha Lesniewski, MSE

Although more than 2,000 Georgia Tech undergraduates across all 6 colleges currently participate in undergraduate research, research is not a visible and integral aspect of the Georgia Tech undergraduate experience. As an ambassador for undergraduate research, I seek to change this. When asked about their Tech experience, many students will mention football games with SWARM, late night study sessions and naps in the library, exploring Atlanta with friends, and going down the waterslide in the CRC, but will not mention research. If I were asked the same question, undergraduate research would be among my first responses as it has been an integral part of my Tech experience.

Actually, I have been conducting undergraduate research longer than I have been a student at Georgia Tech. But doing research for three years is not even necessary to realize its benefits. Even working in a lab for just a semester can give you a taste of grad school and teach you how to think analytically, write critically and explain clearly. After only one year of research, I not only discovered that I wanted to study biomaterials and to pursue a career in academia, but I also learned how to efficiently search literature and that things don’t always work as planned.

The summer before my freshman year, I emailed numerous professors from several departments looking for a chance to do research. I was an undecided engineer whose only prior research experience was a high school science fair project about the effect of household spices on E coli. Thankfully, Dr. Ken Gall from Materials Science and Engineering (MSE) was willing to take me under his wing. For the next year, I worked on shape memory polymer foams under the direct mentorship of Matthew Di Prima, with whom I co-authored a journal article that became the basis for my research presentation at Georgia Tech’s Undergraduate Research Spring Symposium. Despite the anxious butterflies fluttering about in my stomach when presenting before Tech professors, administrators and graduate students, I earned 3rd place in Engineering for my poster presentation.

Both inside and outside

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Student Interview: Ted Chen, BME

U/G Research: How did you become involved in research as an undergraduate student at Georgia Tech?

TC: I was very fortunate to have Dr. Melissa Kemp as a mentor in our introductory BMED 1300 class. I have been working in her lab ever since. Her research focuses on T cell signaling and receptor activation, and my research focuses specifically on quantifying protein glutathionylation during T cell receptor activation. I have done the work both for pay and for credit, depending on the semester and course schedule. It was an individual project, so I had the opportunity to work directly with Dr. Kemp in my research. I was looking to get involved with research after my first year, and Dr. Kemp happened to be researching something that struck my interest. This past summer, I had the opportunity to work in Dr. Jennifer West's lab at Rice University as part of a summer research internship.

TC: Do not be afraid to talk to professors about their research if you are interested in working in their labs. If you show that you are dedicated and committed, they will be more likely to let you work in their lab.

U/G Research: What have you learned during your experience that goes beyond the classroom?

TC: Research is basically like working a part-time job, not in that it is tiring but just in the time commitment and interest you have to put into it to succeed. It has taught me to really focus on time management in addition to schoolwork and extracurricular activities. My experience has allowed me to get a taste of graduate school and what it entails. Of course, just working in a research lab is a great experience to have regardless of one's career choice.

U/G Research: What's the number one piece of advice you would give to fellow undergraduates who might be interested in research?

TC: Do not be afraid to talk to professors about their research if you are interested in working in their labs. If you show that you are dedicated and committed, they will be more likely to let you work in their lab.

U/G Research: Have you presented your work in any forum or published a paper?

TC: I have presented posters at the 2008 UROP Spring Symposium, the GT/Emory BME 10th Anniversary Symposium, and the 2008 HHMI and NSF REU Internship Poster Session (at Rice University).

U/G Research: Describe your role within your professor's research and research group.

TC: I research independently of the graduate students, but all of our projects are interconnected in some way. I have the opportunity of working with Dr. Kemp directly. She gives me plenty of freedom when working out protocols and at the same time, I can feel free to ask her for her opinion.

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Working on a cool research project?
Interested in a publication on your resume?
Want to learn more about the research peer review process or journal publication?

Then, Georgia Tech's new Undergraduate Research Journal, The Tower, is for you! The Editorial Board is always looking for students as submitters, reviewers, and production and marketing staff. This year's journal will include full-length traditional research articles, a new short "work in progress" category called Dispatches, and short Perspectives which are more editorial in nature. Students submitting work to other professional journals are encouraged to submit Dispatches on their work. Submissions will be accepted from Georgia Tech Students through October 1, 2008 for inclusion in the Spring 2009 issue. Visit http://gttower.org/ for the official Call for Papers and additional information on how to become involved.

PURA
President's Undergraduate Research Award
Spring 2009 Applications due October 20

Apply for competitive $1,500 salary awards or up to $1,000 funding to present your work at a professional conference

Visit https://www.undergradresearch.gatech.edu/funding.php for more information and application instructions.
Research Opportunities Database
Interested in publicizing your research to undergraduates on campus? Sign in to our new UROP Research Opportunities database and submit a project. Projects submitted can be very specific or outline your general research area. Students will use the database in order to find information about research for undergraduates in their discipline or others. The database is searchable by college/school, key words, faculty name, etc. Visit: http://undergradresearch.gatech.edu/uropdb/ for additional information.

UROP Library – New titles
Interested in reading about how other universities have developed a research-supportive curriculum? Check out the new UROP library title “Developing and Sustaining a Research-Supportive Curriculum: A Compendium of Successful Practices” published by the Council on Undergraduate Research. The book, edited by Kerry Karukstis and Timothy Elgren, contains 34 chapters with both typical length articles and shorter “highlights” of curricular reform. Examples of interesting articles include, but are not limited to: team-oriented, project-based learning; using writing programs to support undergraduate research; using undergraduates in proposal writing; fostering inquiry and research in all disciplines; examples of undergraduate research and service learning; and undergraduate research experiences for students with disabilities. Interested in checking the book out or purchasing your own? Contact Karen Harwell at urop@gatech.edu.

Additional resources in the library now include “Writing for Science and Engineering: Papers, Presentations, and Reports,” by Heather Silyn-Roberts and several issues of the CUR quarterly.

Mentoring Undergraduates in Research
I encourage both experienced and new faculty, and experienced and new graduate students and post-docs to join us in our newly expanded series of workshops on Mentoring Undergraduate in Research co-sponsored by the Center for the enhancement of Teaching and Learning (CETL). See our flyer on Page 5 for additional information.

Materials, Supplies, and Travel Grants, 2008-09
Faculty members who will be mentoring undergraduate researchers during the 2008-09 academic year are eligible to apply for up to $1000 for materials, supplies, or travel funding to support undergraduates working on research projects under their mentorship. Deadlines vary by semester. For more information visit: http://undergradresearch.gatech.edu/faculty.php.

Know a great student participating in research?
Nominate her/him to be interviewed for a future issue of the Undergraduate Research News or for inclusion in other program publicity! We are always looking to hear new updates on students we may not have met yet.
Mentoring Undergraduate Researchers: Workshops for Faculty, Post-Docs, and Graduate Students

• Are you a faculty member who is currently, or will be supervising, undergraduates in a research setting?
• Are you a graduate student or post-doc who is currently or who will be working with undergraduate students in research settings?
• Did you know that “finding a good mentor” is one of the most important factors undergraduate researchers cite as helping them complete a successful project?

Come learn more about how to be a good mentor! Both veterans in undergraduate research mentoring and those new to the experience are welcome!

What Makes a Great Mentor?
Join us as we cover the “basics” of mentoring undergraduates in research. We’ll discuss timely tips, provide a set of key resources, and hear directly from students and experienced mentors.

Tuesday, September 16, 2008
11am-1pm
Gordy Room, Wardlaw Building
Lunch will be provided.

RSVP by Monday, Sept. 8, 2008
at www.cetl.gatech.edu

Mastering Mentoring: An Interactive Skill Building Workshop Series
Participants will gather to discuss more focused topics related to mentoring undergraduates in research using a variety of formats, including case studies, panel sessions, and role playing. Individual sessions in the series will be offered on various topics during fall and spring semesters.

Session 1: Motivating Undergraduate Researchers
Tuesday, October 28, 2008
11am-1pm
Gordy Room, Wardlaw Building
Lunch will be provided.

RSVP by Monday, October 20, 2008
at www.cetl.gatech.edu

A workshop series sponsored by the Undergraduate Research Opportunities Program (UROP) and the Center for the Enhancement of Teaching and Learning (CETL).
the lab, I am witness to the benefits of undergraduate research. Joining SABUR (the Student Advisory Board for Undergraduate Research), which helps run the annual Symposium, seemed like a good start to become active in promoting undergraduate research. SABUR members strive to inform Tech students about the research opportunities available and encourage them to give research a try, even if only for a semester. By hosting Library Talks, where Tech professors and students present their research, and by organizing a Spring Symposium for all undergraduate students to share their work, SABUR is exposing Georgia Tech and the surrounding community to the fascinating research done by our students.

During my second year at Tech, I continued to participate in SABUR while undertaking new challenges. To better cater my interest in biomaterials, Dr. Gall and I developed an independent project which collaborates with a Tech biomedical engineering lab to develop a biodegradable polymer for stem cell delivery. Since this project paves a new research direction for my lab group, we have faced several challenges, but overcoming each obstacle has become that much more satisfying. This satisfaction in the face of challenge is shared by fellow undergraduate researchers and is what I try to convey when speaking before incoming freshmen and current students about research during FASET, housing and UROP events. Students are the best spokesmen for undergraduate research, since by sharing our individual experiences our peers can realize their own potential in making breakthroughs.

Once you make that breakthrough be sure to share it with the world. As Associate Editor for Submission Review of The Tower, Tech’s new undergraduate research journal, I work with Tech students who desire to publish their work. Learning how to articulately and logically defend your work will help your success in writing proposals and publishing results in academia or industry, and is yet another benefit of undergraduate research. However, your research should not be limited to Georgia Tech’s campus. Last spring, I had the opportunity to represent Georgia Tech at the Atlantic Coast Conference Meeting of the Minds, where I presented and discussed research with students across all disciplines, from molecular biology to history. Research is not limited by area of interest or year of study. Anyone with an interest in intellectual challenges and a desire to solve problems can do research. Anyone.

As I continue my studies at Tech, research will continue to shape my way of thinking and drive me to tackle problems that have yet to be solved. I encourage you to find something you can become passionate about and pursue it. Take advantage of the fact that we are all part of one of the great research institutions in the world that gives us the opportunity to do something truly unique as undergrads. Maybe someday, my biodegradable shape memory polymers will successfully encapsulate embryonic stem cells and be part of a new generation of biomedical devices. In the meantime, I will continue to promote undergraduate research amongst all Georgia Tech students. For if I don’t achieve a scientific breakthrough, maybe one of you will.
Ted Chen ...cont'd from page 2

very seriously and she understands that as well. Although I am only a third year, she has already helped me obtain numerous internships and research experiences in addition to her own industry contacts. **U/G Research: Share a brief few sentences highlighting who you are (campus organizations you are involved in, hobbies, hometown, career goals, major, etc)**

**TC:** I am involved with the Student Advisory Board for Undergraduate Research (SABUR), President's Council Governing Board (PCGB), as President of the Taiwanese American Student Association (TASA), Engineering World Health (EWH), as a review board member and staff writer for The Tower, and the Georgia Tech Symphony Orchestra (GTSO) and chamber ensembles.

I was born and raised in Atlanta, GA. In my free time (yes, it exists), I enjoy listening to music, playing piano and cello, hanging out with friends, running, sleeping, and watching anime.

I am currently a 3rd year Biomedical Engineering major with a possible minor in Chinese. I hope to go on to graduate school and/or medical school, depending on how I do at Tech and on the MCATs/ GREs.

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**Mark Your Calendars!**

**Research Option Info Session**

Thurs., September 18, 2008
11:00am-12 Noon
Student Center, Room 321

So... you're thinking about Research Option? If so (or if you are curious about what Research Option is), join us for an informal informational meeting. Basic requirements of the plan, tips on how to construct a quality research proposal, when to get started, and information on how to get involved will be covered. We'll also hear from a few students who have completed the option.

**President's Undergraduate Research Award (PURA) Info Session**

Tuesday, Oct. 7, 2008
11am-12 Noon
Student Center, Room 319

Applications for salary awards during Spring 2009 semester are due October 20th. If you are interested in learning more about the award and tips on how to create a strong application, join us for our information session.

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**Undergraduate Research Opportunity Database**

Check out our new online database advertising research opportunities for undergraduates on campus: http://undergradresearch.gatech.edu/uropdb/

Students and faculty can search the database by subject (keywords), college/organization and school, term of project, and faculty mentor. Projects are available for course credit or for pay. Faculty mentors, post-docs and research scientists can log in to submit projects for posting to the site.

Please remember that this is only one of the many means by which undergraduate students can search for possible research opportunities across campus. If you do not find opportunities of interest or any in your major there are many other ways to find positions. Contact the UROP office at urop@gatech.edu for additional information.

Keep checking back for additional postings – the database was opened for postings on August 15, 2008.
News from the Director

I never can decide whether fall or spring is my favorite time on campus. It is invigorating to see the student body return each fall, to anticipate the coming crisp Fall mornings, to meet the new Freshman class at FASET, and to hear from students about their summer research experiences. So, for this issue – fall is my favorite!

I hope that you will ask your classmates and students about their summer experiences or share with others in your classes about your research. UROP relies greatly on word of mouth around campus in getting the word out to students about what our undergraduates are doing! I may be dating myself with this analogy, but remember the shampoo commercial where the video captures replicated images of its spokesperson saying, “You tell two friends, and they’ll tell two friends, and so on and so on and so on…”? For many students hearing about undergraduate research happens in just this way. So, tell your friends, and students, a little about your work!

Watch the UROP website for information on several upcoming events, including
- Mentoring Workshops,
- UROP Research Workshops,
- Deadlines for several Undergraduate Research Conferences,
- PURA Information Sessions & Deadlines,
- Research Option Updates,
- Call for Papers for The Tower, GT’s Undergraduate Research Journal,
- Student Advisory Board for Undergraduate Research (SABUR), and
- Many more!

I also invite you to join our Facebook page and Listserv as a means of keeping in touch and passing the word!

Best,
Karen Harwell

Let Your Voice Be Heard!!

The newly formed Student Advisory Board for Undergraduate Research (SABUR) works toward implementing new ideas for programs and resources for students interested in research. If you’re interested in serving on this board, please email the Chair, Savannah Gowdy at gt.sabur@gmail.com. Freshman, sophomores, and juniors are particularly encouraged to become involved!

WE WANT TO HEAR FROM YOU!!!

UROP Facebook Page
Interested in hearing more about upcoming Undergraduate Research events, news, funding, etc? Then join the GT Undergraduate Research Opportunities Program (UROP) Group on Facebook.

Listserv
To receive information and announcements from Georgia Tech’s Undergraduate Research Opportunities Program (UROP), join the urop-news listserv. To join: Send an e-mail to sympa@lists.gatech.edu with a subject of “subscribe urop-news”