



January 2008

Well, it's been a while since you've heard from me, so there is a lot to update you on. Last semester was a very busy one for most of us, so it feels nice to have taken a deep breath and regrouped over break. I am looking forward to reconnecting with you and furthering the objectives of the WISE Program this semester.

Read on to see what is planned for UR WISE during Spring 2008!

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MentorNet[®]

The E-Mentoring Network for Diversity in Engineering and Science

It's Not too Late to Get Career Advice From An Engineer or Scientist!

This is an opportunity for students studying science, mathematics or engineering to get "real world" information, encouragement, advice, and access to professional networks from professionals working in your field.

MentorNet's One-on-One Mentoring Programs focus on matching women and underrepresented minorities with female or male professionals from all sectors as mentors for one-on-one, email-based mentoring (e-mentoring) relationships. MentorNet proteges are in the engineering and science fields and are community college, undergraduate, and graduate students, postdocs and untenured faculty.

How can you find a mentor?

1. Join the MentorNet Community (<http://www.mentornet.net/join>);
2. Sign in to the Community and follow the One-on-One Mentoring Programs links to create a protégé profile.

Since 1998, MentorNet has matched more than 19,000 pairs of protégés and mentors with strong results. We hope you will join them! For more information, go to www.MentorNet.net

Upcoming WISE Events

Susan B. Anthony Legacy Dinner

Thursday, February 7, 2008, 6:00 pm, Wilson Commons' May Room

WISE students are invited to celebrate the achievements of University of Rochester at this event, which will include presentation of prizes, award and scholarships to several outstanding undergraduate women. Distinguished female leaders at the University of Rochester, Sandra M. Schneider, M.D. and Judith G. Smetana, PhD. will be recognized as will the Honorable Lois J. Geiss, B.S.N. In addition, Vocal Point will perform songs that celebrate women. WISE has purchased an 8-person table and seats will be given out on a first-come basis. If you would like to attend this very special event, RSVP to mpelcher@mail.rochester.edu by **Tuesday, January 29**, indicating if whether or not you would like a vegetarian meal.

Entrepreneurship Networking Dinner

Monday, February 11, 5:00-7:30 pm, Hawkins-Carlson Room, Rush Rhees Library

Come learn how to network from successful alumnae and community members in a variety of fields of entrepreneurship, science, engineering, math, medicine, and law. Networking will allow you to gather firsthand information about specific companies and career paths, and enable you to make intelligent choices about your future career goals while improving your interviewing and negotiating skills. Additionally, you will learn how having an entrepreneurial mindset can help you achieve your personal career goals.

FREE dinner and dessert will be provided, with vegetarian options available! RSVP by **Wednesday, February 6** to Melanie Pelcher, mpelcher@mail.rochester.edu. The dress code is business casual. Come when you can; stay for as long as you're able. The evening's schedule of events is as follows:

5:30 – 5:55	Welcome, Introductions & Networking Exercise
5:55 – 6:20	Networking Scenarios /Who's in Your Networks?
6:20 – 6:50	Facilitated Table Networking
6:50 – 7:00	Table Reports
7:00 – 7:30	Q&A, Evaluations, Dessert and Networking

If you have one, please bring a current resume, and feel free to bring a friend!

Emerging Technologies Luncheon Discussion

Tuesday, February 19, 11:30 am -1:00 pm, Alumni Center Room 205 (300 E River Road)

Join Nomi Bergman '85, executive vice president of strategy and development for Advance/Newhouse Communications, as she discusses the challenges she's faced as a female executive in the male-dominated cable industry, one that often sends conflicting signals on the role of women and motherhood within the executive ranks. Bergman who was "a pretty quiet kid" growing up, majored in math at the University of Rochester where she became interested in the applications of math. That eventually led her to Advance Publications Systems Group, which owned The New Yorker and Condé Nast Publications, and the Newhouse cable properties, where she helped design systems and system solutions to improve client companies' efficiency.

Anyone who is interested in learning about emerging technologies as well as women's issues in the workplace are invited to attend this free lunch. Ms. Bergman is also hoping to talk with students who would be interested in working at her company as an intern. Space is limited, so reserve your spot today by contacting Lisa Norwood at LNRW@seas.rochester.edu or 275-4155 no later than **Friday, February 15**. Please indicate whether or not you will need transportation to the Alumni Center as it is not a regular stop on the UR bus route.

Mad Scientists Club Rochester

Friday, March 28, 4:00-6:00 pm, The Meliora

WISE, along with the Society of Undergraduate Biology Students (SUBS), the Undergraduate Chemistry Council (UCC), the Society of Physics Students (SPS) and possibly a few other science-related campus groups are sponsoring a Mad Scientist themed Club Rochester. In addition to saving the date, please let Melanie Pelcher (mpelcher@mail.rochester.edu) know if you are interested in serving on a planning committee to come up with fun science-related activities and food for this event.

WISE-Related events:

Volunteers Needed: SWE's Girl Scout Badge Workshop

Saturday, February 2, 9:00 am-2:00 pm, Danforth Dining Center

The Society of Women Engineers' (SWE) Girl Scout Making it Matter Badge workshop is a really fun and rewarding day. Volunteers from SWE and other science and engineering disciplines work with Junior Girl Scouts to help them earn their Making it Matter Badge.

Over a hundred Girl Scouts and their leaders will be coming to campus, and you are needed help to make sure the day runs smoothly. This includes everything from registering the girls, to helping them with science activities, and helping them reverse engineer household electronics. Some of the activities of the day include making silly putty, building a straw tower, and constructing a basic circuit.

If you are interested in helping out, please e-mail Katie Litts at klitts@mail.rochester.edu with your t-shirt size.

In Vivo Performance of UHMWPE Components in Total Joint Replacements

Friday, January 25, 3:30 pm, Goergen 101

Colloquium speaker: Clare M. Rimnac, Ph.D. from Case Western Reserve University, Departments of Mechanical & Aerospace Engineering & Orthopaedics

Total joint replacements for the hip and knee are typically composed of a metallic component articulating against a plastic (ultra high molecular weight polyethylene) component. Long-term complications in total joint replacement, such as loosening, have been linked to the biological response invoked by debris generated from wear damage to the articulating surface of the polyethylene component. New, highly cross-linked formulations of polyethylene that are more resistant to the generation of wear debris have been introduced into clinical use. Though clinical performance suggests that articulating surface wear damage may be greatly reduced using highly cross-linked polyethylenes, structural fracture of these devices is a concern, due to a reduction in ductility

and static and cyclic fracture resistance of these materials. Therefore, there is a need to be able to prospectively predict the propensity for fracture as a failure mode for current and new component total hip and total knee replacement designs that make use of both traditional and highly cross-linked polyethylene formulations.

The design of polyethylene components that will demonstrate long-term performance both with respect to wear as well as structural failure requires a comprehensive approach, including: 1) evaluation of in vivo performance of retrieved polyethylene components to identify factors affecting wear damage and fracture; 2) identification of failure mechanisms leading to wear damage; 3) determination of static and cyclic mechanical properties of polyethylene; and, 4) prediction of the effects of changes in design variables on structural performance. Progress and findings in these on-going areas of investigation will be presented.

Internship Opportunities:

Summer Internship Program in Spain (SIP-Sp)

www.cdsintl.org/fromusa/iparg.htm

Applications due January 18, 2008

SIP-Sp provides an opportunity for US students to gain international work experience, improve Spanish language skills, and experience Spanish culture firsthand. Internships placements are available in a variety of fields, including, but not limited to business/finance, production, general administration, tourism, **computer science, engineering**, Spanish studies, international relations, the nonprofit sector, and economics. Participants complete unpaid three-month internships in companies across Spain.

IPA provides an opportunity for US and Canadian students and young professionals to gain international work experience, improve Spanish language skills and experience Argentinean culture firsthand in either Buenos Aires or Córdoba, Argentina. Internships placements are available in a variety of fields, including, but not limited to business/finance, production, general administration, tourism, computer science, engineering, Spanish studies, international relations, the nonprofit sector, and economics. All internships are unpaid. Two program options are available: 1) a 4-week Spanish language course and an 8-week internship with an Argentinean company (Combination Language/Internship Option); 2) a 12-week internship with a host company (Internship Option).

EMPOWER: Engineering for a Sustainable Future

www.iaesteunitedstates.org/IntProgs/STEP/EMPOWER.htm

Applications due Friday, February 15, 2008

EMPOWER 2008 is a joint program between the University of Pittsburgh and IAESTE United States which will be offered this summer in Sao Paulo and Foz do Iguacu, Brazil, May 12-August 17. EMPOWER: Engineering for a Sustainable Future is a unique program which explores Brazil's approach to energy, including hydroelectric power and ethanol fuel. The EMPOWER program is centered around a three-credit course from the University of Pittsburgh and includes nine days of site visits and plant tours in Sao Paulo and Foz do Iguacu, Brazil. The course can be completed online for students who are not in the Pittsburgh area.

Engineering or science students who are interested in issues of sustainability and clean power will be ideally suited for the program. Applicants should be juniors or returning seniors (graduating seniors will be reviewed on an individual basis). U.S. citizenship is not required for the program.

Research Experiences for Undergraduates in Nanomaterials & Nanomechanics

<http://comp.uark.edu/~jjrencis/REU/>

Applications due March 3, 2008

This program is open to undergraduates who are interested exploring the exciting area of nanomaterials and nanomechanics. The program at the University of Arkansas provides a unique opportunity for

undergraduates to participate in a research and professional development program. Students will work on a research project and interact with faculty members and graduate students throughout the summer. Some of the benefits include a 10-week stipend of \$4,500, housing in the residence halls, a food allowance, and up to \$450 support for travel to the REU site.

Summer Undergraduate Research Fellowships (SURF) Program at Purdue

www.purdue.edu/surf

Applications due March 10, 2008

Set your sights high this summer. The core of the SURF program is to provide students across **all engineering, science and technology disciplines** with an intensive research component that allows them to work closely with graduate students and professors in their respective schools. The interdisciplinary aspect of the projects allows students to learn and work across other disciplines while still applying the concepts and skills from their own programs. This setting provides undergraduate students with an avenue to perform research in an academic environment while exploring future graduate study options. SURF Program benefits include:

- Paid, hands-on research under the guidance of a faculty member and a graduate student
- Weekly seminars on research methodology, graduate school, and professional development
- Student poster presentations
- Social activities for networking with faculty, staff, and other SURF students
- End of summer banquet

2008 ThinkSwiss Research Scholarship

www.thinkswiss.org/news.html

Application Deadline: March 31, 2008

ThinkSwiss will select 15 talented and motivated US students from all fields of study who apply for a research project at a Swiss university or research lab. The awardees will receive a monthly stipend of \$700 for a period of up to three months. "ThinkSwiss – Brainstorm the Future" is a US-wide program on Education, Research and Innovation. It focuses on the exchange of expertise and know-how in academia and the business community in both Switzerland and the USA. You must be:

- a student currently enrolled at an accredited US university or college;
- Studying at the graduate or undergraduate level and will have completed your sophomore year by the time your research stay begins;
- Talented and ambitious and can provide proof by a strong academic record and a written statement.

WISE-Related Articles

Top 10 Secrets for Breaking into Science/Engineering Fields

Reprinted with permission from MentorNet Newsletter, November 2007

MentorNet recently polled its mentors for their top 10 best secrets for helping students break into careers in science and engineering fields. Here's what they were told:

#1: Consider getting more than one mentor. Get an academic mentor to help you with school strategies, a professional mentor to help you make career path choices, and another mentor working in a field that interests you to learn more about the reality and challenges of his or her job.

#2: Start getting internships in year one of your college program. How many internships you experience is not as important as getting as much meaningful work experience as possible. In computer science and engineering, meaningful work can vary from defining requirements for a solution to developing a solution, writing code for a part of a solution, writing test tools, and testing and installing solutions.

#3: Stay aware of current trends in your field and keep your skills up-to-date on the latest tools.

#4: Avoid getting a retail or fast-food job to support yourself while in college; instead, seek out related work experience.

#5: Consider scouting for jobs at smaller companies and nonprofits where there will be less competition and the potential for greater responsibilities and learning experiences.

#6: Register at temporary agencies, not only to get experience related to your field but to check out corporate cultures, network, and learn where you feel most comfortable.

#7: Better to take a low-paying job that offers meaningful work experience than a high-paying job of any kind not related to your field.

#8: If you can't get an internship, work on a project on your own to demonstrate initiative and drive or volunteer to help with someone else's team project.

#9: Students who can demonstrate self-drive and project experience will rank higher with interviewers. Build something you can show off and be able to discuss the process you used to build it.

#10: Diversity is strength. Seek out mentors and work experiences that will introduce you to a diversity of cultures and a variety of leadership styles. If you can, go home with a friend during school break to visit a different part of the country. Learn Chinese and other languages.

Where Women Are Headed

Reprinted with permission from PRISM Magazine, October 2007

The percentage of engineering bachelor's degrees awarded to women declined for the fourth consecutive year in **2005-06**. The **19.3%** of engineering degrees awarded is far below women's general representation in the undergraduate ranks. However, this trend is not uniform for all engineering disciplines. The 10 fields listed here continually draw a higher percentage of women to engineering than the larger fields of mechanical, electrical, and computer engineering. Additionally, biomedical engineering is the fastest-growing engineering field, having increased **187%** since **1999**. According to the American Society for Engineering Education, the University of Rochester awarded the **18th** highest percentage of biomedical engineering bachelor's degrees to women in 2005-06 (47.1%) out of 77 schools that award at least 20 B.S. degrees.

Engineering Disciplines with the Highest Percentage of Female Graduates
(Data source: American Society for Engineering Education)

1. Biomedical = 40.7%
2. Chemical = 36.0%
3. Agricultural = 35.6%
4. Industrial & Manufacturing = 33.0%
5. Engineering Management = 28.6%
6. Metallurgical & Materials = 28.3%
7. Mining = 27.5%
8. Architectural = 25.4%
9. Engineering Science & Engineering Physics = 24.8%
10. Civil & Environmental = 23.1%

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Douglass Dining Center

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Friday, March 28 (4-6 pm) – Mad Scientists Club Rochester, The Meliora Restaurant

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The University of Rochester's Women in Science and Engineering Program (UR WISE) was established in 1992 to support women's participation in scientific, engineering, and quantitative disciplines at all levels. The WISE Program seeks to ensure that women may fully explore science through study, research experience, and career-building opportunities. The mission of the WISE Program is to attract women to, and retain them in, science and science-related fields at the University of Rochester by:

- *Creating the conditions of equal access for the pursuit of science by women*
- *Educating the University community about the issues of women and science*
- *Pressing for this as a University priority and guiding the University community and leadership toward this objective*