Dear Friends,

Greetings from the new Head of Bioengineering at UIC.

This is the first of regular communications I will be sending to you about exciting new developments in our department. First of all, for those of you who’ve not heard, after a decade of tremendous leadership by former Department Head Dr. Richard Magin, followed by 2 years of my service to the department as an Interim Head, I am happy to announce that the word “Interim” has been dropped from my title, effective August 16, 2011.

I have been at UIC in Mechanical & Industrial Engineering (MIE) since 1995, and an Adjunct Faculty member to BioE since 1999. Most of my research and much of my teaching have been devoted to Bioengineering topics during the past decade. I’ve enjoyed my experience as Interim Head so much, that when a formal Search was launched for a permanent Head, I threw my hat into the ring. I am very excited and optimistic about the future for BioE at UIC. I already know we have the best students at UIC. And, I believe we are in the right place and the right time to make our program truly outstanding and a recognized destination around the world, just like the great world-class city we call home.

In this first communication, I’d like to update you on several new developments that I believe will have a positive effect on our programs and the experience our students have in BioE at UIC. I’d also like to begin to introduce you to some of our faculty.

Sincerely,

Tom Royston
Professor and Head
Department of Bioengineering
David T. Eddington received a B.S. degree in materials science and engineering from the University of Illinois at Urbana-Champaign in 2000 and Ph.D. degree in biomedical engineering from the University of Wisconsin-Madison in 2004. He joined the Department of Bioengineering at the University of Illinois at Chicago in 2006 after a postdoc in the HST program at Harvard/MIT. His research lab focuses on developing novel solutions to current unmet experimental and clinical needs through applying simple microfabricated devices. These devices leverage beneficial phenomena (e.g. process integration, fast diffusion, or high surface to volume ratio) over multiple scales (e.g. nano, micro, and meso) to effectively leverage the power of scale without becoming overly complex. His lab has projects that span clinical diagnostics, tools for experimental biology, and therapeutic devices. Specifically, projects investigating chemotropic signaling in yeast, developmental biology and stem cell differentiation, wound healing, oxygen gradients in tissue engineering constructs, dynamic oxygen profiles in standard cell cultures, oxygen sensitive substrates, microfluidic diagnostics for circulating tumor cells, microfluidic characterization of islets prior to transplantation, coatings for soybeans to reduce UV damage, and new tools for in vitro brain slice electrophysiology. While the end applications are indeed highly variable, all these projects apply similar techniques and methods making his lab a highly multidisciplinary and exciting atmosphere.

Richard L. Magin did his undergraduate and graduate studies in physics at Georgia Tech (BS 69, MS 72) followed by additional graduate work in biophysics at the University of Rochester (PhD 76). He worked for three years as a postdoctoral student at the National Cancer Institute, NIH in the Laboratory of Chemical Pharmacology. He joined the faculty of the Department of Electrical and Computer Engineering at the University of Illinois at Urbana-Champaign in 1979. He worked in Urbana for 18 years as an Assistant, Associate, and Full Professor before joining the Department of Bioengineering at the University of Illinois at Chicago in 1998. From 1998 to 2009 he was Professor and Head of the Department of Bioengineering at UIC. In 2005/06 he was awarded a Fulbright Grant to teach Bioengineering and to study Fractional Calculus at the Technical University of Kosice in Kosice, Slovakia. He is currently University Distinguished Professor at UIC and Director of the Diagnostic NMR Systems Laboratory. Professor Magin is a Fellow of the IEEE and of the AIMBE.
Preservation of vision in the face of progressive eye disease needs new therapies and new tests for early detection. Dr. John Hetling’s Neural Engineering Vision Laboratory (NEVL) focuses on analyzing electrical currents in the eye for diagnosing and treating potentially blinding conditions such as glaucoma and macular degeneration. “The NEVL is working to bring promising technology into the clinic as early as possible by working with industry. This can complicate the scientific process, but is essential for eventual impact on human health,” says Hetling.

Hetling and collaborators at the University of Wisconsin are pioneering an approach to diagnosis that creates a “map” of retinal health obtained through fast, non-invasive measurements. The map is derived from electrical potentials measured at the surface of the eye using a novel contact lens containing dozens of small electrodes. Hetling is also working with collaborators at Emory University to understand the delivery of electrical currents to the eye as a therapy, an approach that has shown promise in several animal models of eye disease.
“Dual citizenship” in the Colleges of Engineering and Medicine

Beginning this Academic Year the Department of Bioengineering is in both the College of Engineering (COE) and the College of Medicine (COM) at UIC. This is a new arrangement that is in line with trends in best practices at other top BME/BioE programs around the country, such as Hopkins, Univ. of Washington, Stanford and Emory/Georgia Tech.

Exactly what this means for our students remains to be seen. Our undergraduate degree program is still managed and awarded through the College of Engineering. Our graduate degree programs are still awarded through the Graduate College. However, we’re optimistic that this closer working relationship with the College of Medicine, home of the largest medical school in the country, will facilitate improvements to our curriculum that take advantage of the unique resources and expertise of the COM. Our faculty and a number of colleagues are already exploring possibilities.

Bioengineering Organizational Alliance (BOA)

After a period of transition in organizational structure, we now have what we believe is one of the most robust and energized student organization alliances linked to a single department on campus. The BOA is an umbrella organization for student chapters of the following professional societies: Biomedical Engineering Society, Engineering in Medicine and Biology Society, Alpha Eta Mu Beta, Engineering World Health, International Society of Pharmaceutical Engineers, and Biophysical Society. See: http://www2.uic.edu/stud_orgs/prof/bmes/. Extensive interviews were held over the summer to fill officer positions for all of these societies.

Related to this, we’re happy to report that Dr. Miiri Kotche, our lecturer for BioE 101, 240 and 250, will serve as faculty advisor to the BOA, along with the continued service of Dr. John Hetling, who also continues to serve as our Director of Undergraduate Studies. Dr. Kotche, herself, was active in our student organizations when she was a student here.

Departmental Expansion Plans

Facilitated in part by our “dual citizenship”, we are embarking upon an expansion of our core faculty. Follow this link to our current Faculty Search Ad, “http://www.bioe.uic.edu/bin/view/BIOE/BioeFacultySearch”, which is also attached. We hope to grow the core tenured/tenure track Faculty number from 14 to 19 over the next few years. The Ad describes the existing areas of strength in the departments we seek to build upon. Tied to this, our expansion is also in terms of geographic footprint on campus. We have a commitment from the UIC College of Medicine for substantial new space to support faculty and student research on west campus.
Renovations

We have renovation projects going on and in the works.

**SEO 236** — our main classroom, seminar room and meeting room now has new tables, chairs and carpet in place.

**SEO 231** (Student lounge) — is remodeled this Fall per feedback from students with a generous corporate gift from Baxter.

**We are going digital with our bulletin board.** We have 3 large screens at our east and (eventually) west campus homes. Among other things, we want these to provide visitors with information on what’s going on daily in each of our classrooms and in our (new) state-of-the art teleconference room.

The **Bioinstrumentation Instructional Lab** in SEL will undergo a major renovation this Fall, in time for the Spring class.

**SEO 227 (BioE Virtual Portal)** — is being converted into a teleconference room, for primary use by BioE and COE faculty and administration, but also available to student organizations and classroom groups as needed and available. This is in progress. (Ms. Zhong, Assistant to the Head and our Departmental Business Manager, is relocating to where the Graduate Program office is now, which is being consolidated within the main office.) We’ve also identified an existing teleconference site on west campus contiguous with our West Campus home that we will have access to, details to be worked out. The west campus Bio-informatics Office and lab space will receive a major remodelling and upgrade within the coming year.
Some Highlights From Last Year

UIC Bioengineering undergraduate students Aimee Bobko, Amber Langston, Alexandra Rybczynska and Amanda Vicich (the “Straight A” Team) have racked up an impressive list of awards around the country for a project initiated in a sophomore year course, BioE 250 - Clinical Problems in Bioengineering, which they took together in the Spring of 2010. Their innovative medical device for “Treating lower respiratory infections in developing countries using mechanically powered nebulizers” has won the: (i) Best presentation award at the Chicago Area Undergraduate Research Symposium (CAURS), held at the Museum of Science and Industry; (ii) Best Poster Award at the 2011 Global Health Technology National Design Competition, held at the Rice University Institute for Global Health Technology, Houston, TX; and (iii) 2nd Place at the 2011 UIC Student Research Forum in the category Physical Sciences, Engineering and Computer Science, held at UIC. The UIC Chapter of Engineering World Health (EWH) now plans to scale up production of their device for distribution to developing countries. Stay tuned.

Cierra Hall, Eric Lueshen, Martina Heitzig (BioE, advisor Andreas Linninger) won 1st place for “Pharmacokinetic Scaling and Discovery of In Vivo Drug Distribution Mechanisms with a Novel Whole-Body Physiologically-Based Modeling Framework” at the Midwest Biomedical Engineering Career Conference (MBECC) held at Northwestern University.

Amy E. Ross, Mary Tang, Bao-Shiang Lee, (BioE, advisor Richard Gemeinhart) won 2nd place for “Matrix-Metalloproteinase-2-mediated Drug Release from Poly(ethylene glycol) Diacrylate Hydrogels” at the Midwest Biomedical Engineering Career Conference (MBECC) held at Northwestern University.

Ashley N. Selner, Tamas Ban, Justin Williams, Sanitta Thongpang, (BioE, advisor John Hetling) won 1st place for “Novel Contact Lens Electrode Array for Multi-electrode Electroretinography (meERG)” at the 37th Annual Northeast Bioengineering Conference (NEBEC) held at Rensselaer Polytechnic Institute.

Eric Lueschen, Cierra Hall (BioE, Advisor Andreas Linninger) won 2nd prize (honorable mention) of the CAST Directors Award at the International Conference of American Institutes of Chemical Engineering in Salt Lake City, Utah.

Joel Fontanarosa (BioE, Advisor Yang Dai) received the Gold Medal Prize (first place) in the “Graduate, MD-PhD, and other combined degree students Category” for his presentation in UIC College of Medicine Research 2010 Poster Competition.

Hibo Mohamed (BioE), received the Abraham Lincoln Fellowship (Advisors: Mrignayani Kotecha, Richard Magin). This fellowship provides a $20,000 stipend for 1 year, with a tuition and fee waiver.

Hugo Caicedo (BioE) received the Chancellor’s Graduate Research Fellowship (Advisor: Scott Brady). This supplemental fellowship provides a $4,000 stipend per year, for up to 2 years.

BioE student Carlos Ng Pitti has received a $5,000 Supporting Excellence Endowment (S.E.E.) Scholarship through the Office of the Vice Chancellor for Student Affairs in AY 2011-2012.

BioE PhD student Yue Zhang (Advisor: Andrew Larson) has received an SIR Foundation Allied Scientist Research Grant of $40,000 for his work on “MRI for Intra-Procedural Monitoring During Irreversible Electroporation of Hepatocellular Carcinoma”
Honors, Awards and Recognition

UIC Bioengineering faculty had an impressive run this past year in receiving recognition for outstanding classroom instruction. Dr. Terry Layton, instructor for the Senior Design sequence and courses in medical device development, received the UIC Silver Circle Award, an honor bestowed on only thirteen faculty university-wide this year, based on voting by graduating seniors. Prof. John Hetling was recognized for his outstanding classroom instruction and BioE course development by two awards. He was the recipient of the COE’s Harold Simon Award, and was one of five recipients of UIC’s Award for Excellence in Teaching, the highest university-wide award recognizing teaching. Congratulations to Terry and John!

Terry Layton
2011 Silver Circle Award for Excellence in Teaching

John Hetling
2011 Harold Simon Award for Excellence in Teaching
2011 UIC Award for Excellence in Teaching

Urmila Diwekar
2011 Lawrence B. Cecil Award from AIChE. She received the award and delivered the award lecture at the American Institute of Chemical Engineers (AIChE) national meeting in October. She is the first woman to receive the award.

Richard Magin

After a decade of tremendous service as Department Head of Bioengineering, a period during which the department, its faculty, students and degree programs have experienced phenomenal growth and success, Professor Richard Magin has returned to the ranks of Professors in the Department hitting the ground running, with two major grants this past year from the National Institutes of Health (NIH) and the National Science Foundation (NSF). The grant from NIH for $1.5 million is to develop cutting edge magnetic resonance imaging technologies for monitoring the development of engineered tissues. The major research instrumentation grant from NSF for $2 million will enable UIC to acquire a high field magnetic resonance imaging system dedicated to basic engineering and science research.
Major Grants in AY10-11

Cheng, Jun
Chicago Biomedical Consortium; CBC Junior Investigators Award; 8/16/10-8/15/13; $500,000.

Cho, Michael
Office of Naval Research (ONR); Determination of Nociceptive Molecular Effects in Engineered Tissues in Response to Active Denial Type 94-GHz Irradiation; 10/1/08-9/30/12; $1,194,283.

University of Florida; Role of Surface Roughness in Regulating Tumor Cell Behavior; 9/15/08-8/31/13; $631,980.

Dai, Yang
Chicago Biomedical Consortium; A Systems Biology Understanding Of Estrogen Receptor Action; 1/1/2010-12/31/2011; $100,000.

Eddington, David
National Science Foundation (NSF); Collaborative Research Microfluidics for Multiple Engineering Disciplines; 12/01/08-11/30/11; $60,000

National Science Foundation (NSF); IDBR Controlling Oxygen in Standard Multiwell Plates with a Microfabricated Add on; 5/1/09-4/30/2012; $500,000.

National Science Foundation (NSF); Biomimetic Multifunctional Device for Quantification and Analysis of Circulating Tumor Cells; 9/1/2009-8/31/2012; $114,211.

National Institutes of Health (NIH); Spatiotemporal Control of Neurochemical Tone in the Brain Slice Using Microfluidics; 5/7/09-4/30/12; $436,825.

Northwestern University; Nanomaterials for Cancer Diagnostics and Therapeutics; 9/15/10-7/31/15; $337,689.

Chicago Biomedical Consortium (CBC); Nanomaterials for Cancer Diagnostics and Therapeutics; 9/1/10-8/31/15; $600,000.

Liang, Jie
University of Chicago; Chicago Tri Institutional Center of Excellence in Chemical Methodologies and Library Development; 9/30/08-8/31/13; $401,784.

National Institutes of Health (NIH); Computational Assembly of Beta Barrel Membrane; Protein; 3/1/07-2/29/12; $1,112,528.
National Science Foundation (NSF); Collaborative Research Monte Carlo Study of Pseudo-knotted RNA Molecules Motifs Structure and Folding; 7/15/08-6/30/12; $519,999.

National Science Foundation (NSF); Collaborative Research ABI Development Algorithms and Software for Discovery of Non Sequential Protein Structure Similarities; 5/1/11-4/30/14; $204,601.

Linninger, Andreas

National Institutes of Health (NIH); Animal Validation Of A New Volume Sensor For Feedback Treatment Of Hydrocephalus; 6/1/10-5/31/12; $270,825.

National Science Foundation (NSF); Chicago Science Teacher Research Program; 12/1/07-11/30/11; $509,807.

National Science Foundation (NSF); Novel Processes and Materials in Bioengineering and Biomedical Engineering; 11/1/08-10/31/11; $307,223.

National Science Foundation (NSF); Dynamics of the Poroelastic Brain and Cerebral Vasculature in Humans; 6/1/08-5/31/12; $239,987.

Magin, Richard

National Science Foundation (NSF); Acquisition of a High Field Magnetic Resonance Imaging System for Science and Engineering Research; 9/15/09-8/31/12; $1,995,000.

National Institutes of Health (NIH); MR Monitoring of Engineered Tissues; 5/1/09-2/28/13; $1,502,897.

Patton, James

Rehabilitation Institute of Chicago (RIC); Error-enhanced Learning & Recovery in 2 & 3 dimensions 5/16/11-5/15/12; $177,810.

Royston, Thomas

National Institutes of Health (NIH); The Audible Human Project; 8/1/10 - 7/31/14; $1,310,440.

Takoudis, Christos

National Science Foundation (NSF); Novel Synthesis and Characterization of Intermediate Temperature Solid Oxide Fuel Cells; 5/1/11-4/30/14; $474,966.

National Science Foundation (NSF); REU Site in Novel Advanced Materials and Processing with Applications in Engineering; 4/1/11-3/31/12; $115,693.
Faculty Position

The Department of Bioengineering at the University of Illinois at Chicago invites applications for a tenured/tenure-track faculty position at all ranks with a tentative starting date of August 16, 2012. UIC, located just west of downtown, is the largest public research university in the metropolitan Chicago area with a total annual budget of $1.6 billion and research expenditures of $240 million. The campus has 15 colleges and schools including the largest medical school in the country, serving one of the nation’s most diverse student populations, with a total student body of approximately 27,300 and a faculty and staff of 12,500.

The Department of Bioengineering has 14 full-time faculty and over 100 adjunct faculty, with 210 undergraduate, 50 MS and 110 PhD students. While Bioengineering has been a part of the University since 1965 over the last twelve years 11 new faculty have been recruited to the Department, with research expenditures now exceeding $4 million/year. A graduate major in Bioinformatics was established in 2003, with current enrollment of 30 PhD students. The department has a long tradition of working closely with health and life science researchers at UIC, as well as with investigators at four other major academic medical centers in the Chicago area, to pursue interdisciplinary research.

Beginning in the 2011-2012 academic year the department has officially transitioned from being within the College of Engineering to being jointly operated by the College of Engineering (COE) and College of Medicine (COM) at UIC. Complementary to this new development and under its new leadership, the department is embarking upon an expansion phase with plans to hire 5 additional faculty over the next few years, with tenure ultimately held in either the COE or the COM, whichever is more appropriate. The current core faculty in the department have strengths in systems bioengineering, computational biology, MRI and live cell imaging, cell and tissue engineering, neural engineering and biomolecular engineering.

For this Faculty position, we seek applicants with an exceptional early- or mid- career track record who will engage in transformational bioengineering and bioinformatics research. Applicants should be outstanding technically in their basic science and engineering niche, yet have a strong collaborative interest in specific application areas. Individuals that can bridge areas of existing expertise in the department listed above with each other and with expertise found elsewhere at UIC and in the Chicago region, such as areas fostered by the Chicago Biomedical Consortium and the following interdepartmental UIC Centers and Institutes: Cancer Center, Center for Clinical and Translational Science, Center for Cardiovascular Research, Center for Magnetic Resonance Research, and Institute for Personalized Respiratory Medicine, or who can leverage other unique regional facilities, such as Argonne National Lab, are especially encouraged to apply. Applicants are required to have an earned Ph.D. in bioengineering or a related field, and are expected to develop and maintain an active, externally-funded research program as well as teach at both the undergraduate and graduate levels.

Screening of applications will begin immediately. The deadline for full consideration is December 15, 2011 although applications will be accepted until the position is filled. The University of Illinois at Chicago is a major research university with a strong commitment to serve its highly diverse community. As such, UIC especially welcomes applications from women, underrepresented minority group members, persons with disabilities, members of sexual minority groups and others who would enrich the University’s research, teaching, and Great Cities’ mission. The University of Illinois at Chicago is an Affirmative Action/Equal Opportunity employer.

Apply electronically at:
https://jobs.uic.edu/default.cfm?page=job&jobID=12664

Chair, BioE Faculty Search Committee
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