The Department of Integrative Biology and Physiology is centered on a mission of excellence. The IBP community extends from students to faculty to staff. We each have our own unique role, goals and aspirations, and we rely on one another as a collaborative unit. By working together toward the collective goal of “going for the great,” we aspire to be the very best Integrative Biology and Physiology program in the country.

As a group, we have a lot to celebrate. As one mark of excellence, IBP was ranked #2 in the country last year among physiology departments based on total extramural funding per research faculty (APS annual report data). As we build our research presence, arm-in-arm with our outstanding educational efforts, IBP is making a growing impact, locally and nationally.

This fall marked an IBP first: Jason Foss successfully defended his Ph.D. thesis, gaining the distinction of the first of the new wave of Ph.D. students in the IBP program to graduate. Jason now will take the next exciting step in his career path by performing postdoctoral studies with Dr. David Harrison at Vanderbilt. This new generation of IBP doctoral graduates are certain to make their mark in the decades to come.

The IBP research faculty have settled into their state-of-the-art new home in CCRB. This new venue appropriately receives awe and admiration from visiting national and international colleagues. This research building forms a centerpiece in our goal to expand our research faculty and to attract the very best scholars in the country to join with us.

IBP’s annual marquee events included the vibrant Visscher Symposium, highlighted this past year by an outstanding lecture from Dr. Helen Hobbs, UTSW. Following the lecture, we celebrated our successes in education and research at the Visscher Dinner held at the Weisman. Visscher Symposium 2015 will be on May 20 and we are delighted that Dr. Bruce Spiegelman, Harvard, will be this year’s distinguished lecturer.

In partnership with the Lillehei Heart Institute, IBP led an outstanding cardiovascular retreat, Cardiopalooza 6, that featured over 240 faculty, students and fellows in attendance and 100 posters presented across basic and clinical CV sciences.
IBP GRADUATE PROGRAM UPDATE

John Osborn, Ph.D.
Professor and Director of Graduate Studies

2014-2015 marks year six for the Graduate Program in Integrative Biology and Physiology (IBP). It’s a big year for us. We now have our first Ph.D. graduate! Jason Foss successfully defended his thesis in November. We also have added four incoming students! We are so pleased to welcome these enthusiastic women: Kadambari Chandra Shekar, Caitlin Johnson, Amber Lockridge and Tatyana Meyers.

Next in line to leave the nest will be Dusty Moore who is doing great work in Bob Tranquillo’s lab. Congratulations to Cheryl Cero (Bartolomucci lab) who was awarded a Doctoral Dissertation Fellowship through the Graduate School. Our other fifth year Ph.D. candidates include Evelyne Houang (Metzger lab), Dalay Olson (Bernlohr lab), and Forum Kamdar (D. Garry lab). Fourth year Ph.D. candidate Nathan Zaidman (O’Grady/Mortari lab) recently received a NIBIB grant. Tim Matsuura (Yannopoulos lab) has been selected for the second time to receive a Young Investigator Award for his submitted abstract to AMA – investigators in cardiac and trauma resuscitation science. Snider Desir (Steer/Lou lab) and Anthony Vetter (Metzger lab) are both gearing up for their oral preliminary exams, their next hurdle in the program. It was a busy year for our M.D./Ph.D. students Mayank Verma (Atsushi lab), Matthew Wheelwright (Metzger lab), and Amritha Yellamilli (Townsend lab). They all passed their written preliminary exams and are also preparing for their oral prelims.

We have added a new element to our Fall Welcome. September 4, 2014, marked the inaugural Zofia Zukowska Distinguished Lecture. The students invited Dr. Ronald Victor from Cedars-Sinai Heart Institute to present a special seminar and meet with faculty and students. A reception followed, and our new students were introduced. It was a great event to honor Dr. Zukowska. The students are looking forward to planning the next one!

MEET OUR NEW GRADUATE STUDENTS

Caitlin Johnson

I grew up in Wisconsin and pursued my B.S. in Biological Sciences at the University of Nebraska-Lincoln, with a minor in Biochemistry. I was involved with research in a genetics laboratory using drosophila as a model organism for a significant part of my undergraduate career. I worked in marketing for a short time after graduation, before returning to science to earn my M.S. in Stem Cell Biology here at the University of Minnesota. My previous research has been focused in cardiac and stem cell biology, and I am planning to work with Dr. Jianyi Zhang to develop a cell transplantation therapy for cardiac ischemic repair for my thesis work.

Amber Lockridge

My first paid job was working in the University of Minnesota neuroscience department as a high school junior leading to my first co-authorship in the lab of Dr. Eric Newman. From there, I followed neuroscience to a B.S. degree, initially at the University of Chicago, and finished at the University of Minnesota in 2009. In 2012, I became interested in metabolic side effects I noticed while experimenting with mice in the labs of Dr. LiLian Yuan and Dr. Robert F. Miller. I became deeply interested in the connections between neuronal and metabolic cell signaling and diabetic pathology. To move into this field, I sought a job as an assistant scientist in the Schulze Diabetes Institute while I applied to study with the IBP program. As a graduate student, I hope to specialize my research on pancreatic beta-cell physiology and insulin release.

Tanya Meyers

I was born in the Ukraine, but have lived in the Twin Cities since the age of 10. As an undergraduate, I became very interested in the UMN physiology program and started volunteering in Dr. DeWayne Townsend’s lab during my senior year. After graduating with a double major in physiology and psychology, I continued to work in the lab for another year as a volunteer and then a junior scientist. My research thus far has focused on dystrophic cardiomyopathy and sex-based differences in the cardiac phenotype of a mouse model of Limb-Girdle muscular dystrophy. In the future, I hope to study either cardiac or skeletal muscle physiology.

Kadambari Shekar

I was born and brought up in Chennai, India, where I obtained a bachelor’s degree in biotechnology from Anna University in 2010. Shortly after, I came to the University of Maryland at Baltimore and graduated with an M.S in Molecular Medicine in 2012. My master’s thesis was in the area of cardiac mitochondrial proteomics in the context of heart failure. I joined the laboratory of Dr. David Bernlohr at the University of Minnesota as a junior scientist in 2013, investigating the effects of SERCA inhibitors in the endoplasmic reticulum for the treatment of obesity and diabetes. My current research interests are in the field of cardiovascular pathophysiology.
EDUCATION UPDATE

Dr. Stephen Katz, Associate Professor and Director of Education

The educational mission of the Department of Integrative Biology and Physiology (IBP) focuses on physiology and anatomy classes aimed at undergraduate, graduate and professional students. For the year ending in June 2014, we offered more than 40 separate courses reaching over 3,000 students and yielding total tuition revenue of approximately $5.7 million. Our two Medical School courses, Human Structure and Function (Anatomy) and Physiology, each placed well above the mean in seven separate areas of medical school course comparisons. They also placed first and second respectively in the most recent graduation questionnaire concerning course preparation for clerkships. IBP started a new program to prepare future physiology teachers. We have expanded our teaching program to now include graduate students and post docs who want to pursue extra teaching assignments. IBP also added a new anatomy teacher, Dr. Mercedes Gutierrez. Mercedes is an anthropologist with previous anatomy teaching experience at Washington University, Harvard, the Mass. General PT program, and Tufts. Medical student Benjamin A. Johnson-Tesch was the recipient of the Clarence Martin Jackson Award for 2013 based upon outstanding performance in Gross Anatomy. Graduate student Snider Desir and undergraduate physiology majors Kelsea Keep and Joel Peterson received Lifson/Johnson Memorial Awards for outstanding teaching.

UNDERGRADUATE PHYSIOLOGY PROGRAM UPDATE

Dr. Vincent Barnett, Assistant Professor and Director of Undergraduate Education

The IBP Undergraduate Physiology Society (U-Phys) elected a new executive board for the 2014-2015 school year. I look forward to working with Jonathan Murphy, Joshua Warneke, Erin Poncin, Evan Loukusa, Kseniya Zvereva, Phong Dang and Alexandra Tsai (pictured below).

The U-Phys continued its tradition of joining the IBP homecoming contingent in the annual Uof M homecoming parade (new this year, an impromptu reinterpretation of the viral video “What does the Fox say”). U-Phys again co-sponsored a Bioethics week event with premed AMSA and undergraduate pharmacology groups. They invited a speaker from the University Bequest program to discuss issues related to the donation of cadavers. Scheduled events during the year included a wide variety of faculty speakers and was highlighted by the return visit of past-president and founder of U-Phys, Amanda Delaney (BA, 2010), during the spring semester. Amanda went on to acquire a Master’s degree in public health from the U of M and is beginning her third year of medical school at the University of Wisconsin this fall.

In the spring semester, IBP inaugurated a graduation reception for students and their families preceding the CLA graduation ceremony. Faculty met with students and their guests at the McNamara Alumni Center to reflect on the past few years of study and discuss future plans. The Physiology major had a high profile during the graduation ceremony as one of our own, Colin Wendt, was the student speaker for CLA graduation and about 90 physiology majors were listed in the program.

THE IBP WAY, continued

This fall IBP launched the inaugural Dr. Zofia Zukowska Distinguished Lectureship. This lectureship, organized and led by the IBP graduate students, featured Dr. Ronald Victor, UCLA. Dr. Victor gave an excellent lecture on his basic and clinical studies in muscular dystrophy. The IBP graduate students are already hard at work organizing next year’s lectureship to be held in the fall of 2015.

As we launch into the New Year, 2015 promises great new heights for IBP. One goal this year is to enhance IBP outreach and communication. We are committed to reach out to all past IBP students, alumni, faculty and friends. Inside this brochure, please find the IBP alumni database form. Please take a moment to fill this out and return it to us so we can re-connect and keep you informed of our progress. We also hope to use this as a new networking forum to optimize career path options for our graduate students.

I look forward to working with you in the coming year.

Sincerely,

Joseph M. Metzger

Back row, left to right: Jonathan Murphy, Evan Loukusa and Joshua Warneke. Front row, left to right: Phong Dang, Erin Poncin, Kseniya Zvereva and Alexandra Tsai.
ALUMNI SPOTLIGHT

Scott Hayden Carlson, Professor of Biology, Luther College, Decorah, Iowa, 2000 - present

Dr. Scott Carlson received his Ph.D. from the Department of Cellular and Integrative Physiology in 1996. Scott’s dissertation, titled “The role of peripheral osmoreceptors in the control of arginine vasopressin release,” was done in the laboratory of Dr. John Osborn. Scott credits John in serving as a mentor for both research and teaching, helping develop skills that Scott would take with him to a postdoctoral position at the Hypertension Research Program at the University of Alabama at Birmingham. During that time Scott pursued research related to neural control of blood pressure in hypertension and diabetes, while also serving as a lecturer in various settings. Scott then moved to his current position as Professor of Biology at Luther College, where he teaches human physiology and neuroscience, and oversees a biology survey course. He currently directs a Howard Hughes Medical Institute grant for $1.5 million to foster excellence and leadership in K-12 science education with educators in northeast Iowa.

Scott’s research, which has been funded by NIH, NSF and American Heart Association, focuses on control of blood pressure and mechanisms that contribute to the development of hypertension. He has made presentations on topics ranging from, “Cytochrome P-450 4A overexpression increases peripheral resistance and arterial pressure in spontaneously hypertensive rats” to “Neural and Vascular Contributors to Hypertension.” Scott admits that the shift from a research-oriented institution to an undergraduate liberal arts setting was challenging, as the emphasis shifted from research productivity to using research as a teaching tool. “I quickly realized how difficult it was to find time in the laboratory to make significant progress,” says Scott. But he adds, “The tradeoff has been wonderful, getting to know students both in the classroom and laboratory and then watching them head off to graduate and professional school to begin careers as researchers and clinicians. The opportunity to mentor them – as John guided me – is brief but rewarding.”

Scott admits to outside interests such as music and coffee, and enjoys time at home with his wife and three children. He also enjoys home renovation projects, although his wife wishes he would pick a cheaper hobby.

LET'S GET CONNECTED!

Whether you knew us as the Department of Cellular and Integrative Physiology or under the new name, Integrative Biology & Physiology (IBP), we want to hear from you! Please take a moment to fill out an Alumni Registration Form at: http://physiology.med.umn.edu/alumni/index.htm. We promise not to share your information with anyone else. Your unique password will allow you to update your information at any time. We look forward to hearing from you and don’t forget to follow us on LinkedIn and Facebook!

Follow us on Facebook
https://www.facebook.com/ibpdept

Connect with us on LinkedIn

MAKE A GIFT TO IBP

The generosity of individuals who recognize the importance of our department’s work is indispensable to our success. Donate online at https://makingagift.umn.edu/ongiving. Click on the Health and Medicine category, and type in Physiology Education and Research Fund #6819.

NEW PHENOTYPING CORE OPEN THIS FALL

This fall IBP opened a new Phenotyping Core in Jackson Hall and CCRB. The core is designed to serve the bio-sciences by offering the opportunity for investigators to use highly specialized equipment to conduct their research, and to have access to highly skilled services. The core is available for any internal or external researchers who may need it.

For more information, please contact the Core Director, Pilar Ariza-Guzman at ariza001@umn.edu or by phone at 612-624-0974. Or, visit the website at: http://www.health.umn.edu/research/resources-researchers/phenotyping-cores.
GRADUATE STUDENT/ FACULTY WELCOME PARTY 2014


IBP HEMINGWAY SCHOLARSHIP AWARDED TO WHEELWRIGHT

Congratulations to Matthew Wheelwright on this award. The award commemorates Professor Allan Hemingway, Ph.D., a member of the Department of Physiology from 1937-1951, who was a devoted teacher and prolific researcher whose work involved a wide range of biomedical and engineering topics and included many innovative experimental designs.

IBP FACULTY FALL 2014


IBP SNAPSHOT 2013 - 2014

FACULTY

2 Endowed chairs
7 Teaching track faculty
3 Tenure track faculty
4 Tenured faculty
14 TOTAL FACULTY

49 NEW PUBLICATIONS

SPONSORED FUNDING

7 R01’s
3 K & F awards
1 Mayo Partnership
6 Foundation awards
5 Other
$4,065,277 TOTAL FUNDING

TEACHING

18 U-graduate courses
14 Graduate courses
2 Medical courses
6 Professional courses
$5,681,570 TOTAL TUITION
The 2014 annual Visscher Symposium, held on May 22, 2014, featured keynote speaker Helen Hobbs, M.D., director of the McDermott Center for Human Growth and Development, UT Southwestern, Dallas, Texas. The title of her keynote was, “Genetics of Disorders of Dietary Excess: Getting to the Heart of the Matter.”

Dr. Helen Hobbs of UT Southwestern receives the keynote award from Dr. Metzger at the annual Visscher Symposium event at the Weisman Art Museum.

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Dr. Helen Hobbs of UT Southwestern receives the keynote award from Dr. Metzger at the annual Visscher Symposium event at the Weisman Art Museum.

SAVE THE DATE FOR THE 7TH ANNUAL VISSCHER SYMPOSIUM, MAY 20, 2015

Featuring
Dr. Bruce Spiegelman, Harvard Medical School

Dr. Spiegelman’s research focuses on the regulation of energy homeostasis in mammals, primarily at the level of gene transcription. His research has applications for diabetes, obesity, muscular and neurodegenerative diseases. We look forward to welcoming Dr. Spiegelman in May. Watch for details at physiology.med.umn.edu.
The graduate students of the Department of Integrative Biology & Physiology hosted the first annual Zukowska Lectureship last September. The invited speaker was Dr. Ronald G. Victor, M.D., director of the Cedars-Sinai Center for Hypertension in New York City. The title of Dr. Victor’s talk was, “No more muscle ischemia in muscular dystrophy: from mdx mice to a multicenter clinical trial.”

Dr. Victor’s research focuses on the neural mechanisms of hypertension and hypertension in special populations, including African-Americans and patients with chronic renal failure. His other research interests include obesity-related hypertension, cocaine-induced cardiovascular toxicity, cyclosporine-induced hypertension and metabolic modulation of adrenergic receptor signaling. He is the recipient of numerous NIH grants and has published over 180 articles and book chapters in peer-reviewed publications. Dr. Victor is on the editorial boards of the *American Journal of Hypertension*, *American Journal of Cardiology*, the *Journal of Hypertension* and the *Journal of Clinical Hypertension*.

The Zukowska Lectureship was established in honor of Zofia Zukowska, M.D., Ph.D., former faculty member of the Department of Integrative Biology & Physiology, and director of the IBP Stress Physiology Center from 2010 - 2012. Dr. Zukowska’s work centered on neuropeptide Y function in obesity and cardiovascular disease. Her studies were well-known and highly regarded in the context of unique insights made in stress physiology. Dr. Zukowsa’s work was published in the most rigorously peer-reviewed journals, and her dynamic laboratory was funded by numerous NIH and foundation grants, including the prestigious NIH MERIT award. Zofia received many notable awards for her work, including the Copernicus Award for Excellence in Neuropeptide Research. Her passion and drive for excellence is the inspiration for the lecture series that bears her name.

**Plan to attend the next Zofia Zukowska Distinguished Lectureship**

**Fall / Winter 2014**
IBP AT THE STATE FAIR

IBP faculty, staff and graduate students helped with the “IBP Has Heart” exhibit at the State Fair again this year. Even Dr. Metzger got in on the act, enjoying a few cheese curds after his EKG!

CARDIOPALOOZA 2014

250 participants
100 posters

Congratulations to all who made this event a great success.