Dear Friends,

Warm greetings from the Department of Nutrition Science (NUTR).

This is the second in a series of newsletters designed to update you on the important events taking place in the department, the excellent work of our faculty and staff, and the efforts we’re making to serve our stakeholders. In addition, each newsletter will demonstrate why the Department of Nutrition Science is an excellent investment in the future.

Ten years ago, the Department of Nutrition Science initiated an effort to build four signature areas—1) calcium, vitamin D and bone health; 2) appetite, metabolism and obesity; 3) botanicals and bioactives for health; and 4) cancer prevention. We told you about these in our first newsletter (found online at http://www.cfs.purdue.edu/FN/documents/alumniFriendsNewsletters/Dec2013.pdf).

This second newsletter highlights the leadership roles held by NUTR faculty at Purdue. You’ll also read about our distinguished and named professors. I think you’ll be amazed by the caliber of people who make up our faculty. In our next newsletter we’ll feature our training programs.

Soon we’ll be announcing the first comprehensive fund raising initiative in the history of our department — the Nutrition Science 21st Century Campaign. This effort is intended to secure our ability to strive for excellence, even as economic forces threaten our goals.

INGESTIVE BEHAVIOR RESEARCH CENTER (IBRC)

The IBRC was organized at Purdue to promote and coordinate interdisciplinary collaborations among laboratories that investigate the environmental and biological controls of food and fluid intake. The groundwork for the IBRC was laid in 1999, when students and faculty from the departments of Psychological Sciences and Nutrition Science, and the Interdisciplinary Graduate Neuroscience Program initiated weekly seminars and a journal club devoted to research on ingestive behavior and its disorders. The sharing of ideas and perspectives that occurred at these informal meetings led to research collaborations, new graduate student training opportunities, expanded course offerings and a biennial international conference. Consequently, IBRC is gaining a national and international reputation. The IBRC is thriving and is often identified as a model for growing a center of excellence on campus. In fact, new faculty hires have identified collaborative interdisciplinary research opportunities fostered by IBRC as influencing their decision to choose Purdue. Currently, the center is comprised of 56 faculty from 12 departments in six colleges and has 31 students pursuing a concentration in ingestive behavior.
THE THREE GOALS OF IBRC:

To promote the highest caliber science in the field of ingestive behavior. The scientist-in-residence program is bringing top-caliber ingestive behavior researchers to Purdue for extended training and interaction. The center has organized on-campus meetings to promote collaborative ingestive behavior research, including mini-retreats to brainstorm collaborative ideas and smaller faculty groups to discuss targeted research opportunities. Regular contact with the External Advisory Committee provides a continuing reference point for quality.

To build “in-reach” education and consultation activities focusing on IBRC-affiliated students and investigators. The IBRC administers a NIH-funded training grant (Rick Mattes, principal investigator), Interdisciplinary Training in Signals Controlling Ingestion and Obesity. Training grants from the USDA in obesity (Wayne Campbell, principal investigator) and foods to enhance health and reduce obesity (Mario Ferruzzi, principal investigator) strengthen the graduate program. The center also supports a grant writing mentorship program that pairs junior and senior faculty to develop cutting-edge, externally-supported research. IBRC’s curriculum includes advanced-level specialty offerings throughout the year.

To develop “out-reach” initiatives that will support the education and professional needs of diverse external groups. The Biennial IBRC International Conference on Ingestive Behavior has been a great success. The fifth conference in the series was in September 2013 on Purdue’s campus and, as has occurred with all prior conferences, the proceedings will be published in a peer-reviewed journal, Physiology & Behavior. Individual faculty have developed museum exhibits related to their research that bring considerable attention to campus. The IBRC website’s home page introduces visitors to the Ingestive Behavior Research Center and its goals, focus, scope of research and outreach.
The Project Development Team of the CTSI is an interdisciplinary team designed to help investigators with clinical and translational research. As one of 61 regional “homes” for clinical and translational health established by the NIH, we also connect researchers and innovators in Indiana to others with a similar mission across the country. The Indiana CTSI is one of the most broadly collaborative programs in the nation.

As the only statewide translational hub in the national network, the Indiana CTSI is led by Indiana University, Purdue University, and the University of Notre Dame. Connie Weaver, Distinguished Professor and Department Head, serves as its deputy director. Translational research that carries discoveries from “bench to bedside” has been supported by $12.5 million in internal grants and awards. The CTSI has generated more than 80 full-time equivalent professional jobs in Indiana. Advancements and achievements through this research infrastructure include drug development projects aimed at diseases such as autism and osteoporosis, a multi-institute partnership to advance the fight against cancer and a device development program to assist people with Alzheimer’s. CTSI’s research recruitment efforts connect patients with clinical research and contribute to community health projects in areas that range from downtown Indianapolis to southern Kenya.

This large grant has significant leadership from nutrition faculty:

**Bionutrition:** The Bionutrition Program of the CTSI is housed primarily at Purdue under the leadership of Wayne Campbell, professor of nutrition science. Bionutrition services include development of metabolic diets; diet analyses; assistance with proposal development; preparation and service of metabolic diets/test meals; and various clinical services.

**Project Development Team (PDT):** The Purdue PDT is committed to accelerating translational research by providing researchers with resources and strategic mentorship in the area of nutrition and biomedicine. Connie Weaver chairs the Purdue PDT and members of the team include faculty: Dorothy Teegarden, Wayne Campbell, Rick Mattes and Elsa Janle.

**Community:** Indiana CTSI’s Community Health Engagement Program (CHEP) fosters robust community engagement by creating novel programs in which participation flows from academia to the community and back again. CHEP acts as a link with Purdue Extension, the IU School of Medicine and University of Notre Dame. The Community Advisory Council of CHEP has more than 300 partners across the state. In each county of the state, Purdue Extension educators bring together the expertise and resources of Purdue to address the health needs in local, urban and rural communities. Thirty-five counties expect to have implemented interventions and conducted assessments of effectiveness by 2017. Dennis Savaiano and Donna Vandergraff provide leadership and staff support to CHEP.
At a recent retreat, we developed working groups in our focus areas.

**Education:** The CTSI offers training for the next generation of translational researchers through multidisciplinary team research approaches and hands-on clinical preparation. Nutrition Professor and Associate Dean of the Graduate School, Jon Story, is the Purdue lead for this program.

The Indiana CTSI is working to transform the things we do every day as scholars and researchers — to connect people to create new knowledge, new products and new ideas — and to do it faster and more efficiently.

**WOMEN’S GLOBAL HEALTH INSTITUTE (WGHI)**

Launched in 2012, the Women’s Global Health Institute (WGHI) at Purdue is dedicated to improving women’s health worldwide throughout the lifespan. The vision of the WGHI is to drive new research paradigms in seeking proactive approaches for prevention and early diagnosis of diseases. The WGHI is built on the foundation of the exceptional research work at Purdue in the last three decades and the combined resources of the College of Health and Human Sciences (HHS) and Discovery Park. The strong technology, engineering, natural and social sciences create an innovative environment that distinguishes the WGHI from other advocacy-type women’s centers by focusing on research and training. “We offer the hope of discovery with delivery to women around the world,” says WGHI Director, Connie Weaver.

Some progress has been made in raising awareness of women-specific health concerns, but many issues continue to be marginalized. Of greatest interest are non-communicable diseases (NCDs) that cause 60 percent of all deaths worldwide; 18 million are women. It is estimated that if the primary risk factors were eliminated, 80 percent of heart disease, stroke, Type 2 diabetes and 40 percent of cancers could be prevented.

The WGHI focuses on four major areas of research. These areas were selected to integrate and synergize the ongoing research strengths across campus at Purdue on truly interdisciplinary topics.

The focus areas include:
- Wellness
- Neurodegenerative Disorders
- Bone Health
- Women’s Cancers

The WGHI will change the way women’s health is addressed. Rather than the classic medical model focusing on treatment, the institute seeks proactive approaches in developing prevention methods including identifying populations at risk through biomarker discovery for pre-disease conditions, understanding behaviors that promote a healthy lifestyle, detection technology that will aid clinicians in early diagnosis, monitoring effectiveness of therapies and design plus delivery of drugs after disease onset.

Purdue has an infrastructure for studying disease prevention and development of biomedical technologies as well as an established network for community engagement through the NIH-funded Clinical and Translational
Science Institute. Purdue’s Discovery Park houses platforms for interdisciplinary research and cutting-edge technologies. Purdue also has a strong track record in the selected focus areas including development of diagnostic tools for breast cancer progress, rapid screening methods for effective anti-bone loss interventions and development of the first Alzheimer’s disease drug.

NUTRITION AND EXERCISE CLINICAL RESEARCH CENTER

The resourcefulness and creativity of Nutrition Science faculty and staff to utilize limited space in Stone Hall has been so successful for the past 20 years that we are bursting at the seams. Like a match to firewood, the opportunity to have a large new space in Stone Hall ignites our research capacities with great potential to address the intersection of nutrition and exercise.

One area with strong future potential relates to energy balance. Dietary approaches to prevent and manage body weight are mostly unsuccessful, in large part because they fail to address issues associated with hunger and satiety that sabotage diet compliance. The importance of exercise in weight management and health optimization has only recently gained attention and remains poorly characterized. We need to know much more about how appetite and exercise interact to influence food choice, metabolism and energy balance; areas we are well-equipped to explore.

As one of the leading nutrition departments in the world, our well-established research signature areas bring reputation and productivity to these issues and to the lifelong health goals of the new center. We have a stellar, time-tested record of successfully integrating diet and exercise research and are committed to interdisciplinary training at the undergraduate and graduate levels that emphasize nutrition, fitness and health. In fact, staff from our department provides nutrition counseling and assessment for the Purdue Athletic Department.

How does weight training help older adults maintain health and physical function? Is the current recommended dietary allowance (RDA) for protein adequate for older people to maintain their skeletal muscle? These are some of the questions addressed in the laboratory of Wayne Campbell, Professor of Nutrition Science.

Since few people follow the Dietary Guidelines for either diet or exercise, the need for this facility and the research it will support is significant. More than 60 percent of the population is overweight (BMI of 25-29.9) and over 30 percent are obese (BMI of 30 or higher). The Centers for Disease Control and Prevention projects more than 42 percent of the population will be obese by 2030. With more than $35 billion spent annually on weight loss and overweight/obesity-related health care costs linked to chronic diseases such as...
diabetes, hypertension and osteoarthritis (estimated at more than $100 billion annually), there is great need for answers. Approximately 280,000 preventable deaths are directly linked to obesity annually and, furthermore, obesity is linked to the 90,000 annual deaths from cancer.

The new facility has space for exercise testing and interventions, large scale diet preparation, dining facilities, private clinic testing and biological sample processing. The facility will house bionutrition services (including a metabolic research kitchen and ingestive behaviors assessment area); bone, muscle and body composition assessment (including state-of-the-art body imaging equipment and muscle and fat tissue sampling); outpatient clinical health, energy expenditure and function assessment services; exercise testing and training facilities and equipment; interviewing, counseling and health motivation services; and more. The physical footprint of the center also provides new opportunities for the bionutrition core of the Clinical Translation Science Institute (CTSI) and the Ingestive Behavior Research Center (IBRC). While many partnerships already exist, the opportunities for expanding interdisciplinary research, corporate engagement and new programs are abundant.

A FOCUS ON DISTINGUISHED FACULTY

The Nutrition Science Department boasts more than its share of distinguished and named professorships. With three distinguished professors in the Department, our 15% of faculty greatly exceeds the University proportion of 2%.

Connie M. Weaver

Appointed as a distinguished professor in 2000, Dr. Connie Weaver followed the legacy of the first two female distinguished professors in the University—Helen Clark and Avanelle Kirksey—both faculty in the area of nutrition. Over her career, Connie has developed a national and international reputation in calcium research because of her summer research camps affectionately known as Camp Calcium. The findings from Camp Calcium were critical for setting the dietary calcium requirements for adolescents. She has played an instrumental role in public policy on nutrition by serving on committees that set the dietary reference intakes for calcium and “Dietary Guidelines for Americans.” She currently serves on the Food and Nutrition Board of the Institute of Medicine, part of the U.S. National Academies of Science. In addition, she has been a liaison between the nutrition community and the food industry. Key honors include Purdue’s top research award, “The McCoy Award,” Purdue’s Spirit of the Land Grant Mission Award, and Indiana Woman of the Year. In 2010, Connie was elected to the Institute of Medicine of the U.S. National Academies of Science—this is one of the top honors that a scientist can achieve and she is one of only two Purdue faculty members to have received this honor.
Richard D. Mattes

Dr. Rick Mattes, appointed as a distinguished professor in 2010, is a leader in ingestive behavior research on campus and around the globe. He directs an interdisciplinary program of learning, discovery, and engagement (Ingestive Behavior Research Center) that is the pride of Purdue. His research group has provided strong evidence that dietary fat is a basic or primary taste, joining sweet, sour, salty, bitter, and umami. Furthermore, his work indicates the orosensory signal from fat modifies the concentration of fat in the circulation for hours after meals. This work holds implications for clinical practice, public health policy, product development by industry and basic biology. In another line of research, Rick’s group was among the first to identify energy-yielding beverages as potential contributors to overweight/obesity. They have demonstrated that beverages hold limited behavioral and physiological satiety properties and evoke weak dietary compensation responses. Consequently, they are particularly problematic for weight gain. A third area of discovery is the work his group has conducted on the health effects of tree (almond) and ground (peanut) nuts. Contrary to expectations, Rick’s group demonstrated that moderate consumption of nuts poses little risk for weight gain because they are satiating, their energy is not efficiently absorbed and they raise resting energy expenditure. Moreover, they found that nuts reduced chronic disease (cardiovascular, diabetes, hypertension, obesity) risk. Among his recent honors are the Babcock-Hart award from the Institute of Food Technologists and Purdue’s Provost’s Outstanding Graduate Mentor Award.

James C. Fleet

Our newest distinguished professor is Dr. Jim Fleet. He was appointed by the Board of Trustees in December 2012. It is said that Jim has one of the most creative minds currently working in the field of nutrition. Because of this, Jim received the prestigious Mead Johnson Award from the American Society of Nutrition. He asks fundamental questions related to the biological role of vitamin D, calcium, and phosphorus in the etiology of diseases like osteoporosis and cancer. The ability to apply cutting-edge technology to solving problems is a hallmark of his work – he’s used genomics, proteomics, genetics, molecular biology, and genetically modified mice to make advances that are regularly reported in high impact science journals. His longest standing research project looks at the molecular basis of intestinal calcium absorption. Recently he’s conducted studies using classical genetics in mice that explains why some people are poor absorbers - this work provides a scientific foundation for the concept of personalized dietary calcium requirements. In the area of cancer prevention, he’s doing work that supports a role for improved vitamin D intake in the prevention of prostate cancer, suppression of cancer-promoting inflammation, and enhancement of anti-tumor defenses (Check out a video about Dr. Fleet on the Purdue University Center for Cancer Research website, www.cancerresearch.purdue.edu/fleet-video). Just as important as his ground-breaking research, Jim is one of a rare breed of scientist that can explain complex nutrition research to just about anyone.
Dennis A. Savaiano

Dr. Dennis Savaiano was appointed the Virginia C. Meredith Professor of Nutrition Policy by the Board of Trustees in December of 2013. Dennis is a Professor of Nutrition and an expert in lactose intolerance. For more than three decades his research has been directed toward understanding lactose intolerance and how to manage it in order to enhance adequate calcium intake. He has worked extensively with yogurts, intestinal transit and colonic bacterial adaptation to lactose. This work led to new national recommendations on appropriate dairy food consumption for lactose intolerance and to patents on a prebiotic formulation using galactoligosaccharide to adapt intestinal bacteria to improve lactose digestion and tolerance. As Dean of the former College of Consumer and Family Science (CFS) from 1995 to 2010, his supportive, visionary leadership provided an atmosphere for growth that was foundational to the success achieved by Nutrition Science over these past two decades. The newest activity at Purdue, for which he is using his sabbatical to develop, is an initiative on Nutrition Science and Food Policy. The goal is that Purdue will become the foremost source of research-based information that can inform policy-makers on effective measures to combat malnutrition, both obesity and under nutrition. He is developing a group of economists, political scientists, agriculturalists, technologists, epidemiologists and others to interpret, and disseminate research-based information that supports improved nutrition locally and globally. The initiative will become a catalyst for new interdisciplinary research and teaching that informs, educates, and promotes global and local policies that improve nutrition in a collaborative network with the Global Policy Research Institute, the Center for Global Food Security, the Women’s Global Health Institute and related academic activities.

LEADERSHIP ROLES

In addition to the leadership roles described in the centers, Nutrition Science faculty leadership roles outside of Centers for the Nutrition Science faculty include:

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<thead>
<tr>
<th>Faculty Member</th>
<th>Leadership Role</th>
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<tr>
<td>Wayne Campbell</td>
<td>Purdue Senator</td>
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<tr>
<td>Mario Ferruzzi</td>
<td>Chair, Food and Nutrition Solutions Task Force (4 nutrition societies)</td>
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<tr>
<td>Richard C. Mattes</td>
<td>Chair, Institutional Review Board</td>
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<td>Charles Santerre</td>
<td>Interim Department Head of Health Sciences</td>
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<td>Jon Story</td>
<td>Associate Dean of the Graduate School</td>
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<tr>
<td>Dorothy Teegarden</td>
<td>Associate Dean of the College of Health and Human Sciences University Scholar</td>
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<td>Chair/Lead, Obesity and Cancer Discovery Group, Purdue University Center for Cancer Research</td>
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Create Your Legacy

Inspire tomorrow’s leaders through a planned gift, just as John Purdue did more than one hundred and forty years ago.

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Save the Date

Saturday, October 11, 2014, 9:00 am – 11:00 am

Lyles-Porter Open House/Nutrition Science 21st Century Campaign Kick-off