An Overview of the University of Illinois at Urbana-Champaign Research, Teaching and Outreach Efforts in the Area of Health and Wellness

Spring, 2013
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The University of Illinois at Urbana-Champaign conducted a campus-wide Visioning Excellence @ Illinois exercise throughout 2012. This report is a summary of the key strengths in the areas of health and wellness. Faculty, students and staff were invited to participate in two sessions, held on February 6 and 8, 2013, to discuss potential actions to move the Visioning Future Excellence theme of Health and Wellness forward.

**Participants**

The individuals who participated during these sessions are listed below:

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<thead>
<tr>
<th>Name</th>
<th>Title/Department</th>
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<tr>
<td>Ilesanmi Adesida</td>
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<td>Wynne Korr</td>
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<td>Janet Liechty</td>
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<td>Dan Maroun</td>
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<td>Susan Martinis</td>
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<td>Edward McAuley</td>
<td>Kinesiology &amp; Community Health</td>
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<td>Jennifer McCaffery</td>
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<td>Ruby Mendenhall</td>
<td>Sociology</td>
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<td>Su-A Myong</td>
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<td>Uretz Oliphant</td>
<td>Medicine</td>
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<td>Mary Ellen O'Shaughnessey</td>
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<td>Laura Payne</td>
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<td>Dan Peterson</td>
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<td>Menah Pratt-Clarke</td>
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<td>Brent Roberts</td>
<td>Psychology</td>
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<td>Peter Schiffer</td>
<td>Vice Chancellor for Research</td>
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<td>James Slauch</td>
<td>Medical Microbiology</td>
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<td>Stephen Sligar</td>
<td>Biochemistry</td>
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<td>Bill Sullivan</td>
<td>Landscape Architecture</td>
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<td>Richard Tapping</td>
<td>Medical Microbiology</td>
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<td>Edna Viruell-Fuentes</td>
<td>Latina/Latino Studies</td>
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<td>Barb Wilson</td>
<td>Provost’s Office</td>
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<td>Phyllis Wise</td>
<td>Chancellor</td>
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Current Research on Health and Wellness

During the first session, participants shared some of the key activities already taking place on our campus related to this theme. The activities described below were shared either during the session or as a follow-up.

Any attempt to organize the information from our efforts into a small number of key areas risks omitting emerging advances and innovative approaches. Nonetheless, in any discussion of health and wellness research at Illinois, a number of foci emerge:

- Study of aging across the lifespan and population diversity
- Disability and empowerment of those with disabilities
- Brain plasticity- the brain’s ability to change over a lifetime
- Prevention and treatment of obesity
- Healthy eating and the connections between food and family life
- Substance abuse prevention and treatment
- Bioinformatics and Neuroinformatics
- Diagnostic Devices and Imaging Tools
- Interdisciplinary genomic research
- Infectious Diseases
- Health disparities
- Women’s Health

Research in these areas is supported by a substantial state-of-the-art infrastructure. The following are examples of laboratories, institutes, and units created, equipped and staffed to support research in these areas, in addition to our Colleges and Departments.

Equipment and services:
- Beckman Visualization Lab
- IGB Core Facilities
- EPR
- Blue Waters Petascale Computer
- Micro and Nanotechnology Laboratory
- HPC BIO
- Carver Biotechnology Center
- Veterinary Medicine Teaching Hospital
- Materials Research Laboratory
- NMR spectroscopy facilities
- MRI facilities

Programs:
- Division of Biomedical Sciences
- Fellows programs
This overview also includes a brief description of research centers, programs and facilities relating to each area, followed by a list of academic offerings.

**Study of Aging Across the Lifespan and Population Diversity**

- *Center on Health, Aging, and Disability (CHAD)*: provides leadership in interdisciplinary research, education, and outreach efforts that promote health and wellness, healthy aging across the lifespan, healthy communities and optimal participation of individuals with disabilities

- The Beckman Institute Theme, *Health: Attitudes, Biology, Information, Technology, Society (HABITS)*, provides infrastructure for faculty and students to come together and build integrative, cross-cutting health-related enterprises at even larger scales -- ultimately creating centers and programs to further support research and technology development, but also to advance education and training.

**Disability and Empowerment of those with Disabilities**

- *The Center for Wounded Veterans in Higher Education*: uses a multidisciplinary, family-centric team approach and provides residential and non-residential counseling, rehabilitation and academic services

- *Disability Resources & Educational Services (DRES)* ensures that qualified individuals with disabilities are afforded an equal opportunity to participate in and benefit from the programs, services and activities of the University of Illinois at Urbana-Champaign through the identification and enactment of reasonable modifications to institutional policies and procedures, the provision of effective auxiliary aids and services, the establishment of innovative educational services, and the pursuit of interdisciplinary disability research.

**Neuroscience and Brain Plasticity- the brain’s ability to change over a lifetime**

- *The Adult Learning Lab*: provides research on adult learning and language processing a joint project between the College of Education and Beckman Institute

- The IGB theme *Gene Networks in Neural and Developmental Plasticity*, pursues understanding of the structures of conserved regulatory networks and how they can be modified to yield biological diversity both between and within species, are major challenges in biology and the focus areas of our theme.

- The Beckman Theme, “*Biological Intelligence*,” starts with the study of the individual molecules that comprise the brain cells and builds toward an understanding of the anatomy and physiology of brain regions and sense organs.

- *The Integrative Immunology and Behavior (IIB) Program* is a transdisciplinary group of faculty, undergraduate, graduate and postgraduate trainees that explores endocrine, immune, neuroimmune and behavioral interconnections within the broad field of psychoneuroimmunology (PNI)

- *The Center for Nutrition, Learning, and Memory (CNLM)*, funded by Abbott Laboratories, aims to push the field of traditional nutrition science research forward with leading-edge brain imaging and supercomputing technologies
Prevention and Treatment of Obesity

- *Illinois Transdisciplinary Obesity Prevention Program (I-TOPP):* an integrated program of education, research and practicum/internship experience

Healthy Eating and the Connections Between Food and Family Life

- *Exercise Psychology Laboratory:* located in the Department of Kinesiology and Community Health of the University of Illinois, EPL focuses on the study of determinants and consequences of physical activity behavior across the lifespan, including enhancing physical activity adherence after breast cancer diagnosis; the Fit and Active Seniors Trial (FAST) project, which examines the effects of two physical activity programs on psychological and physical function in adults aged 60-79 years; the Regulating Efficacy and Wellness in Diabetes (REWinD) Trial; which is an eight-week walking exercise program for adults with type 2 diabetes or metabolic syndrome; and the stretching and Yoga exercise study, which studies the effects of a Yoga program on cognitive and physical health in older adults.

- *Division of Nutritional Sciences:* offers an interdisciplinary program for graduate education in nutrition with extensive research opportunities that span the spectrum of nutritional sciences from the level of the genome and proteome to clinical and population-based studies

- *STRONG Kids Program: Family Health Awareness Study:* study of health behaviors and health literacy of parents and families to enhance childhood nutrition and healthy weight levels

- *The Family Resiliency Center:* advances knowledge and practices that strengthen families’ abilities to meet life’s challenges and thrive- one of the themes is Child and Family Health and Wellbeing

- *The Children and Family Research Center:* identifies research needs and support research that is policy and practice relevant and encourage and facilitate public child welfare research activities through collaborative relationships

Substance Abuse Prevention and Treatment

- *The Center for Prevention Research and Development (CPRD)* in the Institute of Government and Public Affairs (IGPA) seeks to improve state and community capacity for substance abuse prevention, prevention educational practices, and prevention policies and decision making.

- *Health Science Information Services and Resources:* research and courses on scientific literature and public data sets that explore how information systems impact human behaviors

- *Clinical/Community Division of Psychology:* trains scholarly and scientifically oriented researches and professionals in the acquisition of knowledge, understanding and amelioration of human problems
• **Social-Personality Division of Psychology**: emphasizes research and theoretical perspectives that examine cognitive and emotional basis of social interaction

• **Psychological Services Center**: offers diagnostic and outpatient therapeutic psychological services for adults, adolescents, and children while providing hands-on graduate student training and conducting research in clinical psychology.

**Bioinformatics and Health informatics**

• **UI Health Information Technology Center (HITC)**: promotes research on using information technologies to support health and healthcare. Areas of interest for HITC include: data sciences, privacy and security, usability, and safety. This is a joint effort between UIUC and UIC.

• **HHS Funded Strategic Healthcare IT Advanced Research Center** is a multi-institutional and multidisciplinary research project, supported by the Office of the National Coordinator for Health Information Technology, aimed at reducing security and privacy barriers to the effective use of health information technology.

• **NIH Center for Macromolecular Modeling and Bioinformatics** focus on the structure and function of supramolecular systems in the living cell as well as on the development of new algorithms and efficient computing tools for physical biology.

**Diagnostic Devices and Imaging Tools**

• **The Laboratory of Integrated Bio Medical Micro/Nanotechnology & Applications**: integrates biology and medicine with micro and nanotechnology can be categorized into two broad areas, namely how micro/nano-fabrication can help solve problems in life sciences (such as diagnostics, therapeutics, and tissue engineering), and how we can learn more from life science to solve important problems in micro/nano-science and engineering (such as bio-inspired self-assembly, etc.).

• **The Nano Sensors Group**: apply electromagnetics and nanotechnology to the development of next-generation tools used in life science research, pharmaceutical screening, genomics, disease diagnosis, and environmental monitoring.

• **The Strategic Initiative on Imaging**: helps catalyze collaboration and advancement of imaging related research and resources at Illinois

• **Ultrasonic Imaging Laboratory**: develop novel instrumentation and analytical methods for discovering biological mechanisms, particularly those related to cancer and vascular diseases in humans. Current areas of research include (a) ultrasonic-based viscoelastic imaging of breast cancer, (b) hydropolymer media as tissue-like phantoms for the development of multimodality breast imaging, (c) accurate measurements of vascular wall shear rate to study adhesion molecule physiology, (d) information-
theoretic designs of ultrasonic imaging systems, (e) spatiotemporal coding for improved ultrasonic imaging performance, and (f) efficient array beamforming strategies.

- **The Chemical Imaging and Structures Laboratory (CISL):** focuses on both research and education in combining spectroscopic and structural information to understand biochemical processes and materials. The activities include developing novel technologies for spectroscopic imaging, formulating advanced numerical processing methods, providing objective methods in histopathology and understanding polymer composites. Reflecting the interdisciplinary nature of the work, the laboratories are located in the Beckman Institute for Advanced Science and Technology, Micro and Nanotechnology Laboratory and Carle Foundation Hospital at the University of Illinois at Urbana-Champaign.

- **Biophotonics Imaging Laboratory:** located in the Beckman Institute for Advanced Science and Technology, the lab is dedicated to the development of novel optical biomedical imaging techniques.

- **Magnetic Resonance Functional Imaging Lab (MRFIL):** focuses on the development of acquisition and image reconstruction strategies, using MRI, to accurately and quantitatively image physiology with primary applications in functional brain imaging, structural brain imaging, and neuromuscular dynamics during normal speech and swallowing. In addition, looks at biomarkers associated with declines in cognitive and motor performance that come with healthy aging.

### Health Law and Policy

- **Steps Toward Nationwide Health Information Exchange:** an analysis of a national healthcare system with policy and operational issues recommendations

- **Action Research Illinois (ARI):** is a public outreach program that works with partners across the State of Illinois, with a particular focus in East Central Illinois Communities. AR I maintains an on-going program of sustained engagement with community partners and public agencies, addressing social justice, human and environmental sustainability, and development in distressed areas and with marginalized populations through service learning and action research. Together with residents and community organizations in severely distressed areas of Illinois, faculty, staff and students from across the University of Illinois at Urbana-Champaign endeavor to work on highly tangible and visible projects that address immediate and long-term needs.

- **Epstein Health Law and Policy Program:** promotes cutting-edge research, policy analysis, and public service/public engagement on critical issues in health care

### Interdisciplinary Cancer Research

- **Cancer Community at Illinois:** strives to improve Cancer detection, prevention, diagnosis, therapy and quality of life. Cancer Breakthroughs at Illinois provides resources to access cancer-related activities across campus and nucleate new programs and activities to advance cancer research progress.
• **Midwest Cancer Nanotechnology Training Center (M-CNTC):** Integrating biology and medicine with micro and nanotechnology can be categorized into two broad areas, namely how micro/nanofabrication can help solve problems in life sciences (such as diagnostics, therapeutics, and tissue engineering) and how we can learn more from life science to solve important problems in micro/nano-science and engineering (such as bio-inspired self-assembly).

**Interdisciplinary Genomic Research**

• **Institute for Genomic Biology** Dedicated to transformative research with program areas in systems biology, cellular and metabolic engineering and genome technology, the IGB pioneers advances in the life sciences.

• **Computational Comparative Genomics Lab:** explores how phenotype (at the cellular and organism levels) is generated from genotype and to shed new light on disease mechanisms, such as cancer. The interdisciplinary work combines genomics, computational innovation, engineering principles, and medical sciences. The researchers develop novel computational methods to explore the human genome, integrating comparative genomics data to elucidate cross-species differences and within-species variation and their associations with disease. They also develop new systems biology approaches to identifying key genetic variants in cancer development and progression using high-throughput next-generation sequencing technologies.

• **Cellular Decision Making in Cancer:** an area of study in the Institute for Genomic Biology where researchers examine how single molecular events integrate protein networks to determine cell fate

• **Single molecule fluorescence detection:** research that investigates various human-disease related biological pathways to understand molecular details and to apply knowledge to diagnostic or drug screening platforms

• **Host-Microbe Systems,** a theme in The Institute for Genomic Biology, exploits genomic technologies to study the dynamic interactions between the host and its commensal as well as pathogenic microbes. The study of microbial diseases has focused traditionally on single, clearly defined interactions between the host and frank pathogens. But this approach discounts the complexity of the interactions, as the normal microbiota is a key player in this system.

• **Computational and Genomic Medicine at Illinois:** encompasses the application of computational techniques to the management, interpretation and visualization of genome-level data; targets the modeling, at all scales from molecules to populations, of normal and disease states, based on multimodal datasets derived from these states; aims to derive clinically useful knowledge from large-scale data (medical records, laboratory results, imaging etc) collected from patient populations, and to present the results in an actionable fashion to practicing physicians

• **NSF Center for the Physics of Living Cells (CPLC):** catalyzes new collaborative research directions for the faculty, which are sharply focused on the best opportunities for major technical advances; advances the teaching of biological physics in both physics and biological communities using the Center as a focal

*Health and Wellness*
point; uses the natural appeal of biology as a basis for effective outreach and for promoting diversity in physics; facilitates collaborations with industrial partners and other research organizations

- **NIH Enzyme Function Initiative** is a large multidisciplinary Initiative that aims to determine the function of unknown enzymes discovered in genome-sequencing projects.

**Infectious Diseases**

- **NCSA Health Sciences Group**: applies advanced computing and information technologies to medicine and public health, including infectious and endemic disease, medical informatics (including algorithmic medicine), clinical and translational science, and disease mapping.

- **Center for One Health Illinois** focuses on fostering the commonality of health through the three broadly defined areas of educate health professionals who understand the determinants and contributing factors for human, animal and ecosystem health, how public health policy is developed and how it affects the health of all three; research disease processes that occur at the interface of human and animal activities and their effects on the environment; and outreach that improves our society’s preparedness and response to natural and intentional exposures of biological, chemical and physical agents.

- **NIH Program on Discovery, Design, and Development of Phosphonic Acid Antibiotics** uses novel genomic mining approaches and organic chemistry approaches to identify novel antibiotics found in nature and transform their use.

**Health Disparities**

- **Women’s Health Collective Lab**: responds to the need for personalized prevention and personalized medicine in women's health

- **The Latina/o Health Literacy Research Group**: focuses on understanding and promoting health literacy to empower Latinas/os who often are underserved in clinical settings and underrepresented in research literature

**Women's Health**

- **NIH Botanical Estrogen Research Center**: examines the safety of botanical dietary supplements being widely consumed by women to obtain from “natural” sources the benefits of estrogens without the risks

- **NIH Children’s Environmental Health Research Center** researches the impact of Bisphenol A and Phthalates on child development and health

- **NIH Center for Research on Reproduction and Infertility** supports a multidisciplinary team of basic and clinical scientists with a common interest to understand the mechanisms and cellular pathways that control maternal-fetal interactions during early pregnancy and to identify factors that underlie infertility in women suffering from endometriosis, a common gynecologic disorder.
Partnerships

- The Mayo Illinois Alliance for Technology Based Healthcare: promotes a broad spectrum of collaborative research, the development of new technologies and clinical tools, and the design and implementation of novel education programs. The alliance provides a framework for broad cooperation in individualized medicine by integrating efforts in three areas: basic, translational and clinical research; bioengineering, especially for point-of-care diagnostics; and the development of tools and methods in computational biology and medicine.

- The Carle Partnership is a biomedical research alliance to foster medical discoveries, improve student educational opportunities, enhance access to clinical and translational research trials for patients in downstate Illinois, encourage the recruitment of specialty physicians, and provide an environment that supports collaboration.

Campus Services

- Wellness Center: endeavors to empower the Illinois community to incorporate healthful practices into their lives, and to help create a culture of wellness that supports healthy living, personal growth, and enhanced quality of life

- Osher Lifelong Learning Institute (OLLI): provides a rich array of lifelong learning opportunities through its member led organization

- Dance for People with Parkinson’s: supports those living with Parkinson’s to explore gentle movement in a safe, welcoming environment. Set to uplifting, familiar music, this 70-minute monthly class may assist with the preservation and improvement of balance, flexibility, and strength.

- Live Well, Be Well: a series of workshops sponsored by University of Illinois Extension (along with various medical and public agencies) for those living with chronic diseases

- Division of Biomedical Sciences: provides an integrated infrastructure that enables faculty members to capture and lead new opportunities in biomedical and translational research

- Division of Biomedical Sciences Faculty Development Program: acquaints junior faculty, postdocs, and graduate students with the range of public and private funders who support health science research

- Imaging Technology Group (ITG): serves dozens of research groups and hundreds of researchers from the Beckman Institute and nearly every department on campus, providing state-of-the-art microscopy/spectroscopy and image processing/rendering through its Microscopy Suite and Visualization Laboratory
• **Roy J. Carver Biotechnology Center:** provides a state of the art research infrastructure to investigators both on and off campus; research facilities consist of the Transgenic Mouse Facility, Proteomics Center and the W. M. Keck Center for Comparative and Functional Genomics

**Academic Offerings**

**IGERTS and Training Grants**

- **Cellular and Molecular Mechanics and BioNanotechnology Integrative Graduate Education and Research Traineeship (CMMB IGERT):** training the next generation of leaders who will define the new frontiers of cellular and molecular mechanics and bionanotechnology
- **IGERT in Neuroengineering:** Educating the next generation of neuroscientists and engineers to develop tomorrow's technology
- **IGERT in Vertically Integrated Training With Genomics** fellows will focus on how the genome and the environment interact to give rise to phenotypic plasticity and biological diversity.
- **NIH Infection Biology Training Program**
- **NIH Cellular and Molecular Biology Training Program**
- **NIH Sensory Neuroscience Training Program**
- **NIH Developmental Psychobiology and Neurobiology Training Program**
- **NIH Molecular Biophysics Training Program**
- **NIH Research Training Program In Environmental Toxicology**
- **NIH Training Program In Chemistry-interface With Biology**
- **NIH Summer Training In Translational Biomedical Research**
- **NIH Training in Inflammation and Nutritional Dysfunction**

**DEGREE PROGRAMS**

- **Bachelor degree in Food Science and Human Nutrition—Food Science, Human Nutrition and Dietetics concentrations & Food Science and Human Nutrition minors:** students apply science and technology in areas ranging from nutrition and wellness to food safety
- **Online Master’s degree in Food Science:** Many of the students in this program are working professionals. The online delivery option makes the program accessible to students in various locations, who may also be balancing a travel schedule for their careers.
- **Master’s degree and Ph.D. in Food Science and Human Nutrition—Food Science and Human Nutrition concentrations:** students apply science and technology in areas ranging from nutrition and wellness to food safety.
• **Bachelor in Molecular and Cellular Biology:** provides a solid foundation in biochemistry, cell and developmental biology, microbiology, molecular genetics, and physiology and structural biology. The program prepares students for various biomedical careers and for medical, dental and graduate schools.

• **Bachelor in Integrative Biology:** integrative biology seeks to discover the complex interrelationships between living organisms and the physical and biological environment in which they live, giving students a deep understanding of biology and its interrelationships.

• **Bachelor in Kinesiology:** program of study in Kinesiology is in the Department of Kinesiology and Community Health. Kinesiology is an interdisciplinary program dedicated to the study of human movement.

• **Master’s and Ph.D in Kinesiology:** These advanced degrees in Kinesiology can focus on Biobehavioral Kinesiology, examining the impact that physical activity and sport have upon individuals; Cultural, Pedagogical, & Interpretive Studies, which looks at the interaction between physical activity and the individual from cultural, sociological and pedagogical perspectives; and Exercise Physiology, which involves work output, energy transfer, and movement efficiency in order to better understand the consequences of exercise stress on body systems.

• **Bachelor in Community Health:** program of study in Community Health is in the Department of Kinesiology and Community Health. The Community Health program addresses a variety of health-related issues including management, policy, education, rehabilitation and disability.

• **Master’s and Ph.D. in Community Health:** provides education and training in the five core areas of public health: Health Policy and Management, Epidemiology, Biostatistics, Environmental Health, and Health Behavior and Promotion.

• **Master’s in Public Health:** promotes health, prevent chronic illness and reduce disparities in health through education and training of public health practitioners, research excellence, and service to communities locally, nationally, and internationally

• **DVM/ Masters in Public Health:** based in part on their experiences with monkey pox and West Nile virus encephalitis, faculty at the University of Illinois at Urbana-Champaign College of Veterinary Medicine (UIUC-CVM) and The University of Illinois-Chicago School of Public Health (UIC-SPH) began the development of a collaborative, joint degree program designed to award both Doctor of Veterinary Medicine and Master of Public Health degrees upon successful completion.

• **Master’s in Rehabilitation Counseling Program:** prepares rehabilitation counseling professionals to work in professional rehabilitation settings and to provide a full range of rehabilitation counseling services to facilitate the personal, educational, and vocational development of individuals with emotional, physical, cognitive, and neurological impairments.

• **Bachelor in Chemistry:** The undergraduate chemistry program at the University of Illinois at Urbana-Champaign (UIUC) features diverse opportunities for students. Two programs of study are offered: the
Specialized Curriculum in Chemistry and Sciences and Letters Chemistry major. There is also a Chemistry Minor option.

- **Bachelor in Recreation, Sport and Tourism**: prepares students to design, manage, and deliver leisure services to a variety of populations in diverse settings and provides a firm foundation from which students may pursue graduate studies.

- **Master’s and PhD in Recreation, Sport and Tourism**: designed to provide an education in theoretical, behavioral, planning and management perspectives directed toward a range of specific leisure interests.

- **Bachelor in Speech & Hearing Science**: offers undergraduates a choice of career paths culminating in a Bachelor of Science degree and prepares them for careers and graduate education.

- **Master’s, Au.D. and Ph.D. in Speech & Hearing Science**: offers graduate programs of study in speech-language pathology, audiology, and speech, language, and hearing science. The department prepares scientists and professionals who specialize in the study of perception and production of spoken, signed, and alternative communication and communication disorders, as well as swallowing.

- **Bachelor in Social Work**: fosters student understanding by providing a challenging, yet supportive environment of high expectations that encourages the development of well-informed and engaged citizens.

- **Master and PhD in Social Work**: prepares students for advanced social work practice and research in public and private agencies. Students may concentrate in health care or mental health among other areas.

- **Interdisciplinary Minor in Aging (AHS)**: provides students with the opportunity to study aging as it relates to health, communication, development and activity. The minor is offered through the Departments of Kinesiology and Community Health, Recreation, Sport and Tourism, Psychology and Sociology; the Department of Human and Community Development; and the School of Social Work.

- **i-Health- interdisciplinary degree program in Health (AHSI)**: an interdisciplinary degree program in health. The i-Health program prepares undergraduate students for a wide range of graduate study in health-related fields, and pre-professional study for a range of biomedical careers.

- **Bachelor degree in Bioengineering**: advances fundamental understanding of how human biological systems function, and to develop effective technology-based solutions to the wide spectrum of societal needs in human development and disease diagnosis, treatment, and prevention.

- **Master’s and PhD degree in Bioengineering**: provides students with educational and research experiences that integrate the sciences of biology and medicine with the practices and principles of engineering.
• **MD/PhD program within the College of Medicine**: provides a unique and electric environment for bright and creative scholars to pursue their passion for combining cutting edge research with individualized high-quality clinical training.

• **PhD in Biochemistry**: offers unique opportunities for graduate students to become skilled and creative biochemists and molecular biologists.

• **PhD in Cell and Developmental Biology**: designed to educate students for careers in research and teaching in the biological sciences. Departmental faculty are concerned with the structural and functional relationships of cells and organisms, with research emphases upon eukaryotic cell and molecular biology, neurobiology, developmental biology, and molecular genetics.

• **PhD in Molecular and Integrative Physiology**: provide individualized training in preparation for research and teaching careers in molecular, cellular, and integrative physiology.

• **PhD in Microbiology**: exposes students to the latest research techniques and fosters their development as independent scientists. The program has particular strengths in the areas of microbial physiology, metabolism, genetics, evolution, and pathogenesis.

• **Master’s and PhD in Chemistry**: offers a wide range of specialties, including the traditional areas of analytical, inorganic, organic, and physical chemistry as well as materials chemistry and chemical biology.

• **PhD in the Neuroscience Program**: interdisciplinary and highly individualized Ph.D. program. The Neuroscience Program guides students to become productive, scholarly neuroscientists with access to careers in academic research, medicine, industry or non-research careers such as law, policy, or journalism.

• **Online Masters in Health Communication**: Health Communication provides a unique perspective and approach to health communication, recognizing that health outcomes depend in a significant way on communication processes: in our personal relationships, among our healthcare providers, in our healthcare organizations, and through the media.
Development and Prioritization of Potential Actions

During the session on February 8, 2013, each of the participants brainstormed potential actions that would allow the campus to make progress either in the short-term (12-18 months) or in the mid-term (3-5 years) in the theme area of Health and Wellness. The participants used as a reference the word cloud for this theme that was developed as a result of the first set of Visioning Excellence sessions last academic year. This word cloud is embedded below:

Notes from each of the small groups were summarized and presented at the second session on February 8, 2013. The same set of participants discussed the potential set of recommended actions for the short and mid-term. After the group discussion, each individual was asked to prioritize the set of actions. To assist with the prioritization exercise, a high-level assessment of the time and financial resources needed to implement each potential action was provided (high, medium or low). Each participant was given four votes to place on the short-term actions and the three separate votes on the mid-term actions. The notes from the session and voting are provided below.
# Health and Wellness

## Short-term (12-18 months)

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<tbody>
<tr>
<td>A. Build and maintain research infrastructure, including enhanced facilities and clinical</td>
<td>H</td>
<td>21</td>
</tr>
<tr>
<td>translational support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Create incentive programs and infrastructure to foster interdisciplinary work (e.g.,</td>
<td>M</td>
<td>16</td>
</tr>
<tr>
<td>develop a summer incubator, provide support staff, supply seed funding, etc.) (disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>prevention and treatment</td>
<td></td>
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</tr>
<tr>
<td>C. Establish a research community around behavioral and social determinants of health</td>
<td>M</td>
<td>15</td>
</tr>
<tr>
<td>D. Develop a strategic plan for the College of Medicine</td>
<td>M</td>
<td>12</td>
</tr>
<tr>
<td>E. Expand access to profiles of researchers as well as community partners and other</td>
<td>M</td>
<td>9</td>
</tr>
<tr>
<td>collaborators to facilitate collaboration</td>
<td></td>
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</tr>
<tr>
<td>F. Launch a white paper competition for future research thrusts and conduct on an ongoing</td>
<td>M</td>
<td>8</td>
</tr>
<tr>
<td>basis with seed funding and clerical support available- coordinated and interconnected with</td>
<td></td>
<td></td>
</tr>
<tr>
<td>other related efforts (disease prevention and treatment)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G. Promote disease centered/ population focused research communities, workshops and seminars</td>
<td>L</td>
<td>7</td>
</tr>
<tr>
<td>H. Facilitate informal faculty discussions/ communications to further develop collaborative</td>
<td>L</td>
<td>4</td>
</tr>
<tr>
<td>research and academic efforts (disease prevention and treatment)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Provide proactive facilitation assistance to help faculty and researchers manage</td>
<td>L</td>
<td>0</td>
</tr>
<tr>
<td>compliance issues (disease prevention and treatment)</td>
<td></td>
<td></td>
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<tr>
<td>J. Reestablish a research community around aging</td>
<td>M</td>
<td>0</td>
</tr>
</tbody>
</table>

## Mid-term (3-5 years)

<table>
<thead>
<tr>
<th>Recommended Potential Actions</th>
<th>Resources</th>
<th>Votes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Increase the hiring of translational faculty members</td>
<td>H</td>
<td>13</td>
</tr>
<tr>
<td>B. Create an expertise in the area of environmental and emerging technologies- how a person’s physical environment</td>
<td>M</td>
<td>13</td>
</tr>
<tr>
<td>impacts his/her health and wellness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Implement the College of Medicine strategic plan</td>
<td>H</td>
<td>12</td>
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<tr>
<td>D. Develop interdisciplinary education at the undergraduate and graduate levels to train future scholars,</td>
<td>M</td>
<td>10</td>
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<tr>
<td>researchers and practitioners (e.g., summer workshops and institutes, minors and pre and post doctoral programs)</td>
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<tr>
<td>(disease prevention and treatment)</td>
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<tr>
<td>E. Develop and support interdisciplinary centers targeting one or more major diseases (e.g., cancer)</td>
<td>H</td>
<td>9</td>
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<tr>
<td>F. Develop a coherent, world’s best wellness program for staff, students and the local community (centralize our</td>
<td>M</td>
<td>8</td>
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<tr>
<td>wellness activities and consider creating a location to deliver services in the community as well as a community</td>
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<tr>
<td>lab for research)(disease prevention and treatment)</td>
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<tr>
<td>G. Provide additional grant support for faculty, including access to financial and compliance expertise</td>
<td>M</td>
<td>6</td>
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<tr>
<td>(disease prevention and treatment)</td>
<td></td>
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</tr>
<tr>
<td>H. Develop an incubator for faculty collaboration</td>
<td>M</td>
<td>6</td>
</tr>
<tr>
<td>I. Create coordinated spaces for disease prevention research (disease prevention and treatment)</td>
<td>H</td>
<td>3</td>
</tr>
<tr>
<td>J. Create awareness and coordination, through the use of virtual infrastructure, across the spectrum of health</td>
<td>M</td>
<td>3</td>
</tr>
<tr>
<td>and wellness activities; include existing teams and institutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K. Develop mechanisms to assist with translating outputs from research into applications (disease prevention and</td>
<td>M</td>
<td>2</td>
</tr>
<tr>
<td>treatment)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. Strengthen and promote entrepreneurial activity (disease prevention and treatment)</td>
<td>L</td>
<td>2</td>
</tr>
<tr>
<td>M. Initiate strategic faculty hires in the areas of disease prevention (disease prevention and treatment)</td>
<td>H</td>
<td>1</td>
</tr>
<tr>
<td>N. Improve the clinical infrastructure on campus by increasing the capacity of the Medical School to do clinical</td>
<td>H</td>
<td>1</td>
</tr>
<tr>
<td>research and eliminate dueling IRBs</td>
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<td></td>
</tr>
</tbody>
</table>
A campus committee consisting of the Chancellor, the Provost, the Vice Chancellor for Research, and the Associate Chancellor for Budget and Planning will be reviewing these recommendations. They will also look at other strategic priorities for the campus and develop the campus action plan. This action plan will be presented to the Council of Deans. The plan may be revised based on input received from the Council of Deans. The final action plan will be released during the spring of 2013.