The **Knight Campus for Accelerating Scientific** Impact expands the university’s strengths in interdisciplinary scientific research and training, with a specific focus on facilitating innovation, and a goal to quickly turn discoveries into usable societal applications. Scholars and researchers in bioinformatics, genomics, bioengineering, molecular probes and sensors, and more are housed in the new campus. Researchers and students at the Knight Campus will tackle global challenges in a world-class space designed to support interactive interdisciplinary discovery. Over the coming decades, the campus will transform the region into a hub for innovation, with research that seeds start-up companies and talented graduates who attract existing industry to the area.

The Campus is 160,000 square feet, and is a dynamic innovation center with leasable lab and workspace. The university is still shaping the programs that will be housed in the Knight Campus, but currently the Bioinformatics and Genomics and the Master’s Industrial Internship programs are a part of the campus. At full functionality, the Knight Campus is projected to have 30 teams of scientists and researchers, accompanied by 550 students who will be involved in the research cycle, gaining unique experience.

The Knight Campus Undergraduate Scholars Program is a pilot project designed to pair promising undergraduates with research mentors — graduate students, postdocs, and faculty members — in Knight Campus-affiliated labs. Business support services including access to tech transfer, regulatory affairs and business development professionals will be housed within the Campus. Competitive seed funding grants, workshops, networking events and more will be sponsored through this innovation hub.

In addition to providing a hands-on, world-class science experience, the Knight Campus also will provide students with professional development training in entrepreneurialism, communication and innovation. Also, the Knight Campus Internship Program trains scientists in an accelerated academic format and provides opportunities for real-world knowledge and skills necessary to be successful in the industrial environment.

**Current Research Groups affiliated with Knight Campus**

**Dr. Robert Guldberg (E.D. of Knight Campus)**. Guldberg joined the University of Oregon fall 2019, and is widely known in the field of regenerative medicine. His background is in engineering, but has experience in molecular and cellular mechanisms. His research has examined muscle and bone growth and development, focusing on potential regenerative therapies following traumatic injuries and in degenerative diseases such as osteoporosis and osteoarthritis. His work gravitates toward developing technologies that eventually make their way into patients.

**Dr. Tim Gardner**. Gardner is a neuro-engineer with a track record of success in academics and commercialization. Throughout his career, Gardner has worked at the interface of neuroscience and technology and successfully translated his work into a commercial venture, maximizing the impact of his university research.

**Dr. Jim Hutchison**. HutchLab’s focus is on developing synthesis approaches to preparing functional and nanoscale materials with applications such as nanoelectronics, chemical/biological sensing, biomedicine, and nuclear waste processing/remediation.

**Dr. Marian Hettiaratchi**. Hettiaratchi’s research focuses on combining chemical and biomedical engineering approaches to create effective biomaterials that can precisely deliver proteins for tissue repair. Her work involves developing protein delivery vehicles for regenerative medicine by integrating cutting-edge techniques in protein engineering, polymer chemistry, and computational modeling to design versatile, clinically-relevant biomaterials.

**Andrew J. Nelson**. Nelson’s research explores the development and commercialization of technological innovations. His ongoing research projects focus on the fields of music synthesis, information technology, green (sustainable) chemistry, and biotechnology.

**Dr. Keat Ghee Ong**. Ghee’s research centers around implantable sensors, wireless sensors, electronic devices, and magneto-elastic materials. He was involved in the development and implementation of a number of wireless sensor technologies including magneto-elastic resonant sensors and inductive-capacitive resonant circuit sensors for biomedical applications. Currently, Ghee focuses on the development of “smart implants”, which are based on wireless sensor/actuator platforms that not only can monitor physiological conditions in real time, but also react and adapt to changes for improving treatment outcomes.

**Dr. Calin Plesa.** The Plesa lab develops new technologies to characterize and engineer biological protein-based systems at large scales and applies these to a number of different research areas and applications. Our work is highly-interdisciplinary and touches on aspects from many fields including biochemistry, synthetic biology, molecular biology, microbiology, structural biology, genetics, bioinformatics, and quantitative biology.

**Knight Campus Faculty Fellows Research (affiliated faculty)**

**Dr. Bill Cresko**. Cresko’s lab focuses on mapping the genetic basis of traits, functional analyses to understand the developmental roles of identified loci, and comparative genomic and gene expression studies to understand divergence among species. The lab helped develop high throughput genotyping techniques using next generation Illumina sequencing to examine genome-wde patterns of divergence. The lab also studies the evolution of duplicated genes and genomes, and their relationship to organismal diversity.

**Dr. Vicki DeRose.** DeRose’s lab investigating chemical activity and structure in nucleic acids and proteins, with an emphasis on metal interactions. Proteins have long been known to exploit and tune the reactive properties of metals in order to perform reactions that are sometimes unavailable to the benchtop chemist. It has only recently been determined that ribonucleic acid (RNA) also catalyzes chemical reactions in certain biologically important systems. RNA has its own distinctive metallobiochemistry. Our research group examines such systems using tools of biological and bioinorganic chemistry, and spectroscopic methods. These are interdisciplinary studies that lie at the interface of biology and chemistry.

**Dr. Karen Guillemin**. Using genetically tractable and microbiologically manipulable models systems the researchers in Dr. Guillemin’s lab explore the reciprocal impacts of microbial communities on their hosts and host environments on resident microbiota during development and in the context of disease. Experiments use gnotobiotic animals with defined microbial associations to uncover the causal relationships in these reciprocal interactions and to understand their mechanisms, with the ultimate goal of learning how host-microbe systems can be manipulated to promote the health of human systems.

**Dr. Mike Hahn.** Hahn serves as Director of the Bowerman Sports Science Clinic and Associate Professor of Human Physiology. His lab’s current research projects are focused in the areas of prosthetic engineering, treatment outcomes in ankle osteoarthritis, neural control of powered prosthetic/orthotic devices, and mechanisms of locomotor adaptation after lower limb injury.

**Dr. Darren Johnson**. Johnson’s lab explores problems in coordination chemistry and organic synthesis using the relatively new field of supramolecular chemistry as a tool. The research in the group spans a diverse range of disciplines: organic synthesis of ligands and receptors; inorganic chemistry of supramolecular coordination complexes and inorganic clusters; computer modeling and ligand design; analytical chemistry of metal extractants; solution thermodynamics of host-guest and metal-ligand complexes; and materials science of supramolecular assemblies. The characterization of these nanoscale molecules requires investigation by X-ray crystallography, calorimetry, multidimensional NMR techniques and other spectroscopic methods.

**Dr. Leslie Leve.** Leve research focuses on child and adolescent development, gene-environment interplay, and interventions for children and families. This includes preventive intervention studies with youth in foster care and with adolescents in the juvenile justice system aimed at preventing risk behaviors and improving public health outcomes, and adoption studies that examine the interplay between biological (genetic, hormonal), psychological, and social influences on development.

**Dr. Annie Zemper.** Research in the Zemper Lab focuses on small intestinal and colonic epithelial stem cell behavior. There are several unique populations of progenitor cells within the colonic crypt, and it is posited that each has a unique ability to differentially regulate intestinal homeostasis. These populations are marked by a number of different proteins and have different proliferative properties. The dynamic nature of these intestinal stem cells is likely exploited in normal process of development or repair after injury, but also in malignant transformation.