

WISE PLACEMENTS FOR FALL 2018

Name	Majors/Careers under consideration	Mentor Links	Mentors	Research Group/ Lab Link	Research Topic
Sem 1 and 2					
Lindsey Junior	Majors: Biochemistry, Neuroscience, Biomed, Biomed Engineering Careers: Physician, Trauma Surgeon, Genetic Researcher	Dr. Sharon Gerecht	Dr. Sharon Gerecht Whiting School of Engineering Department of Chemical & Biomolecular Engineering Director, Institute for NanoBio Technology Faculty mentor Hawley Pruitt, PhD Post doctoral mentor	Institute for NanoBioTechnology	Cancer Immunotherapies, which target cancer cells using immune cells (i.e. cytotoxic T cells) are becoming very promising. However, their efficacy in treating solid tumors can be fairly low. Since T cells require cell-cell contact to attack, this might result from physical barriers to T cell infiltration of tumors. Our current goal is to identify barriers created by tumor cells which inhibit infiltration of cytotoxic T cells. We model these barriers using biomaterials in order to identify targetable mechanisms that could potentially increase infiltration of T cells into tumors thereby increasing the efficacy of immunotherapies.
Amy (Jinghua) Junior	Majors: Material Science, Biomed Engineerings, Chem&Biomolecular Engineering Careers: Researcher, Professor	Dr. Nitish Thakor	Dr. Nitish Thakor Whiting School of Engineering Department of Biomedical Engineering Faculty mentor Darshini Balamurugan Graduate student mentor	Neuroengineering & Bioinstrumentation Lab	We are developing soft robotic prosthetic fingers. The soft fingers are essentially made of rubber (silicone) and are actuated with air. The first design of the soft finger is ready. Now we are working to incorporate force sensors on the finger tip to determine the amount of pressure applied on an object the finger contact. We also are working to incorporate ElectroMyographic (EMG) muscle signal control so that the amputee will be able to move the finger using his/her EMG signals.
Semester 1					
Alice Junior	Majors: Design, Art History, Psych, Landscape Architecture, IR Careers: Graphic Design, Architecture or Landscape Design, International Diplomacy	Dr. Ben Hobbs, EHE	Dr. Ben Hobbs Whiting School of Engineering Department of Environmental Health & Engineering Director, Environment, Energy, Sustainability, & Health Institute Faculty mentor Jing Peng Graduate student mentor	Hobbs Energy-Environment Decisions Group	We use optimization, economics, and decision analysis to plan, operate, and analyze power systems and their environmental effects, and for ecosystem restoration. The methods of systems analysis & economics can provide quantitative answers to important planning & policy questions. The focus of the WISE project is creating an optimization model to best use renewable energy sources and limit carbon emissions.
Ashley Junior	Majors: exploring Careers: Architect, Dentist	Dr. Edward Bouwer	Dr. Edward Bouwer Whiting School of Engineering Department of Environmental Health & Engineering Faculty mentor Chris Brueck Graduate student mentor	Bouwer Research Group	Our research interests encompass factors that influence biotransformation of contaminants; bioremediation for control of contaminated soils and groundwaters; biofilm kinetics; biological processes design in wastewater, industrial, and drinking water treatment; and transport and fate of microorganisms in porous media. The WISE project will focus on improving farming use of water to avoid fertilizer runoff.

Carrington Senior	Majors: Biology Careers: OB/GYN, marketing	Dr. Jenell Coleman	Dr. Jenell Coleman School of Medicine Department of Gynecology & Obstetrics Medical Director, JHH Women's Health Clinic Faculty mentor	Lab of Reproductive Sciences and Women's Health Research	WISE research will take place in the clinical context of comprehensive gynecologic care of women from adolescence to menopause, with a particular focus on reproductive health care among disadvantaged or marginalized women, including women living with HIV.
Niya Senior	Majors: Engineering Careers: Engineering	Dr. Jeremy Brown	Dr. Jeremy Brown Whiting School of Engineering Department of Mechanical Engineering Faculty mentor Neha Thomas Graduate student mentor	Haptics & Medical Robotics Lab	One of the biggest complaints about commercially available prosthetics is the lack of tactile feedback. Tactile feedback is crucial not only for highly dexterous tasks, but also for basic manipulation of objects in daily life. We are investigating the effect of haptic feedback on the operation efficacy of an upper-limb myoelectric prosthesis in able-bodied subjects.
Lexy Senior (with Selina)	Majors: Chemistry, Psychology, Physics, Communications Career: Doctor	Dr. Zubair Khan	Dr. Zubair Khan Johns Hopkins Hospital Head & Neck Clinical Trials and Tissue Bank Faculty mentor Hailey Allen Research scientist mentor	Head and Neck Cancer Clinical Trials and Tissue Bank	The bank enrolls patients and collects research specimens from Head and Neck Tumor patients, both cancerous and benign, with particular focus on Head and Neck Squamous Cell Cancer patients. We are examining the growth of head and neck tumour to develop a more accessible diagnosis method for cancer.
Christine (Bom) Senior	Majors: Psychology, Communication, International Relations, Journalism Careers: Psychology-related or Diplomat	Dr. Kristin Gagnier	Dr. Kristin Gagnier Krieger School of Arts & Sciences Associate Director, Science of Learning Institute Faculty mentor	Science of Learning Institute	The Science of Learning Institute seeks to understand and optimize the most essential part of our human capital: the ability to learn. The Institute supports interdisciplinary research that will generate scientific discoveries and build meaningful connections between research, practice, and policy. The WISE project connects cognitive science research to educational practice and draws on the disciplines of cognitive science, psychology, and education with a focus on Spatial Intelligence. An objective is developing research-informed interventions to support STEM learning.
Aley Senior	Majors: Psychology, Economics, Marketing Careers: Psychologist	Dr. Linnea Zimmerman	Dr. Linnea Zimmerman Bloomberg School of Public Health Department of Population, Family, and Reproductive Health Gates Institute for Population & Reproductive Health Faculty mentor	Gates Institute for Population and Reproductive Health	With a research focus on family planning and women's reproductive health research, the WISE project will focus on assisting with the analysis of "PMA2020" data and strengthening efforts of PMA2020 global health partner organizations. The project also will support the PMA Maternal and Newborn Health module, a longitudinal study implemented in Ethiopia to evaluate use and barriers to critical health interventions.

<p>Selina (Mu Yao)</p> <p>Junior (with Lexy)</p>	<p>Majors: Biology, Biomed, Film</p> <p>Careers: Brain Surgeon, Film Director, Researcher</p>	<p>Dr. Zubair Khan</p>	<p>Dr. Zubair Khan Johns Hopkins Hospital Head & Neck Clinical Trials and Tissue Bank Faculty mentor</p> <p>Hailey Allen Research scientist mentor</p>	<p>Head and Neck Cancer Clinical Trials and Tissue Bank</p>	<p>The bank enrolls patients and collects research specimens from Head and Neck Tumor patients, both cancerous and benign, with particular focus on Head and Neck Squamous Cell Cancer patients. We are examining the growth of head and neck tumors to develop a more accessible diagnosis method for cancer.</p>
<p>Monica (Yingke)</p> <p>Junior</p>	<p>Majors: Psychology, Nutrition, Neuroscience</p> <p>Careers: Music Therapy, Therapist, Nutritionist</p>	<p>Dr. Stephen Martin</p>	<p>Dr. Stephen Martin Johns Hopkins Hospital Department of Gynecology & Obstetrics Faculty mentor</p>	<p>Music and Medicine Program</p>	<p>The Center for Music & Medicine's research explores the impact of music and rhythm-based therapies on Parkinson's disease, Alzheimer's disease, stroke and a number of other disorders. The WISE project will focus on ob/gyn research that is studying the impact of music on women giving birth surgically via Caesarean section.</p>
<p>Rome, Abby</p> <p>Senior</p>	<p>Majors: Neuroscience, Psychology</p> <p>Careers: exploring</p>	<p>Dr. Kathleen Cullen</p>	<p>Dr. Kathleen Cullen Whiting School of Engineering Department of Biomedical Engineering School of Medicine Department of Neural Engineering Faculty mentor</p> <p>Vanessa Chang Graduate student mentor</p>	<p>Cullen Lab</p>	<p>Our lab studies the vestibular system, which ensures accurate postural and motor control by detecting the head motion in space. We use experimental techniques including, behavioural and training paradigms, neurophysiology, motion analysis, and computational analysis and modelling. The WISE project focus is to utilize a mouse model to investigate vestibular processing during executing and learning active head movement, with the goal of using optogenetics to manipulate pathways function and demonstrate causality.</p>
<p>Fangwen</p> <p>Senior</p>	<p>Majors: Marine Sci, Enviro Sci, Pol Sci</p> <p>Career: Environmental Lobbyist</p>	<p>Dr. Sarah Preheim</p>	<p>Dr. Sarah Preheim Whiting School of Engineering Department of Environmental Health & Engineering Faculty mentor</p> <p>Junyao Gu Graduate student mentor</p>	<p>Preheim Lab</p>	<p>Research focuses on the ecology of microorganisms and microbial processes impacting water quality. Pathogens, low oxygen and harmful algal blooms (HABs) are the most common factors that impair inland and coastal water bodies. Since population growth and climate change are expected to exacerbate these problems, understanding and modeling the interactions of microbial communities with the chemical, physical and biotic environment will improve of efforts to reduce the impact microbial processes have on water quality. The WISE project will include researching a filtration system for stormwater by cultivating a pathogen to denitrify the stormwater.</p>

<p>Jenny (Xinrin) Junior</p>	<p>Majors: Journalism, International Relations, Business, nonSTEM</p> <p>Careers: exploring</p>	<p>Dr. Beverly Silver</p>	<p>Dr. Beverly Silver Krieger School of Arts & Sciences Department of Sociology Faculty mentor</p> <p>Ricardo Jacobs Graduate student mentor</p>	<p>Arrighi Center for Global Studies</p>	<p>Research in the Center is devoted to the study of urgent contemporary problems arising from processes of globalization. Using participation in an undergraduate course on labor issues in Africa, the WISE project is focusing on the interconnected themes of land, labor and environmental rights and struggles that have gripped the African continent. The WISE researcher is interviewing experts, tackling directed readings, writing synthesizing papers, and producing journalism-style articles on relevant topics.</p>
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