BEHAVIORAL HEALTH AND NUTRITION

Research Mentor: Dr. Sheau Ching Chai, Associate Professor; Department of Behavioral Health and Nutrition

Project: Effects of peanut consumption on cardiovascular health and cognitive function

Project description: Research participants will be asked to consume 2 oz. of peanuts or no nuts daily for 12 weeks. Cardiovascular risk factors and memory performance will be assessed before and after the 12 weeks intervention. Students will be trained to conduct phone-screen interviews, in-person interviews, anthropometric measurements, data collection, data entry, and process human specimens.
Webpage: https://sites.udel.edu/chai-research-lab/
Email: scchai@udel.edu

BEHAVIORAL HEALTH AND NUTRITION

Researchers in the Department of Behavioral Health and Nutrition are seeking student research assistants for a project on COVID-19 vaccination.

 While there are increasing opportunities for COVID-19 vaccination, low vaccination rates are present in the long-term care (LTC) workforce. Approximately 4.5 million Americans work in LTC positions as care aides, clerks, cleaning staff, and other direct support professionals. LTC workers perform essential tasks including preparing meals, administering medication, and transporting patients to appointments. While they provide essential care, LTC workers receive less education and earn lower incomes than other healthcare professionals. They are also more likely to be women of Black and Latino race or ethnicity. Due to the frequent contact with patients and other staff, it is essential that these workers are vaccinated against COVID-19 to prevent spread of the virus. Due to the lack of attention paid to this important group, coalition building with invested partners is essential to develop creative solutions for increasing decision-making and vaccine uptake.

This project aims to increase COVID-19 vaccine uptake in LTC workers. A team lead by researchers at UD will bring together LTC workers, advocacy groups, technical schools that provide allied health training, and medical experts to carry out patient-centered outcomes research (PCOR). PCOR helps patients make informed healthcare decisions, allowing their voices to be heard in assessing the value of healthcare options. Including the voices of LTC workers is one advantage of this proposal and will allow this team to overcome the challenges seen in previous work that failed to engage patients or provide authentic communication narratives. Patient stories increase engagement with health information and are particularly effective among populations who are less trusting of information sources.

 The following will be considered when filling the position:

- Very strong interpersonal skills are necessary. The student must feel comfortable and confident making phone calls and having zoom meetings with long-term care workers, medical doctors, and researchers.

- Should be self-motivated and open to learn new techniques
- Must be in good academic standing (GPA of 3.0 or above)
- Some background or interest in health care or research is valuable. Students in health related majors or students pursing health related careers are encouraged to apply.
- Students who attended technical schools or trade schools before transferring to UD are encouraged to apply (not required)
- Students who have conducted interviews of any kind are encouraged to apply (not required)
- Experience with Slack (or motivated to learn the platform) is necessary
- The student should be diligent, detailed oriented, and organized

Approximately 10-12 hours are required per week. The project duration is 18 months beginning October 1. Students who are interested in a long-term commitment will be prioritized for hiring. Contact Dr. Christine Skubisz (skubisz@udel.edu) for more information. Please send a resume and letter of interest with your email.

BIOLOGICAL SCIENCES

Position Description 1:

The goal of this work study opportunity is to revise and develop spreadsheet modules for this website which is associated with the Biological ESTEEM Project: Excel Simulations and Tools for Exploratory, Experiential Mathematics. The project has succeeded over the past 15 years in helping many biologists and biology students appreciate the power and utility of mathematics as well as providing tools for analysis, modeling, and interpretation. These modules have been used by students and professors both nationally and internationally.

Previous students have been recruited for graduate school and work opportunities based on the modules that they developed as part of their portfolio. Students from any major may apply, and both art and engineering students have done exceptional work on this project. (For samples of their work see <http://bioquest.org/esteem>. Applicants should have some experience in working with Microsoft EXCEL. Good high school algebra is the only math background required; some programming experience and more mathematics are helpful but not essential.

Please contact jungck@udel.edu with a copy of your CV and a description of why you would like to be involved with this project.

Position Description 2:

4D Printing via Self-Assembly and Self-Folding

The goal of this work study opportunity is to revise and develop better development procedures for making our self-assembling icosahedral models.

Currently our approach is too tedious as we have to glue in 120 tiny magnets on 20 triangular pieces to build just one self-assembling icosahedron. We also would like to build models via self-folding. The candidate should have background in any of three areas: (1) familiarity with design software - either Autodesk CAD or Photoshop or Canvas; (2) operation of a 3D printer or a laser cutter; (3) experience in folding origami models. We have used these models in workshops for high school teachers and would like to be able to have teachers be able to have their students easily make their own self-assembling icosahedral and dodecahedral models.

Four previous students have been recruited for graduate school and work opportunities based on the models that they developed as part of their portfolio. Students from any major may apply. Students from art, biology, education, and engineering students have done exceptional work on this project.

Please contact jungck@udel.edu with a copy of your CV and a description of why you would like to be involved with this project.

BIOMECHANICAL ENGINEERING

Biomechanical Engineering

Cartilage Bioengineering Laboratory

Position Description: This would be a great opportunity for a student interested in bioengineering research and practices. The project investigates whether resveratrol, an antioxidant in red wine, can prevent the occurring of osteoarthritis. Student will work with Dr. Lu and graduate students on the fabrication of nanoparticles for the release of resveratrol in knee joints. The student will receive all relevant lab trainings. The student can learn the fabrication of particles, evaluation of release profiles, and testing using animal models.

Required Skills: Background and interest in bioengineering. We will provide all necessary training. Students interested in graduate school application are preferred.

Time commitment: Approximately 3-8 hours per week, depending on the student's availability

Contact: X. Lucas Lu – xlu@udel.edu

CENTER FOR MATERIAL CULTURE

Position: Conference Assistant

Position Description:
Prof. Jaipreet Virdi (History) and Prof. Jennifer Van Horn (Art History) are seeking a self-motivated, highly organized conference assistant to assist with the Center for Material Culture Studies' Third Biennial Conference, "The Disability Gaze." Information about the conference can be found here. Responsibilities include managing abstract submissions as they arrive, answering email queries about the conference as required, and assisting with organizational and promotional materials for the conference. This position provides an opportunity to expand PR/communication skills and connect to scholars working in material and visual culture, artists, and disability historians.

Required Skills: be in good academic standing (GPA of 3.0 or above), good organizational, communication, and time-management skills. This position is a great opportunity for students who are interested in event planning and/or interested in the conference topic more specifically.

Preferred Skills: familiarity with Google Drive and Google Docs; good proofreading skills; familiarity with social media and flyer layout (Canva or similar); willingness to work for two semesters.

Time commitment: 2-5 hours virtual work per week, depending on student's schedule.

To apply, send a cover letter and 1-page resume to both Prof. Virdi (jvirdi@udel.edu) and Prof. Van Horn (jvanhorn@udel.edu)

COMMUNICATION

Position Description: Dr. Ellithorpe's lab conducts research related to media use and media effects, especially topics such as video games and decision making, health behaviors, and media enjoyment. Research assistants will work with Dr. Ellithorpe and the graduate students in the lab to run lab studies, assign credit in SONA for online studies, and help design, create, and test stimuli for studies. RAs will also be expected to attend the biweekly lab meetings, held at 3:30pm on every other Friday during the fall 2021 semester.

Required skills: Interest in communication and media, familiarity with video game controls (console and/or PC). Further training will be provided.

Preferred skills: Experience with video and photo editing software is a plus, but not necessary.

Time required: Up to 10 hours per week, flexible.

To apply: Email Dr. Ellithorpe at mellitho@udel.edu with your CV, a description of your interest in the position, and the skills you would bring to the lab.

EDUCATION

Faculty Mentor(s): Christina Areizaga Barbieri
Hours/Week: 8-10
Dr. Barbieri's research program centers broadly on instruction for students who struggle in math. Specifically, her work focuses on the evaluation and application of learning principles to improve mathematical competencies and motivation for math, especially for students at risk for low mathematics achievement. Dr. Barbieri studies mathematical competencies from preschool to adulthood. A core part of her work aims to understand how common mathematical errors can be used most effectively to reduce misconceptions and improve learning in math content areas that students commonly struggle with. Recently this has involved both algebra and fractions, both gateway topics for success in STEM disciplines and careers. Dr. Barbieri also considers the role of motivation and attitudes towards mathematics in student learning.

In Fall 2021, Dr. Barbieri's various projects on mathematical cognition and learning will have a range of remote activities for an undergraduate scholar to receive mentoring in, such as analyzing students' problem-solving skills and explanations, reading and coding/note-taking literature, creating databases, coding for meta-analyses, preparing conference submissions, and potentially collecting data in classrooms (as public health allows – just for those interested). This apprenticeship can be fully remote and mainly asynchronous for Fall 2021, with the exception of about one 1-hour Zoom meeting per week.

Please contact Dr. Christina Barbieri – barbieri@udel.edu for more information.
More information about Dr. Barbieri's lab can be found here: https://sites.udel.edu/barbieri/

Required Skills

- Be in good academic standing (GPA of 3.0 or higher)
- interested in student thinking and learning
- Diligent, organized and attentive to detail
- Have good time-management skills
- Have a stable Wifi connection and access to a laptop
- Be able to commit to at least 8 hours a week (up to 10) of work (excluding finals week).

Recommended Skills

The following are **preferred** but not required:

- Education, Psychology, or other Social Sciences majors preferred.
- Have experience using Excel.
- Have experience using SPSS or another statistics software.
- Some experience tutoring mathematics (at any grade level)
- Comfortable thinking and talking about mathematics (at various grade levels)
- Interest in attending graduate school
- Availability to stay on for spring 2022 if in good standing.

EDUCATION

Position Description 1:

Whom Must We Treat Equally for Educational Opportunity to be Equal?

Teachers face a difficult choice between which students they should give greater attention to. In this study, we use survey experiments to test teacher preferences for how to best allocate their time. We then compare teacher preferences to those of the broader population to check for alignment. Results from the study will help shape discussions about equality and equality of opportunity in the classroom. Students interested should email Dr. Kenneth Shores at kshores@udel.edu. Research opportunities including learning about survey design, experimental design, and data collection.

Position Description 2:

School Finance Policy and Practice

Do principals have to choose between hiring more experienced teachers versus reducing class sizes? Do these choices create inequalities in school recruitment and hiring? What is the optimal choice for a principal? These questions motivate my study to understand variation in school funding and hiring across the United States. Preliminary data suggests there is massive heterogeneity across districts and states, meaning that there are large differences in the discretion principals have and potential for inequality. Students interested should email Dr. Kenneth Shores at kshores@udel.edu. Research opportunities including learning about school finance policy, research design, and data collection.

ENTOMOLOGY AND WILDLIFE ECOLOGY

Position Description: *Borrelia burgdorferi* is a spirochete bacterium and the causative agent of Lyme disease in humans. Lyme disease is the most common vector borne disease in the United States, with Delaware belonging to the list of high incidence states. Despite the prevalence of this bacterium across Delaware, research looking into the ecology of *B.*

burgdorferi in the state is limited. This project will gain a better understanding of the ecology of *B. burgdorferi* in Delaware by looking into the genetic diversity of the bacterium in different hosts species. The undergraduate student researcher will work with a graduate student in the lab to extract DNA from field-collected animal samples, test for *B. burgdorferi* presence using PCR and qPCR, and sequence DNA to quantify genetic diversity. The student will learn basic lab and molecular biology skills. Students interested in graduate school are strongly encouraged to apply.

Required skills: Background and interest in biology or ecology. Technical lab training will be provided.

Time Commitment: Flexible; must be able to work in blocks of 2 – 3 hours, but no more than 10 hours/week

Contact: To apply, please email Dr. Vincenzo Ellis at vaellis@udel.edu.

FASHION AND APPAREL STUDIES

Position Description 1:

The Department of Fashion and Apparel Studies Associate Professor Kelly Cobb is seeking work study virtual lab assistants for Fall 2020 in the **Sustainable Textile RAD lab** for Research and Applied Discovery. Cobb's current research threads are listed below-please reach out if you are interested.

Kcobb@udel.edu

https://www.fashion.udel.edu/people/faculty/kcobb

Fashion Hacking for Healthcare: This research involves market/consumer analysis of virtual fitting Room technology, subscription services and other emerging tools that engage consumers and clothing. Our goal with this research is to hack the emerging tools to create a way for contactless design fitting of healthcare wearables during COVID.

Tasks: Market/Consumer research: desktop research, google scholar, reading articles, creating an annotated bibliography and research matrix (Faculty will guide this process.)

Context: Kangaroo care (KC), bare skin to skin contact between infant and caregiver, has known short- and long-term health benefits for healthy infants and infants receiving care in neonatal intensive care units (NICUs). An interdisciplinary team of researchers are working on prototype design of a "Snuggle Time Garment" will be conducted first via a virtual fit testing platform by adopting virtual fitting room (VFR) technology used in fashion "hacking" the capability for health-care related device fit testing.

Required Skills: We will teach you everything you need to know to work on our research projects. What we really want is for you to have an interest in fashion and the time and ability to analyze emerging writing and concepts. You will need to be able to work independently.

Time request: Approximately 5-10 hours of work required per week.

Position Description 2:

Re/Cover Textile Product Creation. This creative design research will focus on sampling (AKA making stuff) textiles form post---consumer waste, product development and consumer education around waste. Outputs of this research will include several prototypes trend research reporting, moodboarding and sketchbook process. And video tutorials of re/cover textile production processes.

Tasks: Research assistant will disassemble clothing such as shredding, cutting, and rag processing and to bind fibers such as wet and dry felting, papermaking, knitting, and weaving (this will require assistant has access to creative workspace-nothing is toxic so a home space is fine.) Assistant will conduct trend research, creative process and iteration (from pinterest to little textile sample book) this will require some studio (art, design, textile, fashion, ID) skill in making things and motivation.

Context: Redesigning fashion's future offers a vision of a fashion system that is circular, ideally creating no waste by design, while strategically capturing value from recycled content. Radical improvement of recycling by transforming clothing design, collection and reprocessing is the focus of this research as well as determining post-market manufacturing opportunities that re-define the textile waste stream (i.e. deadstock textile and post-consumer garments) as a value stream.

Required skills: We will teach you everything you need to know to work on our research projects. This job requires some knowledge and desire to make things (art, design, fashion, other.) This will require (1) trend research and (2) textile sampling. Materials will be provided.

Time request: Approximately 5-10 hours of work required per week.

GEOGRAPHY AND SPATIAL SCIENCES

Position Description: The research assistant will work with the research team, which includes graduate and undergraduate research assistants to conduct primary and secondary research, provide transcription for data collection, and provide short summaries of existing work in cooperation with Dr. Naylor. The project is focused on climate change adaptation in Delaware and the exclusion of indigenous perspectives. In this project we are cooperating with the Lenni Lenape Indian Tribe of Delaware. The goal of this project is to gather and understand multiple perspectives of climate change and to effectively communicate them to stakeholders to provide opportunities for more inclusive climate change adaptation. This project is in its beginning stages, however, the research assistant can expect to get hands on research experience.

Time Expectations: 10 hours a week, including 90 minute meeting of the Embodiment Lab and regular check-ins on work.

To apply: send your most recent resume and a short paragraph about why you are interested and what are the problems you hope to solve with your UD education by email to Dr. Lindsay Naylor - lnaylor@udel.edu

HUMAN DEVELOPMENT AND FAMILY SCIENCE

Position description: Dr. Barnes' research program centers broadly on the social and emotional well-being of diverse student populations and educators.

We are a small lab and work across multiple projects. The undergraduate scholar will work on of the following projects with possible additions as the semester goes on:

Project A is a study that will examine multi-tiered systems of support and school climate. If joining this project team, scholar responsibilities could include helping review the literature, assisting with article coding , reference sorting, and/or writing up findings.

Project B is a study focusing on teacher and assistant teacher collaboration in preschool settings. If joining this project team, scholar responsibilities could include teacher and assistant teacher video observation, coding videos using a researcher-created measure, and writing up findings.

Project C is support with dissemination of research findings. If joining this team, scholar responsibilities could include reviewing relevant literature, crafting literature reviews for papers, creating social media posts, writing blog posts about findings.

Required Skills: The scholar will join a multi-site research team, and our only required skill is your ability to work collegially, professionally, and independently.

Preferred Skills: While our team will mentor you with what you need to know, we can move faster if you have a working proficiency of Microsoft Word and Excel and the Google Apps suite (Docs, Sheets, Forms). Moreover, while not required, we'd hope you have an interest in social-emotional wellness and childhood. You do NOT need to be an education or HDFS major. All are welcome!
Approximately 10 hours per week dependent on project workload needs.

Contact Dr. Tia Barnes for more information and/or to apply – tnbarnes@udel.edu

MATERIALS SCIENCE

Available student project - Optical characterization of 2D materials and heterostructures

Research Field: Materials Science/Optics/Physics/Chemical Engineering/Electrical Engineering/Mechanical engineering

Position Description: 2D materials, such as graphene and transition metal dichalcogenides, exhibit extraordinary optoelectronic and mechanical properties compared to their bulk counterparts. These properties depend on the crystal structure of the material and, as such, are affected by local environment and structural defects. This project will investigate the structure and defects in 2D materials and various 2D material based electrical and mechanical devices by optical spectroscopy and material simulation.
Both in-person and remote project activities will be available.

Through the project, the student will develop skills in the area(s) of:
2D material transfer technique
Building optical setup
Materials processing and characterization
Semiconductor clean-room technology
Multiphysics modelling of complex physical phenomena
Data acquisition, analysis and interpretation
Critical thinking

Required:
Working toward an engineering or science degree

Organized and excellent time management skills
Ability to work independently
Willingness to learn new things
Some experience with working in a science lab will be preferred
Time commitment of approximately 8-10 hours per week

Preferred Major: Physics, Chemistry, Materials Science and Engineering, Electrical Engineering, Chemical Engineering, Computer Science

Contact:
Professor Chakraborty (cchakrab@udel.edu)

Website: https://sites.udel.edu/cchakrab/

NEUROSCIENCE

Position Description: Behavioral Neuroscience Research Assistant

The Birth and Endocrine Signaling Lab is a behavioral neuroscience lab that uses animal research to better understand how hormones affect the development of brains and behavior. We are currently seeking an undergraduate research assistant to help with this work. The student research assistant's responsibilities will include a mix of in-person, hands-on work and computer work that can be done remotely. Specifically, we are looking for someone willing to work with some combination of: live animals, tissue samples, and software for ~8-10 hours per week. No previous lab experience is necessary, but an interest in neuroscience, psychology, animal behavior, or reproductive biology is preferred. Benefits of the position include working alongside a team of undergraduate researchers and training in various laboratory techniques. This position would be especially helpful to students interested in pursuing medical school or graduate school in biomedical research.

Contact: Dr. Will Kenkel – wkenkel@udel.edu

NEUROSCIENCE

Neuroscience – Fly Behavior

Neurobiology of Reward Laboratory (https://shaolab.bio.udel.edu/)

Position Description: The Neurobiology of Reward Laboratory studies the neural and genetic basis of reward-driven behaviors, such as feeding, mating, and social interaction, using fruit fly *Drosophila melanogaster* as a model system. Different types of behavior chambers are designed and engineered for researchers to observe and quantitatively measure the behaviors of fruit flies, such as feeding, courtship, learning and memory. Behavior chambers are usually designed using CAD software and fabricated using 3D printer, laser cutter, and other engineering/mechanical tools. The undergraduate researcher will be working with graduate students to optimize the current behavior chambers, design new chambers, and test and analyze fly's behavioral performance in these chambers. The undergraduate researcher will receive training on genetics and basic experimental skills to work with *Drosophila*. This would be a great opportunity for a student interested in applying engineering skills on neuroscience problems.

Required Skills:

+ Some background and/or interest in neuroscience

+ Skillful with 2D and 3D CAD software

+ Programing in MATLAB and/or other languages is not required but a plus

Time Commitment: Approximately 5-10 hours per week, depending on the student's availability

Contact: Dr. Lisha Shao via email shaol@udel.edu

PHYSICAL THERAPY

Position Description: The Move to Learn Innovation Lab is located in Star Campus. Our Super Suits FUNctional Fashion and Wearable Technology Program focuses on designing garments to help improve quality of life for people with disabilities.

We are seeking one or two undergraduate research assistants to engage in a variety of research activities with our team. Our team's current projects focus on early intervention, parent education, and rehabilitation technology. Students will assist in a variety of tasks, including coding of data from videos of parent-child activity or apps about child development and play, digitally gathering scientific articles, and data processing and organization. No prior experience with these tasks is required as training will be provided; individuals with experience using sewing machines are preferred for some of the tasks.

The benefits of the position include working with our interdisciplinary team members to learn more about how to scientifically design interventions and clothing that support and assist movement for children with disabilities and participation in a supportive environment with students pursuing a variety of careers in health sciences.

Approximately 8-10 hours of work required per week.

Contact Dr. Michele Lobo – malobo@udel.edu

PSYCHOLOGY AND EDUCATION

Position Description: The Rutherford Lab researches student learning and motivation in online contexts for Pre-K through university students. Current projects include understanding how early elementary student self-regulation develops and relates to instruction during emergency online instruction throughout the pandemic; examining how teachers support upper elementary students' emotions while they work through an online mathematics software; determining how features of a coding course relate to performance between experts and novices; researching how student motivation changes throughout elementary and middle school; understanding how university instructors respond to the shift to online classes; and examining how motivation relates to desired careers.

The lab is a vibrant research community with postdocs, doctoral students, and undergrads working together toward shared research goals. Weekly lab meetings facilitate problem-solving and sharing across projects. We work hard to develop a work environment (even virtually) that is fun, collaborative, and productive, and is one that supports undergraduate researchers in learning content, skills, and professional norms for Psychology and Education research.

Contact: Dr. Teomara Rutherford - teomara@udel.edu

PUBLIC POLICY AND ADMINISTRATION

Position Description 1: Climate Change Adaptation & Cultural Heritage. Climate change threatens cultural heritage in a variety of ways. How does adaptation also threaten cultural heritage (built sites, traditional practices, etc.) and how can cultural heritage be part of the adaptation solution? This is part of a collaboration with the International Council on Monuments and Sites (ICOMOS). An RA is especially needed this fall to help research how cultural heritage relates to climate adaptation.

Position Description 2: Climate Havens. The New York Times, CBS, and other outlets have started naming cities around the United States as "climate havens" – places where people are relocating to escape the worst harms of climate change. How did this concept of climate havens originate? Who is applying this label and how are these labels being used? This is a collaborative project with researchers at Stanford. An RA would especially help in analyzing newspaper articles and developing timelines, maps, and networks to assess how this concept has grown.

Position Description 3: Land Use as Climate Adaptation. One reason floods and hurricanes in the United States are so much more common and more expensive is because communities are building more homes and businesses in flood-prone areas. What towns are doing well at growing without increasing their risk exposure? How did they do this? What laws and practices did they use? This is a collaborative project with the University of Miami and University of North Carolina. An RA would especially help with finding and analyzing land use and floodplain laws in four case-study locations.

Approximately 10 hours a week, depending on project workloads. I would also invite the student(s) to join a bi-weekly climate adaptation research lab meeting, where they would learn about other projects and meet graduate students and other undergraduate researchers who could serve as peer mentors.

Skills: A student must be extremely organized, independently motivated, and willing to ask for help before a problem becomes a crisis. Some proficiency with Excel and Google Scholar (or Web of Science) would be a plus. However, primarily I need students who can keep meticulous notes of their research and organize the articles/studies/laws they find.

Contact Dr. Siders for more information / to apply – siders@udel.edu

WOMEN AND GENDER STUDIES

Research Assistant Wanted!

I'm looking for an undergraduate who is interested in research on social justice, particularly in the areas of racial justice and the criminal legal system and gender based violence (sexual and intimate partner violence, child abuse, etc.)

I have several projects in different stages and an assistant would be assigned to the projects as needed. For example, I'm working on a grant proposal to study Black women's reentry after a period of incarceration and I'm working on several book chapters and research articles that will be published by the end of the semester. Working on these projects will involve conducting literature reviews, creating annotated bibliographies, and tracking down relevant statistics. I have a book, *Way Down in the Hole*, which examines racism in solitary confinement units in US prisons. This fall the book will

require copy-editing, proofreading, and indexing, each task would be appropriate for a research assistant to contribute to. Finally, I'm working on translational science and need support with editing videocasts. So, some experience with video editing would be fantastic, but not required. Research assistants will be offered training through the library as well as other online tutorials.

10 hours per week. AY 2021-2022

Contact Dr. Angela Hattery by email - hatterya@udel.edu