

# **The Partnership for Native American Cancer Prevention**



**STUDENT & EARLY STAGE  
INVESTIGATOR  
FEATURE BOOKLET**



## Research Student Fellows



### *Jennifer Hudson, BS*

*Jennifer Hudson is a recent graduate who received her Bachelor of Science degree in Public Health with a minor in Indigenous Health Studies. Jennifer is from the Navajo Nation and has previously worked with Dr. Dirk de Heer on his research project.*

#### **What is the topic of your research?**

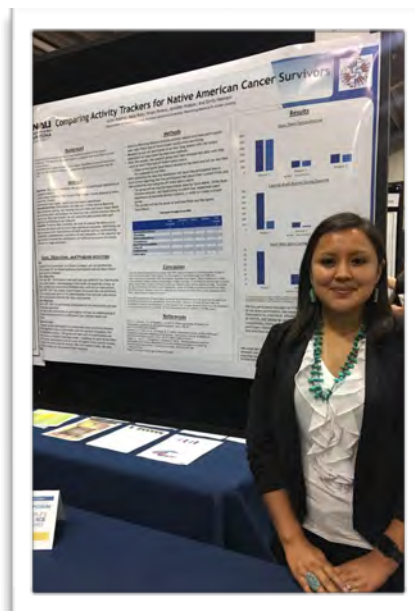
The research I conducted focused on improving Native American cancer survivors' quality of life through an 18-week physical activity program. It is the first research study of its kind, and I am so grateful to be a part of it.

#### **What are your academic/career plans?**

I plan on pursuing a Masters degree in Health Promotion or Epidemiology at Oregon Health and Science University in Portland, Oregon. It is my hope to eventually return to the Navajo Nation with the knowledge and experience I gained to help my community live healthier, happier lives.

#### **How did NACP impact your life?**

NACP has truly been life-changing. Because of NACP, I feel better prepared and more empowered to accomplish the academic and career goals I set; all of which are possible with the strong support system I gained and the tremendous opportunities presented. Without NACP, I would not be where I am today, and I cannot thank them and my mentors enough.





## Kaelyn Acothley

*Kaelyn Acothley is a junior majoring in Biomedical Science with a minor in chemistry. Kaelyn is from the Navajo Navajo and is currently an NACP research student working on Dr. Naomi Lee's HPV vaccination project.*

### What is the topic of your research?

The research that I'm currently working on is developing a vaccine for gonorrhea, and my main duty as an undergraduate researcher is to mass produce and purify virus like particles.

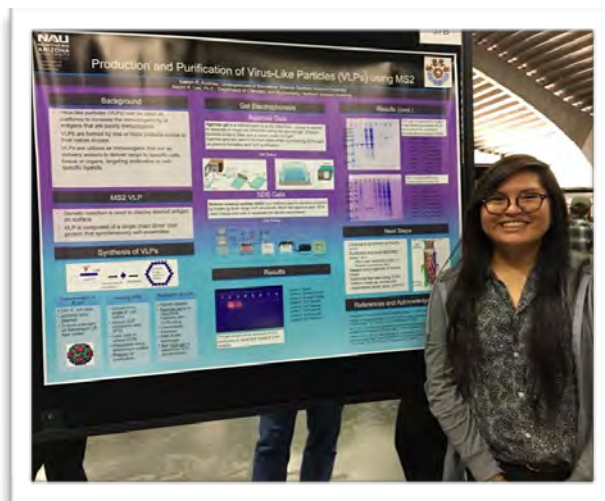
### What are your academic/career plans?

My academic plans are to either attend a graduate school focusing on similar work related

to immunology and public health working with underserved Native American populations or attending medical school. Currently, I am interested in either attending the University of Arizona or UNM. With my current history of working in research, I have started to consider it as a career pathway, but I am also interested in working directly with patients in the healthcare field.

### How did NACP impact your life?

NACP impacted my life by allowing me to pursue my dream of helping Native American communities. Not only will the development of this vaccine be applicable to other diseases, it helps combat the issue of antibiotic resistant strains of the disease throughout the US and on Native American reservations where there is evidence of gonorrhea strains that are more antibiotic resistant than others. The NACP has definitely allowed me to live my best life helping others, while they also help me by pairing me with a like-minded research mentor who shares a similar dream for a brighter future on Native American reservations.





## Early Stage Investigators (ESIs)

### *Naomi Lee, PhD, MS, BS*

*Dr. Naomi Lee is an Assistant Professor in the Department of Chemistry and Biochemistry at Northern Arizona University. Dr. Lee is a member of the Seneca Nation and conducts research in Public Health, Infectious Diseases, Vaccine Development, and Epidemiology.*



#### **What is the topic of your research?**

My research is concentrating on vaccine design and infectious diseases in Native American communities. Communities need to continually promote HPV vaccination among adolescents and should participate in clinical trials for next-generation vaccines. HPV is a main contributing factors to HPV persistence and cancer progression. Therefore, my work is focusing on novel vaccine development using self assembling peptides and virus-like particles to target various sexually transmitted infections.

#### **Are there any next steps in your career plans?**

I would like to apply for funding to support graduate students and postdocs, and I want to focus more work on improving the health care of American Indian and Alaska Native populations through health disparities research, STEM, community-based participatory research, education and mentoring.

#### **How did NACP contribute to your research?**

My salary and start-up were primarily supported by NACP. I also have undergraduate students from the spring and summer semester that were also supported by NACP, and they presented a poster on self-assembling peptides (KFE8) as a platform to create HPV Vaccine Candidates.





## *Heather J. Williamson, DrPH, MBA, OTR/L, CPH*

*Dr. Heather J. Williamson is an Assistant Professor in the Center for Health Equity Research (CHER) and the Department of Occupational Therapy at Northern Arizona University. Heather's research addresses health disparities with the intention of helping improve access to health care and wellness resources.*

### **What is the topic of your research?**

My research focuses on health equity for adults with intellectual and/or developmental disabilities. I also assist on a needs assessment for the Northern Arizona Regional Behavioral Health Association identifying community assets and needs as well as strategic initiatives to address health equity in the northern Arizona region.

### **Are there any next steps in your career plans?**

I would like to receive larger funding for projects which are currently in their pilot phases. My goals are to address the health equity of adults with intellectual and developmental disabilities through community-based participatory research approaches. In addition, I am also working to explore the provision of health and social services to best meet the needs of adults with intellectual and developmental disabilities as well as other underserved populations.

### **How did NACP contribute to your research?**

NACP has helped fund our ability to plan with communities on our project focused on addressing cancer screening disparities among Native American women with intellectual and/or developmental disabilities. With this funding, we can help explore health resources for Native American adults with intellectual and developmental disabilities using a Photovoice approach.

## ***Abolfazl Razi, PhD, MS, BS***

*Dr. Abolfazl Razi is an Assistant Professor of Electrical Engineering in the School of Informatics, Computing and Cyber Security (SICCS) at Northern Arizona University.*



### **What is the topic of your research?**

My expertise is on machine learning, predictive modeling, and bioinformatics with two major applications. Firstly, I use integrative analysis of cancer multi-omics data (sequencing, copy number, DNA methylation) and clinical information (sex, gender, age, etc) to develop predictive models for cancer diagnosis, subtyping and therapy response prediction as well as finding association between somatic mutations and gene dysregulation (as a step towards developing targeted therapy).

### **Are there any next steps in your career plans?**

Currently, I am working on developing integrative multi-modal analysis that integrates cancer genomics with medical imaging using deep learning methods. I am also interested in developing models with shared hidden layers to model molecular interactions that are common among different tissue types with customizing to specific tissue types. The tools required for this research aspects includes deep learning, Bayesian inference, compressive sensing and regularized classification. Another aspect of my research is developing predictive modeling based on deviation analysis, where the goal is to process physiological signals (ECG, EEG, MEG, etc) and medical imaging to identify deviations from the patient-specific baseline towards predefined abnormalities before the conditions become severe in order to help the patients take preventive actions.

### **How did NACP contribute to your research?**

NACP provides seed funding for young faculty to develop preliminary results and apply for external grant opportunities. I also received travel grants from NACP to attend conferences and workshops in my research area to present my research results and extend my professional networking with the active research groups in related areas.

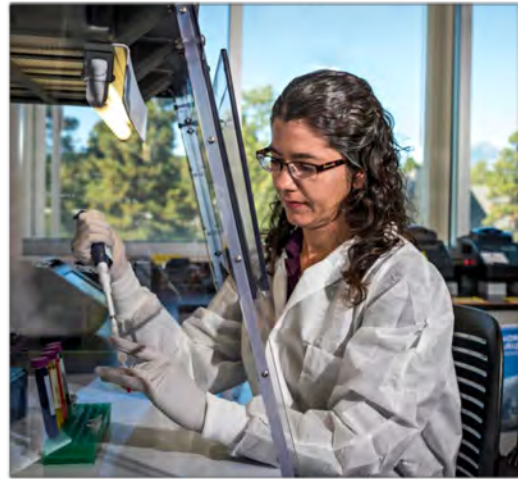


## *Emily Cope, PhD, BS*

*Dr. Emily Cope is an Assistant Professor of Microbiology and Assistant Director of the Pathogen and Microbiome Institute at Northern Arizona University. Dr. Cope's research studies the knowledge of microbiome in the context of human health and disease to develop new therapeutics such as microbial therapies-prebiotics or probiotics-to help treat CRS and asthma.*

### **What is the topic of your research?**

Our research aims to understand how microbiota contribute to health and disease. This research involves using culture-independent microbial profiling tools to understand how these microbial communities differ in their composition (species), as well as their behavior, such as metabolism of distinct substrates, virulence, or formation of complex biofilms. We aim to understand how these communities of bacteria, fungi, and viruses interact with immune responses and contribute to health and disease. Specifically, we are interested in airway microbiota in chronic rhinosinusitis and asthma, and how the gut microbiota interact with the host in asthma and Alzheimer's disease.



### **Are there any next steps in your career plans?**

My immediate next steps are tenure and gaining R01-level funding. I'd like to continue to investigate the microbial mechanisms that underlie chronic disease in order to develop microbiome-based therapeutics for asthma, CRS, and Alzheimer's Disease.

### **How did NACP contribute to your research?**

I'm new to NACP this year, but this program has already facilitated new collaborations at both University of Arizona and NAU in research on chronic rhinosinusitis and head and neck cancer. We look forward to continuing to develop these collaborations toward understanding the role of the microbiome in human health and disease.



## Research Student Fellows



### *Alison Watson, BS*

*Alison Watson graduated with a Bachelor of Science in Biology with a minor in Anthropology and Chemistry from Northern Arizona University in Spring of 2018. This year, she will attend the Post-Baccalaureate Research Education Program at the University of Arizona (UA-PREP). Alison is from the Navajo Nation and has previously done research under Dr. Ronald Heimark.*

#### **What is the topic of your research?**

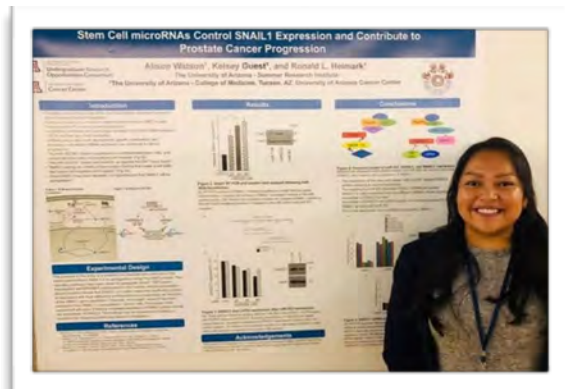
My topic was How Stem Cell mRNAs Control Gene Expression and Contribute to Prostate Cancer Progression.

#### **What are your academic/career plans?**

My long-term academic plan is to obtain a PhD in Immunology or Cancer Biology. My short-term academic plan is getting into the right graduate program that will allow me to conduct research that will specifically benefit Indigenous communities. My main career plan is to continue bench lab research in hope of one day contributing to open research centers/labs on Native reservations.

#### **How did NACP impact your life?**

NACP brought down many barriers for me that I was unable to handle on my own during my undergraduate. They gave me options and continued to support me in every direction. They gave me hope about graduate school. They also helped me get out of my comfort zone by moving to a completely different city and university for research. I am very appreciative for all the huge leaps they encouraged me to do throughout my education.





## Jonathan Credo, BS

*Jonathan Credo is a third-year MD/PhD student at University of Arizona College of Medicine. He is half-Filipino and half Navajo and has previous done research with Dr. Jani Ingram in the Department of Chemistry and Biochemistry.*



### **What is the topic of your research?**

My current PhD Dissertation Research is investigating the health impact of chemical exposure in minority populations (Indigenous communities and migrant farmworkers) in the Yuma, AZ region. I am also part of research examining pollutant effects on a Nature Preserve in Israel as well as the validity of using apex predator wasps as a model for Hg biomagnification through colleagues in Israel. I continue to aid existing and upcoming projects in the Ingram Laboratory at Northern Arizona University surrounding environmental contamination on the Navajo Nation and other Indigenous tribal Nations. Prior to my PhD Dissertation research, I have worked since 2010 in the Ingram Environmental Analytical Chemistry Laboratory at Northern Arizona University on the impact of uranium contamination on the Navajo Nation, with a specific focus on unregulated water contamination of all pollutants (e.g. arsenic, uranium, manganese).

### **What are your academic/career plans?**

My academic/career plans are to complete my MD/PhD training and start a career with an emphasis on Ecotoxicology and Environmental Medicine, using my MD/PhD education to bridge these two worlds and mitigate exposure and harm in affected communities.

### **How did NACP impact your life?**

Without a doubt, I can say that NACP has allowed me to achieve all that I have and get to where I am now. Through NACP I met and established a fruitful research mentorship with Dr. Jani Ingram. She has been a supporter of me throughout my whole career and helped me realize I could achieve a lot more than I believed myself. Beyond Dr. Ingram, NACP has provided me the experience and training to become a skilled researcher which, in turn, allowed me to conduct research at NIH in Bethesda, MD on stem cell proliferation and differentiation and internationally at the International Rice Research Institute in Los Banos, Laguna, Philippines examining the effect of pesticides on amphibians as a model for human exposure. It was all of these undertakings that allowed me to go to medical school, and NACP (especially Dr. Ingram) which gave me the courage to transition my degree progression from an MD to an MD/PhD after passing my boards in my second year of medical school. In summary, NACP and research has been the biggest positive impact on my life and has set me on a trajectory to be a successful researcher.



## ***Darien Fuller, BS***

*Darien Fuller graduated from Northern Arizona University with a Bachelor of Science in Public Health with a minor in Biology and Indigenous Health Studies. Darien is from the Navajo and Potawatomi tribes and is now attending University of Arizona focusing on her Master of Science degree in Epidemiology.*

### **What is the topic of your research?**

Currently, I am working with Dr. Robin Harris and Dr. Heidi Brown in the Department of Epidemiology and Biostatistics at the UA. Our main project goal is to evaluate the role of *Helicobacter pylori* infections and gastric diseases in the southwestern United States to identify interventions to reduce disease. Throughout my time here, I have looked at the various factors contributing to the prevalence of *H. pylori* and the

high rate of gastric cancer in rural Navajo communities.

### **What are your academic/career plans?**

I am pleased to say that I am admitted to the Master of Science-Epidemiology program at the UA College of Public Health. I will resume my graduate studies in the Fall of 2019.

### **How did NACP impact your life?**

NACP really opened my eyes to the kinds of opportunities there are for me as an Indigenous woman in higher education. It can seem like you're all alone in your field when there aren't any other people like you, but NACP has provided examples of outstanding Native people succeeding and striving for the best. It has provided a great network of like-minded students and professionals that are extremely supportive of one another. NACP has made a significant impact on my education journey and my future career goals. I'm so grateful to have been a part of something that has such meaning and importance.

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## **Roslyn Curry, BS**

*Roslyn Curry is a graduate of the University of Arizona with a Bachelor of Science degree in Biology with a minor in Biochemistry. She is a member of the Navajo Nation, and she will continue her academic career at the University of Arizona pursuing a Master of Science degree in Cellular and Molecular Biology.*

### **What is the topic of your research?**

The topic of research in the Montfort lab is nitric oxide receptors. I specifically worked with the primary nitric oxide receptor, the protein soluble Guanylyl Cyclase (sGC). My work included contribution to the characterization of the structure and function of this protein.



### **What are your academic/career plans?**

I have been admitted to the University of Arizona Applied Biosciences Practical Masters of Science in Molecular and Cellular Biology Program. After I plan to pursue a PhD in Functional Genomics and apply my knowledge to research diabetes on a genetic level.

### **How did NACP impact your life?**

NACP has definitely been a gateway to the science field for me. I've always wanted to work in science, but I did not have the tools to begin. NACP has provided those tools for me.



## **Brenn Belone**

*Brenn Belone is an undergraduate student at the University of Arizona majoring in physiology and is a member of the Navajo Navajo.*

### **What is the topic of your research?**

My topic of research conducted over the past year involves testing various drug compounds in a *Drosophila Melanogaster* model of ALS. In testing various compounds, I also worked to develop an

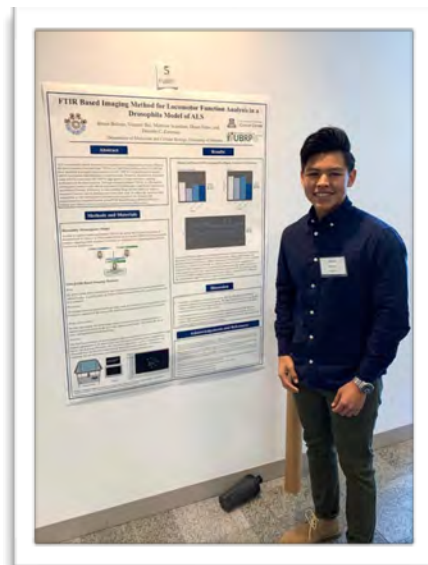
alternative assay for testing larvae locomotion. This method is called the FTIR based imaging method (FIM). Currently, I am expanding my research to studying metabolism in the same fly model of ALS.

### **What are your academic/career plans?**

I plan to graduate with a degree in physiology. Upon graduating, I plan to attend medical school becoming a physician working with patients with neurological diseases.

### **How did NACP impact your life?**

NACP has had a large impact on my life. The program has provided me with the rare opportunity of conducting undergraduate research which has allowed me to understand the research process in a hands on manner. The experience has also allowed me to develop vital skills that I otherwise would not have developed such as communication, project planning and team work. In addition, I also received the opportunity to learn gain knowledge in a specific manner that is not taught in the classroom.







## Early Stage Investigators (ESIs)



### ***Jennifer Erdrich MD, MPH***

*Dr. Jennifer Erdrich is a surgical oncologist and assistant professor with the Division of General Surgery at the University of Arizona Department of Surgery who specializes in melanoma, sarcoma, and breast cancers. She is a member of the Turtle Mountain Ojibwe Tribe, and she also provides general surgical oncology care to tribal populations throughout Arizona.*

#### **What is the topic of your research?**

My research has revolved around the themes of cancer prevention, cancer genomics, and cancer complications. These are the topic areas I plan to continue to study broadly but with a special focus on their relevance to cancer prevention and control in our Native communities.

Since our tribes are burdened with diabetes and obesity, I am interested in studying how these affect cancer rates and

complications, and from that foundational investigation I am eager to design interventions to minimize those risks.

#### **What are your academic/career plans?**

I am a surgical oncologist in an academic environment focused on research and clinical care. Part of my practice is based at the university and serves the patients of the greater Tucson area. I am building a cancer outreach program with nearby tribes, establishing partnerships through which I will run clinic and operate on site within Native communities in order to increase access and overcome the geographic barriers that otherwise interfere with comprehensive multidisciplinary cancer care.

#### **How did NACP impact your life?**

As someone who has joined the faculty at University of Arizona only 6 months ago, I am new to NACP, but already recognize the honor it is to be a part of this program. The longstanding members share my conviction to improve cancer care and increase education for our Native communities. The work that has been done and continues to develop through the program is inspiring. The NACP leadership team has been a source of support and mentorship that greeted me immediately upon my arrival to campus, which is something that I think will further my academic success, career goals, and personal fulfillment.

## **Julie S. Armin, PhD, MA**

*Dr. Julie Armin is an assistant professor in the Department of Family & Community Medicine at the University of Arizona, where she is also affiliated with the College of Public Health's Department of Health Promotion Sciences. She is faculty at the Sonoran University Center for Excellence in Disabilities and is an Affiliate Member of the University of Arizona Cancer Center. As a medical anthropologist, her goal is to improve healthcare and reduce health disparities for historically underserved populations using qualitative, multi-method and community-based methodologies.*



### **What is the topic of your research?**

My research program is broadly focused on addressing gaps in cancer prevention and treatment for populations that have been historically underserved. I have examined how cancer care is affected by immigration, social class, and gender hierarchies, and I have collaborated with research teams to develop and test cancer prevention interventions using these insights. I am currently co-leading an NACP project with Heather Williamson (NAU) that aims to improve access to cancer screening for Native American women with disabilities. In this project, we are working with HOPI Cancer Support Services and Pima Community College to adapt an evidence-based cancer screening education program for women with disabilities to increase its acceptability to and use by Native American women.

### **What are your academic/career plans?**

I hope to continue working with Native American communities to address identified needs and gaps in information regarding cancer care and survivorship. More broadly, I would like to build a nationally recognized research program focused on improving access to cancer care for historically underserved groups.

### **How did NACP impact your life?**

I've thrived in the collaborative culture fostered by NACP. I feel as if I have found a place in a research community that shares my values and goals. Moreover, I have benefitted from information and connections facilitated by the NACP Cores as I conduct research with new community partners and co-mentor (with Heather) Native American students.

## Research Education Core



### Hendrik de Heer, MPH, PhD

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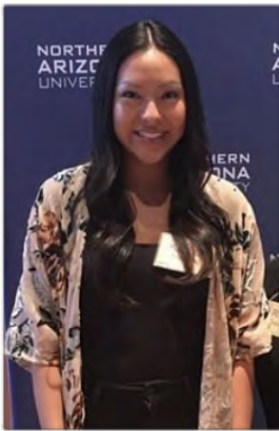
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## Research Education Core Assistants

### NAU



**Kaylee Tsingine** has been an NACP assistant for almost three years. She is a member of the Navajo and Hopi tribes. Kaylee is currently a Junior studying Biomedical Science. Her future interests are to pursue higher education in the health field upon completion of her Bachelor's degree.



**Ashley Lazaro** has been an NACP assistant for almost a year. She is a recent graduate from NAU with a Bachelor's Degree in Public Health and minor in Biology. Her future goal is to continue on to a Master Degree program in Public Health with an emphasis in health promotion or epidemiology.



**Colette Davis** recently joined the NACP Research Education Core as an assistant. She is a member of the Navajo Nation and is a Junior majoring in Biomedical Science. Her future plans after receiving her Bachelor's degree is to continue onto higher education with aspirations of a Master's degree in Public Health or Epidemiology.



UA

**Alura Benally** is a graduate student at the Mel and Enid Zuckerman College of Public Health studying Public Health Administration. She is from the Navajo Nation, and her goal is to work for the Indian Health Service at the new hospital in her hometown Kayenta, AZ. Alura plans to be a Program Coordinator with an emphasis on health prevention services. She has been an assistant for a year and believes this is a great opportunity for her to gain knowledge and skills for her career path.



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## Contact Information



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UACC: [azcc.arizona.edu/research/disparities/nacp](http://azcc.arizona.edu/research/disparities/nacp)