



DINÉ COLLEGE

# School of Science, Technology, Engineering and Math (STEM)

**The MS Biology program** is slated to begin in August, 2022, pending accreditation. It is a two-year, thesis research-based Master's Degree. The program prepares graduates to enter many careers at a high level, or for professional school (medicine, dentistry, etc.) or for further Ph.D. studies. Contact the faculty below to discuss your interest and see if there is a place for you in their lab! We will try to make your interests a reality with our many expert research faculty: General areas of interest available for study: Botany, Fungal science, Biomedical science, Virology, Wildlife studies, Behavioral medicine, Meditation physiology, Cellular and molecular methods in genetics, Genomics research methods, Medical microbiology, Electrophysiology, and more – see below.

**Dr. Shazia Tabassum Hakim**, [stabassum@dinecollege.edu](mailto:stabassum@dinecollege.edu); Office: 1(928)-283-5113 Ext: 7520; Research Lab. Ext: 7538;

[summer 2022 internship lab video final one.mp4](#)

## The target research areas explored in Hakim's lab

- Virology: HIV/HAV/HBV/HCV/ Dengue virus; genomics and antivirals
- Waterborne Infectious Diseases: Coliforms, non-coliforms, *H. pylori*, *Legionellosis*, *Giardiasis*, *Amoebic dysentery*, *Naegleria* infection
- Crowd Sourcing for new antimicrobials from desert soil against MDRs (ESKAPE pathogens, and *Candida* species)
- Micro RNAs target recognition and regulatory functions
- Microbial analysis of wastewater effluent and decision support for reclamation

## Some of the Current thesis /research project options

- Microbial analysis of water; US-EPA and NN-EPA standards
- Microbial analysis of wastewater Effluent and possible use in Agriculture
- Analysis of metabolites from soil bacteria and herbs against MDRs (ESKAPE pathogens and *Candida*)
- MicroRNAs target recognition and regulatory functions
- Association of *H. pylori* from water samples with elevated number of peptic ulcers

## Envisioned Careers for students that will be graduated from Hakim's Lab

Graduates can continue as PhD students, Join Pharmaceutical companies, Research Organizations, Clinical, Diagnostic and Industrial Laboratories, continue career in Medicine, Dentistry, Medical Laboratory Science, National/ international Quality Control and accreditation forces and lot more!

**Dr. Oleksandr Makeyev**, [omakeyev@dinecollege.edu](mailto:omakeyev@dinecollege.edu); 928-724-6960;  
<http://mealab.dinecollege.edu/>

**General research area:** Testing physical prototypes of our patented optimal configuration of the tripolar concentric ring electrode on real-life phantom data

**Envisioned thesis topics/titles:**

1. Validating the optimal design of tripolar concentric ring electrodes using physical electrode prototypes on real-life phantom data (i.e. confirming previously obtained analytical and finite element method modeling results for this design)
2. Assessing the possible effect of salt bridge shorting on recorded signal using physical prototypes of the optimal tripolar concentric ring electrodes on real-life phantom data
3. Directly comparing optimal and commercially available bipolar and tripolar concentric ring electrode configurations on real-life phantom data

**Envisioned careers for graduates:** electrophysiology (EEG, ECG, EMG, etc.), noninvasive and wearable sensors, signal processing.

**Dr. Demetra Skaltsas**: [dnskaltsas@dinecollege.edu](mailto:dnskaltsas@dinecollege.edu); 928-724-6710  
Biomedical Research Literacy through Bioprospecting of Endophytic Fungal for Potential Bioactive Metabolites on the Navajo Nation; Genome analysis. Many other training areas – call me, we will make your research interests a reality.

**Dr. Don Robinson**, [dkrobinson@dinecollege.edu](mailto:dkrobinson@dinecollege.edu), 928-724-6719.  
Biology Graduate Program organization and funding. Mentoring in meditation physiology studies. Also contact me for general information and questions about the MS Biology program. Ahe'hee'!