WHERE TO START?

Contact the Graduate faculty to discuss your interest & see if there is a place for you in their lab!

There are more subject areas of research being conducted by our many research faculty in the School of STEM.

Contact them directly, or contact Dr. Robinson and he can direct you to the appropriate faculty member.

Although this is a "Biology" program, many other disciplines can be linked to biology for this degree, such as psychology, public health, engineering, agriculture, and environmental health.

Even business, Diné Studies, history, philosophy, fine arts - all have a place in biology with appropriate context.

GENERAL AREAS OF INTEREST AVAILABLE FOR STUDY:

Botany, Fungal science, Geobiology, Biomedical science, Virology, Wildlife studies, Behavioral medicine, Meditation physiology, Cellular and molecular methods in genetics, Genomics research, Medical microbiology, Electrophysiology, and more - see the description of each lab.

DR. DONALD K. ROBINSON, PHD

DKROBINSON@DINECOLLEGE.EDU;
928-724-6719

Mentoring and research in meditation physiology studies, with applications to health, and to education. Expertise in cardiovascular physiology, endocrinology, chronic disease, geriatrics, Ayurvedic system of medicine. Also contact him for general information and questions about the MS Biology program. As Chair of the Biology Graduate Committee, he oversees the Biology Graduate Program organization and Research Assistantship funding.

DR. DEMETRA SKALTSAS, PHD

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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 her, make your research interests a reality.

DR. OLEKSANDR MAKEYEV, PHD

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

Biomedical Envisioned Research in Makeyev's Lab:

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 a 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.
4. Testing physical prototypes of our patented optimal configuration of the tripolar concentric ring electrode on real-life phantom data.

Few available MS thesis topics to opt:

1. Comparing optimal concentric ring electrode designs to commercial products using phantom model data.
2. Comparing concentric ring electrode prototypes corresponding to different design optimization criteria (signal amplitude, spatial resolution, etc) directly on phantom model data.
3. Using concentric ring electrode prototypes to record data from muscles involved in chewing and swallowing to diagnose related disorders and quantify food intake.

DR. SHAZIA TABASSUM HAKIM, PHD

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Google Scholar Link: https://scholar.google.com/citations?user=r2InBDkAAAAJ&hl=en

The target research areas explored in Hakim's lab:

- Our lives and infectious diseases go hand in hand: whether hepatitis viruses (HAV/HBV/HCV), AIDS (HIV) virus, or Dengue virus; their genomics and antivirals are much needed.
- Water is life (tó éí liná át'é), and waterborne infectious diseases are also invited. Coliforms, *H. pylori*, Legionella, Giardia, Entamoeba, Negleria and Norvo virus infections.
- Micro RNAs target recognition and regulatory functions in viral infections
- Crowd Sourcing for new antimicrobials from desert soil against MDRs (ESKAPE pathogens, and Candida species).
- Microbial analysis of wastewater effluent and decision support for reclamation.

MS research project that have been taken:

- Microbial analysis of water; US-EPA and NN-EPA standards, and off grid filtration units
- Analysis of metabolites from soil bacteria and herbs against MDRs (ESKAPE pathogens and Candida).
- Antimicrobial activities of Sage brush extracts against skin pathogens
- MicroRNAs target recognition and regulatory functions.

***Some of the MS thesis options available in Hakim's Lab:**

1. Association of *H. pylori* from water samples with elevated number of peptic ulcers in local communities.
2. Microbial analysis of wastewater Effluent and possible use in Agriculture.
3. Novel methods to overcome the over ripening/ rapid ripening of fruits and vegetables

DR. KEVIN WEBSTER, PH.D.

WEBSTERKGD@GMAIL.COM;
720-273-9410

Recent studies have indicated that radon-220 (also called thoron) and its decay products are a more dangerous source of indoor radiation that the widely-studied radon-222. Dr. Webster's lab is interested in measuring Rn (Radon) and Thoron on the Navajo Nation to characterize radiation hazard and determine the best ways to mitigate present hazards. Some of his objectives includes:

1. Characterize the Rn-220 and Rn-222 in rocks with naturally occurring U and regions without naturally occurring U
2. Characterize the Rn-220 and Rn-222 in built structures with naturally occurring U and regions without naturally occurring U
3. Develop ways to mitigate the Rn hazard in structures