



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Amy Althoff, MD
Title	Assistant Professor
Department	Infectious Diseases & HIV Medicine
Office Location	245 N 15th St Ms 959, Philadelphia, PA 19102-1198
Phone Number	215-762-6555
E-mail	ala95@drexel.edu

Amount of time you are available for direct student supervision:

Any specific skills or prior experience required:

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Retention in care is the keystone to effective HIV treatment and prevention, however only 50% of patients are engaged in care at any given time. I am currently focused on addressing “no show” events at the Partnership in an effort to improve retention. My other interests are in improving rates of viral suppression at our clinic, and in promoting the U=U campaign. I have had two medical students and one MPH student work with me over the last three years, and I look forward to working with another student this summer!



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Charles F. Barbera, MD, MBA, FACEP
Title	Chairman, Department of Emergency Medicine, Tower Health
Department	Department of Emergency Medicine
Office Location	Reading Hospital, West Reading, PA
Phone Number	484-628-8908
E-mail	charles.barbera@towerhealth.org

Amount of time you are available for direct student supervision:

I can spend 8 hours every two weeks with the student; both in research and clinical supervision

Any specific skills or prior experience required:

Only energy and a willingness to work with various patient populations.

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Reading Hospital has a very successful Warm Handoff program, which places 3 to 5 patient is a day for victims of overdose or substance abuse into residential treatment. We have recently begun and ED initiated medical assisted treatment program. The summer research fellow will help with this program and review the demographics and clinical presentations of those patients involved in this program. They will also assist with follow-up to assess the success of the program. Work will be done with the Department Chair, the residency program director, the emergency medicine certified recovery specialist and our community paramedics who, at times, travel to patient's homes to administer Bupenorphine, and evaluate patients.

The program has enrolled over 1500 patient's in the 18 months it has been active. the emergency department has presented locally, state wide PACEP (2018) and nationally (ACEP 2017) about the success of this program. This will be an excellent summer project for someone who is interested in Emergency Medicine, Family Medicine, Psychiatry or Anesthesia.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Jessica R. Barson
Title	Assistant Professor
Department	Neurobiology & Anatomy
Office Location	Room 170, Queen Lane campus
Phone Number	215-991-8848
E-mail	jrb455@drexel.edu

Amount of time you are available for direct student supervision:

5 - 6 hours per week

Any specific skills or prior experience required:

Some experience with animal testing and molecular biology techniques is preferred but is not essential.

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Following a single, mild traumatic brain injury (concussion) in adolescence, female rats in adulthood exhibit a number of emotional sequelae that appear to be caused by changes in specific neuropeptides in the brain. The overall goal of the research is to determine if changes in circulating levels of the sex hormone, estrogen, are the mechanism for the changes in these neuropeptides and, consequently, the emotional behaviors that occur following concussion. The summer project will involve use of enzyme-linked immunosorbent assay, survival surgery, quantitative real time PCR, and behavioral testing to determine if normalizing levels of estrogen can reverse the neuropeptide and behavioral changes that occur following concussion in female rats.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Maya Bass
Title	Assistant Professor
Department	Family, Community, and Preventative Medicine
Office Location	219 N Broad St, First Floor
Phone Number	215-762-5145
E-mail	mab822@Drexel.edu

Amount of time you are available for direct student supervision:

8 hour a week

Any specific skills or prior experience required:

Use of excel to create spreadsheets and graphs

Project Information

Please provide a title or a 2-3 sentence description of the research topic

We will be exploring the effect of an integrative group visit on patients with chronic pain. The group visit will include meditation, mindfulness exercises, yoga, and cognitive behavior therapy exercises and will be a 4 class course. We will be evaluating the group visit's effect on patient's depression, anxiety, pain scales, and use of pain medications.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Karen Berkowitz
Title	Identifying genetic biomarkers of ovarian reserve in women
Department	Biochemistry and Molecular Biology and OB/GYN
Office Location	NCB 11103
Phone Number	215-762-1941
E-mail	kmb354@drexel.edu

Amount of time you are available for direct student supervision:

A minimum of 1- 2 hrs per week; the student will be supervised a majority of time by a research specialist and/or graduate student.

Any specific skills or prior experience required:

Basic laboratory skills and experience with micropipetting, DNA extraction, and PCR. Excellence, attention to details, good communication and organization skills are also required.

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Ovarian aging in women correlates with progressive loss of both the quantity and quality of eggs, collectively known as ovarian reserve. Diminished ovarian reserve is a major cause of oocyte-related infertility in women as they age. Current tests for ovarian reserve are limited and do not predict the likelihood of pregnancy or live birth. Thus, there is a great need to identify better biomarkers of ovarian reserve so that women can make early and proactive choices about their reproductive health and fertility. The goal of our project is to take a combined bioinformatics and genomics approach to identify genetic markers of ovarian reserve in women.

The medical student will read and review relevant literature and participate in our ongoing translational/clinical study by assisting with screening patient charts, consenting and enrolling patients, processing blood samples and purifying genomic DNA, entering and organizing data collected. The student may also perform PCR amplification and submit DNA for sequencing of new gene targets from samples that have already been collected. The student will learn the underlying sequencing techniques/technology and help analyze and compare genetic variants between groups of women. The student will



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Vineet Bhandari
Title	Professor of Pediatrics, Obstetrics and Gynecology
Department	Pediatrics (Neonatology)
Office Location	NCB, Suite#7410
Phone Number	215-762-7595
E-mail	vineet.bhandari@drexel.edu

Amount of time you are available for direct student supervision:

At least 3 days a week.

Any specific skills or prior experience required:

Some basic knowledge of molecular biology techniques (RNA, protein extraction and detection by PCR, western blotting) would be useful

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Role of hyperoxia-induced injury in developing lungs and brain.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Rekha Bhat
Title	Assistant Professor
Department	Pathology
Office Location	245 N 15th St Fifth Floor, Philadelphia, PA 19102
Phone Number	215-762-1887
E-mail	rrb42@drexel.edu

Amount of time you are available for direct student supervision:

Any specific skills or prior experience required:

Project Information

Please provide a title or a 2-3 sentence description of the research topic

The kidney consists of a variety of cell types that face unique environments, stressors, and challenges. We postulate that cellular aging (senescence) is a component of tumorigenesis associated with end stage renal disease (ESRD). The student will be involved in studies designed to demonstrate the accumulation of senescence markers in renal tissue in immunosuppressed states including HIV, post-transplant, lupus nephritis in contrast to renal biopsies from non-immunosuppressed patients (hypertension, diabetes). In addition, studies will attempt to demonstrate the accumulation of senescence markers in ESRD-associated renal cell carcinoma (ESRD-RCC), RCC in absence of ESRD, and ESRD without RCC.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Edgar Chou, MD
Title	Impact of neighborhood effects on cancer diagnosis and mortality
Department	Department of Medicine/Clinical Informatics
Office Location	1601 Cherry Street, Suite 11498
Phone Number	215-255-7392
E-mail	ec62@drexel.edu

Amount of time you are available for direct student supervision:

10% of time

Any specific skills or prior experience required:

Preference: statistics, Proficiency in excel; prior research

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Social determinants of health play a large role in the health of patients and one form of quantification is by using geospatial modeling techniques that enable evaluation of neighborhoods. We aim to study the impact of neighborhoods on the diagnosis and mortality of cancer throughout the Philadelphia area.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Edgar Chou, MD
Title	Quantification of resource use in value based care programs
Department	Department of Medicine/Clinical Informatics
Office Location	1601 Cherry Street, Suite 11498
Phone Number	215-255-7392
E-mail	ec62@drexel.edu

Amount of time you are available for direct student supervision:

10% of time

Any specific skills or prior experience required:

Preference: statistics, Proficiency in excel; prior research

Project Information

Please provide a title or a 2-3 sentence description of the research topic

The government is promoting value based care, which focuses on improving the quality of patient care, patient satisfaction, and the efficient use of healthcare resources. Resource calculations are based on medical claims that represent the diseases/conditions patients may have. Clinicians are very poor at documenting this information which then negatively impacts and misrepresents their resource use. This study will evaluate the impact of the under representation of these claims by focusing on chronic kidney disease and diabetes by quantifying the discrepancy and research implementation methods to mitigate this issue.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Edgar Chou, MD
Title	Leveraging Electronic Health Record Data for early detection of cancer
Department	Department of Medicine/Clinical Informatics
Office Location	1601 Cherry Street, Suite 11498
Phone Number	215-255-7392
E-mail	ec62@drexel.edu

Amount of time you are available for direct student supervision:

10% of time

Any specific skills or prior experience required:

Preference: statistics, Proficiency in excel; prior research

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Electronic health records contain vast amounts of data in unstructured and structured formats. Early detection of cancer can reduce morbidity and mortality. We aim to analyze this data to look for early signs of cancer with a primary focus on renal, colon and breast cancer.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Jane Clifford (Azizkhan-Clifford)
Title	Professor and Chair
Department	Biochemistry and Molecular Biology
Office Location	11108 New College Building, 245 N. 15th Street
Phone Number	215-762-4446
E-mail	jc79@drexel.edu

Amount of time you are available for direct student supervision:

8 hours/week; assigned senior student available full-time

Any specific skills or prior experience required:

Strong work ethic, curiosity, desire to learn

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Investigation of the Role of Sp1 Overexpression in the Response of Tumors to Chemotherapeutic Agents

The transcription factor Sp1 is overexpressed in many different tumors, and the level of overexpression directly correlates with poor prognosis. Many DNA damage factors are overexpressed in cancers and Sp1 plays a critical role in the DNA damage response and is specifically involved in DNA double strand break repair by non-homologous end-joining. The project will explore the connection between overexpression of Sp1 and response to specific DNA damaging chemotherapeutic agents. Techniques will include: mammalian tissue culture, transfection/transduction, lentivirus production, Western blots, DNA damage assays, and other molecular biology techniques.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Dr. Janet Cruz
Title	Physician, Department of Family, Community & Preventative Medicine
Department	Department of Family, Community and Preventative Medicine
Office Location	3401 Market Street, suite 105B, Philadelphia PA
Phone Number	215-220-4700
E-mail	JC4235@drexel.edu

Amount of time you are available for direct student supervision:

Any specific skills or prior experience required:

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Young adults need reliable sources of healthcare for both chronic and acute illnesses. Yet, this age group is the least likely to seek care and has the highest rate of uninsured. The college setting provides a unique opportunity. In the United States, college is a time characterized by a transition into adulthood. For many students, the interaction with the Student Health Center is often their first interaction with a medical provider or the medical system on their own. Over the next several months our objective is to utilize our understanding of the culture of young adults age 18 -24 and ultimately analyze and reform our clinic processes to best reach this patient population.

As such, we will embark in the following:

- Analyzing the health literacy of this patient population and identify the sources currently utilized to obtain medical/health information
- identifying their health care goals in contrast to epidemiologic data for comorbidities in this age group
- Researching practice management processes to increase access and clinical efficiency

A manuscript and/or presentation for publication will be completed at the end of the program reflecting our findings



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Rose Ann DiMaria-Ghalili, PhD, RN, CNSC, FASPEN, FAAN
Title	Professor of Nursing
Department	Doctoral Nursing, College of Nursing and Health Professions
Office Location	Room 384 1601 Cherry Street
Phone Number	267-359-5829
E-mail	rad83@drexel.edu

Amount of time you are available for direct student supervision:

5-10 hours a week

Any specific skills or prior experience required:

Prior experience with 1) systematic review of the medical literature 2) descriptive statistics 3) Software: Endnote, SPSS, Excel

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Title: Symptom Science: Characterizing the Phenotype of Surgical Recovery in Older Adults

The overall purpose of this project is to characterize the phenotype of surgical recovery in older adults by performing a secondary analysis of 4 sets of data from previously completed projects. Using the National Institute of Nursing Research Symptom Science Model, we will construct a model to examine the phenotypic characterization of symptoms of pain, fatigue and weakness in older adults who have undergone cardiac surgery. The research assistant will be responsible for reviewing the medical literature, assist with preparing secondary data for analysis, performing descriptive data analysis, and prepare data tables for manuscript for publication.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Dr. Wen-Jun Gao
Title	Professor
Department	Neurobiology and Anatomy
Office Location	Queen Lane, Room 243
Phone Number	215-991-8907
E-mail	wg38@drexel.edu

Amount of time you are available for direct student supervision:

10% effort or 1 calendar month for Wen-Jun Gao. In addition, student will be directly supervised by a third-year MD/PhD student Linda Chamberlin, who is well-trained with expertise in both in vivo and in vitro electrophysiology, +

Any specific skills or prior experience required:

Experience with basic patch clamp electrophysiology techniques.

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Title: Mechanisms Underlying Augmented Prefrontal Inhibition as a Treatment for Cognitive Symptoms of Schizophrenia.

This project uses electrophysiological testing to examine the impact of a pharmacological schizophrenia model on excitation/inhibition balance in prefrontal pyramidal cells, and the effects of a chemogenetic rescue directed at parvalbumin-expressing interneurons as a potential means to normalize this balance, and thus cognition.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Simon Giszter
Title	Spinal and Cortical Neuroprosthetics Testing in animal models
Department	Neurobiology
Office Location	Room 247, 258 and 275 Queen Lane
Phone Number	215 991 8412
E-mail	sgiszter@drexelmed.edu

Amount of time you are available for direct student supervision:

~2 hours per week one-on-one, with staff and student joint meetings beyond that.

Any specific skills or prior experience required:

Engineering background, or neurophysiology lab experience, or 3D printing and maker space experiences all useful.

Project Information

Please provide a title or a 2-3 sentence description of the research topic

The project will entail focused development and testing projects either in vitro or in vivo for neuroprosthetic designs developed at Drexel. Both spinal and cortical and also PNS applications are possible targets of the designs. Precise project will depend on background of applicant and skills, and specific lab needs in summer 2019. Work may be animal based, histology based, or direct technology testing and building.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Pooja Jain, Ph.D.
Title	Professor
Department	Microbiology and Immunology
Office Location	Queen Lane
Phone Number	215-991-8393
E-mail	pj27@drexel.edu

Amount of time you are available for direct student supervision:

Student will work in under direct supervision of a senior lab personnel on a full time basis. PI will provide 4-6 hours/week on this specific project.

Any specific skills or prior experience required:

Fundamental Biology/Immunology knowledge will be fine

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Stabilizing MEF-2:HDACIIa complex as a therapeutic strategy for ATLL

This project will investigate how MEF-2 proteins contributes to HTLV-associated Leukemia/Lymphoma (ATLL), a highly fatal disease with limited treatment options and cure/vaccine. MEF-2 proteins can perform diverse functions thus mapping its regulatory networks is relevant to not only a variety of cancers but also diseases of cardiovascular, neural, musculoskeletal, and immune system.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Pooja Jain, Ph.D.
Title	Professor
Department	Microbiology and Immunology
Office Location	Queen Lane
Phone Number	215-991-8335
E-mail	zkk22@drexel.edu

Amount of time you are available for direct student supervision:

20 hours/week

Any specific skills or prior experience required:

Some experience in drug discovery will be useful

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Cellular action mechanism of plant flavone via regulating dendritic cell biology

These studies will investigate the anti-inflammatory properties of the natural plant-based flavone Apigenin in the context of dendritic cell (DC) function and transport across the blood brain barrier in the context of neuroinflammation. The study will also investigate the mechanism of action of Apigenin in the control of RelB mediated regulation of DC biology and function. Additional information derived from these studies will help establish the systemic levels of Apigenin required to exert its neuroprotective effects following consumptions of the various flavonoid rich foods.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	HANGJUN KE
Title	Assistant Professor
Department	Microbiology and Immunology
Office Location	G39, queen lane
Phone Number	215-991-8448
E-mail	hk84@drexel.edu

Amount of time you are available for direct student supervision:

40 hours per week

Any specific skills or prior experience required:

Students with molecular cloning skills are preferred.

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Mitochondrial functions of malaria parasites

My lab is interested in the mitochondrial functions of malaria parasites. Malaria is a huge global health burden with over 200 million clinical cases and half a million deaths per year. We use molecular, biochemical, genetical and other tools to understand the mitochondria of malaria parasites. We intend to identify essential pathways or proteins of the parasite mitochondrion and to develop antimalarial drugs to block the essential functions.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	J. Yasha Kresh
Title	Professor and Research Director
Department	Cardiothoracic Surgery and Medicine (Cardiology)
Office Location	245 N/15th Street, Suite 6320 New College Building
Phone Number	215.762.1703
E-mail	jk45@drexel.edu

Amount of time you are available for direct student supervision:

No restriction(s) on time as such--

Any specific skills or prior experience required:

Basic understanding of (cardiac) integrative / system physiology. 'engineering / biophysical' mindset / aptitude to solve translational problems and able to function in a interdisciplinary research environment focused on innovation and

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Ongoing Projects:

- Improving the hemodynamic performance and design of artificial hearts and mechanical heart valves
- Study implantable magnetically levitating axial blood-flow pumps for short and long-term mechanical circulatory support
- Image analysis / segmentation and assessment of vascular / cardiac anatomy (structure biomechanics) to enable design of biomimetic composite functional materials and flow-directing substitutes.
- Model mechanical forces responsible for cardiac and vascular mechanotransduction in heart failure and recovery



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Amy T. Ma
Title	Assistant Professor
Department	Microbiology and Immunology
Office Location	New College Building
Phone Number	(215) 762-3237
E-mail	atm84@drexel.edu

Amount of time you are available for direct student supervision:

~5 hours a week for initial training, and several hours a week subsequently. Other students in lab will also be available for assistance.

Any specific skills or prior experience required:

Some laboratory experience.

Project Information

Please provide a title or a 2-3 sentence description of the research topic

I am a microbiologist studying biosynthesis pathways in bacteria using methods such as genetic manipulation, microscopy, protein purification, and mass spectrometry. This particular project concerns vitamin B12 biosynthesis in a range of bacteria.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Stephan Myers, MD, FACS
Title	Bariatric Surgeon and Medical Director of Weight Management Center
Department	Surgery, Tower Health, Reading Hospital
Office Location	2603 Keiser Blvd., Wyomissing, PA 19610
Phone Number	614-557-8125
E-mail	Stephan.Myers@TowerHealth.org

Amount of time you are available for direct student supervision:

One day each week and other time as available.
(Approval to participate in the 2019 Medical Student Summer Research Fellowship was agreed upon between Drexel and

Any specific skills or prior experience required:

None

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Can the da Vinci Surgical robot be used to reduce the complication rates of complex bariatric surgery operations?

Perioperative complication rates have decreased markedly over the last 15 years. Part of the reason is that operations previously performed with large abdominal incisions are now performed using minimally invasive techniques with the assistance of a laparoscope. However, more complex operations such as revisions and conversions from one bariatric operation to another still have higher perioperative complication rates than primary operations such as the gastric sleeve and gastric bypass. With the use of the da Vinci Surgical robot these more complex operations may have less complications than when these complex operations are performed laparoscopically.

This clinical research project will collate data from an existing data set on these complex operations performed robotically at the Reading Hospital (about 100 cases) and compare the rate of complications with the previously published results of similar operations performed laparoscopically. This is to be prepared for publication.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Juan Lucas Poggio
Title	Associate Professor of Surgery. Chief Division of Colon and Rectal Surgery
Department	Surgery
Office Location	245 N. 15th Street, 8th Floor. Room 7150 NCB
Phone Number	(215)762-3374
E-mail	jlp54@drexel.edu

Amount of time you are available for direct student supervision:

On a daily basis

Any specific skills or prior experience required:

Experience with data analysis and SPSS software is preferred but not required. Interest in Research and Academic Medicine along with passion is a plus

Project Information

Please provide a title or a 2-3 sentence description of the research topic

There are several projects where the student can work with.

The projects are going to be:

- Research on Medical Education and factors affecting performance and admission to Medical School.
- Research on patients living with HIV disease and Anal Dysplasia. We have our own database.
- Research on surgical outcomes.
- Research on new technology development with school of biomedical engineer.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Ramesh Raghupathi
Title	Professor
Department	Neurobiology and Anatomy
Office Location	2900 Queen Lane, Room 277
Phone Number	215-991-8405
E-mail	rr79@drexel.edu

Amount of time you are available for direct student supervision:

1-2 hours a day, all week

Any specific skills or prior experience required:

Lab experience will be a plus, but not necessary. Project will involve working with rats or mice for which training will be provided.

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Blocking inflammation after pediatric brain trauma: timing is everything

Traumatic brain injury in the neonate animal results in a robust inflammatory response in the first few days after injury, and is sustained for at least a month. Reducing the inflammation immediately after injury significantly worsens long-term outcome suggesting that delaying the start of treatment might be beneficial. Experiments will determine what the optimal window of treatment will be to reduce the chronic deficits in spatial learning, anxiety and depression that these animals experience.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Ramesh Raghupathi
Title	Professor
Department	Neurobiology and Anatomy
Office Location	2900 Queen Lane, Room 277
Phone Number	215-991-8405
E-mail	rr79@drexel.edu

Amount of time you are available for direct student supervision:

1-2 hours a day, all week

Any specific skills or prior experience required:

Lab experience will be a plus, but not necessary. Project will involve working with rats or mice for which training will be provided.

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Treating post-traumatic depression in female rats

Adolescent female rats, but not male rats, exhibit features of depression-like behavior at 5-6 weeks after sustaining a mild traumatic brain injury (TBI). These behaviors manifest as a function of the estrous cycle. The goal of the project is to determine if regulating the estrous cycle by targeting the hormones secreted in the various phases will alleviate TBI-induced behavioral changes.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Christian Sell, PhD, Owen Montgomery, MD, Ibiyonu Lawrence, MD
Title	
Department	Pathology, Obstetrics & Gynecology, Internal Medicine
Office Location	
Phone Number	
E-mail	cs389@drexel.edu

Amount of time you are available for direct student supervision:

Any specific skills or prior experience required:

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Correlations between biomarkers of cellular aging and cognition

The development of biomarkers for the aging process and cognitive decline has been a major goal of biomedical research into aging for over 30 years; however, quantifiable markers of processes linked to aging have been difficult to define. Such biomarkers are essential to the development of interventions that target fundamental mechanisms of the aging process and preserve cognitive function. In this study, the student will measure potential biomarkers of cellular aging in plasma samples. The student will be involved in both the clinical setting to recruit patients and in the laboratory setting to perform specific assays for each biomarker.

Relevant literature:

Lawrence I, Bene M, Nacarelli T, Azar A, Cohen JZ, Torres C, Johannes G, Sell C. Correlations between age, functional status, and the senescence-associated proteins HMGB2 and p16(INK4a). *GeroScience*. 2018;40(2):193-9. doi: 10.1007/s11357-018-0015-1. PubMed PMID: 29651745; PMCID: 5964056.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Claudio Torres
Title	Associate Professor
Department	Pathology and Laboratory Medicine
Office Location	NCB, office 5610
Phone Number	215-762-1783
E-mail	cat36@drexel.edu

Amount of time you are available for direct student supervision:

As needed

Any specific skills or prior experience required:

Although not absolutely necessary, knowledge of some basic laboratory techniques such as use of pipettes and preparation of solutions is desirable

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Cellular Senescence and Neurodegenerative Disease

Aging is the greatest risk factor for the development of neurodegenerative disease, however the aspects of the aging process that predispose to the development of brain pathology are largely unknown. A recent advance in the basic biology of aging, that may have implications for brain disorders, is the recognition by our laboratory that senescent cells can be identified in the human brain during normal aging and in patients suffering from neurocognitive disorders including Alzheimer's disease and HIV-associate dementia.

Title of project(s):

- 1) Effect of senescent astrocytes on neuron physiology
- 2) Effects of tau protein on astrocyte senescence

Please contact Dr. Torres for more details



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Nielufar Varjavand, MD
Title	Global Health/Communication: Medical Spanish
Department	Office of Educational Affairs
Office Location	2900 Queen Lane, Room 221
Phone Number	215-991-8535
E-mail	nv25@drexel.edu

Amount of time you are available for direct student supervision:

Q2 week meetings for coordination.

Any specific skills or prior experience required:

General prior research, not at all necessarily on the topic. Rather general past research

Project Information

Please provide a title or a 2-3 sentence description of the research topic

At Drexel, in Philadelphia, we set out to develop a Medical Spanish curriculum for our medical students. In 2015, via a student survey, most (89%) agreed they would be interested in taking a Medical Spanish elective. As such, we began a year-long medical spanish elective in 2016-2017. By Spring 2019, there will be 3 years of data about students' thoughts and the medical spanish elective at Drexel.

Seeking an interested, self-motivated students who would review the national data and curricular descriptions and compare Drexel's program to others, to demonstrate curricular aspects that have been successful and how a language elective could contribute to medical learning or practice in general.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Laura Vearrier, MD, DBioethics & Ernie Leber, MD
Title	
Department	Emergency Medicine
Office Location	Hahnemann
Phone Number	610-639-3191
E-mail	lem45@drexel.edu

Amount of time you are available for direct student supervision:

Variable depending on shift schedules. More direct contact in the beginning to prepare, then more time paired with residents while gathering data.

Any specific skills or prior experience required:

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Projects can be tailored to student interests, but will focus on the ethical dilemmas in emergency care, the social determinants of health, and advancing health equity for emergency department patients.

Studies will likely have the students in the role of active observer. Students will spend their time in the ED, typically paired with a resident, gathering data. As the ED operates 24/7, students will be expected to work some nights and weekends.



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Michael Weingarten
Title	Professor
Department	Surgery
Office Location	NCB
Phone Number	215-762-7088
E-mail	msw34@drexel.edu

Amount of time you are available for direct student supervision:

Any specific skills or prior experience required:

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Use of ultrasound for stimulating wound healing
Detection of deep tissue injury using near infrared imaging
Analysis of macrophage phenotype in diabetic non-healing wounds
Working with critically ill patients at risk for deep tissue injury



2019 Medical Student Summer Research Fellowship Project List

Faculty Sponsor	Mark Zarella, Ph.D.
Title	Optical coherence tomography for prostate tumor detection
Department	Pathology & Laboratory Medicine
Office Location	New College Building, rm. 5215A
Phone Number	(215) 762-8657
E-mail	mark.zarella@drexelmed.edu

Amount of time you are available for direct student supervision:

Will meet daily with the student

Any specific skills or prior experience required:

Computational skills are helpful for data analysis but not required. Experience with imaging in some form would be nice.

Project Information

Please provide a title or a 2-3 sentence description of the research topic

Optical coherence tomography (OCT) is a high resolution imaging modality that can image tissue at depths of up to 2 mm. We seek to demonstrate that OCT can be used to detect tumor in prostate. This research experience would present students an opportunity to apply OCT to formalin fixed paraffin embedded blocks of prostate tissue and correlate the microstructural cues observed in OCT images with a "ground truth" defined by histology.