

Faculty Name	Email Address	Faculty School or College	Faculty Department	Project title	Project Description	Important selection criteria	Student Majors Desired	Class Preference	Project Location
Axel Kohlmeyer	a.kohlmeyer@temple.edu	CST	Mathematics	Usage Monitoring on the High-Performance Computing Cluster	The Temple HPC team is looking to develop improved tools to report usage of resources on the new central HPC cluster. This would include collecting and consolidating per user and per hardware data from multiple sources into a central data base and then extracting customizable reports.	Experience with python programming is required. Experience with data bases, data analytics and data visualization, as well as web site design is beneficial.	Computer Science, Mathematics	Sophomore, Junior, Senior	Main Campus
Rachel Spigler	rachel.spigler@temple.edu	CST	Biology	Evaluating effects of habitat fragmentation on plant-animal interactions and their consequences for floral trait evolution	Habitat fragmentation and degradation due to human activities continue to occur at alarming rates, threatening biodiversity and ecosystem health. One of the first lines of defense in habitat conservation is ensuring that the plant populations that build the foundation of that habitat	enthusiastic, hard-working, reliable, ability to follow directions and exceptional attention to detail, interest in ecology and evolution	Biology	Freshman - sophomore - juniors	Main Campus
Rob Kulathinal	robkulathinal@temple.edu	CST	Biology	Forensic Population Genomics	New sequencing and genotyping platforms provide a fast, inexpensive, and statistically powerful way to genotype individuals. In collaboration with the Pennsylvania Innocence Project, we will develop forensic genomic kits that will be able to rapidly and	Curiosity, determination, well-disciplined, computationally-inclined. The ideal candidate will be able to work independently and closely with Dr. Kulathinal	Biology, CompSci, Math, Physics	Freshman & Sophomore	Main Campus

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Rob Kulathinal	robkulathinal@temple.edu	CST	Biology	New Gene Evolution	With multiple genomes sequenced, we can now track how novel genes are formed within species. Our current hypothesis is that de novo male genes are rapidly evolving under adaptation. We will test this hypothesis using a population and functional genomic framework on	Curiosity, determination, well-disciplined, computationally-inclined. The ideal candidate will be able to work independently and closely with Dr. Kulathinal	Biology, Computer Science, Math	Freshman & Sophomore	Main Campus
Uma Sajjan	uma.sajjan@temple.edu	TUSM	Thoracic Medicine and Surgery	Innate immune functions of airway epithelium	How does airway epithelium contributes to pathogenesis of chronic obstructive pulmonary disease (COPD) Epithelium lining the conductive zone is the first line of defense against inhaled pathogens, particulates and other environmental pollutants. Airway epithelium which was	Willingness to work with small animals, such as mice Good organizational skills Good writing and communicational skills	Any science major.	Freshman, Sophomore, Junior or Senior	TU Health Science Campus
Yugang Sun	ygsun@temple.edu	CST	Chemistry	New Paradigm for Photocatalytic Energy Conversion	The project seeks to use a fundamentally new principle to enhance photocatalytic efficiency of nanomaterials. The photocatalysts (including metal nanocrystals and semiconductor nanocrystals) with weak optical absorption can be enhanced in their absorption by hybridizing with		Chemistry or Physics	Junior or Senior	Main Campus

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Adrienn Ruzsinszky	aruzsinszky@temple.edu	CST	Physics	First-principles electronic structure methods for materials	Development and applications of first-principles electronic structure methods in Physics and Chemistry.	Interest in theoretical research. Solid mathematical background. Satisfactory programming and computational skills.	Physics or Chemistry	Junior	Main campus
Bettina Buttaro	bbuttaro@temple.edu	TUSM	Microbiology and Immunology	Enterococcal pheromone inducible conjugative plasmids as virulence factors and disseminators of antibiotic resistance genes	Pheromone inducible conjugative plasmids, such as pCF10, play a central role in the ability of Enterococcal faecalis to cause disease. They encode antibiotic resistance and virulence genes in addition to mediating transfer of chromosomal determinants between strains. These	desire to learn to design and perform experiments independently under guidance -- Students are given a scientific question to answer experimentally. They will be	chemistry/biochemistry and biology		TU Health Science Campus
Bettina Buttaro	bbuttaro@temple.edu	TUSM	Microbiology and Immunology	Antibiotic Resistance Gene Transfer Mediated by Enterococcus faecalis plasmid pCF10.	The plasmid makes helps make E. faecalis antibiotic resistant and virulent. Current biochemistry projects focus on characterizing how oxidative stress increases the number of plasmids in the bacterial cell. The biology projects focus on how the plasmid transfers antibiotic resistance genes to	introductory biology or chemistry courses are sufficient	Chemistry and Biology	Any	TU Health Science Campus

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Christian Schafmeister	Christian.schafmeister@temple.edu	CST	Chemistry	Software for materials design	Assist in the development of CANDO, a programming environment for designing new medicines, catalysts and molecular devices.	Chemistry or Computer Science background	Chemistry or Computer Science	Sophomore, Junior or Senior	Main Campus
Erik Cordes	ecordes@temple.edu	CST	Biology	Molecular stress response of deep-sea corals	Field studies and laboratory experiments have revealed the effects of various anthropogenic stressors (ocean acidification, oil and dispersant exposure) on deep-sea corals. The next step is to identify the molecular markers that underlie these responses. Once identified, these may reveal the	Students who are interested in pursuing graduate school in the natural sciences, ecology and evolution.	Biology and environmental science majors are preferred, but the position would be open to other		Main Campus
Erik Cordes	ecordes@temple.edu	CST	Biology	Molecular stress response of deep-sea corals	Field studies and laboratory experiments have revealed the effects of various anthropogenic stressors (ocean acidification, oil and dispersant exposure) on deep-sea corals. The next step is to identify the molecular markers that underlie these responses. Once identified, these may reveal the	Students who are interested in pursuing graduate school in the natural sciences, ecology and evolution.	Biology and environmental science majors are preferred, but the position would be open to other		Main Campus

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He Wang	He.Wang@tuh s.temple.edu	TUSM	Pathology & Lab Medicine	Compare microvascular disease in right and left ventricular wall at different time after heart transplantation	Despite significant improvement in short term survival, cardiac allograft vasculopathy (CAV) remains the major cause of death in late survival transplanted patients. The definition of cardiac microvessel varies between authors, but a vascular diameter < 20 um is believed to	Dedicated - previous exposure to histology and morphometric analysis are preferred/not absolutely necessary	biochemical science or neuroscience	Junior or Senior	TU Health Science Campus
Jamie Payton	payton@templ e.edu	CST	Computer and Informatio n Sciences	Using sensors on wearable devices to detect health-related behaviors	Smartwatches and other wearable computing devices offer new opportunities for pervasive health and wellness applications that are responsive to the perceived state of the user and the surrounding environment. These commodity mobile devices support multiple forms	Programming (Java or C#); Completion of algorithms and data structures course; Exposure to statistics; Critical thinking	CS, IS&T, or Math CIS 2168, CIS 2033 (or equivalent), CIS 3223		Main Campus
Jamie Payton	payton@templ e.edu	CST	Computer and Informatio n Sciences	Assigning Tasks to Ensure Coverage in Crowdsensing Applications	Mobile crowdsensing via smartphones enables mobile data collection on a massive scale and has been widely used to investigate scientific questions or address civic issues, such as public safety, traffic planning, and environment monitoring. Compared with static sensor	Programming (Java or C#) Completion of algorithms and data structures course Exposure to statistics Critical thinking	CS, IS&T, or Math CIS 2168, CIS 2033 (or equivalent), CIS 3223	No preference	Main Campus

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Laura Toran	ltoran@temple.edu	CST	EES	Stormwater monitoring	Use data loggers, sampling, and other instruments to understand how stormwater moves through and affects urban ecosystems	Comfortable with field work and with using computers to analyze data.	Geology, Environmental Science, Physics	sophomore or higher	Philadelphia
Nora Engel	noraengel@temple.edu	TUSM	Fels Institute for Cancer Research	Genetics and Epigenetics of sex-specific expression patterns in early embryogenesis	We are investigating differences between male and female embryonic stem cells and the mechanisms by which these early differences are established. Epigenetic assays will be performed to detect the impact of sex on differentiation of the cells.	Basic laboratory skills, such as pipetting and making solutions required.	Biology, Biochemistry	Junior & Senior	Fels Institute for Cancer Research
Pei Wang	pei.wang@temple.edu	CST	CIS	Testing an intelligent reasoning system	NARS is an intelligent reasoning system that accepts knowledge and problems in a formal language, and uses some inference rules to derive new knowledge and to solve the problems (see online publications and demo). This system will be applied to various practical situations to	Strong interest in science, especially in human and machine intelligence; solid background in mathematics and computer science. - knowledge of formal logic	computer and information sciences, mathematics	Sophomore, Junior or Senior	Main Campus

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Stephanie Wunder	slwunder@temple.edu	CST	Chemistry	Nanopartile/Lipid Project	Nanoparticles have high surface/volume ratios so that characterization of the material on the surface is very important in applications such as drug/DNA delivery and nanocomposites. The phase transitions, conformations and adsorption isotherms of lipids and polymers (both natural-	Willingness to work hard, understanding of experimental techniques and the importance of obtaining reproducible data - wet chemistry techniques	Chemistry, Biochem - organic chemistry I, analytical chemistry	Junior or Senior	Main Campus
Stephanie Wunder	slwunder@temple.edu	CST	Chemistry	Lithium Batteries & Fuel Cells: Materials preparation & Characterization	In order to improve the performance of lithium ion batteries and fuel cells, it is critical to make advances in many aspects of the materials used in the electrodes, electrolytes and separators. This project involves preparing and characterizing novel nanomaterials to be employed	Willingness to work hard, understanding of experimental techniques and the importance of obtaining reproducible data - wet chemistry techniques	Chemistry, Biochem - organic chemistry I, analytical chemistry	Junior or Senior	Main Campus
Steven Houser	srhouser@temple.edu	TUSM	Cariology	Role of Cortical bone derived stem cells for improving heart function after myocardial infarction	We are studying role of cortical bone derived stem cells (CBSCs) in repair of heart after cardiac injury. We have previously shown that these stem cells have capacity to improve heart function mainly by secreting cardio protective factors and mediating cardiac repair by differentiation into cardiac	General lab skills	Biology or Chemistry	Junior or Senior	TU Health Science Campus

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Abdelkarim Sabri	sabri@temple.edu	TUSM	Cardiovascular Research Center	Inflammatory proteases and cardiac repair	In the adult heart, cell death following myocardial infarction initiates an inflammatory reaction that removes dead cells and contributes to scar formation and cardiac repair. Since the regenerative capacity of the adult mammalian heart is limited, induction of this innate immune response could	Basic cell and molecular biology techniques. Highly motivated students with sound knowledge in cell and molecular biology.	Biochemistry	Junior & Senior	TU Health Science Campus
Alexandra Davatzes	alix@temple.edu	CST	Earth and Environmental Science	Geochemical analysis of a Paleoproterozoic impact event.	Student will be completing a detailed geochemical analysis of a section of rock collected from an impact boundary.	Completed classes in General chemistry and Geochemistry or Petrology. Skilled in Excel; willing to work hard. - Gen Chem I, and Geochemistry or Petrology	Geology	Juniors or Seniors	Main Campus
Allen Nicholson	anichol@temple.edu	CST	Biology	Analysis of a Gene-regulatory Ribonuclease Complex	Proteomic analyses of protein-protein interactions in the bacterium Escherichia coli suggest that two ribonucleases, RNase III and RNase II, as well as the protein YmdB, function as a complex to process RNA molecules. We will investigate how RNase III and RNase II may work in concert to process	Interest in biochemistry and molecular biology; strong foundation of basic biochemical/biological concepts, critical thinking skills, attention to detail, willingness	Biology, Biochemistry - Biology 2112, Genetics, Chemistry	Sophomore, Junior or Senior	Main Campus

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Allen Nicholson	anichol@temple.edu	CST	Biology	Understanding ribonuclease mechanism and function in gene regulation	We apply biochemical and molecular genetic techniques to probe the mechanism of ribonucleases and their function in gene expression and RNA stability. Our primary system is the bacterial cell, and we seek to understand how bacterial cell motility, biofilm formation, and response to	Strong performance in biology and chemistry courses (including at least one semester of organic chemistry) Biology and Chemistry coursework	Biochemistry, Biology, Chemistry majors	Sophomore, Junior or Senior	Main Campus
Amy Freestone	amy.freestone@temple.edu	CST	Biology	Biogeographic variation in interaction strength and invasions at the ocean's nearshore (BioVision).	Global patterns of biodiversity demonstrate that most of the species on earth occur in the tropics, with strikingly fewer species occurring in higher-latitude regions. Biologists predict that this global pattern of species diversity is likely shaped by ecological species interactions. Yet few detailed	Important selection criteria: A strong academic record, a strong interest in ecology and conservation, and a desire to apply these interests in a research setting. Relevant	Biology, Environmental Science	Sophomore, Junior or Senior	Main Campus
Ananias Escalante	Ananias.Escalante@temple.edu	CST	Biology	Phylomedicine of vector-borne pathogens	It is increasingly evident that genomic information, together with concepts from epidemiology and evolutionary biology, allows for testing of hypotheses and exploration of scenarios that otherwise could not be investigated by traditional approaches. Our lab characterizes the processes	I am looking for highly motivated students who are interested in gaining research experience. A minimum of 3.7 GPA is required. Basic knowledge on biology	Biology, Biochem, Applied Mathematics, Natural Sciences	Freshman or sophomore	Main Campus

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Ananias Escalante	Ananias.Escalante@temple.edu	CST	Biology	Genetic diversity of vector borne pathogens/parasites.	I am looking for highly motivated students who are interested in gaining research experience. A minimum of 3.7 GPA is required. Students should interview with the PI. Our expectation is that the selected candidates will continue to work with us after the summer. Traditionally	Basic knowledge on biology (transcription/translation; DNA structure and replication) OR analytical/computational skills will be considered as selection criteria	Biology, Natural Sciences, Math (applied) and Computer Sciences - BIOL 2112	Sophomore or Junior, Freshman could be considered	Main Campus
Anduo Wang	adw@temple.edu	CST	CIS	A Consistent SDN Management Plane with Logic Reasoning	My research interests center around improving networked-systems with database techniques and formal methods. My current research projects focus on software-defined networks (SDN).	good math, programming with Python, some understanding of networking and database	computer science	seniors	Main Campus
Bassel E Sawaya	sawaya@temple.edu	TUSM	Neurology/Fels Institute	Can HIV-1 proteins promote premature brain aging	Patients infected with HIV-1 suffer from learning and memory deficit. The mechanisms leading to these alterations remain unknown. We are in the process of deciphering these mechanisms	Ask, Learn, Enjoy, - Serious, ability to learn and to interact with others 1- Someone who is serious, ready to learn. If the students does not have any lab experience, this will	All	Sophomore, Junior, Senior	TU Health Science Campus

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Beata Kosmider	tug28074@temple.edu	TUSM	Department of Thoracic Medicine and Surgery	Mutation analysis in emphysema.	Two million Americans suffer from chronic obstructive pulmonary disease, costing \$2.5 billion/year and contributing to 100,000 deaths/year. Emphysema is caused by the destruction of alveolar wall septa, which is associated with inflammation. Alveolar type II cells make and		Biology or Biochem		TU Health Science Campus
Beata Kosmider	tug28074@temple.edu	TUSM	Department of Thoracic Medicine and Surgery	The role of microvesicles in emphysema.	Microvesicles are small membrane vesicles of 30–1,000 nm in diameter that are released into the extracellular environment under normal or pathological conditions by different types of cells including alveolar type II cells. Our hypothesis is that microvesicles secreted in		Biology or Biochem		TU Health Science Campus
Bernd Sorrow	surrow@temple.edu	CST	Physics	Automated Leakage Current Measurements	This project requires a lot of hands-on lab time. The student will develop a graphical user interface (GUI) via MATLAB/LABVIEW that can interact with the measurement devices, which supplies a voltage to a micropattern detector and reads the resulting current. The GUI will		Physics or Math	Sophomore, Junior, Senior	Main Campus

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Blair Hedges	sbh@temple.edu	CST	Biology	Building a tree of life with DNA data	This project involves working with DNA sequence data of diverse organisms, and software, to help build the tree of life and better understand evolutionary principles. It takes place in the Center for Biodiversity and mostly involves learning and using new computer tools and	strong academics	normally biology but could be any major	Sophomore, Junior	Main Campus
Blair Hedges	sbh@temple.edu	CST	Biology	Conserving the biodiversity of Haiti	This project involves helping efforts in Temple's Center for Biodiversity to learn more about the biodiversity of Haiti, and to protect it. The multi-faceted team efforts include discovery of new species, mainly through DNA sequencing of samples collected in Haiti. ecological	strong academics	normally biology but could be any major	Sophomore, Junior	Main Campus
Bojeong Kim	bkim@temple.edu	CST	Geology	Phytotoxicity of metal oxide nanoparticles	Ecological toxicity of nano-sized materials hasn't been thoroughly evaluated. Through this project, plant toxicity of metal oxide nanoparticles will be systematically examined.	I will train students for proper skills that need for the project. No skills needed.	Geology, Environmental Science, Chemistry, Biology	Sophomore or Higher	Main Campus

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Brad Rothberg	rothberg@temple.edu	TUSM	Medical Genetics and Molecular Biochemistry	Crystal structures of potassium channel proteins	Potassium channels are membrane proteins that are critical for electrical signaling in nerve and muscle cells. Our research is focused on crystallizing potassium channel proteins and their regulatory domains, with the goal of solving the structures of these proteins using X-ray diffraction	Most important criterion is a strong interest in protein structure and/or neuroscience. Previous laboratory experience is preferred, but NOT required. Good communication	Biology; Biochemistry; Chemistry; Neuroscience	Juniors or Seniors	TU Health Science Campus
Brent Sewall	bjsewall@temple.edu	CST	Biology	Large-scale analysis of correlates of susceptibility to white-nose syndrome, an emerging pathogen in hibernating bats	White-nose syndrome is an emerging fungal pathogen affecting hibernating bat populations of eastern North America. Although it only appeared for the first time in 2006, it has already spread rapidly and has had devastating effects, including the death of millions of bats across	Coursework, training, or experience in relevant subjects such as statistics, Geographic Information Systems, epidemiology, public health	Biology, Environmental Science, Mathematics, Computer Science, or related - Statistics, Geographic Information	Sophomore, Junior or Senior	Main Campus
Brent Sewall	bjsewall@temple.edu	CST	Biology	Influence of vertebrate frugivory on plant seed dispersal and germination	Vertebrate frugivores (fruit-eating mammal and bird species) play an essential ecological role, by facilitating the dispersal and germination of the seeds of a diversity of plant species. Vertebrate frugivory is therefore a key determinant of the reproduction of many plants	Coursework, training, or experience in relevant subjects such as ecology, statistics, Geographic Information Systems, animal behavior	Biology, Environmental Science, or related - Intro Series in Biology (Bio 1111, 2112) or equivalent required	Sophomore, Junior or Senior	Main Campus

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Brent Sewall	bjsewall@temple.edu	CST	Biology	Conservation biology and community ecology	My lab is investigating multiple questions in the fields of conservation biology and community ecology, focusing on understanding human drivers of change in ecological systems and developing effective conservation strategies. Ongoing research projects focus on (1)	Interest in the field of conservation biology or community ecology; experience and skills in biology, math, and other relevant fields; ability to conduct	Biology, Environmental Science, Mathematics, or related fields		Main Campus and off-campus at field sites (may involve travel)
Brent Sewall	bjsewall@temple.edu	CST	Biology	Regional and global patterns of threat to biological diversity and the identification of large-scale spatial conservation priorities	Biological diversity is under threat from a variety of local and global-scale threats, including land use change, climate change, and invasive species. Ecologists and conservation biologists have worked for decades to document patterns of biological diversity and the	Coursework, training, or experience in relevant subjects such as Geographic Information Systems (GIS), remote sensing, statistics, ecology, or conservation	Biology, Environmental Science, or related - Geographic Information Systems (GIS) course (already taken or	Sophomore, Junior or Senior	Main Campus
Bruce Vanett	Bruce.Vanett@tuhs.temple.edu	TUSM	Orthopaedic Surgery and Sports Medicine	Study of Risk Factors for Bleeding in Knee Arthroplasty Patients	In this study, we will review medical record of knee arthroplasty patients and collect the transfusion information and other clinical information including pre-transfusion hemoglobin, and other factors which possibly associated with bleeding. Then we will analyze the data		Biology	Sophomore or Junior	TU Health Science Campus

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C. J. Martoff	martoff@temple.edu	CST	Physics	Position Sensitive Scintillation Detector With SiPM Readout	A two- dimensional scintillation light readout is required for an API-120 neutron generator. The generator will be deployed as part of the calibration system of the DarkSide experiment at LNGS, Italy. The readout involves electronics and software creation for an SiPM or MA-MCP light detector				Main Campus
Cagla Tukul	ctukul@temple.edu	TUSM	Microbiology and Immunology	Innate immune recognition of bacterial amyloids	Amyloids, complex proteins with a conserved beta sheet structure (1-4), are associated with complex diseases including, Alzheimer's disease, Prion Diseases and Type II diabetes. Bacteria uses amyloids to decorate the extracellular matrix of biofilms, highly structured multicellular	pipetting, agarose gel electrophoresis, SDS-PAGE	Biochemistry, biology and chemistry	Juniors	TU Health Science Campus
Daniel Strongin	dstrongin@temple.edu	CST	Chemistry	Reactivity of Pyrite and Acid Mine Drainage	The iron sulfide, pyrite, is found at active and abandoned coal mining sites. Its decomposition in the environment leads to acid mine drainage (sulfuric acid generation) which is a significant problems for coal mining companies and the surrounding environment. The goal of the project is to look	Motivation Academic performance - Introductory Chemistry Courses with Laboratory.	Chemistry ESS		Main Campus

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Darius Balciunas	darius@temple.edu	CST	Biology	Redundant roles of Fli transcription factors in regeneration	We are using a combination of molecular genetics techniques, from conditional gene traps to CRISPR/Cas9 mutagenesis, to analyze the potential roles of two closely related transcription factors, fli1a and fli1b, in fin and heart regeneration in zebrafish. The project is currently being	For more information, please see the lab website http://www.balciunaslab.com/research-opportunities.html	Biology, Biochemistry	Sophomore or Junior	Main Campus
Darius Balciunas	darius@temple.edu	CST	Biology	Precision genome editing using CRISPR/Cas9	Unlike humans, zebrafish possess a remarkable regenerative capacity, including the ability to regenerate their hearts after severe injury. We are working to figure out which genes control this process and precisely how. To achieve this goal, we are using the CRISPR/Cas9 system to	For more information, please see the lab website http://www.balciunaslab.com/research-opportunities.html	Biology, Biochemistry	Sophomore or Junior	Main Campus
Darius Torchinsky	dtorchin@temple.edu	CST	Physics						Main Campus

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Eduard Dragut	edragut@temp le.edu	CST	CIS	Identifying Entity Mentions in Social Networking Streams	The project aims to develop methods that are capable to recognize substrings in user messages that refer to an entity (e.g., Phila or Philly refers to Philadelphia).	Good programming and analytic skills. Ideally, a student who would like to pursue grad studies.	Math, CS, ECE	Sophomore, Juniors, Seniors	Main Campus
Eduard Dragut	edragut@temp le.edu	CST	CIS	Harvesting User Comments from the Social Networking Websites	This project aims to develop techniques that allow automatic harvesting of user comments from microblogs and other social networking websites. You will work with Java, Javascript, JSON, MySQL, and other modern Web programming tools.	Good programming and analytic skills. Ideally, a student who would like to pursue grad studies.	Math, CS, ECE	Sophomore, Juniors, Seniors	Main Campus
Eric Borguet	eborguet@tem ple.edu	CST	Chemistry	Combining Photons, Electrons and Nanoparticles for Plasmonic Sensing and Catalysis	Students will develop and use nanoscale plasmonic materials for rapid, high sensitivity detection of biological and chemical agents, as well as catalytic conversion. They will learn to use a variety of analytical techniques such as spectroscopy, Atomic Force Microscopy	Interest, curiosity and persistence - Undergraduate researchers in my group typically present at local, regional and even national conferences. Many have been co-	Chemistry, Physics	Sophomore or Junior	Main Campus

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Eric Borguet	eborguet@temple.edu	CST	Chemistry	Laser Vibrational Spectroscopy and Dynamics of Molecular Species at Bio and Geochemical Interfaces	Research involves learning to use ultrafast lasers (we make some of the shortest infrared pulses in the world) to perform vibrational Sum Frequency Generation (SFG) a technique that provides sensitivity to single molecular layers. Students will investigate water, arguably the most important	Interest in research - Aptitude for careful laboratory research	Chemistry Physics	Sophomore or Junior	Main Campus
Eric Borguet	eborguet@temple.edu	CST	Chemistry	Nanoparticle plasmonic sensors for biological and chemical detection	Develop novel plasmonic nanoparticles for rapid, high sensitivity detection of biological and chemical agents. Students will learn to use a variety of state-of-the-art techniques such as nanoparticle synthesis, optical and infrared spectroscopy, Atomic Force Microscopy	Interest in research - Aptitude for careful laboratory research	Chemistry	Sophomore or Junior	Main Campus
Fabio A. Recchia	fabio.recchia@temple.edu	TUSM	Physiology	New pharmacological and biological therapies for heart failure and atrial fibrillation	The general aim of this project is to identify new pharmacological and biological agents for the therapy of heart failure and atrial fibrillation in experimental dog models. These are two major pathological conditions that affect millions of Americans and there is a pressing need for	Interest in the biomedical field and potential interest in future medical studies. At least the basic courses of biology	biology, bioengineering, biochemistry, kinesiology		TU Health Science Campus

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Fabio Recchia	fabio.recchia@temple.edu	TUSM	Physiology	New pharmacological and biological therapies for heart failure and atrial fibrillation					TU Health Science Campus
Flavio Rizzolio	rizzolio@temple.edu	CST	Biology	The role of Pin1 in tumor growth	Normal cells become tumor cells through deregulation of multiple pathways. There are some pathways that are altered in many tumors and RB and p53 pathways are one of the most important. These proteins are regulated during carcinogenesis by a phosphorylation mechanism	For Junior: interest in interdisciplinary research; basic knowledge of molecular and cellular Biology or basic knowledge of optical microscopy or basic knowledge in bio-chemistry	Biology, Pharmacology, Chemistry. - Chemistry I, Chemistry Lab I, Chemistry II, Chemistry Lab II, Biology I	Sophomore, Junior	Main Campus
Frank Spango	spano@temple.edu	CST	Chemistry	Photophysical Properties of Histochemical Dye Aggregation			Chemistry		Main Campus

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George Smith	george.smith@temple.edu	TUSM	Shriners Hospitals for Pediatric Research/Neuroscience	Transplantation of neural stem cells to promote circuit relays in the injured spinal cord.	The prospects of inducing long-distance functional regeneration of supraspinal tracts leading to connectivity and restoration of function remain a challenge. However, selective treatments induce sprouting, prevent dieback, or induce short distance regeneration. These processes	Basic understanding of stem cells, immunochemistry, and molecular biology	Neuroscience, Biology, or Chemistry	Juniors or Seniors	TU Health Science Campus
Gianfranco Bellipanni	bellipa4@temple.edu	CST	Biology	Role of Beta-Catenin in Zebrafish Development and Cancer	In our laboratory we are interested to study the molecular and cellular mechanisms leading to the induction and specification of D/V patterning in the zebrafish embryo via Wnt/ Beta-catenin activity. During our previous research we have identify the gene responsive for the		Biology or Chemistry	Sophomore, Junior	Main Campus
Gillian Queisser	gillian.queisser@temple.edu	CST	Mathematics	Grid generation and convergence analysis for the Poisson-Nernst-Planck equations	The student researcher will work on developing automated ways to generate grids for the numerical computation of the Poisson-Nernst-Planck (PNP) equations. PNP equations describe the behavior of charged particles under diffusive and electrical fluxes. Using an established numerical	Programming skills (scripting language and/or object-oriented language) and an interest in applied mathematics/numerics	Mathematics, Computer Science	Juniors or Seniors	Main Campus

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Gillian Queisser	gillian.queisser@temple.edu	CST	Mathematics	Simulating networks of brain cells under synapse loss	The student researcher will get to know novel simulation tools to simulate neural networks and use these tools to investigate the behavior of networks when connections between cells, so called synapses, are lost. This effect is common in diseases like Alzheimer's and identifying	Programming skills (scripting language and/or object-oriented language) are a plus.	Mathematics, Computer Science, Biology	Juniors or Seniors	Main Campus
Gillian Queisser	gillian.queisser@temple.edu	CST	Mathematics	Vector graphic export of two- and three-dimensional scientific data	The student researcher will develop export routines for scientific data in two and three dimensions. The visualization of scientific data is critical when conveying new research results. The goal of this project is to develop ways to export ugx-data (an xml-based scientific computing file	Programming skills (scripting language and/or object-oriented language)	Mathematics, Computer Science	Juniors or Seniors	Main Campus
Gillian Queisser	gillian.queisser@temple.edu	CST	Mathematics	Modeling and Simulation of Calcium Dynamics in Healthy and Diseased Neurons	In this project the student researcher will use novel simulation tools to simulate and evaluate the dynamics of calcium signals in neurons. Calcium is one of the most important molecules in neuronal signaling and is implicated in multiple ageing-related neurodegenerative	Programming skills (scripting language and/or object-oriented language) are a plus.	Mathematics, Computer Science, Biology	Juniors or Seniors	Main Campus

Faculty Name	Email Address	Faculty School or College	Faculty Department	Project title	Project Description	Important selection criteria	Student Majors Desired	Class Preference	Project Location
Glenn S. Gerhard	tuf81289@temple.edu	TUSM	Medical Genetics and Molecular Biochemistry	A new thyroid cancer gene.	Cellular hydrogen peroxide is associated with cancer, although the source(s) and precise role remains unclear. We have identified a candidate cancer gene in a family with a highly penetrant dominant form of papillary (non-medullary) thyroid cancer. A predicted damaging mutation	Team oriented Prior laboratory experience Science GPA --If you work with zebrafish, be prepared to get wet!	Biochemistry Biology Chemistry		TU Health Science Campus
Grace Ma	grace.ma@temple.edu	TUSM	Center for Asian Health & Clinical Sciences	Cancer, CVDs, Diabetes-Ethnic populations	We have over 18 ongoing studies focusing on Cancer, CVDs, diabetes in underserved ethnic minority populations to reduce health disparities in clinical and community settings. Go to "medicine.temple.edu/cah"	Good writing skills; be able to work independently and team player, motivated and reliable.	Any fields, with health science interests preferred	Sophomore, Junior or Senior	TU Health Science Campus
Hong Wang	hongw@temple.edu	TUSM	Center for Metabolic Disease Research	Homocysteine and Cardiovascular Disease	The objective of project is to study how hyperhomocysteinemia (HHcy, is a medical condition characterized by an abnormally high level of homocysteine in the blood, conventionally described as above 15 $\mu\text{mol/L}$.) causes atherosclerosis. Since atherosclerosis is a pathological	Motivation, carefulness - Students who completed sophomore year.	Biology		TU Health Science Campus

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Hong Wang	hongw@templ e.edu	TUSM	Center for Metabolic Disease Research	Mechanism of metabolic disorder-induced cardiovascular disease, DNA methylation, monocyte and stem cell differentiation, vascular inflammation and repair.	Cardiovascular disease is the number one killer in the developed countries, but the mechanism remains largely unknown. Dr. Wang's laboratory is focused on exploring molecular and biochemical mechanisms contributing to cardiovascular disease. The Wang lab has	GPA greater than 3.4, Cell culture or Protein biochemistry , Hard working and dedicative	Biology, Biochemistry , Computer Science	Junior	TU Health Science Campus
Ilker K Sariyer	isariyer@templ e.edu	TUSM	Neuroscience	Neuroimmune regulation of JC virus gene expression in glial cells	Patients undergoing immune modulatory therapies for the treatment of autoimmune diseases such as multiple sclerosis, and individuals with an impaired-immune system, most notably AIDS patients, are in the high risk group of developing progressive multifocal leukoencephalopath		Biology, Chemistry, Neuroscience - Previous experience in biochemical lab techniques preferred.	Sophomore, Junior,senior	TU Health Science Campus
Ilker K. Sariyer	isariyer@templ e.edu	TUSM	Neuroscience	Molecular regulation of JC virus reactivation in the brain.	Patients undergoing immune modulatory therapies for the treatment of autoimmune diseases such as multiple sclerosis, and individuals with an impaired-immune system, most notably AIDS patients, are in the high risk group of developing progressive multifocal	Talented with good work ethics,	Biology Pharmacy	Sophomore, Junior, Senior	TU Health Science Campus

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Italo Tempera	tempera@temple.edu	TUSM	Fels Institute for Cancer Research	Post-translation modifications of LMP1	LMP1 is an important viral protein that is expressed by Epstein-Barr virus, EBV, during latent infection. EBV is a human herpesvirus that infects B cells and establishes a persistent infection in 95% of the population worldwide. LMP1 plays an essential role in activating B cells and inducing	Must have completed Biol 1111	Biology or Biochem	Sophomore, Junior or Senior	TU Health Science Campus
Jacqueline Tanaka	jtanaka@temple.edu	CST	Biology	Investigating ion channel mutations associated with complete color blindness.	My lab studies mutations in an ion channel protein expressed in cone photoreceptors that are associated with complete color-blindness in humans and day-blindness in dogs. The canine project is a collaboration with U Penn Vet school faculty.	I would like to recruit potential MARC students. The MARC U-STAR program provides mentoring and financial support for junior and seniors interested in PhD programs in	Biology, biochemistry, chemistry, biophysics.		Main Campus
Jacqueline Tanaka	jtanaka@temple.edu	CST	Biology	Investigating ion channel mutations associated with complete color blindness.	My lab studies mutations in an ion channel protein expressed in cone photoreceptors that are associated with complete color-blindness in humans and day-blindness in dogs. The canine project is a collaboration with U Penn Vet school faculty.	I would like to recruit potential MARC students. The MARC U-STAR program provides mentoring and financial support for junior and seniors interested in PhD programs in	Biology, biochemistry, chemistry, biophysics.		Main Campus

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Jie Wu	jiewu@temple.edu	CST	CIS	Cloud Computing	Various distributed computing projects and testing have been run on our computing cluster. We maintain a virtual computing platform in order to test our programs in different environments and virtual hardware. Similarly we maintain a hadoop installation for projects that involve large		CIS/IST, Math,	Sophomore, Junior, Senior	Main Campus
Jie Wu	jiewu@temple.edu	CST	CIS	Wireless Networks	This project will be supported under the GENI project involving transferring large amounts of video data wirelessly to a processing server. This research began with surveying the current research in this field to find out what was already done. Once we had an idea of related		CIS/IST, Math,	Sophomore, Junior, Senior	Main Campus
Jocelyn Behm	jebhm@temple.edu	CST	Biology	Biodiversity and Ecosystem Services	The reason we have food to eat, oxygen to breathe, and we're not up to our shoulders in dead leaves is due to the services that ecosystems provide us. Despite the clear importance of ecosystem services, we still have a lot to learn about how the diverse species in ecosystems perform	Attention to detail, willingness to work outside, organized	Biology, Environmental Science		Main Campus

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Jocelyn Behm	jebehm@temple.edu	CST	Biology	Evaluation of "green" certification programs for biodiversity	Starbucks! Chipotle! Target! What do these companies have in common? They sell products with "green" certifications, but how green are they? This project involves evaluating "green" certification programs for how biodiversity is considered during the certification process.	Must be a creative, independent thinker with good attention to detail. Willingness to learn new skills	Anyone interested in both ecology and sustainability (biology, environmental science, etc.)		Main Campus
Jody Hey	hey@temple.edu	CST	Biology	Evolution and the Human Genome	Students will work on questions about how the human genome has evolved. Some of the work may involve comparisons with Ape genomes.	Freshmen and sophomores with interest in bioinformatics or in using computers to address important biological or medical questions.	all majors	Freshmen, Sophomores	Main Campus
Jody Hey	hey@temple.edu	CST	Biology	Evolutionary Genomics	Students will use genomic data to address questions about natural selection and adaptation	Freshmen and sophomores with interest in bioinformatics or in using computers to address important biological or medical questions.	all majors	Freshmen, Sophomores	Main Campus

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Jody Hey	hey@temple.edu	CST	Biology	Population Genetics	Students will help develop mathematical and statistical models of evolutionary processes	Freshmen and sophomores with interest in mathematical and computational biology	Biology/Math/Computer Science	Freshmen, Sophomores	Main Campus
John Muschamp -	John.muschamp@temple.edu	TUSM	Center of Substance Abuse Research - Pharmacology	Behavioral neuroscience research assistant in drug addiction and pharmacology studies	Under the supervision of graduate students; student will characterize the molecular and behavioral effects of the recently approved FDA drug suvorexant. Mice and rats will be used for behavioral paradigms to explore suvorexant's pharmacologic properties and effects on	Prefer 6 month+ commitment - Basic lab math (dose calculations, percentages, dilutions) Comfortable with animal handling	Neuroscience, biochem, biology but other majors are welcome.	Sophomore, Junior	TU Health Science Campus
Jonathan M. Smith	jonathan.m.smith@temple.edu	CST	Chemistry	High energy chemistry in combustion and the atmosphere	Molecules in extreme high energy settings are highly reactive as expected. Molecular reactions under these conditions can follow unique reaction pathways not possible at low energy including roaming radical pathways. Energized molecules emit light in the infrared providing a way	Enthusiasm for taking on supervised independent research. Skills can be learned as needed based on general chemical knowledge.	Chemistry, Biochemistry, Physics	All levels	Main Campus

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Jonathan Soboloff	soboloff@temple.edu	TUSM	Fels Institute for Cancer Research	Modulation of calcium signaling by changes in STIM expression	Increases in cytosolic Ca ²⁺ concentration are a common component of multiple signal transduction pathways regulating a wide variety of responses ranging from rapid events such as membrane fusion and muscle contraction to control of proliferation, differentiation and apoptosis	Student must be enthusiastic with a genuine interest in learning research. Prior lab experience would be highly desirable but not required. Project involves cell culture	Biology/Biochemistry	Sophomore, Junior or Senior	TU Health Science Campus
Joshua Schraiber	joshua.schraiber@temple.edu	CST	Biology	Detecting inbreeding in ancient humans	We now have ancient DNA sequences from hundreds of early modern humans spanning the last ~50 thousand years of human evolution. Many of these individuals come from nearby sites (such as individuals buried at the same graveyard), raising the possibility that they are related	Some programming, some math, willingness to bang head against hard problems BIOL 2112 OR MATH 1044 OR CIS 1057	Math, computer science	Juniors or Seniors	Main Campus
Karen B. Palter	palter@temple.edu	CST	Biology	Does hyperinsulinemia affect the basal and induced levels of Upd2 (leptin) in Drosophila?	Patients who are obese are at an increased risk of developing metabolic syndrome, characterized by impaired glucose tolerance, abnormal plasmid lipids, hypertension and development of Type II diabetes. Our laboratory has shown that Drosophila melanogaster lacking a	Motivation, interest in project and academic accomplishment. Quick learner, careful and good at quantitative skills.	Bio, Biochemistry or Neuroscience - Completed Biology 1111 and 2112	Sophomore, Junior or Senior	Main Campus

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Karen B. Palter	palter@temple.edu	CST	Biology	Is there a functional sialic acid pathway in the insulin producing cells (IPCs) of Drosophila?	Our laboratory has previously shown that Drosophila melanogaster lacking a functional sialic acid pathway display a range of metabolic defects, that are similar to those observed in patients with Type II diabetes. We have demonstrated that one target of sialylation is a potassium	Motivation, interest in project and academic accomplishment. Quick learner, careful and good at quantitative skills.	Bio, Biochem or Neuroscience - Completed Biology 1111 and 2112	Sophomore, Junior or Senior	Main Campus
Karen Palter	palter@temple.edu	CST	Biology	Investigating the mechanism of insulin resistance in Type II diabetes	Our laboratory has previously shown that Drosophila melanogaster lacking a functional sialic acid pathway display a range of metabolic defects. We hypothesize that the metabolic defects are a result of excess insulin secretion from the insulin producing cells (IPC). We have	Motivation and interest in research. Biology 2112	Biochemistry or Biology		Main Campus
Katherine (Kallie) Willets	tuf79482@temple.edu	CST	Chemistry	Using light and nanoparticles to destroy pollutants	Breaking down organic pollutants into smaller, less harmful molecules is a major challenge in water remediation projects. Titania nanoparticles have been shown to catalyze this process by using light to initiate the reaction. However, titania only absorbs ultraviolet light, leaving a large range of	good attitude, willingness to learn and ask questions	chemistry, physics	Sophomore, Junior, Senior	Main Campus

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Katherine (Kallie) Willets	tuf79482@temple.edu	CST	Chemistry	Using light and nanoparticles to destroy pollutants	Breaking down organic pollutants into smaller, less harmful molecules is a major challenge in water remediation projects. Titania nanoparticles have been shown to catalyze this process by using light to initiate the reaction. However, titania only absorbs ultraviolet light, leaving a large range of	good attitude, willingness to learn and ask questions	chemistry, physics	Sophomore, Junior, Senior	Main Campus
Katherine Willets	kwillets@temple.edu	CST	Chemistry	Fabricating noble metal nanoparticle arrays for applications in molecular plasmonics	In this project, students will fabricate nanodisk and nanohole arrays for applications in plasmonics and electrochemistry. For the nanodisk arrays, block copolymers consisting of polystyrene and polymethylmethacrylate (PS-b-PMMA) are spun coat onto	Patient and self-motivated. At least two lab courses.	Chemistry		Main Campus
Katherine Willets	kwillets@temple.edu	CST	Chemistry	Fabricating noble metal nanoparticle arrays for applications in molecular plasmonics	In this project, students will fabricate nanodisk and nanohole arrays for applications in plasmonics and electrochemistry. For the nanodisk arrays, block copolymers consisting of polystyrene and polymethylmethacrylate (PS-b-PMMA) are spun coat onto	Patient and self-motivated. At least two lab courses.	Chemistry		Main Campus

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Ke Chen	kchen@temple.edu	CST	Physics	Superconducting devices for high performance sensors and circuits	Superconductors are superior materials for devices with phenomenal performance compared to normal materials due to their zero dc electric resistivity and other unique quantum properties. This project will focus on fabricating and characterizing MgB2 (an amazing superconductor)	Skillful in carry out experiments in a lab. Familiar with electronics and material sciences. Interested in solving problems. General Physics I and II (either calculus based or	Physics, Electric engineering, Chemistry		Main Campus
Krishna Kant	kkant@temple.edu	CST	CIS	Collaborative caching in content centric networks	The project will involve simulation study of a computer network designed for distributing content such as audio/video that is widely accessed and may have varying levels of demands from different parts of the network. The purpose of the simulation is to study various collaborative	The project would need good programming skills, exposure to discrete-even simulation, and basic background in computer networks.			Main Campus
Krishna Kant	kkant@temple.edu	CST	CIS	Reliability prediction of large scale storage systems	This project involves analysis of data collected from storage systems and its characterization relative to the observed errors that can be used for reliability prediction of the storage system.	The project would need good programming skills, exposure to discrete-even simulation, and basic background in computer networks.			Main Campus

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Laura Goetzl	laura.goetzl@tuhs.temple.edu	TUSM	Obstetrics & Gynecology	Novel noninvasive sampling of fetal neurodevelopment through fetal derived neuronal exosomes in maternal blood.	There has been limited methods for assessing fetal neurodevelopment during gestation in human in-vivo models. Our new methodology allows us to elucidate what elements of abnormal neural development can be detected in the maternal bloodstream.	Advanced, motivated, interested in research	Neuroscience, Biology, Pharmacy, Medical, Psychiatry, Gynecology	Juniors & seniors	TU Health Science Campus
Laurie Kilpatrick, PhD	laurie.kilpatrick@temple.edu	TUSM	Lung Center/Physiology	Regulation of neutrophil-endothelial interactions in bacterial sepsis	Dr. Kilpatrick's research focuses on investigating molecular mechanisms regulating pro-inflammatory signaling in the innate immune system; particularly the role of activated leukocytes in the development of lung injury. An important focus of her work is examining the regulation of	Some previous lab experience, highly motivated with an interest in research	Biochemistry, Chemistry, Biology	Juniors or Seniors or highly motivated sophomores	TU Health Science Campus
Lee-Yuan Liu-Chen	lliuche@temple.edu	TUSM	Center for Substance Abuse Research & Department of Pharmacology	Characterization of a knockin mouse line expressing a fusion protein of the kappa opioid receptor (KOPR) and the fluorescent protein tdTomato (tdT) [KOPR-tdT]	Lack of specific antibodies against the KOPR has hindered in vivo study of KOPR in terms of localization, trafficking, expression and signaling. My lab has generated a knockin mouse line expressing KOPR-tdT. The project is to do genotyping of the mice and map the distribution of KOPR-	solid grades, eagerness to learn, organized, some lab experience preferred, experience in handling rodents, perfusion and tissue sectioning is a plus	Neuroscience	Junior or Senior	TU Health Science Campus

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LIQING JIN	jinliqin@temple.edu	TUSM	Shriners Hospitals Pediatric Research Center	molecular mechanisms of axon regeneration in the lamprey spinal cord	With molecular biological techniques, we study the role of local protein synthesis in axonal tips in axonal regeneration in lamprey spinal cord.	Diligent - biology, biochemistry, molecular biology, neuroscience, etc. -- Students are welcome in our center.	Medicine or biology		TU Health Science Campus
Madesh Muniswamy	yson@temple.edu	TUSM	Biochemistry	MCU gene knockout using zebra fish model system	We are creating a knockout zebra fish for the mitochondrial calcium uniporter (MCU) gene using Crispr/Cas9. We plan to breed the homozygotes for the MCU deletion and then use them for functional analyses. The goal is to measure how the deletion of MCU affects the ATP production/Calcium	Prior experience in a Biology/Life Science Lab Good Laboratory Practice General curiosity Bio 1, Bio 2, Genetics	Biology, Biochemistry, Molecular Biology	Juniors or Sophomore	TU Health Science Campus
Mahmut Safak	msafak@temple.edu	TUSM	Department of Neuroscience	Understanding the regulatory roles of JC virus agnoprotein in viral life cycle	JC virus is a human polyomavirus that causes a fatal disease, known as progressive multifocal leukoencephalopathy, in the central nervous system of a sub-population of immunocompromised individuals including AIDS and cancer patients. This virus		Biology, Chemistry, Biochemistry, Neuroscience	Sophomores and Juniors	TU Health Science Campus

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Mahmut Safak	msafak@templ e.edu	TUSM	Department of Neuroscience	Investigation of the regulatory roles of JC virus Agnoprotein in viral life cycle	Agnoprotein is one of the important regulatory proteins of the human polyomavirus, JC virus. It is a relatively small and basic protein. we have recently demonstrated that it forms highly stable dimers and oligomers. It exhibits the ability to be released from the infected cells. The implications	Student with a good work ethics	Biology, Chemistry Biochemistry Neuroscience	Sophomore	TU Health Science Campus
Marc A. Ilies	mailies@templ e.edu	School of Pharmacy	Pharmaceutical Sciences	Synthesis and characterization of carbonic anhydrase inhibitors and activators	Carbonic anhydrase is a zinc metalloenzyme involved in many physiologic processes such as cellular respiration and transport of CO ₂ from metabolizing tissues to lungs, pH homeostasis, gastric acid secretion, bone remodelling gluconeogenesis, etc. It has 15 isozymes with different cellular	background (organic chemistry), past experience, motivation	chemistry, biochemistry		TU Health Science Campus
Marc Ilies	mailies@templ e.edu	School of Pharmacy	Pharmaceutical Sciences	Development of drug delivery systems with enhanced in vivo stability	Drug delivery systems can modify the pharmacokinetics of drugs, protect them from decomposition and control their spatial and temporal delivery in the organism. In recent years we were active towards the development of drug delivery systems based on amphiphilic compounds of	General knowledge in chemistry, biochemistry, biology and especially in the inter-disciplinary integration of this knowledge is needed. We will train the student in	Chemistry, Biochemistry, Biology	Freshman to Seniors	TU Health Science Campus

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Marc Ilies	mailies@templ e.edu	School of Pharma cy	Pharmaceu tical Sciences	Physicochemical and biological evaluation of novel carbonic anhydrase inhibitors and their pharmaceutical formulations.	Carbonic anhydrases (CAs, E. C. 4.2.1.1) are a class of ubiquitous metallo-enzymes that catalyze the reversible hydration of carbon dioxide: $CO_2 + H_2O \leftrightarrow HCO_3^- + H^+$. Sixteen isozymes are currently known, with different catalytic activity, subcellular localization and tissue distribution. These	previous experience in physicochemical/biological evaluation of organic compounds and their formulations (e.g. liposomes), as well as towards handling cells	Biochemistry , Biology	Sophomore, Juniors, Seniors	TU Health Science Campus
Maria Iavarone	iavarone@tem ple.edu	CST	Physics	Low Temperature STM Characterization of Superconducting Nanostructures	Superconducting ultrathin films and islands will be fabricated on different substrates in ultra high vacuum environment and characterized by scanning tunneling microscopy and spectroscopy.	The students should be very interested in research and very motivated to learn.	Physics - General Physics I and II. Introduction to quantum mechanics is optional.	Junior & Senior	Main Campus
Maria Pacheco	tug00270@tem ple.edu	CST	Biology	Biodiversity and evolution of parasites	All known multicellular organisms harbor diverse assemblages of dependent species, many of which are considered parasites. Despite a growing awareness of the importance of dependent species for biodiversity, parasitological investigations have largely focused on the	Highly motivated. A minimum of 3.7 GPA. Basic knowledge on biology (transcription/translation and DNA replication), analytical/quantitative skills and	Biology, Applied Math, Natural Sciences, Information Science and Technology, Computer Sciences	Freshman or sophomore	Main Campus

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Matthew Helmus	mrhelius@temple.edu	CST	Biology	The genomics of scared tadpoles	Tadpoles just want to grow up to become frogs, but in nature there are plenty of predators. Luckily, tadpoles have a defense--when exposed to predators, tadpoles can radically change their body shapes and musculature so that they are harder for predators to catch. The goal of this	Basic computer programming	Courses in Genomics or Computer Programming		Main Campus
Matthew Helmus	mrhelius@temple.edu	CST	Biology	Are there universal patterns in biodiversity?	Natural selection has caused a spectacular amount of biodiversity, from flying frogs to legless lizards, yet this evolution is not random. For example, on distant oceanic islands, species have evolved from the same types of natural selection, converging to similar body shapes and sizes. The goal	Basic excel	Biology, Environmental Science		Main Campus
Michael J. Zdilla	mzdilla@temple.edu	CST	Chemistry	Preparation and reactivity of manganese clusters inspired by photosynthetic water oxidation	We are seeking undergraduates to aid in the synthesis and characterization of manganese clusters that mimic the oxygen evolving complex of photosystem II. The student will synthesize new cluster molecules and explore biologically relevant reactivity of these molecules.		Chemistry, Biochemistry	Sophomore, Junior or Senior	Main Campus

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Michael J. Zdilla	mzdilla@templ.e.edu	CST	Chemistry	Preparation and catalytic properties of layered, solid state materials.	We are seeking undergraduates to aid in the synthesis and characterization of layered catalytic materials as part of our energy frontiers research center. These materials are of interest for the achievement of solar water splitting. The student will prepare metal-oxide or metal-chalcogenide-		Chemistry, Biochemistry	Sophomore, Junior or Senior	Main Campus
Michael J. Zdilla	mzdilla@templ.e.edu	CST	Chemistry	Synthesis of novel energetic molecules.	We are seeking undergraduates to aid in the development of novel energy-rich molecules containing redox frustration. These materials are of interest as next-generation energetic materials. The student will prepare novel nitrogen rich molecules containing high-valent		Chemistry, Biochemistry	Sophomore, Junior or Senior	Main Campus
Michael J. Zdilla	mzdilla@templ.e.edu	CST	Chemistry	Preparation and testing of solid electrolytes for battery applications	We are seeking undergraduates to aid in the synthesis of salt-organic hybrid electrolyte materials by co-crystalization methods, and the assessment of their conductivity using electrochemical techniques.	GPA, Intent to pursue Graduate education. Skills from General Chemistry and Organic Chemistry laboratory.	Chemistry - General Chemistry completed, Organic chemistry completed or in progress.	Sophomore, Junior or Senior	Main Campus

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Michael Shifman	mshifman@templ.e.edu	TUSM	Shriners Hospitals Pediatric Research Center	Epigenetics regulation of axonal regeneration	The goal of this research is to use the advantages of the lamprey CNS to test the hypothesis that “good regenerating” RS neurons have higher levels of histone acetylation, favoring activation of a regeneration program, whereas histone deacetylation contributes to regeneration	self-starter, good general laboratory skills	Neuroscience		TU Health Science Campus
Mohammad Kiani	mkiani@templ.e.edu	Engineering	Mechanical Engineering	Does low doses of ionizing radiation damage DNA in HUVECs.	The effects of low and high doses of ionizing radiation on human umbilical vein endothelial cells will be determined using cell proliferation and comet assays.	Some experience in any lab setting	Biology, Engineering	Sophomore, Junior, senior	Main Campus
Mohan Patnala Achary	achary@templ.e.edu	TUSM	Metastasis and Radiation Research Lab	Markers for non-metastatic human breast cancers and inhibition of human glioblastoma In Vivo.	Validation of genomic and gene expression markers for differentiating human metastatic and non-metastatic primary breast cancers. Inhibition of human glioblastoma tumors by betulinic acid combined with ionizing radiation in a nude mouse model	None to one summer lab research experience - Sincerity	Biology	Sophomore, Junior, Senior	TU Health Science Campus

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Mohsin Khan	tuf72052@temple.edu	TUSM	Department of Physiology/Center for Metabolic Disease Research	Human Cardiac stem cell and exosome based therapies for cardiac regeneration	The goal of these studies is to develop a cardiac regeneration strategy based on human cardiac stem cells isolated from heart failure patients. Understanding the role of aging and disease onset will allow development of novel strategies for enhancing human cardiac stem ability to repair	General Lab Skills	Biology	Junior or Senior	TU Health Science Campus
Muruganandham Manickavachagam	tud20497@temple.edu	Engineering	Environmental Engineering	Technology development for water and wastewater treatment	The Water and Environmental Technology (WET) Center (funded by National Science Foundation and Industry), Department of Civil and Environmental Engineering, Temple University focused to address issues related to water and wastewater. The primary research related to (1) Physico-		environmental science/engineering and or Chemistry background	Sophomore, Junior, Senior	Main Campus
Nancy Pleshko	npleshko@temple.edu	Engineering	Bio-engineering	Development of spectroscopic methods for assessment of engineered tissues	A significant impediment to advances in generating replacement tissues for damaged cartilage is the inability to assess the structure of an engineered tissue during growth. Near-infrared spectroscopic assessment could offer the ability to monitor tissue growth in vitro, and thus	Motivation, organization, and ability to work productively in a team environment - Introductory Biology and Chemistry; Analytical or Organic Chemistry	Bioengineering - Introductory Biology and Chemistry	Sophomore, Junior, Senior	Main Campus

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Parkson Lee-Gau Chong	pchong02@temple.edu	TUSM	Medical Genetics and Molecular Biochemistry	Design of Novel Liposomes for Drug Delivery	The goal of this research is to design novel liposomes for targeted drug delivery to treat cancers. We will use bipolar tetraether lipids (BTL) as the matrix lipids and polyethylene glycol (PEG)-linked conventional lipids as the minor component to make liposomes (100-200 nm in	GPA, research interest -Basic chem. lab skills	Chemistry, Biology, and Physics	Sophomore, Junior or Senior	TU Health Science Campus
Parkson Lee-Gau Chong	pchong02@temple.edu	TUSM	Medical Genetics and Molecular Biochemistry	Novel Membranes for Targeted Drug Delivery/Controlled Release and Other Technological Applications Such As Artificial Photosynthesis	Project 1: Archaeal bipolar tetraether liposomes (BTL) are remarkably stable and robust biomaterials, holding great promise for technological applications. They can be used as targeted carriers, slow-release drug carriers, biosensors, microbubbles for imaging and diagnosis	having passion in science and technology; eager to learn new things; willing to devote a significant amount of time to the lab work; - general chemistry--required:	Chemistry, Biology, Physics, Bioengineering		TU Health Science Campus
Qiang Zeng	qzeng@temple.edu	CST	CIS	New security features of the new Intel processors	The latest generation of Intel processors provides new security features, which may bring a revolution of systems and software security. We will analyze such new features and consider the fancy applications.	Interest in cyber security. Good programming skills in C, C++, Java or Python.	CIS	Juniors or Seniors	Main Campus

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Qimin Yan	qiminyan@temple.edu	CST	Physics	Computational study of elastic properties of two-dimensional materials	Layered two-dimensional (2D) materials, such as graphene and MoS ₂ , have attracted a lot of attentions in the recent years for electronics and energy applications. These two-dimensional compounds have shown completely different elastic properties compared with their bulk counterparts	Good computational and programming skills (Linux, matlab, python), responsible, willing to work hard.	Physics, Materials science	Seniors	Main Campus
Qimin Yan	qiminyan@temple.edu	CST	Physics	Machine learning based on Hamiltonian for materials science applications	Machine learning technology has shown a great potential to learn from existing data and predict new properties in the area of materials science. In this proposal, the student will work with experts in materials science and computer science to develop machine learning models to recognize the	Good programing skill with python or java, good communication skills, willing to work hard, responsible	Computer science, physics, materials science	Seniors	Main Campus
Qimin Yan	qiminyan@temple.edu	CST	Physics	Computational study of photocatalytic water splitting on transition metal oxides	Artificial photosynthesis using complex oxides poses a grand challenge for the generation of renewable energy from sun light and water. The student will carry out high-throughput calculations and data-mining to search for promising transition metal oxides for solar water splitting	Programming skills, Python, Linux, good communication skills	Physics, Materials Science	Seniors	Main Campus

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Raza Zaidi	zaidi@temple.edu	TUSM	Fels Institute for Cancer Research	molecular mechanisms of Melanomagenesis	Melanoma is the deadliest type of skin cancer, which originates from the pigment (melanin)-producing cells (melanocytes) in the skin. Approximately 85% of melanomas are directly caused by the UV radiation from the sun and artificial tanning beds. However, the molecular mechanisms of this	Highly motivated individuals who have the passion for molecular biology research, and are willing to commit themselves to a steep learning curve, dedication, and hard work	Biochemisry or Biology		TU Health Science Campus
Richard Souvenir	souvenir@temple.edu	CST	CIS	Identifying Indoor Scene Attributes from Images	The student will apply and adapt recent techniques from computer vision and machine learning to identify attributes from images of indoor scenes. This work is part of an ongoing project to (http://traffickcam.org/about) to combat human trafficking by identifying hotel room features	Strong programming skills (preferably Python), interest or experience in image processing Courses taken CIS 3223 - Strong programming skills (preferably	CS		Main Campus
Richard T. Pomerantz	richard.pomerantz@temple.edu	TUSM	Fels Institute for Cancer Research	How the process of transcription contributes to genome instability in human cells.	Genome instability in the form of chromosome breaks, rearrangements and deletions is a hallmark of cancer cells and contributes to tumorigenesis. The research project aims to understand how the process of transcription contributes to genome instability in human cells. Current research in the	Intelligent, hard-working, independent, passionate about science and research. - General Biology, perhaps Chemistry -- Successful summer research is likely to	Biochemistry, Biology, or Chemistry		TU Health Science Campus

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Richard T. Pomerantz	richard.pomerantz@temple.edu	TUSM	Fels Institute for Cancer Research	This research will provide important insight into how polymerase theta functions during alt-EJ and promotes the survival of cancer cells and chemotherapy resistance and will likely be published in a	A newly discovered DNA repair process called alternative end-joining (alt-EJ) or microhomology-mediated end-joining causes chromosome deletions and rearrangements and promotes the survival of breast and ovarian cancer cells. Current research in the lab has reconstituted the process of alt-	Intelligent, hard-working, independent, passionate about science and research. - General Biology, perhaps Chemistry -- Successful summer research is likely to	Biochemistry, Biology, or Chemistry		TU Health Science Campus
Richard Waring	waring@temple.edu	CST	Biology	Mutational Analysis of DNA Meganucleases	Most DNA nucleases employed in molecular biology research cut DNA at a specific recognition sequence that is usually 4 to 6 basepairs in length (for example GAATTC on one strand of the DNA). A meganuclease is an enzyme that cuts DNA at a specific sequence that is approximately	Interest in independent research - Solid arithmetical skills Ability to keep good lab notebook Reasonable hand dexterity	Biology and Biochemistry Majors - 1031 & 1032 General Chemistry	Sophomore, Junior or Senior	Main Campus
Robert J. Levis	rjlevis@temple.edu	CST	Chemistry	Stand-Off Detection of Molecules using Advanced Laser Technology	The ability to detect molecules at distances up to 50 meters is valuable for many applications including explosives detection, analyzing smoke stacks and probing urban environments. This project will involve working with femtosecond laser filamentation ("a light saber") and a new Raman	independent motivation	Neuroscience, Cell and Developmental Biology	Sophomore, Junior, Senior	Main Campus

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Robert J. Levis	rjlevis@temple.edu	CST	Chemistry	Nanomaterials by Design	Nanomaterials include size as a design parameter for a material's properties. For instance the color of a quantum dot changes as the size changes from 100nm to 10nm. The aim of this project is to discover new nanomaterials using femtosecond laser processing of precursors	independent motivation	Neuroscience, Cell and Developmental Biology	Sophomore, Junior, Senior	Main Campus
Ross Wang	rosswang@temple.edu	CST	Chemistry	Chemical probes to study post-translational modifications	Chemical biology approaches to the mechanism study, diagnosis, and treatment of human diseases II. Chemical proteomics to identify key proteins for the onset of cancer and inflammatory disorders.	Having completed General Chemistry, Organic Chemistry I with a grade of B or higher. Preferably with prior laboratory experience in Chemistry and Biochemistry	Chemistry, Biology, Biochemistry, Pharmaceutical	Sophomore, Junior, or Senior	Main Campus
Ross Wang	rosswang@temple.edu	CST	Chemistry	Development of novel imaging agents for image-guided cancer therapy	Chemical biology approaches to the mechanism study, diagnosis, and treatment of human diseases	Having completed General Chemistry, Organic Chemistry I with a grade of B or higher. Preferably with prior laboratory experience in Chemistry and Biochemistry	Chemistry, Biology, Biochemistry, Pharmaceutical	Sophomore, Junior, or Senior	Main Campus

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Ross Wang	rosswang@temple.edu	CST	Chemistry	Design and synthesis of antibody mimics	Chemical biology approaches to the mechanism study, diagnosis, and treatment of human diseases	Having completed General Chemistry, Organic Chemistry I with a grade of B or higher. Preferably with prior laboratory experience in Chemistry and Biochemistry	Chemistry, Biology, Biochemistry, Pharmaceutical	Sophomore, Junior, or Senior	Main Campus
Sara Jane Ward	saraward@temple.edu	TUSM	CSAR	Cannabinoids, Inflammation, and CNS Injury	Research focuses on determining the role of inflammation across a range of CNS disorders, from stroke to substance abuse. We take a behavioral and molecular immunological approach to studying the role of inflammation in CNS disorders and testing the hypothesis that	Interest in neuroscience/experimental psychology	Neuroscience, Psychology	Junior or Senior	TU Health Science Campus
Sarah Wengryniuk	tuf76212@temple.edu	CST	Chemistry	Two possible projects: "Evaluation of IL-8 inhibitors for inhibition of cancer metastasis" and "Development of novel cyclic ether synthesis from tertiary alcohols"	Two possible projects: "Evaluation of IL-8 inhibitors for inhibition of cancer metastasis" and "Development of novel cyclic ether synthesis from tertiary alcohols"	Having completed both Organic 1 and Organic 2 with a B or higher in both courses. Strong letter of recommendation from with organic professor.	Chemistry	Sophomore, Junior, Senior	Main Campus

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Scott Sieburth	scott.sieburth@temple.edu	CST	Chemistry	Simple Methods for Complex Molecules	Using light to drive cycloaddition reactions and make strained, reactive new structures.	work hard, work smart.	science	Freshman	Main Campus
Seo-Hee Cho	seo.hee.cho@temple.edu	TUSM	Shriners Hospitals Pediatric Research Center/ Anatomy and Cell Biology	Examining the effects of Yap WT and Yap mutant genes overexpression in the developing retina using AAV (Adeno-associated virus) vectors.	This project consists of three parts. First, construction of AAV-Yap (WT), AAV-YapS1A and AAV-YapS1D via recombinant DNA technology. Second, expression of Yap, WT and mutant, genes in the neonatal retina by electroporation or viral injection. Lastly, characterization of resulting		Biology	Sophomore	TU Health Science Campus
Seo-Hee Cho	seo.hee.cho@temple.edu	TUSM	Shriners Hospitals Pediatric Research Center/ Anatomy and Cell Biology	(1) A new LCA model by polarity gene ablation (2) Genetic analysis of the signaling genes during eye development	Our research focuses on understanding the cellular and molecular mechanisms underlying the normal development and degenerative diseases of the mammalian retina. Topics we currently study include: (I) Functional analysis of apical polarity gene Pals1 during retinal	not required	Biology related - General Biology recommended	any	TU Health Science Campus

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Seonhee Kim	tue62079@temple.edu	TUSM	Anatomy and Cell Biology	The role of cell signaling and polarity in neural development	My laboratory's research focuses is to understand the molecular and cellular mechanisms controlling brain development to study the basis of neurodevelopmental disorders. To gain in-depth knowledge of neural development and neuronal disorders, we utilize		Biology	Junior or Senior	TU Health Science Campus
Sergei Pond	spond@temple.edu	CST	iGEM and Biology	Software development and Bioinformatics	Utilize and develop open-source software to explore DNA mutations. Please see www.hyphy.org and github.com/veg/hyphy for more information. Using high-performance computing, statistical techniques, and the latest web technologies, we provide methods that		Computer Science, Mathematics, Biology, Physics	any	Main Campus
Shuxin Li	shuxin.li@temple.edu	TUSM	Shriners Hospitals Pediatric Research Center	Neural repair and CNS neuronal regeneration	Our lab is highly interested in neural repair and CNS axon regeneration research. Our projects focus on the molecular/cellular mechanisms for CNS neuronal growth failure and development of novel and effective strategies to promote neuronal regeneration, remyelination and functional	Motivated person and basic background on research.			TU Health Science Campus

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Slobodan Vucetic	vucetic@temple.edu	CST	CIS	Data Science	Scientific and technological advances have allowed us to collect massive amounts of diverse types of data. There is an increasing recognition that data created by scientists, mobile apps, internet, social media, crowdsourcing, healthcare could be translated into valuable insights. A data	Some programming experience, good math background - Programming in any language (Python, Java, C, Matlab) Calculus 1	Any CST major might find this project valuable		Main Campus
Spiridoula Matsika	smatsika@temple.edu	CST	Chemistry	Studying the photophysics and photochemistry of DNA using quantum mechanics	Processes initiated by light play an important role in biological systems with primary examples found in photosynthesis, vision, and photochemical damage and repair in DNA. A fundamental understanding of these processes reveals the way nature works and also provides ideas on how to mimic	Students should be motivated, interested in research and computational work, with an aptitude for math.	Chemistry, Physics	Junior or Senior	Main Campus
Stefania Gallucci	gallucci@temple.edu	TUSM	Microbiology-Immunology	Regulation of Type I Interferons in Autoimmunity	The project includes studies of cellular immunology and molecular biology of signal transduction of cytokines involved in the pathogenesis of an autoimmune disease, Systemic Lupus Erythematosus. The goal of the project is to test novel biologics to be used in the therapy of autoimmune	Strong motivation to learn and hard working.	Biology_Premed		TU Health Science Campus

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Sudarsan Rajan	tuf37597@temple.edu	TUSM	Center for Translational Medicine	MCU Knockout gene using zebra fish model system	We are creating a knockout zebra fish for the mitochondrial calcium uniporter (MCU) gene using Crispr/Cas9. We plan to breed the homozygotes for the MCU deletion and then use them for functional analyses. The goal is to measure how the deletion of MCU affects the ATP production/Calcium	Prior experience in a Biology/Life Science Lab Good Laboratory Practice General curiosity	Biology, Biochemistry, Chemistry - Bio 1 - BIO 2 - Genetics	Sophomore or Junior	TU Health Science Campus
Sudhir Kumar	s.kumar@temple.edu	CST	iGEM and Biology	Software development and Bioinformatics	We develop software (including smartphone apps) for analyzing biological data in the fields of Genomics and Medicine. See www.megasoftware.net and www.kumarlab.net for examples. All developments will be in a new institute in SERC (igem.temple.edu).	Knowledge of computer programming and/or app development	All majors	Freshman, Sophomore, Junior	Main Campus
Sudhir Kumar	s.kumar@temple.edu	CST	iGEM and Biology	Personalized medicine and evolutionary link between DNA and disease	We all have many DNA differences from others. Which of these personal differences cause disease? We use computers to study disease variation in humans and compare it to differences humans show with other species. We also build predictive methods and tools	Interest in the field, knowledge of computers	All majors	Freshman, Sophomore, Junior	Main Campus

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Sudhir Kumar	s.kumar@temple.edu	CST	iGEM and Biology	Genomics, Medicine, and Evolution (computer based)	Students will carry out biological and biomedical research using computers with emphasis on DNA data analysis. Biomedical questions will be focused on Genome Medicine. Biological questions will be on building the tree of life. Depending on the student's background, you may conduct	Freshmen and sophomores with interest in biology, medicine, or computers. No requirements, as the projects will be tailored to the students' level of preparation	Biology, Computers, Physics, Anthropology, Pharmacy, Chemistry		Main Campus
Sudhir Kumar	s.kumar@temple.edu	CST	Institute for Genomics and Evolutionary Medicine	Genomic Medicine and Tree of Life	Evolutionary analytics of mutations, genomes, and species is the primary focus of my research group. We use integrative and comparative approaches to make fundamental discoveries in the fields of medicine, evolution and genomics. The common theme of all our research is the	Prefer freshmen or sophomores interested in devoting multiple years working in our group so they can carry out real research and development projects, including	Biology, Computer Science, Chemistry, Physics, Biomedical engineering, and other biology-related		Main Campus
Sujith Ravi	sravi@temple.edu	CST	Earth & Environmental Sciences	Belowground responses to climate change: Root imaging and analysis	Belowground processes such as root dynamics can alter nutrient and water cycles and impact the response of terrestrial ecosystems to changing climate and disturbance regimes. Despite the relevance of belowground processes, studies addressing the response of fine roots to	interest in the project/research, critical thinking, quantitative ability - Basic statistics, interest in image processing, mostly computer-based project	Biology, Computer science, Environmental Sciences		Main Campus

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Susan Patterson	susan.patterson@temple.edu	CST	Biology						Main Campus
Tasuku Akiyama	tasuku.akiyama@temple.edu	TUSM	Dermatology and Anatomy & Cell Biology	Brain Processing of Itch					
Tomasz Skorski	tskorski@temple.edu	TUSM	Microbiology and Immunology, Fels Cancer Research	Personalized medicine-guided synthetic lethality to eradicate tumor cells	Leukemia stem cells (LSCs), and especially quiescent LSCs, have a dual role as tumor initiating and therapy-refractory cells. Currently available anti-tumor treatments clear a disease burden consisting mostly of leukemia progenitor cells (LPCs), but they usually fail to eradicate drug-refractory		biology	Junior & Senior	TU Health Science Campus

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Tonia Hsieh	sthsieh@temple.edu	CST	Biology	Control mechanisms for counting unexpected perturbations during bipedal running in lizards			Biology		Main Campus
Tracy Fischer-Smith	tracy.fischer-smith@temple.edu	TUSM	Neuroscience	Role of systemic immune alterations in the development of CNS disease	While the brain is often considered to be "protected" from the body (periphery), in reality, there is continued communication between the CNS and periphery. Under healthy conditions, this can aid the CNS, however, it may have deleterious effects to the CNS in some disease states, as well	Mature, serious-minded, responsible, reliable	Biology, Biochemistry	Sophomore, Junior, Senior	TU Health Science Campus
Vincent Voelz	voelz@temple.edu	CST	Chemistry	Molecular simulation of proteins and peptide mimics	This work involves computational modeling of proteins and peptide mimics. We simulating the molecular dynamics of molecules on high-performace computing platforms, to make predictions about folding and binding.	Some combination of programming experience, math skills and physics knowledge are important	Math, physics, computer science and chemistry	Sophomore or Junior	Main Campus

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Weidong Yang	weidong.yang@temple.edu	CST	Biology	Super-resolution study of interactions and competitions in normal and cancer cells	Super-resolution light microscopy won the Nobel Prize in Chemistry in 2014. In our lab, we combine super-resolution microscopy with single-molecule tracking, fluorescence recovery and innovative molecular biology techniques to study the following projects: 1)		Biology, biochemistry, biophysics and the relevant	Juniors and seniors	Main Campus
Wenzhe Ho	wenzheho@temple.edu	TUSM	Pathology and Laboratory Medicine	Exoosme in Methamphetamine and HIV-associated Neurodegeneration	The proposed studies will reveal previous unidentified mechanisms by which METH and/or HIV compromise the BBB innate immunity, providing a favorable micro-environment for HIV neuroinvasion.	Prefer to have students with biology major, having a great interest in research (with or without experience, although research experience is preferred)	Biology, Neuroscience		TU Health Science Campus
Xavier Grana	xgrana@temple.edu	TUSM	Fels Institute for Cancer Research	Understanding Substrate Specificity of Protein Phosphatases and their regulation in cells	There are various projects available that deal with the characterization of the substrate specificity of the B55 α /PP2A holoenzyme and its regulation in cells. (1) B55 α /PP2A holoenzyme substrate specificity This project focuses on determining the determinants of substrate	Motivation for Science and Research Background knowledge - Previous lab experience is NOT required	Biochemistry, Biology, Bioinformatics - Genetics and/or Biochemistry and/or Cell Biology	Junior or Senior	TUSM

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Xiangdong Wu	xiangdong.wu@temple.edu	TUSM		Protein phosphatase 5 a novel key regulator in the insulin signaling cascade in myoblasts and adipocytes					
Xiao-feng Yang	xfyang@temple.edu	TUSM	Pharmacology	Regulation of vascular inflammation and atherosclerosis	Dr. Xiaofeng Yang's laboratory, located in the MERB-10th floor-1083, Centers of Metabolic Disease Research, Cardiovascular Research, Thrombosis Research and Departments of Pharmacology and Immunology, focuses on studying the regulatory mechanisms of vascular		Cardiovascular Research Center		TU Health Science Campus
Xiaojiang Du	dux@temple.edu	CST	CIS	Mobile cloud computing.	Mobile cloud computing is one of today's hottest new technology markets. In mobile cloud computing, users lease computing/storage services from cloud service providers, and access the cloud from their mobile devices (smart phones, tablets). Gartner (2011) predicts that mobile cloud	Good programming skills - High GPA - Solid math background - Good communication skills - Team working skills	CS/IST/Math-CS majors	Sophomore, Junior or Senior	Main Campus

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Xiaojiang Du	dux@temple.edu	CST	CIS	Security and Privacy Issues of Android Phones/Tablets	In this project, the undergraduate student will work with Dr. Du and his Ph.D. students on Security and Privacy Issues of Android Phones/Tablets. First we will identify possible attacks on Android Phones security and privacy. Second, we will design effective security schemes to	Good programming skills - Good communication skills Team working skills High GPA Sound math background	CS	Sophomore, Junior or Senior	Main Campus
Xiaojiang Du	xjdu@temple.edu	CST	CIS	Internet of Things (IoT) Security	Internet of things (IoT) have approached us in the last few years. For example, Apple Inc. released its first smart watch in April, 2015; Nest Labs (acquired by Google in 2014) released its 3rd generation learning thermostat in September 2015. In October 2015, Philips released a new smart light	Good programming skills High GPA Sound math background	CIS, Math		Main Campus
Xiaoxing Xi	Xiaoxing@temple.edu	CST	Physics	Fabrication and studies of superconducting thin films for device applications	We work mainly with superconducting thin films for device applications at small and large scales. For this purpose, films of magnesium diboride (MgB2) and various layered oxides are grown with different deposition methods in our lab. The films are characterized in terms of their transition	Interested in research, hard working, aptitude for careful laboratory research, fond of problem solving, motivated to learn, basic understanding of	physics, engineering		Main Campus

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Xingting Wang	xingting@temp le.edu	CST	Mathematics Department	Quantum p-Groups	In this project, we are going to investigate the quantized version of p-groups in the classical group theory and to explore their classification in low dimensions using all sorts of modern mathematical tools.	Linear Algebra and some basic concepts of Abstract Algebra	Mathematics	Seniors	Main Campus
Xuebin Qin	xuebin.qin@te mple.edu	TUSM	Neuroscience	Applying a novel cell knockout model for CNS diseases	Conditional and targeted cell ablation is fast becoming a powerful approach for studying cellular functions and tissue regeneration in vivo. Taking advantage of the exclusive IL Y interaction with hCD59, I have developed a novel tool to investigate the role of specific cells in the pathogenesis of	Working hard - Genetics Cell biology	Genetics or molecular biology		TU Health Science Campus
Yang Hu	yanghu@templ e.edu	TUSM	Shriners Research Center	Neuroprotection by ER stress manipulation	We are explore the therapeutic potential of ER stress modulation on neuronal soma and axon survival. The students will learn some basic bench skills, for example genotyping transgenic mouse lines using PCR and immunostaining of mouse tissues. Also the students are expected to be		Neuroscience	Seniors	TU Health Science Campus

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Yi Rao	yirao@temple.edu	CST	Chemistry	Two-dimensional Layered Organic-Inorganic Hybrid for Photovoltaic Applications	We will synthesize novel 2D layered materials for photovoltaic applications. We evaluate and control the elementary processes that govern the properties and performance of perovskite materials in photovoltaic and optoelectronic devices <i>illustrated by dye sensitized</i>	Physical chemistry and organic chemistry	chemistry or physics	Junior, senior	Main Campus
Yi Rao	tuf42202@temple.edu	CST	Chemistry	Photovoltaic applications of multiple exciton generation from Ge nanocrystals	In this undergraduate research, we aim to investigate both Ge nanocrystal inorganic materials interactions with light and the potential for unique photovoltaic applications, including the generation of multiple carrier generations in Ge nanocrystals. It includes two parts. Part A: Characterization		Chemistry, physics, engineering	Sophomore, Junior, Senior	Main Campus
Yugang Sun	ygsun@temple.edu	CST	Chemistry	Microfluidic synthesis of graphene-supported quantum dots for photocatalysis	This project seeks to use the home-built microfluidic reactor for synthesizing graphene-supported semiconductor quantum dots, which can adsorb solar energy to drive useful chemical reactions (i.e., photocatalysis). The student will use the method recently <i>developed in my group to</i>	Wet Chemistry	chemistry	Seniors	Main Campus

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Yugang Sun	ygsun@temple.edu	CST	Chemistry	Microfluidic synthesis of graphene-supported metal nanocatalysts	This project seeks to use the home-built microfluidic reactor for synthesizing graphene-supported metal nanocrystals, which exhibit clean surfaces for catalysis with improved performance. By using the method we recently developed, nanocatalysts can be directly loaded to graphene support in	Wet Chemistry	chemistry	Juniors or Seniors	Main Campus
Zoran Obradovic	zoran.obradovic@temple.edu	CST	CIS - Data Analytics Center, Computer and Information Science, Statistics	Predictive analytics in big data	Predicting the system behaviors by analyzing big data. Applications include social networks, medicine, climate and environment. For more details see http://www.dabi.temple.edu/~zoran/	Interdisciplinary interests; Self-motivation; Problem solving skills; Some programming experience in any language -the projects will be tailored to the	Computer Science, Statistics, Physics, Biology, Chemistry, Pharmacy, Geology, Environmental Science		Main Campus