OVERVIEW

Summer 2019 Lab Offerings
Tuft Summer Research Experience (TSRE)

Advanced high school juniors and seniors with prior research experience will gain proficiency in authentic research practices as they work side-by-side with the faculty, postdoctoral scholars, and students at Tufts University. You will spend six weeks at Tufts under active mentorship to learn hands-on laboratory techniques and/or data and processing skills. You will receive information in workshops to conduct rigorous and ethical research, as well as exposure to a plethora of research topics currently being explored at Tufts; additionally, you will attend journal clubs to increase your ability to critically read literature. You will have the unique opportunity to actively contribute to ongoing research projects; and learn about research ethics and how to evaluate information objectively.

The application for Summer 2019 will open on December 1st at which time you will be asked to select and rank your top three choices of lab. After you are accepted, we will process your selections on a first-come, first served basis, following the order of your course preferences. If all of your selections have already been filled, we will communicate that to you and give you the opportunity to make another selection.

Please find the list of available labs below. Each listing includes the department in which the lab is housed, the name of the faculty running the research project, a description of the research, and the area of study with a link to the lab’s website. For a more in-depth description of the research being done in each lab, please follow the link to the lab’s website.

Summer staff are available if you need advice when selecting your lab preferences or if you have general questions about the program. To contact us, please email summer@tufts.edu or call 617-627-0609.
Biology: **Evolution**  
*Faculty:* Erik Dopman  
How do new species form and adapt to rapidly changing environments? Research in the Dopman lab centers on understanding these two fundamental questions about the origin and persistence of biological diversity.

Biology: **Genome Instability**  
*Faculty:* Sergei Mirkin  
The Mirkin lab studies the mechanisms responsible for the instability of DNA repeats in various genomes. It is particularly interested in the mechanisms of expansions of triplet DNA repeats that cause numerous hereditary disorders in humans, including Fragile X mental retardation, Huntington's disease, myotonic dystrophy, and Friedreich's ataxia.

Biology: **Microbiome**  
*Faculty:* Benjamin Wolfe  
The Wolfe lab uses fermented foods and other synthetic microbial communities to study the ecology and evolution of microbiomes. It also uses food as a tool for improving microbial literacy through teaching and outreach.

Chemistry: **Inorganic Materials Synthesis**  
*Faculty:* Luke Davis  
The Davis research group works to discover new compounds and fabrication routes which contribute to increased sustainability and greater chemical understanding. Their efforts focus on synthesis, screening, and characterization, with additional opportunities for learning and collaboration in device construction, theory, and advanced characterization methods.

Chemistry: **Functional Polymers and Nanoparticles**  
*Faculty:* Sam Thomas  
The Thomas group applies the philosophy of physical organic chemistry to organic materials, in the forms of polymers, crystals and surfaces. Specifically, they investigate new materials that show macroscopic changes in properties upon exposure to external stimuli. Their main focus has been new materials that respond to light.

Child Study and Human Development  
**DevTech: Coding and Robotics in Early Childhood**  
*Faculty:* Marina Bers  
The Developmental Technologies Research Group aims to understand how new technologies that engage in coding, robotics and making, can play a positive role in children’s development and learning. Their research involves three dimensions: theoretical contributions, design of new technologies, and empirical work to test and evaluate the theory and the technologies. Their long-time commitment is to inspire sustainable and scalable evidence-based programs for young children that promote the learning of programming and computational thinking with a playful, developmentally appropriate approach.
Psychology: Multitasking

Faculty: Nathan Ward

The Ward lab’s objective is to investigate the underlying mechanisms of cognition, with a particular interest in multitasking, and whether cognition can be altered through the use of brain stimulation and other interventions. Their overarching goal is to better characterize multitasking and to explore ways of mitigating multitasking costs using a variety of behavioral tasks and cognitive neuroscientific methods.

All lists are subject to change