

Chem 294 Historical Literature Seminar Topics

Fall 2023

- PHA (polyhydroxy alkenoates) Bioplastic for a Biodegradable Future
- Mitogen Activated Protein Kinases (MAPK): Proteomic vs Synthetic approaches for Identifying Therapeutic Inhibitors
- Using Metabolic Engineering to Synthesize Naturally Derived Compounds in Microorganisms
- Copper-based Electrocatalytic Reduction of Carbon Dioxide into Ethene
- The Natural Selector: A Closer Look at Recent Research on the Biosynthesis of Cannabis Terpenes and Their Role in the Cannabis Industry
- Admixture Vaccine Against Heroin Contaminated With Fentanyl

Spring 2023

- Chemical Treatments of Natural Fibers in Reinforced Polymer Composites
- Graphene Making Marks on Paper and Now on History: Improvements in Graphene Synthesis by Employing Supercritical Fluid Exfoliation
- Metabolism and Detection of E-cigarette Solvent Thermal Degradation Products
- Nobel Gas Bonding and Trapping in Planetary Atmospheres
- Recycling Plastic Waste through Metal-catalyzed Hydrogenolysis
- Manufacturing, Management, and Processing of the Conductive Metal Organic Framework (MOFs) Based Electronic Sensor Device

Fall 2022

- Waiting for a Not So Fresh Cup of Coffee: The Effects of Coffee Fermentation on Caffeine and Polyphenolic Content
- The Metabolic Effects of Gut Microbiota on Autism Spectrum Disorder

Spring 2022

- Interactions of per-and polyfluoroalkyl substances (PFAS) with human serum albumin protein and nuclear receptors
- Applications of Metal Organic Frameworks (MOFs) in Drug Delivery
- Approaches to Develop and Evaluate Novel N, N-Dimethylaminoisotryptamine (isoDMT) Psychoplastogenic Therapies
- Lithium and Bipolar Disorder: A Mechanistic Approach

Fall 2021

- Spectroscopic identification and quantification of phosphine in the atmospheres of extraterrestrial planets in the solar system
- Application of Polyurethane Polymers and Scaffolds in Regenerative Medicine and Tissue Engineering
- Martian Spectroscopy - Telescoping in on why NASA's new rover is out of this world
- Effect of Smoke Taint in Wine: Identification and quantification of volatile phenols which are markers for detecting smoke in wine
- Recent Developments in Personalized Athlete Biological Passports in Catching PED Users through Promising Advances in Steroid Profiling and EPO Detection
- Nanomaterials in Agriculture: Revolutionizing Plant Growth

Spring 2021

- Modulation of CAR-T through New Chemistries: How SpyTag-SpyCatcher Chemistry and Universal Immune Receptors Can Revolutionize Cancer Treatment
- Analysis of Subnanomolecular Structures by Surface-Enhanced Raman Spectroscopy
- Synthesis and Application of Hyaluronic Acid Infused Contact Lenses Hydrogels

Fall 2020

- Analysis of Saccharin Derivatives as Selective Carbonic Anhydrase IX and XII Inhibitors
- Benzonitrile as an Observable Proxy for Interstellar Benzene
- Novel Analytical Characterization Approaches for Microplastics in the Environment

Spring 2020

- HDAC inhibitors in the treatment of Alzheimer's Disease
- 7-Dehydrocholesterol Reductase Switches the Balance between Cholesterol and Vitamin D Production

Fall 2019

- The Role of Multicomponent Reactions in Drug Discovery and the Synthesis of Bioactive Structures
- Beyond the Grave – The Chemistry of Body Decomposition
- Graphene and Graphene Oxide-Assisted Delivery of Anti-Cancer Drugs and Compounds into HeLa Cervical Cancer Cells
- Investigation of Reactive Oxygenated Species and Carbonyls Generated by Electronic Cigarettes
- Inhibition of Aurora Kinase through Pyrimidine-Based Molecules as Potential Anticancer Agents
- Site-Selective Modifications of Amino Acids on Native Proteins as a Tool for the Design of Antibody-Drug Conjugates for Cancer Therapy
- 7-Dehydrocholesterol Reductase Switches the Balance between Cholesterol and Vitamin D Production

Spring 2019

- The Examination of Polyphenolic Coffee Extracts as Possible Cancer Preventative Agents
- The Synthesis and Optimization of Lipid Nanoparticles for Efficient Delivery of CRISPR/Cas9

Fall 2018

- Finding New Antibiotics in *Mycobacterium tuberculosis*
- Supercapacitors as Wearable Technology
- New Perovskite Structure Based Alternatives to Traditional Cadmium Based Quantum Dots
- Surface growth of metal-organic frameworks to combat chemical warfare agents

Spring 2018

- Water Splitting through Pyroelectrics to Obtain Hydrogen Gas as a Green Energy Fuel Source
- Removing Arsenic from Drinking Water using bimetal oxide adsorbent technology
- Gene therapy of Huntington's disease and Duchenne Muscular Dystrophy through the utilization of CRISPR/CAS9
- The development of a high throughput screening platform for optimization of CRISPR/Cas9 system into human cells
- Molecular Machines for Biomedical Applications

Fall 2017

- Development of Targeted Photoacoustic Probes for Cancer Detection
- Modifications to Molecules Enabling Long Wavelength Triggered Delivery of Cancer Drugs for Targeted Therapy
- Chemical Analysis of Phlorotannins and its Ultraviolet Protectant Capacities
- Novel Magnet Synthesis to Reduce Rare Earth Metal Content
- New Conjunctive Cross Coupling Method Expands the Utility of the Suzuki-Miyaura Reaction
- Atom Trap Trace Analysis (ATTA): The application of physical chemical modeling to directly count individual atoms of xenon isotopes

Spring 2017

- Analysis of Products in Degraded Lithium Ion Batteries and Identification of Degradation Mechanisms

Fall 2016

- Anthocyanin content in edible plants and their role in attenuating neuroinflammation
- Using Superhydrophobic Nanocomposite Coatings to Protect Steel Against Corrosion
- Interactions between KaiB and KaiC of the cyanobacterial post-translational circadian oscillator
- Enhancing The Selectivity for Petrochemical Products Using Catalytic Fast Pyrolysis