Department of Biomedical & Chemical Engineering & Sciences

Chemistry

Top 20 best small universities in the world
96th Physical Sciences world-wide
BCES – Chemistry Program Orientation Information
Thursday Aug 16th

• Where to get help
• Curriculum Overview
• Faculty Introduction
• Advisor Assignment

• Break (setup advisor meeting)

• ACS Student Section presentation
### CHM Curriculum

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Gen Chem 1</th>
<th>Gen Chem 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 2</td>
<td>Organic 1/Analytical 1</td>
<td>Organic 2</td>
</tr>
<tr>
<td>Year 3</td>
<td>Physical 1</td>
<td>Physical 2/ Analytical 2</td>
</tr>
<tr>
<td>Year 4</td>
<td>Inorganic/CHM Elective</td>
<td>Advanced tech/CHM Elective</td>
</tr>
</tbody>
</table>
Instructors

Dr. Smeltz

Dr. Akhremitchev

Dr. Olson

Dr. Winkelmann

Dr. Liao

Dr. Knight

Dr. Schoedel

Dr. Wehmschulte
Support

Tutoring and Supplemental Instruction: General Chemistry Tutoring Center – contact Jessica Smeltz jsmeltz@fit.edu
Research Areas

Biochemistry & Biotechnology
Environmental Chemistry & Geochemistry
Materials & Nanotechnology
Medicinal & Synthetic Chemistry
Renewable Energy & Catalysis
Federally Funded Research ($1M/y)

Fundamental

Applied

Defense
Industrial Connections

Recruiting

Alumni

Internships

Research
Advanced Instrumentation

Nuclear Magnetic Resonance
  400 MHz Multinuclear and Multidimensional NMR
Mass Spectrometry
  Time of Flight, GC-MS, LC-MS
Microscopy
  Atomic Force, Scanning Tunneling and FT-IR
Spectroscopy
  UV-vis, CD, Fluorescence, FT-IR
Structural Analysis
  X-Ray Powder Diffraction
Conformational dynamics of proteins involved in neurodegenerative diseases

Characterization of initial steps in spore germination
Brown Laboratory

Biochemistry & Biotechnology
Fluorescence-based Molecular Sensors

Medicinal & Synthetic Chemistry
Synthesis of Nitrogen and Sulfur Heterocycles
Chouinard Laboratory

Ion Mobility-Mass Spectrometry (IM-MS)
• High Resolution IM-MS Studies
• Instrument Design & Development

Metabolomics & Lipidomics
• Analysis of Complex Biological Samples
• Disease Biomarker Discovery

Gas-Phase Chemistry and Structure
• Interaction of Reactive Gases with Biomolecules
• Determination of Molecular Conformations

Advising:
Faith Virgins
Knight Laboratory

Materials & Nanotechnology
Nanoparticle Synthesis

Medicinal
Bioinorganic Pharmaceuticals
New Antiviral and Antibacterials

Catalysis
Catalysts for Green Synthesis
Driving Reactions with Light

Advising:
Kiera Insetta
Liao Laboratory

Biochemistry & Biotechnology
Photocontrolled Release of Bioactive Molecules

Materials & Nanotechnology
Photoresponsive Materials Based on Proton Transfer

Renewable Energy & Catalysis
Driving Reactions with Light
Nesnas Laboratory

Biochemistry & Biotechnology
Molecular Tools to Decode the Brain
Modified Retinoids to Study Vision

Materials & Nanotechnology
Host Guest Interactions

Medicinal & Synthetic Chemistry
Natural Product Isolation and Characterization

Advising: Agassi Tomegah
Olson Laboratory

Materials & Nanotechnology
Electron Tunneling Microscopy
Host Guest Interactions

Medicinal & Synthetic Chemistry
Molecular Analysis of Pharmaceuticals
Peverati Laboratory

Materials & Nanotechnology
Calculations for spectroscopy and energy science

Medicinal & Synthetic Chemistry
Molecular Modelling, Drug Design

Theoretical & Computational Chemistry
Density Functional Theory, Correlated Wave Function Methods, Algorithms & Software Development
Rokach Laboratory

Biochemistry & Biotechnology
Role of Enzymes and Receptors in Disease

Medicinal & Synthetic Chemistry
Synthesis of Important Molecules in Inflammation and Alzheimer’s Disease
Schoedel Laboratory

Materials & Nanotechnology
Reticular Chemistry of Functional Porous Materials

Renewable Energy & Catalysis
Metal-Organic Frameworks for a carbon-neutral energy cycle

Medicinal & Synthetic Chemistry
Crystals as Molecules and the Design of new Linkers

Advising: Max Gensib
Renewable Energy & Catalysis
Catalysts for CO$_2$ Reduction
Winkelmann Laboratory

Environmental Chemistry & Geochemistry
  Impact of Nanomaterials on Plant Physiology

Materials & Nanotechnology
  Nanoparticle Synthesis and Characterization
  Nanotechnology Education

Renewable Energy & Catalysis
  Photochemical Efficiency Measurements
Undergraduate Research Opportunities

Whatever your interests are in Chemistry, there are opportunities to get into the lab and gain important hands-on experience.
Seminar Series

Thursdays at 5 pm –

Notices on the entrances

New science and visiting speakers
Chemistry & Biochemistry

- Curriculum Overview
- Faculty Introduction
- Advisor Assignment

- Break (setup advisor meeting)

- Advice, Q&A
- UTeach presentation
- ACS Student Section presentation
American Chemical Society
FIT Student Chapter

Fall 2017: Edible Water Balloons Event
Made with Sodium Alginate and Kool-Aid

Spring 2018: Make Your Own Snow globe Event
Snow made from Benzoic acid crystals

floridatech.orgsync.com/org/fitacssa
Advice

• Go to class and labs, come prepared
• Utilize tutoring and supplemental instruction
• Begin to think about research interests
• Be proactive in meeting with advisor
• Attend Thursday afternoon seminar series
• Get involved in the ACS student section

• Check FIT email often