Survey of Research
The University of Toledo
Department of Chemistry and Biochemistry
CHEM 1910-001 (CRN: 14448)

Instructor: Xiche Hu
Email: xhu@utoledo.edu
Office Hours: by appointment
Office Location: Wolfe Hall 2277
Office Phone: (419) 530-1513
Term: Spring 2019

Class Location: BO 2059
Class Day/Time: M, 2:30-3:25 pm
Credit Hours: 1

COURSE/CATALOG DESCRIPTION
Survey of current research areas at the frontiers of chemistry, including topics that cross the boundaries with other disciplines. May be taken only as P/NC.

COURSE OVERVIEW
During the semester you will be introduced to several important aspects of research. Questions such as What is research, Why is research important for our world, What are some research areas in chemistry and Why is science a great career choice. You will see first-hand some instrumentation (tools) for conducting research and how these tools can be used to understand and unravel the mysteries of chemical reactions or chemical problems. Chemistry 1910 is designed to give you a perspective of research from all areas of chemistry: analytical, biochemical, inorganic, materials, organic, and physical. You will hear the practical applications of chemical research in all these areas, as well as descriptions of specific research projects and specialized techniques that are currently ongoing in the laboratories of many members of the faculty in the Department of Chemistry and Biochemistry at The University of Toledo. In many cases you will share the excitement of their recent discoveries.

STUDENT LEARNING OUTCOMES
Students will learn about and be introduced to
- what research is
- specific research being conducted at The University of Toledo
- new applications of research
- experimental problem solving
- scientific instrumentation for research
- opportunities to participate in research projects

TEACHING STRATEGIES
Students will interact weekly with faculty in discussions about different research topics
PREREQUISITES AND COREQUISITES
Prerequisite: none

REQUIRED TEXTS AND ANCILLARY MATERIALS
None

TECHNOLOGY REQUIREMENTS
None

UNIVERSITY POLICIES
Policy Statement on Non-Discrimination on the Basis of Disability (ADA)
The University is an equal opportunity educational institution. Please read The University’s Policy Statement on Nondiscrimination on the Basis of Disability Americans with Disability Act Compliance

Academic Accommodations
The University of Toledo is committed to providing equal access to education for all students. If you have a documented disability or you believe you have a disability and would like information regarding academic accommodations/adjustments in this course please contact the Student Disability Services Office

ACADEMIC POLICIES
Students are expected to follow the guidelines of student conduct as outlined in the Student Handbook (http://www.utoledo.edu/student_affairs/pdfs/studenthandbook.pdf)
General information and opportunities related to undergraduate research can be found at the Office of Undergraduate Research (http://www.utoledo.edu/honors/undergraduateresearch/)

COURSE EXPECTATIONS
Students are expected to attend class, pay attention and participate in discussions and activities.

GRADING
The course is graded as pass (PS) or no credit (NC). To receive a pass, students are required to attend each class period unless a valid excuse is obtained. Attendance will be taken. Three or more unexcused absences will result in a grade of NC.

COMMUNICATION GUIDELINES
Students will communicate directly with the weekly speaker on any questions from the weekly discussion. The course coordinator (Dr. Xiche Hu) is available for all general questions.

STUDENT SUPPORT SERVICES
General information and opportunities related to undergraduate research can be found at the Office of Undergraduate Research (http://www.utoledo.edu/honors/undergraduateresearch/)

COURSE SCHEDULE (see next page)
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<td>Jan. 14</td>
<td>Xiche Hu</td>
<td>Molecular Design of Enzyme Inhibitors as Anticancer Drugs</td>
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<td>Jan. 28</td>
<td>Peter Andreana</td>
<td>Using Chemistry to Probe Carbohydrate Biology</td>
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<td>Feb. 4</td>
<td>Leif Hanson</td>
<td>Research Instruments in the Instrumentation Center</td>
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<td>Feb. 11</td>
<td>Matt Wohlever</td>
<td>Quality Control of Mitochondrial Tail-Anchored Proteins</td>
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<td>Feb. 18</td>
<td>Jianglong Zhu</td>
<td>Chemical Synthesis of Biologically Significant Oligosaccharides</td>
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<td>Feb. 25</td>
<td>Steven Sucheck</td>
<td>Synthesis and Evaluation of Antibiotics and Vaccines</td>
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<td>Mar. 11</td>
<td>Dragan Isailovic</td>
<td>Analysis of Biomolecules and Biomarker Discovery by Mass Spectrometry</td>
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<td>Mar. 18</td>
<td>Cora Lind-Kovacs</td>
<td>Unusual Materials: Negative Thermal Expansion Materials</td>
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<td>Mar. 25</td>
<td>Michael Young</td>
<td>Green Chemistry Solutions to Challenges in Synthetic Chemistry</td>
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<td>Apr. 1</td>
<td>Yong Wah Kim</td>
<td>Molecular Structure by Nuclear Magnetic Resonance (NMR)</td>
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<td>Apr. 8</td>
<td>Emanuela Gionfriddo</td>
<td>Solid-Phase Microextraction in Food, Environmental and Bioanalysis: Development of High-throughput Analytical Methods and New Sampling Devices for Analysis of Complex Matrices</td>
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<td>Apr. 15</td>
<td>Mark Mason</td>
<td>Green Chemistry and Catalysis</td>
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<td>Apr. 22</td>
<td>Ajith Karunarathne</td>
<td>And There Was Light</td>
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