# Survey of Research

**The University of Toledo**

**Department of Chemistry and Biochemistry**

**CHEM 1910- 002 (CRN: 14449)**

**Instructor**: Jon R. Kirchhoff

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**Office Hours**: M, W 9:30-11 am; T 2-3 pm and by appointment)

**Office Location**: BO 2024

**Office Phone**: (419) 530-1592

**Term**: Spring 2022

**Class Location**: BO 2047 **Class Day/Time**: T 10:00-10:55 am

**Lab Location**: n/a **Lab Day/Time**: n/a **Credit Hours**: 1

**SPECIAL UNIVERSITY COURSE EXPECTATIONS DURING COVID-19**

Maintaining a safe campus during the ongoing COVID-19 pandemic remains a top priority. UToledo continues to follow the guidance of the U.S. Centers for Disease Control and Prevention and Ohio Department of Health to keep our campus safe.  
 **ATTENDANCE** The University of Toledo has a missed class policy. It is important that students and instructors discuss attendance requirements for the course. Before coming to campus each day, students should take their temperature and complete a self-assessment for symptoms of COVID-19, such as cough, chills, fatigue or shortness of breath. Anyone with a temperature at or above 100.0 degrees Fahrenheit or who is experiencing symptoms consistent with COVID-19 should not come to campus and should contact their primary care physician or the Main Campus Health Center at 419.530.3451 or Health Science Campus Student Health and Wellness Center at 419.383.5000. For more information on the symptoms of COVID-19, please go to <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>

COVID-19 testing for sick students is available on both Main Campus and Health Science Campus. Call 419.383.4545 for an appointment. Absences due to COVID-19 quarantine or isolation requirements **are** considered excused absences. Students should notify their instructors and follow the protocols summarized in this document on [Navigating COVID-Related Course Concerns](https://www.utoledo.edu/offices/provost/docs/covid-19/COVID%20student%20flow%20chart.pdf).

In the event that you have tested positive for COVID-19 or have been diagnosed as a probable case, please review the [CDC guidance](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fif-you-are-sick%2Findex.html&data=04%7C01%7CDenise.Bartell%40UToledo.Edu%7Cc3ecf55590d548a6006a08d95c3b8e19%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C637642233117266556%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=8jvRsGSu5bu%2BPHxfo75XszlKKqTfQig3w8ecZQR863w%3D&reserved=0) on self-isolation and symptom monitoring, and report the disclosure to the Division of Student Affairs by emailing [StudentAffairs@utoledo.edu](mailto:StudentAffairs@utoledo.edu) or by connecting with their on-call representative at 419.343.9946. Disclosure is voluntary and will only be shared on a need to know basis with staff such as in the Office of Student Advocacy and Support, The Office of Residence Life, and/or the Office of Accessibility and Disability Resources to coordinate supportive measures and meet contact tracing requirements.

**FACE COVERINGS**Face coverings are required while on campus, except while eating, alone in an enclosed space, or outdoors practicing social distancing. Students will not be permitted in class without a face covering. If you have a medical reason preventing you from wearing a face covering due to a health condition deemed high-risk by the CDC, submit an [online application](https://teton.accessiblelearning.com/Toledo/) to request an accommodation through the Office of Accessibility and Disability Resources. Students will need to provide documentation that verifies their health condition or disability and supports the need for accommodations. Students already affiliated with the Office of Accessibility and Disability Resources who would like to request additional accommodations due to the impact of COVID-19, should contact their accessibility specialist to discuss their specific needs. You may connect with the office by calling 419.530.4981 or sending an email to [StudentDisability@utoledo.edu](mailto:StudentDisability@utoledo.edu).

**VACCINATION**  
Doctors and other health care professionals agree that the best way to protect ourselves and each other is to get vaccinated. Case data clearly show that vaccines remain highly effective at preventing serious illness from COVID, including the highly contagious delta variant. If you have not yet received your COVID vaccine, the University encourages you do so as soon as possible. No appointment is needed to get the shot at the UTMC Outpatient Pharmacy, University Health Clinic or Main Campus Pharmacy. Once you receive the COVID vaccination, please register on the COVID Vaccine Registry site at: <https://utvaccinereg.utoledo.edu/>.

**SPECIAL NOTES**It is important to note, that based on the unpredictability of the COVID-19 virus, things can change at any time. So please be patient and understanding as we move through the semester. Please refer to [https://www.utoledo.edu/coronavirus/](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.utoledo.edu%2Fcoronavirus%2F&data=04%7C01%7CDenise.Bartell%40UToledo.Edu%7C08c78d1d6bd948bf874608d95e6a05de%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C637644631713174655%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=wbjCdV9R%2Fs6FK3F%2BmnBPUqBeqn7JOM1v3b7lr7tKo7E%3D&reserved=0) on a regular basis for updates to current requirements or mandates. I also ask that you keep me informed of concerns you may have about class, completing course work/assignments timely and/or health concerns related to COVID.

**COURSE SPECIFIC INFORMATION**

**CATALOG/COURSE 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**

Students will participate in a series of lectures or demonstrations covering a range of topics focusing on modern chemistry research with emphasis on areas of ongoing research in the Department of Chemistry and Biochemistry. Chemistry 1910 is designed to give you a perspective of research from all areas of chemistry: analytical, biochemical, inorganic, materials, organic, and physical. Students will see practical

applications of chemical research in these areas, as well as descriptions of specific research projects and specialized techniques.

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* will be examined. Students will see firsthand 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. In many cases you will share the excitement of recent discoveries.

Research is the search for new knowledge about the unknown. Research involves continued questioning and examination. As you begin your career as a scientist at The University of Toledo in Chemistry 1910, please feel free to ask questions of all the faculty or staff. The questions you ask today maybe tomorrow's new knowledge.

## **STUDENT LEARNING OUTCOMES**

Students will

* learn about the importance and significance of research
* examine specific research projects in the Department of Chemistry and Biochemistry
* explore instrumentation and various important chemistry techniques for studying chemical systems
* learn about opportunities for undergraduate research in the department
* meet potential faculty mentors for future research projects.

**TEACHING STRATEGIES**

Students will be exposed to scientific research through face-to-face lectures, demonstrations or hands on activities. Students may contact Dr. Kirchhoff with any questions or concerns. Specific research questions can be directed to any of the faculty or staff presenters.

**PREREQUISITES AND COREQUISITES**

None, except a willingness to listen, think and explore

**TEXTS AND ANCILLARY MATERIALS**

None

**TECHNOLOGY REQUIREMENTS**

Computer access to the internet will be necessary at times.

**ACADEMIC POLICIES**

All students at the University of Toledo are expected to read, understand, and follow the academic policies that govern their attendance at the University. These policies include, but are not limited to, academic dishonesty, academic forgiveness, adding and dropping a course, grades and grading, and the missed class policy. Please use the following URL to read a comprehensive list of academic policies that pertain to you in this class and throughout your academic journey. If you have any questions after reading through the policies, please let me know.

[**Undergraduate Policies**](http://www.utoledo.edu/policies/academic/undergraduate/)**:** <http://www.utoledo.edu/policies/academic/undergraduate/>

**COURSE EXPECTATIONS**

Attendance at each class period and a willingness to participate in class discussions and demonstrations. Use of cell phones or laptop computers during class is not allowed.

**Academic Honesty:** Ethical practices for conducting literature research and writing reports will be strictly enforced. Plagiarism of any sourced material is not appropriate and may result in the grade of NC for the class.

**OVERVIEW OF COURSE GRADE ASSIGNMENT**

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.**

**Midterm Grading**

Midterm grades are assigned to assist students in determining their academic standing.

Midterm grades will be based your attendance at the midpoint of the semester. The mid-term grade will allow you to gauge where you currently stand in the class, but is not a reflection of your final grade. Midterm grades will be entered at the midpoint of the semester.

**Drop, Withdrawal, and Incomplete Grades:** Course drop and withdrawal procedures have been set by the University faculty. Pay attention to the add/drop dates as they pass very quickly during the semester. Dates can be found at <https://www.utoledo.edu/offices/registrar/registration_dates_fall.html>

**The last day to withdraw from a course is Friday March 25, 2022.** Please note that course registration changes might change your financial aid.

If you decide you are not going to attend this class (or any other class you have registered for), you must formally withdraw (drop) from the course. You can do this by logging on to the myUTportal, clicking on the “Student” tab, and then under “MyToolkit” click on Register/Drop/Withdraw.

A course grade of incomplete is given only to those who have completed all but a small percentage of course requirements for an unexpected and acceptable reason.

**UNIVERSITY POLICIES**

Students can find a summary of university policies listed by audience on the [University Policy webpage](http://www.utoledo.edu/policies/audience.html/#students) (<http://www.utoledo.edu/policies/audience.html/#students>) and (<https://www.utoledo.edu/title-ix/policies.html>).

**Institutional Classroom Attendance Policy:** Please be aware that the university has implemented an attendance policy, which requires faculty to verify student participation in every class a student is registered at the start of each new semester/course. For this course, if you have not attended/participated in class (completed any course activities or assignments) within the first 14 days, I am required by federal law to report you as not attended. Unfortunately, not attending/participating in class impacts your eligibility to receive financial aid, so it is VERY important that you attend class and complete course work in these first two weeks. Please contact me as soon as possible to discuss options and/or possible accommodations if you have any difficulty completing assignments within the first two weeks.

**Policy Statement on Non‐Discrimination.** The University is an equal opportunity educational institution. Please read the relevant policies related to non-discrimination.

* Nondiscrimination 3364-50-02
* Nondiscrimination on the basis of disability - Americans with Disability Act (ADA) 3354-50-03

**Policies for Student Safety.** Your safety and well-being as a University of Toledo student is important to the faculty, staff, and administration. Please review the following policies.

* Student Code of Conduct 3364-30-04
* The University of Toledo's Title IX (Sexual Misconduct) Policy - 3364-50-01
* Consensual romantic and/or sexual relationships - Policy 3364-25-65

**Academic Accommodations.** The University of Toledo embraces the inclusion of students with disabilities. We are committed to ensuring equal opportunity and seamless access for full participation in all courses. For students who have an accommodations memo from Student Disability Services, I invite you to correspond with me as soon as possible so that we can communicate confidentially about implementing accommodations in this course. For students who have not established affiliation with Student Disability Services and are experiencing disability access barriers or are interested in a referral to

healthcare resources for a potential disability or would like information regarding eligibility for academic accommodations, please contact the [Student Disability Services Office](http://www.utoledo.edu/offices/student-disability-services/index.html) (http://www.utoledo.edu/offices/student-disability-services/) by phone: 419.530.4981 or email at [StudentDisability@utoledo.edu](mailto:StudentDisability@utoledo.edu).

## **ACADEMIC AND SUPPORT SERVICES**

Please follow this link to view a comprehensive list of [Student Academic and Support Services](http://www.utoledo.edu/studentaffairs/departments.html) (http://www.utoledo.edu/studentaffairs/departments.html) available to you as a student.

The university provides a variety of academic and support services on campus to help you succeed and reach your fullest potential. Whether you need to ask a question, get help with an assignment, seek advice from a counselor, find a job or join a club, UToledo is there for you! Examples of some of the resources for academic support or service are:

Tutoring: <http://www.utoledo.edu/success/lec/>

Library: <http://www.utoledo.edu/library/>

Success Coaching: <https://www.utoledo.edu/successcoach/>

Student Affairs: <http://www.utoledo.edu/studentaffairs/>

Career Services: <http://www.utoledo.edu/success/career/>

**SAFETY AND HEALTH SERVICES FOR UT STUDENTS**

Please use the following link to view a comprehensive list Campus Health and Safety Services available to you as a student. <https://www.utoledo.edu/offices/provost/utc/docs/CampusHealthSafetyContacts.pdf>. One example is the food pantry.

**Food Pantry:** <http://www.utoledo.edu/studentaffairs/food-pantry/>

**INCLUSIVE CLASSROOM STATEMENT**

In this class, we will work together to develop a learning community that is inclusive and respectful. Our diversity may be reflected by differences in race, culture, age, religion, sexual orientation, gender identity/expression, socioeconomic background, and a myriad of other social identities and life experiences. We will encourage and appreciate expressions of different ideas, opinions, and beliefs so that conversations and interactions that could potentially be divisive turn, instead, into opportunities for intellectual and personal development.

**COURSE SCHEDULE**

**January 18** **Jon Kirchhoff**

**January 25** **Emanuela Gionfriddo**

**February 1** **Jianglong Zhu**

**February 8** **Dragan Isailovic**

**February 15 Cora Lind-Kovacs**

**February 22 Instrumentation Center Team**

**March 1** **Instrumentation Center Team**

**March 8** **Spring Break**

**March 15**  **Eamon King**

**March 22** **Yong Wah Kim**

**March 29** **Wei Li**

**April 5**  **Matt Wohlever**

**April 12** **Michal Marszewski**

**April 19 Andy Jorgensen**

**April 26 Jon Kirchhoff**

**TOPICS**

**Emanuela Gionfriddo** *Microextraction Devices: A Convenient Tool for Chemical Analysis of Complex Matrices*

**Kristin Kirschbaum** *Fun with Sugars Part I*

**Jennifer Gadient** *Fun with Sugars Part II*

**Mollie Enright**

**Cassandra Zamora**

**Dragan Isailovic** *Analysis of* *Biomolecules and Biomarker Discovery by Mass Spectrometry*

**Andrew Jorgensen** *Energy Sources and Energy Uses*

**Yong-Wah Kim** *NMR Spectroscopy in Materials Research*

**Jon Kirchhoff** *Tales from the Periodic Table*

**Wei Li** *Photochemistry and Life*

**Cora Lind-Kovacs** *Materials Chemistry: A Playground for Chemists*

**Eamon King**  *The Art of Scientific Glassblowing: Cuts and Burns 101*

**Michal Marszewski** *Nanomaterials for Energy and Environmental Applications*

**Matt Wohlever** *Quality Control of Mitochondrial Membrane Proteins*

**Jianglong Zhu** *Chemical Synthesis of Biologically Significant Oligosaccharides*