**Chem 435 Advanced Inorganic Chemistry**

**Syllabus Fall 2019**

# MWF 1:00-1:50pm in SCIC 310

**Dr. Terrie Salupo:** SCIC 314, office phone 982-5318, home phone 982-6336 (8am-9pm)

 Office hours.: Mon and Wed 2:00-2:50pm, Thurs 11-11:50am

 or by appointment

 E-mail: tsalupo@manchester.edu

**Textbook (required):** *Inorganic Chemistry* by Weller, Overton, Rourke, and Armstrong 7th Edition, Oxford University Press, 2018.

**Course Overview:**

Many of the topics in this course have their origins in the topics that you covered in General Chemistry but will be covered in more detail. You will find that many of the rules you learned in
General Chemistry are actually the exception, and that chemical systems are much more complicated than the simple models presented in a first year course. We will begin with the electronic structure and periodic properties of atoms followed by discussion of covalent, ionic, and metallic bonding theories and structures. We will also apply acid-base and redox principles to inorganic systems. The second half of the course will be dedicated to transition metal chemistry, a vast area of chemistry that typically gets little coverage in other courses in the Chemistry curriculum. We will discuss crystal field theory, spectroscopy, reactions, and applications of the *d*-block elements including organometallic chemistry and catalysis.

**Homework:** Graded assignments will be given for each chapter.

**Oral Presentation:** At the end of the semester you will deliver a class presentation on an article in the literature that applies Inorganic Chemistry concepts covered in this course. Further details will be given later.

**Exams:** Three exams in addition to the final exam will be given.

**Final Exam:** Your final exam will be the ACS Standardized Exam for Inorganic Chemistry.

**Grading:**

**Chapter exams (65%)**

**Homework assignments (15%)**

**Oral presentation (5%)**

**Final exam (15%)**

**A (93+), A- (90-92)**

**B+ (87-89), B (83-86), B- (80-82)**

**C+ (77-79), C (73-76), C- (70-72)**

**D+ (67-69), D (63-66), D- (60-62)**

**F = 59 and below**

**By the end of this course students will be able to…**

* apply principles of atomic structure to explain periodic trends.
* construct MO diagrams  and use them to predict and explain physical and bonding properties of molecules.
* assign point groups to molecules and symmetry labels to molecular orbitals and IR vibrations.
* identify solid state structures and crystal packing; Calculate the energy of crystal formation.
* predict the extent of an acid-base reaction using hard-soft acid-base theory.
* use Crystal Field Theory to explain physical and spectroscopic properties of transition metal complexes.
* identify the overall reaction in a catalytic cycle and determine the metal electron count and  oxidation state.

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| **Academic Integrity**  |

Academic dishonesty in any form is a serious offense. Academic dishonesty includes, but is not limited to, cheating on exams or quizzes; submitting another’s work as your own, in whole or in part; failing to correctly cite any sources used; and falsifying documentation. All written and oral assignments must be your original work and may not be submitted concurrently with another class without specific written permission of both instructors. Academic dishonesty will not be tolerated and may result in failure on the assignment or in the course. It is your responsibility to know what constitutes academic dishonesty; ignorance of the policy is not a valid excuse. Please see *The Source* Handbook for specific university policy. If you are not sure what constitutes plagiarism, please address these questions before the assignment is due.

**Plagiarism** is the presentation of information (either written or oral) as one’s own when some or all of the information was derived from some other source. Specific types of plagiarism encountered in written and oral assignments include the following:

* Sources have been properly identified, but excerpts have been quoted without proper use of quotation marks; or the material has been slightly modified or rephrased rather than restated in the student’s own words.
* Key ideas or items of information derived from specific sources that present material that is not common knowledge have been presented without proper identification of the source or sources.
* Unidentified excerpts from other sources have been woven into the student’s own presentation.
* A paper or speech may be a mosaic of excerpts from several sources and presented as the student’s own.
* An entire paper or speech has been obtained from some other source and presented as the student’s own.
* Texts in another language are translated into English and presented as the student’s own.

**Cheating** consists of any unpermitted use of notes, texts or other sources so as to give an unfair advantage to a student in completing a class assignment or an examination. Intentionally aiding another student engaged in academic dishonesty is also considered cheating.

Violations of academic integrity may result in academic sanctions, including failure of an assignment, course failure, or disqualification from the University.

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| **Student Disability and Reasonable Accommodation Policy**  |

Manchester University, in compliance with federal guidelines, is committed to assuring students with disabilities equal access to programs and activities however, it is the student’s responsibility to self-disclose the disability. Students who feel they may need an accommodation based on the impact of a disability should contact the Disability Support Coordinator to establish eligibility and to coordinate reasonable accommodations. Students whose accommodation requests are approved will be provided with confidential letters to deliver to their professors. Each letter verifies the disability and documents the need for auxiliary aids and services and/or academic adjustments/accommodations. Students are encouraged to meet with each professor early in the semester to discuss academic implications as they relate to each specific course and to request appropriate accommodation. The Disability Support Services office is in the Success Center and can be reached by phone at 260-982-5888 or 260-982-5499 to schedule an appointment.

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| **Title IX Student Conduct Reporting Requirement** |

Manchester University is committed to fostering a safe community where the infinite worth of all individuals is respected. Title IX and institutional policy prohibit discrimination on the basis of sex and gender identity. Consequently, sexual misconduct— including harassment, domestic and dating violence, sexual assault, and stalking — is also prohibited at Manchester. Faculty, staff and administrators encourage anyone experiencing sexual misconduct, dating/domestic violence, or stalking to talk to someone about what happened, so they can get the support they need and Manchester University can respond appropriately.

To speak confidentially with a Manchester employee/on-campus representative about an incident of sexual misconduct, please contact:

**MU Counseling Services** (260-982-5306) **MU Health Services** (260-982-5306)

**MU Campus Pastor** (260-982-5243) **CARE Initiative** (260-982-5027)

**North Manchester Campus Victim Advocate** (260-563-4407)

Off-campus resources include the following:

Hands of Hope (Service to North Manchester Campus-24/7 Hotline 260-563-4407)

Fort Wayne Sexual Violence Treatment Center (Service to both Fort Wayne & North Manchester Campuses-24/7 Hotline 260-423-2222)

YWCA of Northeast Indiana (Domestic Violence & Sexual Violence: 260-447-7233)

**Individuals who wish to file a report of sexual misconduct should contact** the Title IX Coordinator (260-470-5721) or/and Manchester University Campus Safety (260-982-5999).

For questions about institutional policies and procedures regarding sexual misconduct, please contact the Title IX Coordinator. To make a police report, contact the North Manchester Police Department (260-982-8555) or Fort Wayne Police Department (260-472-1222).

Learn more about Title IX and survivor support at the following websites: <https://www.manchester.edu/about-manchester/university-priorities/title-ix> & <https://www.manchester.edu/student-life/care-initiative/care-intitiative-home>.

\*\*Manchester University strives to uphold privacy and confidentiality as much as possible and only shares information received with those who have a need to know in order to respond.  Individuals who desire anonymity in discussing and seeking assistance about sexual misconduct should contact and/or be referred to a ***confidential employee***.\*\*

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| **Medical Emergency/Evacuation Assistance Statement** |

Students should speak to the instructor immediately if (1) they may require medical attention during class, or (2) they have a disability, chronic condition, or a temporary injury that may limit or affect their ability to evacuate the classroom/building in an emergency. The student and the instructor should discuss the student’s specific needs and the types of precautions that should be made in advance of such an event. In the event of a fire or other situation requiring emergency evacuation, students with ambulatory disabilities are to go with or without assistance to the nearest stairwell area. Faculty and staff will assist with evacuation management efforts until such time as the Campus Safety and/or Police and Fire Departments arrive on the scene to assist in student evacuation from the building. Elevators are not to be used for evacuation by any persons.Students who need special arrangements in the event of an evacuation should also register with Mia Miller in the Success Center as early as possible in the semester to help facilitate the provision of needed emergency assistance.**Spartan Success: Student Success and Intervention Coordination System**  |

This course participates in Spartan Success Early-Alert, which is designed to support students’ academic success, persistence and graduation. When a concern arises that the Instructor believes may impede or disrupt a student’s academic success, the instructor will raise an alert flag that notifies the student about the concern and/or refer the student to key individuals within the student’s success network. If a student receives an email notification of an early alert, it is that student’s responsibility to contact the instructor as soon as possible to discuss the issue. The purpose of the contact should be to determine the severity of the issue and develop an action plan to be successful in the course. The Spartan Success program is coordinated through Success Advising. For more information or questions, contact spartansuccesssupport@manchester.edu or the Success Advisors directly by phone at 260-982-5250.

Issues not addressed here or in other official course documents will be resolved at the discretion of the course coordinator.