Chemistry 311, Advanced Inorganic Chemistry  
Spring 2021

All information is subject to change due to COVID restrictions.

Instructor: Dr. Jason Overby  
Office: SSMB 318  
Office Hours: MWF 9-11, others by arrangement (contact me directly, by email or by phone)  
e-mail: overbyj@cofc.edu  
Phone: 953-8098

Description of Course

An advanced course that aims to provide a balanced view of the theoretical principles involved in present-day inorganic research. Topics include atomic structure, chemical bonding, coordination chemistry, symmetry and applications, organometallic chemistry, and chemistry of the main group elements.

Co-requisites and prerequisites

Chem 232

Materials

Inorganic Chemistry, 5th Edition, Miessler & Tarr (optional)  
Chemistry 311 Class Pack, 15th Edition (required)  
Sapling (required)

You must get class pack.  
The textbook is optional.  
Yes, it is helpful.

Supplemental materials

Please visit OAKS for up-to-date information concerning the course. Copies of the syllabus, handouts and exam info will be posted there as well as other important information related to the course.

Learning Objectives
After completing the course, you should be able to do the following:

Understand the quantum mechanical nature of atoms and molecules including bonding and molecular geometry

Use symmetry and group theory to understand point groups as well as apply this knowledge to spectroscopy

Know the principles of molecular orbital theory

Be able to understand the principles of Lewis acids and bases

Understand the structure of solid state materials including defects and bonding

Know the fundamentals of coordination chemistry including bonding and reactivity

Understand the basic ideas of organometallic chemistry including electron counting, bonding, and the major types of reactions, particularly those used in catalysis

Know the major roles of metal species in biological species as well as understand the role of metals in the environment

---

**Class policies**

Attendance at all class meetings is expected. You are expected to budget your time wisely and meet your obligations for this class. Experience has demonstrated that there is a strong correlation between your grade in the class and your attendance. You are responsible for learning the material when you miss class. My time in office hours is not for catching you up on material you missed. In the event you miss a lecture period, please check the webpage for a synopsis of that day’s lecture.

Attendance is good. Being present helps you learn but not required.

---

**Grading Scheme**

- Progress Activities: 60%
- Problem Sets: 20%
- Writing Assignments: 10%
- Final Course Activity: 10%
**Grading Scale**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>92-100</td>
</tr>
<tr>
<td>A−</td>
<td>90-91</td>
</tr>
<tr>
<td>B+</td>
<td>88-89</td>
</tr>
<tr>
<td>B</td>
<td>82-87</td>
</tr>
<tr>
<td>B−</td>
<td>80-81</td>
</tr>
<tr>
<td>C+</td>
<td>78-79</td>
</tr>
<tr>
<td>C</td>
<td>72-77</td>
</tr>
<tr>
<td>C−</td>
<td>70-71</td>
</tr>
</tbody>
</table>

Grading scale is fixed. All rules of rounding followed. There is not a curve.

**Grading Policies**

It is not my policy to allow make-up examinations. In the event you do have to miss an examination, you must notify me as soon as possible so suitable accommodations can be made. If you fail to confer with me concerning a missed examination, you will receive a zero for that examination.

Make-up very hard. Only the excused can try. Don’t miss anything!

Problem sets will be administered electronically and deadlines are firm. The possibility for deadline extensions does not exist except only in truly unusual circumstances. Ample time to complete the online problems will always be given.

Problem sets given. The deadlines are set in stone. One week to do them.

The Honor system is in effect in all your efforts for this course. Cheating will not be tolerated. If you are caught cheating, a grade of “F” will automatically be given and you will be brought before the Honor Board. Please refer to the Department’s policy on Scientific Integrity for more information. By enrolling in this course, you are agreeing to abide by the Departmental policy on Scientific Integrity.

Honor system, yes! Do not cheat! You will get F! Just try me and see.

**Progress Activity Schedule**

There are three progress activities given over the course of the semester. The dates of the progress activities are flexible but you will always be given at least one week’s notice before any of the in-class progress activities.

All things are spread out. You will know when they will be. I will tell you when.

**Final Course Activity Information**
The final course activity will be given during the normally scheduled time (April 28 at 8 am). The exam will be similar in format to a regular lecture examination and will not be comprehensive as it will only cover material from the third examination and beyond.

**Accommodations for Students with Disabilities**

If there is a student in this class who has a documented disability and has been approved to receive accommodations through the Center for Disability Services/SNAP (Students Needing Access Parity), please come and discuss this with me.

**Important Dates**

January 18 – Martin Luther King, Jr. Holiday  
April 5 – Last day to withdraw from classes with the grade of “W”  
April 21 – Last day of our class  
April 28 – Final course activity, 8 am