Special Topic in Inorganic Chemistry:
Medicinal Inorganic Chemistry
CHEM 395
Spring 2017

Course Description:

This is an upper level undergraduate or graduate course, and the goal is to provide students with a broad understanding of the roles of inorganic (coordination or organometallic) compounds as both therapeutic and diagnostic medicines. The focus is on general strategies and challenges of research and development of metallodrugs. The most widely used compounds that are currently approved in the U.S. and/or European Union will be discussed. In addition, promising novel compounds that are in clinical trials will be mentioned. The aim is to direct medicinal inorganic chemistry into a discipline of central importance in medicine and science.

Instructor: Wei-Tsung Lee, office FH 402A, telephone (773)508-3205.

Time and Location: Tuesday and Thursday, 7:00–8:15 pm, FH 105

Office Hours: Tuesday and Wednesday 4:00–5:00 pm or by appointment.

Prerequisites: CHEM 307, 340

Reference Materials:

No textbook is required for this course, however, handouts the will be distributed as the course progresses. Lecture contents are consist of journal articles and reviews.

Grading:

Grading will be based on homework assignments (25%), one midterm exam (20%), a final exam (30%) and a presentation (25%). On homework assignments, two or three randomly selected problems will be graded, but the solutions to all the problems will be posted after the assignment is due.

Grading Scale:

		A	> 87%	A-	83–87%
B+	80–83%	B	77–80%	B-	73–77%
C+	70–73%	C	67–70%	C-	63–67%
D+	60–63%	D	57–60%	D-	53–57%
		F	< 53%		

Presentation/Hands-on Example:

Each student will give a 20–25 minute presentation on a coordination/organometallic compounds for medicinal purposes from the literature or a hands-on example. The presentation will include theory, example of spectra or data, discussion of how data is obtained and processed, discussion of how data is interpreted to solve a chemical problem. The hands-on example can be one that is readily performed by you in your research projects.

Topics and Approximate Schedule: *(There will be some guest speakers in the course)*

Week (estimate)	***Topics***
1	Introduction and Fundamental Coordination Chemistry and Organometallics
2	Fundamental Coordination Chemistry and Organometallics
3	Diagnosis: MRI Contrast Agents
4	Diagnosis: MRI Contrast Agents
5	Diagnosis: Nuclear Medicines
6	Diagnosis: Nuclear Medicines
7	Diagnosis: Other
7	Midterm Exam
8	Therapeutics: Anticancer Agents - Radiopharmaceuticals
9	Therapeutics: Anticancer Agents - Chemoagents
10	Therapeutics: Antidiabetic Metallodrugs
11	Therapeutics: Miscellaneous
12	Guest Lecture and Student Presentation
13	Student Presentation
14	Student Presentation
15	Student Presentation
16	Final Exam