Course Objectives.

The objectives of this course are to provide the students with

1. A fundamental understanding of transition metal-mediated organic chemistry and chemocatalysis in the context of homogeneous catalytic systems currently being used in organic synthesis (*e.g.* cross coupling, olefin metathesis, asymmetric hydrogenation, aldol condensation, acid-base catalysis, phase transfer catalysis etc.).

2. Understand the basic principles that govern the electronics, structure and bonding in inorganic and organometallic complexes, explore the fundamental and experimental aspects of elementary catalytic transformations, apply elementary organometallic reactions in the context of catalysis and new reactivity, predict the reactivity pattern of organometallic complexes and apply organometallics to other fields such as organic synthesis, polymerization, bioinorganic chemistry, etc.

3. Knowledge directed towards to the development of latest technologies and methodologies for pseudo-enzymic Organocatalysis

Structure, properties, and bonding of ligands commonly encountered in organometallic chemistry.
Lewis Dot Structures, Properties of the Transition Elements, a Brief History of Organometallics. Electron Counting Formalisms, Structure and Bonding in Organometallic Complexes
Overview of Elementary Organometallic Transformations, Ligand Substitution Reactions Physical methods used for the study of organometallic compounds.
Oxidative Addition Reactions, Reductive Elimination Reactions, Sigma Complexes and Sigma Bond Metathesis, Migratory Insertion Reactions
Chemical behavior of organometallic compounds (metal-centered reactions and ligand-modification reactions)
Applications of organometallic compounds in organic synthesis (cross coupling, olefin metathesis, asymmetric hydrogenation, Tsuji-Trost reaction etc.)
Synthesis via C-H Activation, Carbon-Heteroatom Bond-

Forms of academic dishonesty:

1) **Cheating**: Using unauthorized notes or study aids, allowing another party to do

similar work in more than one course without permission from the course instructors; deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.

2) **Aid of academic dishonesty**: Intentionally facilitating any act of academic dishonesty. Tampering with grades or taking part in obtaining or distributing any part of

5) Falsification of student transcript or other academic records; or unauthorized access to academic computer records.
6) Nondisclosure or misrepresentation in filling out applications or other university records.
7) Any action which may be deemed as unprofessional or inappropriate in the professional community of the discipline being studied.

Non-academic misconduct (see page 23, section 100 of the student handbook)**:**
The university respects the rights of instructors to teach and of students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with these rights will not be tolerated; examples include
1) interfering with the instructor's ability to conduct the class,
2) causing inability of other students to profit from the instructional program, or
3) any interference with the rights of others.
An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under non-academic procedures.

Ongoing behaviors or single behaviors considered distracting (e.g., coming late to class, performing a repetitive act that is annoying, sleeping or reading a newspaper in class, etc.) will be addressed by the faculty member initially either generally or individually. Cases in which such annoying behavior becomes excessive and the student refuses to respond to the faculty mem
case of serious disruptive behavior in a classroom the instructor may first request compliance from the student and if it is not received, an instructor has the authority to ask the student to leave the classroom. If the student fails to leave after being directed to do so, assistance may be obtained from other university personnel, including University Police Department. An individual engaging in such disruptive behavior is subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under non-

Six-drop policy:
The following provision (new in Fall 2007) does not apply to students with Texas public college or university credits prior to Fall 2007. The Texas legislature has enacted a limit to the number of course drops allowed to a student without penalty. After a student has dropped six courses, a grade of QF will normally be recorded for each subsequent drop. If you need additional information on Senate Bill 1231 and how it affects you, please

Comments:

I will not take formal attendance but class attendance is a very practical necessity. Please note that attendance policies may vary by college). No late assignments will be accepted. Graduating seniors who need to schedule an early final should inform the instructor early in the semester. Students should turn off their cell phones during class.

The syllabus is intended to be informational and not contractual. The instructor reserves the right to amend, alter, change, delete, or modify the syllabus with notice (announced during the lecture season) in any manner that is deemed necessary and in the best interest of the Department of chemistry and Texas A & M University-Kingsville.

It is the responsibility of the student to keep the original graded copies of all materials (exams, problem set, in-class assignments, etc.) that have been returned for his/her records. Graded final exams are retained by the instructor for his/her permanent records.

Classroom Policies:

1. You are expected to conduct yourselves as mature professionals in class. Questions and discussions regarding the material are welcomed. Chatting and visiting are best done before or after class.
2. **CELL PHONES HAVE BEEN A MAJOR DISTRACTION. PLEASE TURN OFF YOUR CELL PHONES AND PUT IT AWAY WHEN YOU COME TO CLASS!**
3. dispose properly of anything you bring.