

**Texas A & M University-Kingsville**

**CHEM 5412, Asymmetric Synthesis**

**Course Description:**

The course is for graduate students majoring in a field of science or engineering. The

Selected Journal Articles.

**Course Objectives:**

Develop a fundamental understanding of the concepts of stereoisomerism, optical activity and chirality.

Learn the principle methods that are used to prepare enantiomerically pure products from achiral starting materials.

Discover reacti

Chiral Aldol reactions.

-----2 weeks

Industrial asymmetric synthesis; a case history.

Chiral Drugs: Regulatory Aspects.

Chiral Non-steroidal Anti-inflammatory Profen Drugs.

Synthesis of Enantiomerically Pure Nucleosides including (-)Carbovir and Lamivudine (AZT analogues- Glaxo)

Rational Design in Resolution: Captopril synthesis (Bristol Myers Squibb).

Resolutions vs. Chiral synthesis in Drug Development. Duloxetine (Prozac analogue) Loracarbef and LY 300502 (Eli Lilly)

----- 4 weeks

**Student learner outcomes:**

At the successful completion of this course, you will demonstrate understanding of the key elements of developing practical methods for the synthesis of enantiomerically pure organic compounds with a special emphasis on the design of economically feasible chiral processes by successful completion of an assessment exam.

**Method(s) of evaluation and grading procedures:**

Evaluation of the course objectives will be assessed by the evaluation of two major examinations (hour exams) and a comprehensive final examination.

Examination 1	100pts
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Examination 2	100pts
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Examination 3, Comprehensive (Final)	200pts
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Total	400 pts
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Due to time constraints no make-up examinations will be given. A student who can document an excused absence receives a grade based on his/her exam average. A

Seminar Program. Students are strongly encouraged to attend the seminars offered in the Department of Chemistry. They will earn 10(bonus points)

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.

This chemistry 5412 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