CHEM 234 Organic Chemistry 2

Credit Hours: 3

Scheduled hours per week

Lecture: 3
Lab: 0
Other: 0

Catalog Course Description: Continuation of CHEM 233 to include spectroscopic methods, theory and interpretation. Classes of compounds studied include alkynes, aromatics, carbonyls, amides, amines, and synthetic polymers. Mechanisms studied include electrophilic aromatic substitution, Aldol condensation, esterification, and polymerization. Lab work includes some computer simulation, unknown analysis, & individual work

Pre-requisites: CHEM 115, CHEM 115L; CHEM 116, CHEM 116L; CHEM 233, CHEM 235

Co-requisites: CHEM 236

Course Learning Outcomes:

- To prepare students for successful entry into professional programs (medicine, dentistry, pharmacy, engineering et al.)
- To assure students may successfully transfer to a four-year institution having completed the first two years of a four-year degree program in chemistry.

Topics to be studied:

- Spectroscopy (IR, UV, visible, NMR, and mass spectroscopy)
- Carboxylic acids and their derivatives (nomenclature, preparation and reactions)
- Mechanisms of attack at the carbonyl center (nucleophilic substitution and addition)
- Aldehydes and ketones (nomenclature, preparation and reactions)
- Organic oxidation and reduction reactions
- Reactions at carbon alpha to a carbonyl (condensations and complex synthesis)
- Carbohydrates (nomenclature, stereochemistry and synthetic considerations)
- Amino acids and proteins (nomenclature, bonding, structure analysis)
- Chemistry of drug synthesis, special topics

Relationship of Course to Program or Discipline Learning Outcomes:

Relationship of Course to Science Learning Outcomes:	
Students will learn the process and reasoning behind the Scientific Method and be able to conduct experiments that meet the requirements of the model.	X
Students exhibit the basic safety-related rules and regulations of working in the lab.	X
Students be able to recount the basic safety tenants associated with a specific scientific discipline.	X
Students will become proficient at Science Writing.	X
Students will recognize and identify the applications of their specific discipline in the 'real world.'	X

Students will accurately recount important milestones in the history of scientific inquiry in their discipline.	X
10/30/2017	

Relationship of Course to General Education Learning Outcomes:	
Composition and Rhetoric Students illustrate a fundamental understanding of the best practices of communicating in English and meet the writing standards of their college or program-based communication requirements.	X
Science & Technology Students successfully apply systematic methods of analysis to the natural and physical world, understand scientific knowledge as empirical, and refer to data as a basis for conclusions.	X
Mathematics & Quantitative Skills Students effectively use quantitative techniques and the practical application of numerical, symbolic, or spatial concepts.	X
Society, Diversity, & Connections Students demonstrate understanding of and a logical ability to successfully analyze human behavior, societal and political organization, or communication.	
Human Inquiry & the Past Students interpret historical events or philosophical perspectives by identifying patterns, applying analytical reasoning, employing methods of critical inquiry, or expanding problem-solving skills.	
The Arts & Creativity Students successfully articulate and apply methods and principles of critical and creative inquiry to the production or analysis of works of art.	
10/30/2017	

Special requirements of the course:

Additional information:

Prepared by:

Date: 10/30/2017