DATE OF LAST REVIEW: 02/2013

CIP CODE: 24.0101

SEMESTER: Departmental Syllabus

COURSE TITLE: Organic Chemistry I Lab

COURSE NUMBER: CHEM-0213

CREDIT HOURS: 2

INSTRUCTOR: Departmental Syllabus

OFFICE LOCATION: Departmental Syllabus

OFFICE HOURS: Departmental Syllabus

TELEPHONE: Departmental Syllabus

EMAIL: Departmental Syllabus

KCKCC-issued email accounts are the official means for electronically communicating with our students.

PREREQUISITES: College Chemistry II and Lab, CHEM-0112

REQUIRED TEXT AND MATERIALS: Contact the Bookstore (www.kckccbookstore.com) for the current textbook and supporting materials for this course.

COURSE DESCRIPTION: This first-semester laboratory deals with the fundamental techniques involved in organic laboratories such as distillation, crystallization, extraction, solubility, and various types of chromatography. Four laboratory hours per week are required. It is recommended that students enroll concurrently in Organic Chemistry CHEM-0211.

METHOD OF INSTRUCTION: A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE:
I. Separation, purification, and crystallization of benzoic acid and acetanilide
II. Thin layer chromatographic (TLC) separation of Eugenol. Analgesics, and plant pigments
III. Extraction of caffeine from tea
IV. Separation of neutral, acidic, and basic substances
V. Preparation of 1-bromobutane
VI. Dehydration of 2-methyl-2-butanol - Preparation and GC analysis of an alkene mixture.
VII. Some Nucleophilic Substitution Reactions of Alkyl Halides
VIII. Dehydration of cyclohexanol to cyclohexene
IX. Oxidation of cyclohexene to adipic acid
X. Qualitative analysis of Alkanes and Alkenes

EXPECTED LEARNER OUTCOMES:

1. The students will be able to demonstrate a working knowledge of the proper use of standard laboratory equipment in organic chemistry (separatory funnels, heating mantles, condensers, etc.)
2. The student will be able to perform, explain and illustrate common laboratory techniques.
3. The student will be able to follow procedures, carry out reactions, isolate, purify and analyze the product.
4. The students will be able to record, tabulate and report scientific data and results in an organized fashion.

COURSE COMPETENCIES:

The students will be able to demonstrate a working knowledge of the proper use of standard laboratory equipment in organic chemistry (separatory funnels, heating mantles, condensers, etc.)

1. The students will be able to perform simple laboratory operations with standard organic glassware in the process of completing simple organic synthesis reaction schemes.

The student will be able to perform, explain and illustrate common laboratory techniques.

2. The students will be able to perform simple laboratory operations such as distillations.
3. The students will be able to perform simple laboratory operations such as recrystallizations.
4. The students will be able to perform simple laboratory operations such as extractions.
5. The students will be able to explain simple laboratory operations such as distillations.
6. The students will be able to explain simple laboratory operations such as recrystallizations.
7. The students will be able to explain simple laboratory operations such as extractions.
8. The students will be able to illustrate simple laboratory operations such as distillations.
9. The students will be able to illustrate simple laboratory operations such as recrystallizations.
10. The students will be able to illustrate simple laboratory operations such as extractions.

The student will be able to follow procedures, carry out reactions, isolate, purify and analyze the product.

11. The student will be able to perform reactions on alkenes, alcohols and aromatic compounds.
12. The students will be able to calculate percent yield.
13. The students will be able to calculate enantiomeric excess.
14. The students will be able to calculate other kinetic or thermodynamic parameters measured in the lab.
15. The student will be able to perform analyses of organic compounds and mixtures using modern instrumental methods including ultraviolet spectroscopy, infrared spectroscopy, and gas chromatographic mass spectrometry (GC/MS).

The students will be able to record, tabulate and report scientific data and results in an organized fashion.

16. The students will be able to record scientific data in an organized fashion (i.e. keep a good laboratory notebook).
17. The students will be able to tabulate scientific data in an organized fashion (i.e. keep a good laboratory notebook).

METHOD OF INSTRUCTION: Laboratory experiments will serve to reinforce, supplement, and provide a context for materials presented CH 211 lectures. Other instruction methods, such as videos, demonstrations, and discussions may be utilized.

ASSESSMENT OF LEARNER OUTCOMES: The student will be evaluated by means of classroom participation, laboratory reports, homework problems, exams, quizzes, and a final exam.
SPECIAL NOTES:
This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

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