Eastern Illinois University
New Course Proposal
CHM 2445, Chemistry Laboratory I

1. Catalog description
   (a) Course number: CHM 2445
   (b) Title: Organic Chemistry Laboratory I
   (c) Meeting times and credit: 0-3-1
   (d) Term(s) to be offered: F, S
   (e) Short title: Org Chem Lab I
   (f) Course description
      An introduction to common laboratory techniques of organic chemistry. Representative
      reactions of alkanes, alkenes, alkynes, alkyl halides, and aromatic compounds;
      spectroscopy of organic compounds.
   (g) Prerequisites: CHM 1410, 1415; concurrent enrollment or prior credit in CHM 2440.

2. Objectives of the Course
   The course is the first in a two-semester sequence in organic chemistry laboratory. The
   sequence is intended to give the student experience with applied concepts from CHM 2440.
   The course is writing-intensive.

3. Outline of the Course
   Week 1: Check-in and Melting Points
   Week 2: Recrystallization. Characterization of Product by Melting Point
   Week 3: Simple and Fractional Distillation
   Week 4: Infrared Spectroscopy. Characterization of Distillation Product by IR Spectroscopy
   Week 5, 6: Alkene Addition Reaction. Characterization of Product by IR Spectroscopy
   Weeks 7, 8: Synthesis of Alkene. Characterization of Product by IR Spectroscopy and Gas
      Chromatography
   Weeks 9, 10: Alkyne Reaction. Characterization of Product by IR Spectroscopy
   Week 11, 12: Alkyl Halide Reaction. Characterization of Product
   Week 13, 14: Electrophilic Aromatic Substitution Reaction. Characterization of Product by
      TLC.
   Week 15: Checkout

   Students will be evaluated by the quality of a written report on each experiment and by
   performance on quizzes. Evaluation of written assignments will determine 36% of the course
   grade.

4. Implementation
   (a) Faculty member(s) to whom the course may be assigned: Dr. Black, Dr. Chesnut,
      Dr. Furumo
   (b) Specification of any additional costs to students: $10 course fee for consumable
      materials (identical to the approved fee for CHM 2435, one section of which will be
      replaced by the proposed course each semester); safety goggles; laboratory notebook;
      breakage fees
   (c) Text and supplementary materials to be used, including publication dates.
      Organic Laboratory Techniques by Pavia, Kriz, Lampman, Engel; 1998
(d) Term to be first offered: Fall 2001

5. Rationale
(a) Purpose and need
Organic chemistry is fundamentally important for chemistry itself and for the entire spectrum of biological sciences and health-related sciences. A significant number of students from the biological sciences take an entire year of organic chemistry because it strengthens their understanding of biological processes and prepares them for professional exams such as the MCAT, DAT, and PCAT. The proposed course will specifically apply concepts covered in the first semester of a lecture course (in organic chemistry) taken by students who need a full year of organic chemistry.

(b) Justification of the level of the course and a list of all prerequisites
This organic chemistry course is based on concepts that are introduced in general chemistry; hence the prerequisite of a full year of general chemistry. Because the proposed course will apply material covered in a lecture course in organic chemistry, concurrent enrollment or previous credit in the lecture course is required. By introducing functional groups and the energetics of reactions, organic chemistry also serves as a bridge to more advanced courses, including biochemistry and physical chemistry; hence, the course is directed at sophomores.

(c) Similarity to existing courses and/or effect upon programs in other departments.
The proposed course is somewhat similar to CHM 2435, the first course in the existing laboratory sequence. However, CHM 2435 is different in that it broadly surveys all the major categories of organic compounds and complements a different lecture course (CHM 2430).

The proposed course is designed to ensure close correspondence between laboratory topics and the material covered in the first-semester organic lecture course (CHM 2440). This close correspondence is not achievable in CHM 2435, which must illustrate a broader range of topics in less detail.

No courses are to be deleted. The existing laboratory course (CHM 2435) will still be offered for students who need only a single semester of organic chemistry laboratory. The number of sections of CHM 2435 offered each semester will be adjusted to accommodate the proposed course.

Any program in a department other than chemistry that requires a student to take a full year of organic chemistry laboratory will need to be modified to include the proposed course since CHM 2435 will no longer be an acceptable prerequisite for a second semester of organic chemistry laboratory (CHM 2845).

(d) Requirement or elective.
The proposed course will be required for the chemistry major and Track II of the chemistry minor. CHM 2435 will no longer count toward the chemistry major or Track II of the chemistry minor.

6. Community College Transfer
A community college course may be judged equivalent to this course.

7. Date approved by the department  October 18, 2000

8. Date approved by the College or School Curriculum Committee  December 1, 2000

9. Date approved by CAA  January 18, 2001