CGS Agenda Item:	09-09
Proposal Effective Date:	Fall 2010

Eastern Illinois University

NEW COURSE PROPOSAL

Please check one: ☒ New course ☐ Revised course

PART I: CATALOG DESCRIPTION

1. **Course prefix and number, such as ART 1000:** CHM 5003
2. **Title (may not exceed 30 characters, including spaces):** Critical Reading Chem Lit
3. **Long title, if any (may not exceed 100 characters, including spaces):** Critical Reading of Chemical Literature
4. **Class hours per week, lab hours per week, and credit [e.g., (3-0-3)]:** 1-0-1
5. **Term(s) to be offered:** ☒ Fall ☐ Spring ☐ Summer ☐ On demand
6. **Initial term of offering:** ☒ Fall ☐ Spring ☐ Summer **Year:** 2010
7. **Course description (not to exceed four lines:** Introduction to the critical reading, analysis and discussion of chemical literature with emphasis on topics of current interest.
8. **Registration restrictions:**
   - **a. Identify any equivalent courses** (e.g., cross-listed course, non-honors version of an honors course).
     There are no equivalent courses
   - **b. Prerequisite(s),** including required test scores, courses, grades in courses, and technical skills. Indicate whether any prerequisite course(s) MAY be taken concurrently with the proposed/revised course.

     enrollment in graduate program

   - **c. Who can waive the prerequisite(s)?**

     ☐ No one ☒ Chair ☐ Instructor ☐ Advisor ☐ Other (Please specify)

   - **d. Co-requisites** (course(s) which MUST be taken concurrently with this one):
   - **e. Repeat status:** ☐ Course may not be repeated.

     ☒ Course may be repeated to a maximum of 2 hours or 2 times.

   - **f. Degree, college, major(s), level, or class** to which registration in the course is restricted, if any: restricted to graduate level chemistry majors
   - **g. Degree, college, major(s), level, or class** to be excluded from the course, if any:
9. **Special course attributes** [cultural diversity, general education (indicate component), honors, remedial, writing centered or writing intensive] None.
10. **Grading methods** (check all that apply): ☒ Standard letter ☐ C/NC ☐ Audit ☐ ABC/NC ("Standard letter"—i.e., ABCDF--is assumed to be the default grading method unless the course description indicates otherwise.)

11. Instructional delivery method: ☐ lecture ☐ lab ☐ lecture/lab combined ☐ independent study/research ☐ internship ☐ performance ☐ practicum or clinical ☐ study abroad ☒ other

This is a seminar and therefore will involve discussions among the instructor and the students in the class.

PART II: ASSURANCE OF STUDENT LEARNING

1. **List the student learning objectives of this course:**
   - **a.** This is not a general education course.
   - **b. If this is a graduate-level course, indicate which objectives are designed to help students achieve established goals for learning at the graduate level:**
     - **Depth of content knowledge**
     - **Effective critical thinking and problem solving**
     - **Effective oral and written communication**
     - **Advanced scholarship through research or creative activity**

   Students will demonstrate:
   - **a.** in-depth understanding of at least two topics of current interest in chemistry. **(depth of content knowledge; advanced scholarship through research or creative activity)**
   - **b.** ability to read chemical literature critically and in depth **(depth of content knowledge; effective critical thinking and problem solving)**
   - **c.** ability to effectively work in teams to develop an understanding of current problems in chemistry **(effective critical thinking and problem solving; effective oral and written communication)**
   - **d.** leadership skills in facilitating class discussions. **(effective critical thinking and problem solving; effective oral and written communication)**
   - **e.** enhanced ability to search chemical literature databases in order to find and choose appropriate articles for class reading and discussion. **(effective critical thinking and problem solving; effective oral and written communication; advanced scholarship through research or creative activity)**
   - **f.** ability to write descriptive and critical summaries of readings from the chemical literature. **(effective critical thinking and problem solving; effective oral and written communication)**
   - **g.** proficiency in oral communication of scientific ideas by presenting a summary of a scientific paper to the class. **(depth of content knowledge; effective critical thinking and problem solving; effective oral and written communication)**

2. **Identify the assignments/activities the instructor will use to determine how well students attained the learning objectives:**
   - Leadership of class discussion of the assigned literature, working in teams of two to facilitate the discussion two times during the semester
   - Participation in class discussions
   - Short written assignments (i.e., summaries of assigned papers, student critiques of presentations by other students)
   - Written critique of a published paper chosen by the student
   - Short oral presentation of the paper critique to the class

Objectives from II. 1. above.	Leadership of class discussion (30%)	Participation in discussions (25%)	Short written assignments (25%)	Written critique of published paper (10%)	Oral presentation of critique (10%)
a.	X	X	X	X	X
b.	X	X	X	X	X
c.	X	X			
d.	X				
e.				X	
f.			X	X	
g.	X	X			X

3. **Explain how the instructor will determine students' grades for the course:**

Leadership of class discussion	30%
Participation in class discussions	25%
Short written assignments	25%
Written critique of published paper	10%
Oral presentation of critique	10%

4. **If applicable, indicate whether this course is writing-active, writing-intensive, or writing-centered, and describe how the course satisfies the criteria for the type of writing course identified. (See Appendix *.)** NA

PART III: OUTLINE OF THE COURSE

Provide a week-by-week outline of the course's content. Specify units of time (e.g., for a 3-0-3 course, 45 fifty-minute class periods over 15 weeks) for each major topic in the outline. Provide clear and sufficient details about content and procedures so that possible questions of overlap with other courses can be addressed. For technology-delivered or other nontraditional-delivered courses/sections, explain how the course content "units" are sufficiently equivalent to the traditional on-campus semester hour units of time described above.

Two main topics will be explored in-depth for 7 weeks each. The topics will be chosen by the instructor and based on her/his expertise and the interests of the students. The topics will be introduced by the reading and discussion of a review paper chosen by the instructor, followed by detailed student-led discussions of at least two journal articles chosen by the instructor or the students. In general, the students will lead the class discussions in teams of two. The study of each specific topic will conclude with individual student critiques of additional journal articles that the individual students have searched for and chosen from the general literature. One-to-two weeks will be devoted to the discussion of each paper, allowing for multiple readings and in-depth discussion. Possible topics include: ionic solvents, fluorescent labeling of

biomolecules, chemistry and properties of nanocrystals, photochemistry of NO_2 in the stratosphere, chemical sensing.

Week	
1	Introduction to the course
2-3	Discussion of review paper introducing Topic 1
4-7	Discussion of articles devoted to Topic 1
8	Oral presentations by half of students of student-selected articles (Topic 1)
9-10	Discussion of review paper introducing Topic 2
11-14	Discussion of articles devoted to Topic 2
15	Oral presentations by half of students of student-selected articles (Topic 2)

PART IV: PURPOSE AND NEED

1. **Explain the department's rationale for developing and proposing the course.**
   Learning to critically read and understand the chemical literature is an important part of developing the skills necessary to be a successful professional chemist. The ability to learn from the literature is integral to the successful completion of graduate coursework, in understanding the background and context of research projects, in compiling a literature review for inclusion in a written thesis and, most importantly in succeeding in a career in the chemical sciences, whether in further education, teaching or industrial positions.

   This course will be taken by all chemistry graduate students and will incorporate training in skills such as teamwork, oral and written communication as well as learning about important new developments in the modern chemical sciences.

2. **Justify the level of the course and any course prerequisites, co-requisites, or registration restrictions.**
   Knowledge of chemistry covered in undergraduate degree will be critical in understanding the literature discussed in the course.

3. **If the course is similar to an existing course or courses, justify its development and offering.**
   The course is not similar to an existing course.

4. **Impact on Program(s):**
   The course will be a core requirement in the Masters in Chemistry program.

PART V: IMPLEMENTATION

1. **Faculty member(s) to whom the course may be assigned:**
   Any graduate faculty member in the department may be assigned to teach this course.
2. **Additional costs to students:**
   There will be no additional costs to the students.

3. **Text and supplementary materials to be used (Include publication dates):** The material used in the course will be taken from the published chemical literature. No text is required

PART VI: COMMUNITY COLLEGE TRANSFER

If the proposed course is a 1000- or 2000-level course, state either, "A community college course may be judged equivalent to this course" OR "A community college course will not be judged equivalent to this course." A community college course will not be judged equivalent to a 3000- or 4000-level course but may be accepted as a substitute; however, upper-division credit will not be awarded. NA

PART VII: APPROVALS

Date approved by the department or school: April 2, 2009

Date approved by the college curriculum committee: April 10, 2009

Date approved by CGS:

*In **writing-active courses**, frequent, brief writing activities and assignments are required. Such activities -- some of which are to be graded – might include five-minute in-class writing assignments, journal keeping, lab reports, essay examinations, short papers, longer papers, or a variety of other writing-to-learn activities of the instructor's invention. Writing assignments and activities in writing-active courses are designed primarily to assist students in mastering course content, secondarily to strengthen students' writing skills. In **writing-intensive courses**, several writing assignments and writing activities are required. These assignments and activities, which are to be spread over the course of the semester, serve the dual purpose of strengthening writing skills and deepening understanding of course content. At least one writing assignment is to be revised by the student after it has been read and commented on by the instructor. In writing-intensive courses, students' writing should constitute no less than 35% of the final course grade. In **writing-centered courses** (English 1001G, English 1002G, and their honors equivalents), students learn the principles and the process of writing in all of its stages, from inception to completion. The quality of students' writing is the principal determinant of the course grade. The minimum writing requirement is 20 pages (5,000 words).