

Eastern Illinois University
New Course Proposal
CHM 3025G, The Chemistry in Your Life

This format is to be used for all courses submitted to the Council on Academic Affairs and/or the Council on Graduate Studies.

Please check one: ☒ New course ☐ Revised course

PART I: CATALOG DESCRIPTION

1. **Course prefix and number, such as ART 1000:** CHM 3025G
2. **Title (may not exceed 30 characters, including spaces):** The Chemistry in Your Life
3. **Long title, if any (may not exceed 100 characters, including spaces):** The Chemistry in Your Life
4. **Class hours per week, lab hours per week, and credit [e.g., (3-0-3)]:** 3-0-3
5. **Term(s) to be offered:** ☒ Fall ☒ Spring ☒ Summer ☐ On demand
6. **Initial term of offering:** ☐ Fall ☐ Spring ☒ Summer **Year:** 2014
7. **Course description:** This course will enable students to assess the molecular properties of chemicals commonly encountered in daily life and make judgments as to how these properties affect the behavior and functioning of these chemicals. Commercial and medicinal products such as detergents, personal care products, and prescription and over-the-counter medications will be discussed. In addition, chemical knowledge gained will be used to compare the “hype” of commercial products to their actual efficacies. No credit toward the major or minor in chemistry.
8. **Registration restrictions:**
 - a. **Equivalent Courses**
 - **Identify any equivalent courses** (e.g., cross-listed course, non-honors version of an honors course).
 - Indicate whether coding should be added to Banner to restrict students from registering for the equivalent course(s) of this course. ☐ Yes ☐ No
 - b. **Prerequisite(s)**
 - **Identify the 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.
 - Indicate whether coding should be added to Banner to prevent students from registering for this course if they haven’t successfully completed the prerequisite course(s). ☐ Yes ☐ No

If yes, identify the minimum grade requirement and any equivalent courses for each prerequisite course:
 - 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 once with credit.

Please also specify the limit (if any) on hours which may be applied to a major or minor. *No credit toward the major or minor in chemistry.*

f. Degree, college, major(s), level, or class to which registration in the course is restricted, if any:

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] General Education (scientific awareness); writing active

10. Grading methods (check all that apply): ☒ Standard letter ☐ CR/NC ☐ Audit ☐ ABC/NC
("Standard letter"—i.e., ABCDF—is assumed to be the default grading method unless the course description indicates otherwise.)

Please check any special grading provision that applies to this course:

☐ The grade for this course will not count in a student's grade point average.

☐ The credit for this course will not count in hours towards graduation.

If the student already has credit for or is registered in an equivalent or mutually exclusive course, check any that apply:

☒ The grade for this course will be removed from the student's grade point average if he/she already has credit for or is registered in CHM 2040 (insert course prefix and number).

☒ Credit hours for this course will be removed from a student's hours towards graduation if he/she already has credit for or is registered in CHM 2040 (insert course prefix and number).

11. Instructional delivery method: (Check all that apply.)

☒ lecture ☐ lab ☐ lecture/lab combined ☐ independent study/research
☐ internship ☐ performance ☐ practicum or clinical ☐ study abroad
☒ Internet ☐ hybrid ☐ other (Please specify)

PART II: ASSURANCE OF STUDENT LEARNING

1. List the student learning objectives of this course:

In successfully completing this course, students will

- A. demonstrate understanding of scientific concepts.
- B. demonstrate an understanding of the relationship between molecular structure and function.

- C. predict chemical behavior based on molecular properties.
- D. use underlying chemical theories to explain chemical phenomena.
- E. analyze and understand ingredient lists in foods, cleaning products, drugs, and many other materials encountered in everyday life.
- F. understand, from a chemical standpoint, the function of oil/petroleum products, food constituents (fats, oils, proteins, and others), etc....
- G. critically analyze claims made in advertisements for consumer products.

a. If this is a general education course, indicate which objectives are designed to help students achieve one or more of the following goals of general education and university-wide assessment:

- **EIU graduates will write and speak effectively. (A)**
- **EIU graduates will think critically. (A,B,C,D,E,F,G)**
- **EIU graduates will function as responsible citizens. (E,F,G)**

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**

2. Identify the assignments/activities the instructor will use to determine how well students attained the learning objectives:

Learning Objective	Problem Sets	Writing Assignments	Tests and Quizzes	Final Exam (Comprehensive)
A. demonstrate understanding of scientific concepts	X	X	X	X
B. demonstrate an understanding of the relationship between molecular structure and function	X		X	X
C. predict chemical behavior based on molecular properties.	X		X	X
D. use underlying chemical theories to explain chemical phenomena	X	X	X	X
E. analyze and understand ingredient lists in foods, cleaning products, drugs, and many other materials encountered in everyday life.	X	X	X	X
F. Understand, from a chemical standpoint, the function of oil/petroleum products, food constituents (fats, oils, proteins, and others), etc....	X	X	X	X
G. critically analyze claims made in advertisements for consumer products.		X	X	

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

Problem Sets	20%
Writing Assignments	30%
Tests and Quizzes	30 %
Comprehensive Final Exam	20%

4. For technology-delivered and other nontraditional-delivered courses/sections, address the following:**a. Describe how the format/technology will be used to support and assess students' achievement of the specified learning objectives:**

In addition to assigned textbook readings, course content will be delivered via voice-over Powerpoint presentations and/or lecture podcasts. Problem set assignments (for both face-to-face and on-line sections) will be administered through an on-line homework system. (These are now available for virtually all chemistry textbooks, either through the publisher or an independent vendor). Writing assignments in the on-line sections of the course will be (1) short answer responses to questions posed by the instructor, normally employing a discussion board (2) approximately ten one-page critiques of an instructor chosen current topic and (3) one five page paper on a topic of the student's choosing that explains the connection between molecular properties and material function. These writing assignments, as well as the quizzes, in-term exams, and final exam will be conducted using available learning management software.

b. Describe how the integrity of student work will be assured:

Problems assigned via the on-line homework system will have strict due dates and typically the software will randomize variables within the problems to reduce direct copying. Similar randomization will be employed for quizzes and tests, with the additional safeguard that these assessments will have a time limit, could be password protected, and must be completed within a specific time frame. Writing assignments could be checked using software that scans for possible plagiarism.

c. Describe provisions for and requirements of instructor-student and student-student interaction, including the kinds of technologies that will be used to support the interaction (e.g., e-mail, web-based discussions, computer conferences, etc.):

There will be limited student-student interaction conducted through on-line discussion boards. Instructor-student interactions will be available through discussion boards, email, telephone, and for office hours synchronous visual technologies may be used.

5. For courses numbered 4750-4999, specify additional or more stringent requirements for students enrolling for graduate credit. These include:

- course objectives;**
- projects that require application and analysis of the course content; and**
- separate methods of evaluation for undergraduate and graduate students.**

- 6. 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 *.)**

The course is writing active since students will be required to complete writing activities and assignments. Exams and assignments will include essay questions.

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.

Below is an outline for a 3-0-3 face-to-face section of the course with 150 minutes per week of class time. The overall time commitments for the on-line and face to face sections of the course will be equivalent. The on-line sections are anticipated to be summer classes with less than a 15-week span therefore in these sections the topics will be divided to best reflect the variety of topics covered in the course.

Week	Topics/Course Modules
1	Matter and the World Around Us; Atomic Theory—Motivations
2	Scientific notation, units, unit conversions; Graphical interpretation
3	Atomic structure and the periodic table; Molecules, compounds, chemical formulas and an introduction to the language of chemistry.
4	Chemical Reactions: Communicating transformations of matter
5	Chemical Bonding and an introduction to organic chemistry
6	Petroleum products; Chemical energy
7	Plastics; The Interaction of Light and Matter: explaining dyes
8	Gases and the Atmosphere
9	Liquids, Solids, and Water, Water Everywhere
10	Acids and Bases; Oxidation and Reduction: what is rust?
11	The Chemistry of Household Products
12	Cosmetics and Personal Care Products
13	Proteins and the Chemistry of Life
14	Drugs and Medicines
15	The Chemistry of Food

PART IV: PURPOSE AND NEED

- 1. Explain the department's rationale for developing and proposing the course.**
 - a. If this is a general education course, you also must indicate the segment of the general education program into which it will be placed, and describe how the course meets the requirements of that segment.**

This course deals with not only chemical principles and theories, but also the application of these concepts to items found in everyday life, so it quite naturally falls into the physical sciences components of the **scientific awareness** segment of the general education curriculum. Students' *reasoning ability* will be considerably strengthened, as they are exposed to the underlying principles behind many everyday products and phenomena that they, thus far, had probably taken for granted. Students will also evaluate and compare the "hype" associated with commercial products with their actual capabilities based on chemical principles.

b. If the course or some sections of the course may be technology delivered, explain why.

In addition to generally enhancing course availability, there is a need for on-line sections of CHM 3025G for specific EIU on-line only programs (e.g., Nursing and BGS program). Since there is no laboratory portion for this course, it is particularly well suited to on-line delivery.

2. Justify the level of the course and any course prerequisites, co-requisites, or registration restrictions.

Even though there are no prerequisite courses for CHM 3025G, there is the assumption of sufficient academic background and maturity for students to express themselves clearly in writing, analyze available information, and place what they learn into the context of their lives.

3. If the course is similar to an existing course or courses, justify its development and offering.

a. If the contents substantially duplicate those of an existing course, the new proposal should be discussed with the appropriate chairpersons, deans, or curriculum committees and their responses noted in the proposal.

This course is quite close in content to the currently offered CHM 2040G. However, the expectations of this course, particularly in terms of writing and critical thinking, are more demanding than CHM 2040G.

b. Cite course(s) to be deleted if the new course is approved. If no deletions are planned, note the exceptional need to be met or the curricular gap to be filled.

If this course is approved CHM 2040G will be deleted from the CHM department offerings.

4. Impact on Program(s):

- a. For undergraduate programs, specify whether this course will be required for a major or minor or used as an approved elective.** This course is not required for any major.
- b. For graduate programs, specify whether this course will be a core requirement for all candidates in a degree or certificate program or an approved elective.**

If the proposed course changes a major, minor, or certificate program in or outside of the department, you must submit a separate proposal requesting that change along with the course proposal. Provide a copy of the existing program in the current catalog with the requested changes noted.

PART V: IMPLEMENTATION

1. Faculty member(s) to whom the course may be assigned:

Any qualified faculty member of the Department of Chemistry. On-line sections will be taught by qualified faculty members meeting the technology delivered policy requirements.

If this is a graduate course and the department does not currently offer a graduate program, it must document that it employs faculty qualified to teach graduate courses.

2. Additional costs to students:

We expect no additional costs to students.

Include those for supplemental packets, hardware/software, or any other additional instructional, technical, or technological requirements. (Course fees must be approved by the President's Council.)

3. Text and supplementary materials to be used (Include publication dates):

Tro, Nivaldo (2012). Chemistry in Focus: A Molecular View of Our World. Belmont, CA: Brooks/Cole/Cengage Learning, 5th Edition.

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.

PART VII: APPROVALS

Date approved by the department or school: 11/21/2013

Date approved by the college curriculum committee: 12/6/13

Date approved by the Honors Council (*if this is an honors course*):

Date approved by CAA: 1/23/14 CGS: Not Applicable

*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).

**Student
Success
Center**

<http://www.eiu.edu/~success/>

581-6696



<http://www.eiu.edu/~counsctr/>

581-3413

**Career
Services**

<http://www.eiu.edu/~careers/>

581-2412

**Disability
Services**

<http://www.eiu.edu/~disabltv/>

581-6583