John Jay College of Criminal Justice
The City University of New York

Curriculum Committee: New Course Proposal

When completed, this proposal should be submitted to the Office of the Associate Provost for consideration by the College Curriculum Committee.

1. **Department(s) proposing this course:** SCIENCE

2. **Title of the course:** CHE 101. GENERAL CHEMISTRY I-A
   **Abbreviated title (up to 20 characters):** GENRL CHEMISTRY I-A

3. **Level of this course:**
   ___100 Level ___200 Level ___300 Level ___400 Level

4. **Course description as it is to appear in the College Bulletin:**
   (Write in complete sentences except for prerequisites, hours and credits.)
   
   This course is primarily intended for students who have not taken high school chemistry or who have received a grade of less than 80% on the Chemistry Regents Examination but are interested in being a Forensic Science or Fire Science major, or are interested in developing a strong knowledge base of general chemistry principles. The course provides students with a better understanding of the chemical world around us and is a prerequisite for more advanced chemistry courses. CHE 101 is the first semester of the two semester CHE 101-102 sequence, which is equivalent in content to CHE 103 but done at a slower pace with emphasis on developing needed skills. Topics include: a review of basic mathematical tools used in chemistry, the structure of the atom, stoichiometric calculations, aqueous solutions, gases, and an introduction to the periodic table of elements. Open to students who have not had high school chemistry, or who received a grade of C or lower in high school chemistry, or who received a grade of less than 80% on the Chemistry Regents. CHE 101 does not satisfy a science course requirement without CHE 102. Co-requisite: MAT 104 or MAT 105. 3 hours lecture, 1 hour recitation. 2 credits. (Offered fall semesters)

5. **Has this course been taught on an experimental basis?**
   
   ___ No
   
   X Yes: **Semester(s) and year(s):** Fall 2006; Spring 2007
   **Teacher(s):** Fall 2006: Francis Sheehan and Alexia Tussay; Spring 2007: Brooke Weinger
   **Enrollment(s):** Fall 2006: 51 (two sections); Spring 2007: 21 (one section)
   **Prerequisite(s):** This course was open to students who have not had high school chemistry, or who received a grade of C or lower in high school chemistry, or who received a grade of less than 80% on the Chemistry Regents. Co-requisite: MAT 104 or MAT 105.

   CHE 101 was taught as an experimental course called CHE 191 during the Fall 2006 and Spring 2007 semesters. CHE 101-102 (CHE 191-192) was originally proposed as a “one-half speed” CHE 103 course for students who do not have the math and science background necessary to successfully master the rigorous CHE 103 curriculum in one semester, but who have the potential, with early intervention, to succeed in the Forensic Science program. Ten comprehensive chapters of chemistry designed for science majors are covered in CHE 103. In CHE 101 (CHE 191) the first five chapters of CHE 103 are covered; in CHE 102 (experimentally offered as
CHE 192) the last five chapters of CHE 103 are covered. However, early on in the Fall semester it became apparent that a recitation session was necessary to optimize the potential benefits of this course. CHE 103 has two periods of lecture, a one period recitation and two periods of laboratory per week. The recitation sessions and, to a lesser degree, the “down time” during laboratory exercises in CHE 103 are used to reinforce lecture material, review homework assignments, conduct post-exam analysis, etc., maximizing lecture teaching time. The CHE 191 course, experimentally offered Fall 2006 and Spring 2007, by being limited solely to two periods of lecture per week, during which all teaching, recitation, assessment and post assessment review must be conducted, provides insufficient time to appropriately teach the first five chapters to students identified as capable of succeeding in a rigorous Forensic Science program but who need additional help in the first semester of the program. Therefore, a one hour recitation period has been added to the course proposal.

6. Prerequisites:

Open to students who have not had high school chemistry, or who received a grade of C or lower in high school chemistry, or who received a grade of less than 80% on the Chemistry Regents. Co-requisite: MAT 104 or MAT 105.

7. Number of: class hours 4* lab hours 0 credits 2

* = 3 hours lecture, 1 hour recitation

8. Brief rationale for the course:

This course is the first semester of the two semester CHE 101 (General Chemistry I-A) and CHE 102 (General Chemistry I-B) sequence, which is equivalent in content to CHE 103 (General Chemistry I) but done at a slower pace with emphasis on developing needed skills. This course is primarily intended for students who have not taken high school chemistry or who have received a grade of less than 80% on the Chemistry Regents Examination but are interested in being a Forensic Science or Fire Science major, or are interested in developing a strong knowledge base of general chemistry principles. By splitting the one semester CHE 103 course into two cumulatively equivalent one semester courses, CHE 101 and CHE 102, more time can be given to teaching the fundamental skills and scientific principles necessary for students to succeed in the course (and, therefore, the major), and provide the students with additional time to assimilate the material.

9a. Knowledge and performance objectives of this course:
(What knowledge will the student be expected to acquire and what conceptual and applied skills will be learned in this course?)

The course provides students with a better understanding of the chemical world around us and is a prerequisite for more advanced chemistry courses. Topics include: a review of basic mathematical tools used in chemistry, the structure of the atom, stoichiometric calculations, aqueous solutions, gases, and an introduction to the periodic table of elements. More specific topics are listed below:
Types of Matter
Measurements
Properties of Substances
Atoms and the Atomic Theory
Components of the Atom
Introduction to the Periodic Table
Molecules and Ions
Formulas of Ionic Compounds
Atomic Masses
The Mole
Mass Relationships in Chemical Formulas
Mass Relations in Reactions

Limiting Reactant & Yields
Solute Concentrations, Molarity
Precipitation Reactions; Net Ionic Equations
Stoichiometry
Measurement of Gases
The Ideal Gas Law
Gas Law Calculations
Stoichiometry of Gaseous Reactions
Gas Mixtures: Partial Pressures & Mole Fractions
Kinetic Theory of Gases
Real Gases

The primary objective of offering this slower paced alternative is to help reduce the high attrition rate in General Chemistry, which is one of the foundation courses for all Forensic Science majors, regardless of track.

As with all science courses in the Forensic Science major, critical thinking and analysis is emphasized, as well as clarity in spoken and written communication.

9b. Information literacy:
(Indicate what sorts of information seeking skills will be enhanced by this course, e.g., use of the internet, access to specialized data bases, literature search skills, etc.)

Students are expected to maintain active and accessible college E-mail and Blackboard accounts. Blackboard will be used to post announcements, handouts, additional study materials, text supplements, grades, etc. The General Chemistry 101 Blackboard site will also have a forum for students to communicate with the instructor and with each other on topics posted by the participants. The Blackboard site will also have links to sites relevant to chemistry, chemical safety, and general science topics of interest.

10. Recommended writing assignments:
(Indicate types of writing assignments and number of pages of each type. Writing assignments should satisfy the College’s requirements for writing across the curriculum.)

Homework is assigned and required. Although a significant percentage of the homework involves mathematical computations, essays and short (a paragraph or two) answers are also required to ensure the student understands the scientific concepts upon which the computations are based. Essays and short answers must be clear, concise and accurately reflect what the student desires to express. Students are expected to “write what they mean” and “mean what they write.” The importance of doing so, and the consequences of not doing so, particularly as a potential future expert witness asked to testify in an adversarial system, is emphasized. The Writing Across the Curriculum standard of 1000 words for 100-level courses will be met.

11. Will this course be part of any major (s) or program (s)?
   ___ No
   X Yes. Major or program: Forensic Science and Fire Science
   What part of the major? (Prerequisite, core, skills, etc.)
   This is a core course in the Forensic Science and Fire Science majors for students who do not qualify for CHE 103 and is a prerequisite for CHE 102.
12. Is this course related to other specific courses?
___ No
X Yes. Indicate which course(s) and what the relationship will be (e.g., prerequisite, sequel, etc.).

The CHE 101 and CHE 102 sequence is equivalent to CHE 103, which is a prerequisite for CHE 104, which is a prerequisite for all other chemistry courses in the major.

13. It is strongly advised to meet with a member of the library faculty before answering question 13.

If this course was taught on an experimental basis, were the existing library, computer, lab or other resources adequate for this course?
X Yes
___ No. With whom has this been discussed? What has been recommended?

Yes. This course was taught on an experimental basis during the Fall 2006 and Spring 2007 semesters. The primary computer resources needed for this course are computers with Internet access so Blackboard can be used. Special software is not needed. The cyber lounges are fine for this purpose. How to access and use Blackboard will be taught by the CHE 101 instructor. No special library resources or materials are needed for this course.

If this course was not taught on an experimental basis, are library, computer, lab or other resources necessary for this course?
___ No
___ Yes. With whom has this been discussed? What has been recommended?
N/A

14. Syllabus and bibliography:
Attach a sample syllabus for this course. It should be based on the College’s model syllabus. The sample syllabus must include a week by week or class by class listing of topics, readings, other assignments, tests, papers due, or other scheduled parts of the course. It must also include proposed texts. It should indicate how much various assignments or tests will count towards final grades. (If this course has been taught on an experimental basis, an actual syllabus may be attached, if suitable.)

See attached.

In addition, a bibliography in APA format for this course must be attached to this proposal.
N/A

15. This section is to be completed by the chair (s) of the department (s) proposing the course.

Name (s) of the Chairperson (s): Dr. Lawrence Kobilinsky

Has this proposal been approved at a meeting of the Department Curriculum Committee?
X Yes: Meeting date: 02/07/2007

Signatures of Department Curriculum Committee Members:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Proposal Revised 04/11/2007 3:10 PM
When will this course be taught?

Every semester, starting _______ N/A ________
One semester each year, starting _______ Fall 2007 ________
Once every two years, starting _______ N/A ________

Starting Fall 2007, CHE 101 will be offered every fall semester. By taking CHE 101 in the fall, CHE 102 in the spring and CHE 104 in the summer students taking the CHE 101-102 equivalent to CHE 103 will stay on pace for graduation with students who qualified for CHE 103-104.

How many sections of this course will be offered? _______ 2 ________

Who will be assigned to teach this course? Full-time and adjunct science faculty

Is this proposed course similar to or related to any course or major offered by any other department(s)?

____ Yes. What course(s) or major(s) is this course similar or related to?

Did you consult with department(s) offering similar or related courses or majors?

____ X not applicable ______ No ______ Yes

If yes, give a short summary of the consultation process and results.

Will any course be withdrawn if this course is approved?

____ X No

CHE 100, Preparation for General Chemistry, was considered for withdrawal.

However, although CHE 100 will no longer be offered during the fall and spring semesters should CHE 101-102 be approved, it will continue to be offered as part of a Forensic Science Institute program offered to entering freshman in preparation for their first semester in the Forensic Science program. The program runs during the summer in specially designed sessions that do not coincide with typical summer semester courses. Therefore, the course will remain in the course catalog.

____ Yes, namely:

Signature(s) of chair of Department(s) proposing this course:

Date: __________________________

Signature(s) of other department members proposing this course: