NEW COURSE PROPOSAL

PROGRAM: MULTIPLE PROGRAMS/CHEMISTRY

1. Catalog Description of the Course. [Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of ___ units); time distribution (Lecture ___ hours, laboratory ___ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]

CHEM 305. COMPUTER APPLICATIONS IN CHEMISTRY (1)
One hour of activity per week.
Prerequisite: CHEM 122 with a grade of C or better.
This course will introduce the use of computer applications to solve chemical problems and present scientific information. Topics include: on-line journals and literature searches, reading and understanding the scientific literature, computer modeling of molecules, and website development. Lab fee required.
Gen Ed. B4

2. Mode of Instruction.

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<tr>
<th>Units</th>
<th>Hours per Unit</th>
<th>Benchmark Enrollment</th>
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<td>Lecture</td>
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<td>Seminar</td>
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<td>Laboratory</td>
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<td>Activity</td>
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3. Justification and Learning Objectives for the Course. (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) [Use as much space as necessary]

This course is required Chemistry major, and may be taken by other science majors, who are interested in computer applications as related to chemistry problems for their profession or graduate studies. This course will be an upper-division requirement for chemistry majors, or an elective for the minor in chemistry.

Students who successfully complete this course will be able to:
- Use computer applications to describe molecular shape, electronic structure, thermodynamics, kinetics, and intermolecular interactions
- Compute chemical properties of species using molecular modeling/visualization programs
- Disseminate scientific data using spreadsheets and other mathematical programs designed for this purpose
- Demonstrate the ability to produce professional figures, tables, and graphs using both generalized programs (e.g. Microsoft Word), and ones designed specifically for chemical applications (e.g. ChemDraw)
- Perform literature searches for chemical information using searchable internet databases
- Interpret, discuss, and evaluate a primary literature article
- Construct a basic web-page using basic HTML programming

4. Is this a General Education Course  YES  NO
If Yes, indicate GE category:

B-4: Computer and Information Technology

NEWCRSFR 9/30/02
5. **Course Content in Outline Form.** [Be as brief as possible, but use as much space as necessary]

- **Calculating and Visualizing Information**
  - Using molecular modeling programs to determine structure
  - Visualizing chemical information – Chemical Drawing Applications
  - Spreadsheet and Mathematic programs for sorting through data

- **Finding and Interpreting Information**
  - Chemical Literature
  - On-line Journals
  - Literature searches using databases
  - Reading, Understanding, and Evaluating Literature Articles

- **Presenting Information**
  - ACS format
  - Presenting graphs and figures
  - Presenting calculations and using Equation Editor
  - Proper citation/Endnote use
  - Building a web page

6. **References.** [Provide 3 - 5 references on which this course is based and/or support it.]

   - Users manuals for the computer applications used in the course (e.g. Microsoft products, Endnote, Chem Office)

7. **List Faculty Qualified to Teach This Course.**

   Dr. Simone Aloisio, Dr. Phil Hampton

8. **Frequency.**
   a. Projected semesters to be offered: Fall **X**  Spring ____  Summer ____

9. **New Resources Required.**
   None.

10. **Consultation.**
    Attach consultation sheet from all program areas, Library, and others (if necessary)

11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

   __Simone Aloisio__________________________12-16-03_______________________
   Proposer of Course Date