CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

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.**

	Units	Hours per Unit	Benchmark Enrollment
Lecture			
Seminar			
Laboratory			
Activity	1	1	36

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

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.]*

Dodd, J.S. (ed.) *The ACS Style Guide*, American Chemical Society, 2nd Ed., 1997
Foresman, J.B.; and Frisch, *Æ Exploring Chemistry with Electronic Structure Methods*, Gaussian Inc., 2nd Ed., 1996
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