UNIVERSITY COLLEGE of the FRASER VALLEY

PAC FORM #2

COURSE IMPLEMENTATION DATE:[**September 1993**]
Revised: September 1999
COURSE TO BE REVIEWED DATE:[ ]
(Four years after implementation date)

OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department and material will vary - see course syllabus available from instructor

FACULTY/DEPARTMENT: **CHEMISTRY**

CHEM 083		**4**
COURSE NAME/NUMBER	FORMER COURSE NUMBER	UCFV CREDITS

COLLEGE PREPARATORY CHEMISTRY I
COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

Theory and laboratory work for those who wish to prepare for entry into first-year university-transfer, health sciences or technology courses. Emphasis is on atomic structure, stoichiometry, and chemical properties of the elements. Laboratory work is closely related to material covered in lectures.

PREREQUISITES: SCI 071 or Science 10

COREQUISITES: Other College Preparatory courses are recommended.

SYNONYMOUS COURSE(S)
(a) Replaces: N/A
(Course #)
(b) Cannot take N/A for further credit
(Course #)

SERVICE COURSE TO:
(Department / Program)
(Department / Program)

TOTAL HOURS PER TERM: **90**

STRUCTURE OF HOURS:

Lectures:	45	hrs
Seminar:	15	hrs
Laboratory:	30	hrs
Field Experience:		hrs
Student Directed Learning:		hrs
Other (Specify):		hrs

TRAINING DAY-BASED INSTRUCTION
LENGTH OF COURSE:
HOURS PER DAY:

MAXIMUM ENROLMENT: **24**

EXPECTED FREQUENCY OF COURSE OFFERING:

WILL TRANSFER CREDIT BE REQUESTED? **YES** ____ **NO** **X**

TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE: **YES** ____ **NO** **X**

AUTHORIZATION SIGNATURES:

Course designer(s): L. Spier/ N. Dance/ P. Slade
Chairperson: *(Curriculum Committee)*
Department Head: Noham Weinberg
Dean: J. Snodgrass
PAC Approval in Principle Date:
PAC Final Approval Date: September 1993

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COURSE NAME / NUMBER

LEARNING OBJECTIVES / GOALS / OUTCOMES/ LEARNING OUTCOMES:

The course is designed to give students an understanding of scientific principles, chemistry and laboratory procedures which will then prepare them for entrance to subsequent science courses or related programs. The course will highlight the use of the scientific method in both theory and laboratory aspects, as well as showing the relationships between different topics.

METHODS:

Presentation of the course will be by interrelated theory classes ("lectures"), discussion periods ("seminars") and laboratory sessions. Audio-visual aids will be used where appropriate, and students will be given instruction in the use of various instrumental techniques.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Credit can be awarded for this course through PLAR YES _____ NO _____

METHODS OF OBTAINING PLAR:

TEXTBOOKS, REFERENCES, MATERIALS:

Foundations of College Chemistry, 8th ed., Hein and Arena.
UCFV Laboratory Manual for Chemistry 083.

SUPPLIES / MATERIALS:

STUDENT EVALUATION:

Evaluation will be based on the following system:

First in-term test	20%
Second in-term test	25%
Laboratory (reports and technique)	20%
Final exam	35%

COURSE CONTENT:

This is a brief summary of material covered. Unit outlines given before each section is started will provide more details.

Unit 1. Introduction to Chemistry (Chapters 1 and 2)
Course outline, brief historical perspective of chemistry. The scientific method. Scientific mathematics - a review of basic math. Measurement of mass, volume, density and temperature. Units and significant figures. SI system and exponential notation. Conversion factor method.

Unit 2. Properties of Matter (Chapters 3 and 4)
Classification of matter. Physical and chemical changes. Homogeneous and heterogeneous mixtures. Conservation of energy.

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COURSE CONTENT (contd.)

Unit 3. Atoms and Molecules (Chapter 3)
Names and symbols of elements. Compounds, their composition and formulae. Metals and non-metals. Simple naming and chemical equations.

Unit 4. Stoichiometry and the Mole (Chapters 7 and 9)
The mole. % composition, empirical and molecular formulae. Mole-mole, mole-mass and mass-mass calculations using stoichiometric equations. Limiting Reagent calculations. Molarity calculations.

Unit 5. Atomic Structure (Chapters 5 and 10)
The atom and fundamental particles. Isotopes and atomic mass. Energy levels, quantum numbers and electron configurations.

Unit 6. Chemical Families (Chapter 11)
Classification of elements in the Periodic Table and the relationship between position in the table/electron configuration/physical and chemical properties.

Unit 7. Compounds and Bonding (Chapter 12)
Lewis electron dot representations for atoms and molecules. Ions, oxidation numbers and simple oxidation/reduction.

Unit 8. Organic Chemistry (Chapter 20)
Bonding at carbon in organic molecules. Alkanes, alkenes and alkynes. Naming and isomerism. Simple organic reactions. Polymers.

LABORATORY EXPERIMENTS (8 or 9 labs will be chosen from the following:

1. Measurements
2. Separating mixtures
3. Water of hydration
4. Recycling copper
5. The resction between iron and copper sulphate
6. The copper-silver nitrate reaction
7. Acid-base titrations: the % acetic acid in vinegar
8. Periodic trends in properties
9. Organic chemistry
10. Determination of the molar mass of an unknown acid
11. Determination of percentage oxygen in potassium chlorate
12. Conservation of mass