



## Course Documentation Outline

### School of Business, Biosciences and Justice Studies

#### SECTION I

1. Program (s): Biofood, Biotechnology, Chemical, Environmental
2. Course Name: General Chemistry 1
3. Course Code: CHEM 1000
4. Credit Value: 5                      Course Hours: 75

Class	Lab	Field	Other	Total
45	30			75

5. Prerequisites/Corequisites/Equivalent Courses

PR/CO/EQ	Course Code	Title

6. **Faculty:** Jennifer Campbell                      **Date:** June 8, 2010                      **Effective Date:** Sept 7, 2010
7. **Dean/Chair Approval:** *Jim Whiteway*                      **Date:** August 2010
9. **Revision Number:**                      **Date:**                      **Effective Date:**
- 10: **Notes**

## Section II

### 11. Calendar Description:

An introductory chemistry course that reviews the names of the elements and their symbols, the nomenclature of inorganic compounds and ions, molecular weight and mole calculations, chemical reactions and equations, concentration of solutions. Lab work supplements the theory.

### 12. Provincial Context:

This course meets the following Ministry of Education and Training requirements:

#### a). Prior Learning Assessment (PLA)

Students may apply to receive credit by demonstrating achievement of the course learning outcomes through previous life and work experiences.

This course is eligible for challenge through the following method(s) indicated by \*

Challenge Exam	Portfolio	Interview	Other	Not Eligible
*	*	*		

### PLAR Contact:

### 13. Employability Skills emphasized in this course

	communication - written		communication - visual		communication - oral
*	analytical		creative thinking		decision making
*	interpersonal	*	numeracy	*	organizational
*	problem solving	*	technological		other (specify)

### 14. Required Texts, Materials, Resources or Technical Materials Required:

Laboratory manual produced at the College, lab coat and safety eyewear (CSA approved) with colourless lenses, as well as a scientific calculator capable of linear regression.

15. **Evaluation Plan**

Students will demonstrate learning in the following ways:

<b>Assignment Description</b>	<b>Evaluation Methodology</b>	<b>Due Date</b>
Lab reports	15 %	weekly
Mid term Test	5 %	Oct 2010
End of Term Test	35 %	Dec 2010
Assignments	15 %	On going
Quizzes	30 %	On going

16. **Other**

Policy for missed tests/work and submission of assignments:

Students are expected to make every reasonable effort not to miss tests and to submit all assigned work on time! Students must advise the instructor **in advance** if they are unable to meet scheduled deadlines, **otherwise late assignments will not be accepted for evaluation and a grade of zero will be assigned**. Every effort will be made to accommodate students unable to meet specified deadlines as a result of extenuating circumstances; however, the instructor reserves the right to refuse late assignments and to refuse to reschedule assessments.

The total of the marks for the labs, assignments, quizzes, mid term test and final test must be equal to or greater than 60% to obtain a pass in this course.

The mid term test will cover the material from the beginning of the semester to that point. The final test will include material from the entire semester from both the theory class and calculations performed during the labs. The style of the questions will be exactly the same as those contained in the assignments and quizzes.

All labs must be performed, and the associated report for each lab must be submitted for grading. Only one lab may be 'made up' during the scheduled make up lab at the end of the semester.

**Loyalist College has a Violence Prevention policy:**

All College members have a responsibility to foster a climate of respect and safety, free from violent behavior and harassment.

Violence (e.g. physical violence, threatening actions or harassment) is not, in any way, acceptable behavior.

Weapons or replicas of weapons are not permitted on Loyalist College property.

Unacceptable behavior will result in disciplinary action or appropriate sanctions.

More information can be found in the "Student Manual and Guide - Rights & Responsibilities".

**Contact information for Jennifer Campbell:**

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Telephone: 613-969-1913 ext. 2295

E-mail:

### Section III

#### 17. Curriculum Delivery, Learning Plan and Learning Outcomes:

<b>Course Components/Content</b>	<b>Related Learning Outcomes</b>	<b>Learning Activities/Resources</b>
Atoms	The student will be able to: <ul style="list-style-type: none"><li>- indicate the similarities and differences between the electron, proton and neutron with respect to their location in the atom, their mass and electrical charge</li><li>- predict from the atomic number and mass number of an element, the composition of the nucleus and the number of electrons present and with the use of the periodic table identify the element</li><li>- determine the atomic weight from the periodic table</li><li>- name and write symbols for the designated elements on the periodic table from memory</li><li>- define electronegativity and ionic charge</li><li>- indicate the most common ionic charge on the elements in columns 1-8 on the periodic table</li><li>- recognize and identify common polyatomic ions</li></ul>	Curriculum objectives will be achieved through a combination of the following teaching strategies: <ol style="list-style-type: none"><li>1. Lecture</li><li>2. Laboratory activities (guided and discovery)</li><li>3. Simulation (computer) and field activity</li><li>4. Cooperative study</li><li>5. Independent study (i.e. required readings and exercises)</li></ol>
Molecules	<ul style="list-style-type: none"><li>- combine ions in the correct proportions to form stable molecules</li><li>- correctly name molecules: made by combining metal/non-metal ions or non-metal/ non-metal ions</li><li>- differentiate between ionic and covalent bonding</li></ul>	

Chemical Calculations	<p>use the periodic table to determine a molecular weight (formula weight or molar mass)</p> <ul style="list-style-type: none"> <li>- define mole, Avogadro's Number</li> <li>- solve problems dealing with the calculation of the amount of a compound in moles, or the number particles present, or the simplest formula (from a mole ratio)</li> </ul>	Lab: Formula of a Hydrate Synthesis and Composition of a Hydrate
Types of Chemical Reactions	<ul style="list-style-type: none"> <li>- write and balance chemical equations</li> <li>- distinguish between redox, precipitation, and acid/base reactions</li> <li>- identify combustion and decomposition reactions</li> <li>- identify reactants and products</li> </ul>	Lab: A Series of Chemical Reactions
Redox Reactions	<ul style="list-style-type: none"> <li>- evaluate the oxidation numbers of the elements</li> <li>- write the oxidation <math>\frac{1}{2}</math> reaction and the reduction <math>\frac{1}{2}</math> reaction, then overall balanced redox equation,</li> <li>- identify what is being oxidized or reduced</li> <li>- identify the oxidizing and reducing agents</li> <li>- using the Electromotive Series of metals, predict if the redox reaction will go spontaneously</li> </ul>	Labs: Single Displacement  Copper-silver reaction ratio
Precipitation Reactions	<ul style="list-style-type: none"> <li>- identify the ions present</li> <li>- predict if a precipitate will form using solubility tables</li> <li>- state the balanced overall ionic equation, net ionic equation, and the spectator ions</li> </ul>	Lab: Double Displacement
Acid/Base Reactions	<p>identify the acid and the base</p> <ul style="list-style-type: none"> <li>- write the balanced reaction equation</li> <li>- discuss general properties of acids and bases</li> </ul>	Lab: Acids and Bases

Solution Preparation	<ul style="list-style-type: none"><li>- differentiate between solvents, and solutes</li><li>- recognize the difference between the procedures of dissolution and dilution</li><li>- calculate the mass of dry solute required in a dissolution procedure</li><li>- employ the correct glassware required for the preparations based on the accuracy required</li></ul>	Lab: Solution Preparation
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