

## Imperial Valley College Course Syllabus –Chemistry 100 (Introduction to Chemistry)

### Basic Course Information

Semester	Fall 2015	Instructor Name	Dr. Alto Benedicto
Course Title & #	Chemistry 100 Introduction to Chemistry	Email	alto.benedicto@imperial.edu
CRN #	10050		
Room	2734 (Lec); 2715 (Lab)	Office	2779
Class Dates	Aug 17 to Dec 11, 2015	Office Hours	TTh 5:00 – 6:00 pm (Rm 2734) MTWTh 9:40 – 10:10 pm (2715 or 2779)
Class Days	TTh (Lec); T (Lab)	Office Phone #	(760) 355-5751
Class Times	3:35 - 5:00 pm (Lec) 6:30-9:40 pm (Lab)	Office contact if student will be out or emergency	Department Secretary (760) 355-6155
Units	4		

### Course Description

Elementary principles of general inorganic chemistry with an introduction to organic and biochemistry. Previous science background is recommended but not required. This course is designed for non-science majors and students who need only a one-semester general chemistry course, and also for students entering a paramedical and allied health fields, and industrial applications such as power plants. This course will satisfy the prerequisite for CHEM 200. (CSU)(UC credit limited. See a counselor.) Prerequisite: MATH 091 or MATH 090 with a grade of "C" or better.

### Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. analyze chemical reactions and chemical problems through stoichiometry. (ILO2)
2. predict properties of matter using atomic theory. (ILO2)
3. use the periodic table properly to determine trends in elements (atomic size, number of valence electrons, metallic character, electronegativity, etc.). (ILO2, ILO4)
4. perform chemical experiments in a safe, accurate, and scientific manner, using proper glasswares, graphs, and spreadsheets. (ILO2, ILO4)

### Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. calculate English and metric unit conversions and measurements using dimensional analysis.
2. write symbols for elements and know common ionic charges.
3. derive and write formulas and names for chemical compounds.
4. write and balance common chemical equations and identify reaction types.
5. solve stoichiometric problems, including their solutions using dimensional analysis.
6. describe atomic structure including isotopes, periodicity and molecular structure in terms of subatomic particles.
7. identify types of energy and calculate specific heat; identify energy involved in change of state including heat of vaporization and predict behaviors in cooling curves; calculate caloric and nutritional values of various foods.
8. describe gas behavior and solve problems involving the various gas laws.
9. identify the type of intermolecular forces existing between molecules, and its effect on macroscopic property of the substance.
10. calculate solution concentration of various types including dilutions.
11. define the three basic concepts (Arrhenius, Bronsted-Lowry and Lewis) of acids and bases and perform titration experiments and calculate pH.
12. use Le Chatelier's Principle to predict the shift in the direction of the reactants/products
13. determine the oxidant/reductant and balance redox equations.
14. describe nuclear processes and write nuclear equations using the subatomic particles involved and identify health factors and risks involved.

### Required Textbooks & Other Resources or Links

1. *Introductory Chemistry*, by Nivaldo J. Tro (Custom Edition for IVC. Prentice-Hall Publishing, 5<sup>th</sup> Ed, ISBN: 1269713876)
2. Chemistry 100 Laboratory Manual available at **IVC Chemistry/STEM Club** (\$15)
3. Eight (8) Scantron Sheets Form No. 889-E (submitted on the second day of class) and pencil
4. safety goggles (\$5 - \$10; needed on second class day), non-programmable scientific calculator (\$15 - \$25), closed-toe shoes
5. registration with [www.saplinglearning.com](http://www.saplinglearning.com) for online HW (\$40) – requires credit card

### Course Requirements and Instructional Methods

1. Attendance and remaining during the entire class period is mandatory for Chem 100 Lecture and Lab Classes. Before the Lecture starts, you are to sign your name on the Attendance Sheet. A Lab roll call will be initiated by the instructor within the first 5 minutes of Lab class. If you are sent out during class (e.g., failure to obey safety rules such as wearing Safety Goggles, etc.), you will be marked absent for that Lab, and will garner zero points for the experiment.
2. There are **no make-up Exams or Lab Classes.** A score of **zero (0)** will be recorded unless the absence is attributed to representation of official college functions. It is the student's responsibility to show proof of such function **prior** to the date of the absence.
3. During Exam, the only things allowed are: **pencil, nonprogrammable calculator, and I.D.** You will be supplied with a Periodic Table and a Scantron. You may use the Exam Questionnaire as scratch paper. The Exam Questionnaire, Periodic Table, and Scantron are to be submitted at the end of the Exam. **Possession of electronic devices (phones, ipod, programmable calculator, etc.) during Exam is considered cheating** and will be dealt with according to IVC policy.
4. Each student is REQUIRED to **buy the Chem 100 Lab Manual** and to **sign up for online HW no later than the second day of class.** Personal laptop is highly encouraged for online HW during Lab Class.
5. **Due dates for Online HWs are found in the Class Schedule of Topics (see last page).** For help in online HW beyond the instructor, go to [support@saplinglearning.com](mailto:support@saplinglearning.com).
6. Prior to start of Lab Class, read the relevant experiment and answer any Pre-Lab Questions. **Pre-Lab Questions sheet should be torn from the Lab Manual and submitted to the Instructor within two (2) minutes from start of Lab Class to gain full points.** So tear out the relevant Pre-Lab sheets before coming to class, and don't be late!!!
7. Before leaving the Lab Class, make sure the **instructor has signed** your Lab Data Sheet. Data should be recorded in **ink.** Cross-out mistakes with a single strike-through line. **Data Sheets and Post-Lab Questions are to be submitted within the first two minutes of the next time Lab meeting.**
8. Lab clean-ups are done 15 minutes before the end of lab. A **wet towel** should be used to wipe the lab bench in order to gain full points. Make sure sink and work area is clean. Points will be deducted to the entire class if the common work areas (fume hood, analytical balances) are dirty.
9. There are no bonus work available. Kindly seek assistance immediately to clarify any questions.
10. Lecture Powerpoints found in Blackboard is an aid only, and is not a complete synopsis of the class lecture.
11. Kindly check Blackboard for announcements and handouts at least every week.

Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement. **A four (4) unit class needs a minimum of eight (8) hours of out-of-class time per week.**

### Course Grading Based on Course Objectives

Points Distribution		Points	Grading Scale	
Lecture Exams	6 @ 50	= 300 pts	85.00% to 100% is	A
Lecture Final Exam	1 @ 150	= 150 pts	75.00 to 84.99% is	B
Online Homework	17 @ 20	= 340 pts	60.00% to 74.99% is	C
Lab Experiments	8 @ 20	= 160 pts	50.00% to 59.99% is	D
Lab Exam and Participation		= 50 pts		
<b>TOTAL POINTS</b>		<b>= 1,000 pts</b>		

### Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. **A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped.** For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.
- Student must **sign in during Lecture classes and remain the entire Lecture period** in order to be counted as present in the class.
- **Absences during Lab Classes, or leaving during Lab Classes** automatically result in a **grade of zero (0) for the Lab Experiment.**

### Classroom Etiquette

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class unless otherwise directed by the instructor. All electronic devices (with the exception of a nonprogrammable calculator) are prohibited during Exam.
- Food and Drink are absolutely prohibited in Lab classrooms. If you must drink, inform the instructor and then step out of the room.
- Disruptive Students: Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the General Catalog.
- Children in the classroom: Due to college rules and state laws, no one who is not enrolled in the class may attend, including children.

### Academic Honesty

- Plagiarism is to take and present as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to correctly 'cite a source', you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment or using or attempting to use materials, or assisting others in using materials, or assisting others in using materials, which are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General School Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment ;(c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment, (e) use of a commercial term paper service

### Additional Help – Discretionary Section and Language

- Blackboard support center: <http://bbcrm.edusupportcenter.com/ics/support/default.asp?deptID=8543>
- Learning Labs: There are several 'labs' on campus to assist you through the use of computers, tutors, or a combination. Please consult your college map for the Math Lab, Reading & Writing Lab, and Learning Services (library). Please speak to the instructor about labs unique to your specific program
- Library Services: There is more to our library than just books. You have access to tutors in the learning center, study rooms for small groups, and online access to a wealth of resources.
- Sapling Online HW: For problems involving Sapling website and online HW, email [support@saplinglearning.com](mailto:support@saplinglearning.com) for faster help.

### **Disabled Student Programs and Services (DSPS)**

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313 if you feel you need to be evaluated for educational accommodations.

### **Student Counseling and Health Services**

Students have counseling and health services available, provided by the pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see <http://www.imperial.edu/students/student-health-center/>. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

### **Student Rights and Responsibilities**

Students have the right to experience a positive learning environment and due process. For further information regarding student rights and responsibilities please refer to the IVC General Catalog available online at [http://www.imperial.edu/index.php?option=com\\_docman&task=doc\\_download&gid=4516&Itemid=762](http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762)

### **Information Literacy**

Imperial Valley College is dedicated to help students skillfully discover, evaluate, and use information from all sources. Students can access tutorials at <http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/>

### **Anticipated Class Schedule / Calendar**

**A reproduction of the Class Schedule below may also be found in Blackboard under “Handout” in Blackboard**

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WK	DATE	LECTURE	LABORATORY <i>HW due every Friday at 11:55 pm</i>
1	Aug 17 – Aug 21	Ch 1 & Ch 2: Chemical World; Measurement	Safety Quiz and Locker Check-in <b>HW 1 &amp; Math Rev due</b>
2	Aug 24 – Aug 28	Ch 3: Matter and Energy	Lab 1: Mass of a Penny <b>HW 2 due</b>
3	Aug 31 – Sep 4	Ch 4: Atoms and Elements	Lab 2: Separation of a Mixture by Physical Methods <b>HW 3 due</b>
4	Sep 7 – Sep 12 (Sep 7 no class)	Ch 5: Molecules and Compounds	<b>Lecture Exam 1</b> (covers Ch 1, 2, 3) <b>HW 4 due</b>
5	Sep 14 – Sep 18	Ch 6: Chemical Composition	Lab 3: Chemical Equil of a Cobalt Salt <b>HW 5 due</b>
6	Sep 21 – Sep 25	Ch 7: Chemical Reactions	<b>Lecture Exam 2</b> (covers Ch 4, 5) <b>HW 6 due</b>
7	Sep 28 – Oct 2	Ch 8: Quantities in Chemical Reactions	Lab 4: Precipitation with Net Ionic Equations <b>HW 7 due</b>
8	Oct 5 – Oct 9	Ch 9: Electrons in Atoms and the Periodic Table	<b>Lecture Exam 3</b> (covers Ch 6, 7) <b>HW 8 due</b>
9	Oct 12 – Oct 16	Ch 10: Chemical Bonding	Lab 5: Determining the Formula of a Compound <b>HW 9 due</b>
10	Oct 19 – Oct 23	Ch 11: Gases	Lab 6: Lewis Structure and Molecular Shapes <b>HW 10 due</b>
11	Oct 26 – Oct 30	Ch 12: Liquids, Solids, and Intermolecular Forces	<b>Lecture Exam 4</b> (covers Ch 8, 9, 10) <b>HW 11 due</b>
12	Nov 2 – Nov 6	Ch 13: Solutions	Lab 7: Calorie Content of Vegetable Oil <b>HW 12 due</b>
13	Nov 9 – Nov 13 (Nov 11 no class)	Ch 14: Acids and Bases	<b>Lecture Exam 5</b> (covers Ch 11, 12, 13) <b>HW 13 due</b>
14	Nov 16 – Nov 20	Ch 15 & 16: Chemical Equilibrium and Redox Reaction	Lab 8: Titration of an Acid <b>HW 14 due</b>
15	Nov 23 – Nov 27	<i>HOLIDAY (Thanksgiving Week)</i>	<i>HOLIDAY (Thanksgiving Week)</i> <b>HW 15 due</b>
16	Nov 30 – Dec 4	Ch 17: Radioactivity and Nuclear Chemistry	<b>Lecture Exam 6</b> (covers Ch 14, 15, 16) <b>HW 16 &amp; 17 due</b>
17	Dec 7 – Dec 11	catch up & review on Tues <b>FINAL EXAM (Thurs; during Lec Hrs)</b>	<b>Lab Final Exam</b> and Locker Checkout