

**Ivy Tech Community College  
Lafayette/Regional Syllabus**

**Course Information**

**Course and Section Number:** CHM 102-50D  
**Course Title:** INTRODUCTORY  
CHEMISTRY II

**Semester 052**

**Credits:** 3.0  
**Contact Hours:** 2.0 Hours  
Lecture  
2.0 Hours Lab

**Prerequisites:** CHM 101 Introductory Chemistry

**Division:** General Education

**Program:**

**Days:** T 6:00 – 9:50 PM

**Time:** 6:00 – 7:50 PM Ivy Hall 1287

**Building:**

**Room:** 8:00 – 9:50 PM Ivy Hall 2235

**Faculty Information**

**Name:** Michael Shevlin  
**Office Location:** N/A  
**E-mail address:** mshevlin@ivytech.edu  
**Contact Phone Number:** 765 - 429 - 8313  
**FAX number:** 765 - 269 - 5148  
**Office Hours:** By appointment  
**Division Office:** General Education Division, Ivy Hall 1166, 765-269-5710

**Catalog Description:**

Includes liquids and solids, solutions and solution concentrations, acids and bases, equilibrium, nuclear chemistry, and organic and biochemistry.

**General Course Objectives:**

Upon successful completion of this course the student will be expected to:

1. Apply the concepts of the different types of intermolecular forces to determining physical states.
2. Explain the equilibrium between a liquid and its own vapor and the process by which it is reached.
3. Interpret a graph of temperature versus energy for a substance over a range from below the melting point to above the boiling point.
4. Calculate the concentration of a solution in terms of percent, molarity, molality, and normality.
5. Determine colligative properties of a solution.
6. Calculate the pH and pOH of complex solutions.
7. Apply acid – base theory.
8. Describe the characteristics and the factors that affect a chemical equilibrium.
9. Explain the basic concepts of nuclear radioactivity.
10. Describe and perform basic quantitative and qualitative chemical analyses.
11. Describe the structure of organic and biochemical molecules.

12. Use common types of chemical glassware, equipment, and chemicals safely and appropriately, including those specifically intended for use with organic and biochemicals.
13. Describe and illustrate chemical principles in laboratory situations.
14. Obtain reproducible data from chemical experiments; analyze, interpret, and communicate the data in a logical and coherent manner.
15. Recognize uncertainties in data and identify potential sources of error.

### **Course Content:**

Topical areas of study include --

Intermolecular forces	Nuclear radioactivity
Solutions	Organic molecules
Boiling and freezing points of a solution	Biochemical molecules
Acid – base theory and applications	Equilibrium
Qualitative and quantitative analysis	

Topical areas of study to be included in the laboratory –

Energy changes	Colligative properties
Phase changes	Chemical equilibrium
Qualitative analysis	Simple organic synthesis
Quantitative analysis	Biochemistry

### **Required Texts:**

Tro, N. Introductory Chemistry, 2<sup>nd</sup> ed, 2005 (ISBN# 0131470582)  
Timberlake, K. Chemistry (Lab manual), 2002 (ISBN# 0805329846)

### **References:**

N/A

### **Supplies:**

Bound lab notebook, laboratory safety glasses

### **Additional Resources:**

Supplementary material will be posted at <http://apostasy.dyndns.org/~academics/>

### **Teaching Methods:**

Teaching methods include lectures, group discussions, individual assignments, problem solving sessions, and laboratory work.

## **Grading and Evaluation:**

Course grades are available for students by logging into the College's online student system. Grades will not be distributed by mail.

**Methods of Evaluation:** Homework will be assigned each week to reinforce the material covered in lecture. Quizzes will be administered every week over the material covered in preceding lectures. Homework and lab reports will be due at the beginning of lecture the following week. There will be three examinations during the course of the semester and a cumulative final examination at the end of the semester. Exams will be administered during the lab period as listed in the course schedule. If the class average is low at the end of the semester, scores will be adjusted upward to maintain a 70% average.

*Students failing to turn in more than two lab reports during the course of the semester will automatically fail the course. This includes late lab reports and unexcused absences, and no exceptions will be made.*

<b>Graded Elements:</b>	<b>Homework</b>	<b>10%</b>
	<b>Quizzes</b>	<b>20%</b>
	<b>Labs</b>	<b>20%</b>
	<b>Exams</b>	<b>30%</b>
	<b>Final Exam</b>	<b>20%</b>

<b>Grading Scale:</b>	<b>90 – 100</b>	<b>A</b>
	<b>80 – 89</b>	<b>B</b>
	<b>70 – 79</b>	<b>C</b>
	<b>60 – 69</b>	<b>D</b>
	<b>0 – 59</b>	<b>F</b>

## **Research Assignments:**

N/A

## **Additional Assignment/Grading Information:**

### **Laboratory Notebook and Prelab**

You must use a bound laboratory notebook (not a spiral notebook). Each lab should begin on a new page and be labeled with the name of the lab and the date it was performed. The next section in the lab notebook should be the prelab, which should be completed before coming to the lab. The prelab will consist of an outline or flow chart of the procedure you will use in the lab. This section should not be a verbatim copy of the procedure from the lab manual, and it must be sufficiently detailed that you can work from it without referring to your lab manual. *Students will not be permitted to begin work in the laboratory until the prelab is complete.*

During the experiment, you will record all data and observations in your notebook. The information should be in chronological order and all entries should be clearly labeled. Do not leave large spaces between entries. When recording observations and data, it is better to err on the side of caution and write as much as possible rather than omit important details.

## **Lab Reports**

Laboratory work will be performed individually unless otherwise instructed. Lab reports will be completed individually and must be typed and include the following information:

Introduction	A sentence or two summarizing the experiment
Experimental Reactions	A paragraph describing the method used in the laboratory
Results	Balanced chemical equations for all reactions conducted in the lab
Calculations	Observations, data tables, graphs, etc.
Discussion	Sample calculations for values computed for the lab
Questions	A paragraph or two explaining the results
	Answers to questions provided in the laboratory

## **Makeups/Late submittals:**

*Late homework and laboratory assignments will not be accepted.* Homework and exams may be made up following a documented, excused absence. Due to time constraints, there will be no make-up sessions available for laboratory work. Quizzes and labs missed due to excused absences will not be averaged into the final grade.

## **Attendance:**

Attendance is mandatory. If a student is unable to attend any of the sessions, it is the responsibility of the student to inform the instructor before the scheduled class. Absences will be excused only for illness or death in the immediate family and must be accompanied by appropriate documentation.

## **Last Date and Responsibility for Withdrawal:**

Last date to withdraw is November 15, 2005. Students are to complete a Drop/Add form to withdraw a class. If you do not do this, you may receive a grade of "F" for the course.

## **Additional Class Information:**

None

## **Academic Honesty Statement:**

The College is committed to academic integrity in all its practices. The faculty value intellectual integrity and a high standard of academic conduct. Activities that violate academic integrity undermine the quality and diminish the value of educational achievement.

Cheating on papers, tests or other academic works is a violation of College rules. No student shall engage in behavior that, in the judgment of the instructor of the class, may be construed as cheating. This may include, but is not limited to, plagiarism or other forms of academic dishonesty such as the acquisition without permission of tests or other academic materials and/or distribution of these materials and other academic work. This includes students who aid and abet as well as those who attempt such behavior.

## **Conduct:**

**Cell Phones in Class:** Cell phones and pagers should be turned off when you are in class. If your cell phone or pager rings during class, points may be deducted from your grade. If you have unusual circumstances, you should talk to the instructor.

Any use of cell phones and pagers during a quiz or test is strictly prohibited. Any student who violates this policy will earn a zero on the quiz or test.

Emergency calls may be addressed to the Registrar's Office at (765) 269-5119; the Registrar's staff will have you contacted in the classroom. After 5:00 p.m., calls may be directed to the main switchboard at (765) 269-5100. In the event of an emergency after 9:00 p.m., calls should be directed to the security officer on duty at (765) 269-5254, (765) 430-2882, or (765) 430-2883.

## **Lab Rules and Regulations:**

1. Safety goggles must be worn in the laboratory at all times; there are NO exceptions. If you do not have your own goggles, you may purchase them through the bookstore.
2. Student must be appropriately dressed in the laboratory at all times. This means wearing clothing that protects the skin from the neck to below the knees. Sleeveless or tank top shirts, shorts or skirts that don't cover the knees, open-toed shoes and sandals (even with socks), are unacceptable in the laboratory. You may bring appropriate clothing to change into for the lab. Students will not be permitted to work in the lab wearing inappropriate clothing. Labs missed for this reason will be counted as unexcused.
3. If you require vision correction, you are advised to wear regular glasses rather than contact lenses in the laboratory. Chemicals and vapors can lodge behind contact lens and cause severe damage to the eyes. Also, contact lenses interfere with the use of an eyewash. If you insist on wearing contact lenses in the laboratory, you must inform your instructor of this at the beginning of the semester.
4. To avoid contact with flames and chemicals, hair longer than shoulder length must be appropriately contained.
5. Food and beverages are prohibited in the laboratory. Do not apply cosmetics in the laboratory.
6. No unauthorized experiments may be performed at any time

## **ADA Statement:**

Ivy Tech Community College seeks to provide reasonable accommodations for qualified individuals with documented disabilities. If you need an accommodation because of a documented disability, please contact the Office of Disability Support Services at the beginning of each semester. The Disabilities Services Coordinator is Tony Criswell; he is located in the Learning Resource Center, Ivy Hall Room 1157F. If you will require assistance during an emergency evacuation, notify your instructor immediately. Look for evacuation procedures posted in your classrooms.

### **Extra Assistance:**

The Student Support and Development Advisor whose office is located in Ivy 1145, can provide academic counseling to assist with general academic and daily life management skills, such as time and stress management. They can also provide limited personal counseling and referral to outside assistance agencies. Tony Criswell, Disability Services Coordinator in Ivy 1157F, provides additional assistance for special needs students.

### **Virtual Library:**

The Ivy Tech Virtual Library is available to students on- and off- campus, offering full-text journals and books and other resources essential for course assignments. Go to <http://www.ivytech.edu/library> and choose the Virtual Library link for your campus.

### **E-mail:**

E-mail communication from the College is directed to the online student system. Students are responsible for checking their e-mail accounts, even if they also use other e-mail accounts. Please refer to the Ivy Vine Student Handbook for more information.

### **Assessment:**

Ivy Tech Community College is committed to graduating students who have the appropriate technical and general education skills. Each approved technical program in the College annually assesses its program graduates for technical competence. As all graduates are to be assessed for technical competence, students are expected to participate in assessment activities as required by their program. General Education skills are assessed through an authentic assessment project that uses work submitted by students as a part of their regular course requirements.

### **Course (SUMMA) Evaluations:**

Course evaluations by students will be conducted during the fall and spring semesters using the College's "Student Evaluation of Instruction" form.

### **Emergency Procedures:**

Please note emergency evacuation procedures posted in the classroom.

### **Certification and Licensing Statement:**

Ivy Tech cannot guarantee that any student will pass a certification or licensing exam. Your success will be determined by several factors beyond the instruction you are given in the classroom including your test-taking skills, your willingness to study outside of class, and your satisfactory completion of appropriate practice exams. Certification and licensure exam questions are drawn from databases of hundreds of possible questions; therefore, a thorough understanding of the subject matter is required. The goal of Ivy Tech in providing a certification exam studies class is to assist you in understanding the material sufficiently to provide a firm foundation for your studies as you prepare for the exam.

### **Right of Revision:**

**NOTE:** This syllabus and the information contained within it are subject to change without notice.

## Assignments and Tentative Course Schedule:

<b>Class Meeting</b>	<b>Topic</b>	<b>Assigned Work</b>	<b>Work Due</b>
Week 1 8 / 23	Introduction, Chapter 12: Liquids & Solids Laboratory Safety	HW 1	
Week 2 8 / 30	Chapter 13: Solutions Lab 1: Energy & States of Matter (p. 85)	HW 2	HW 1
Week 3 9 / 6	<b>NO CLASS</b>		
Week 4 9 / 13	Chapter 13 Lab 2: Solutions, Colloids, and Suspensions (p.177)	HW 3	HW 2 Lab 1
Week 5 9 / 20	Chapter 14: Acids and Bases <b>EXAM 1</b>	HW 4	HW 3 Lab 2
Week 6 9 / 27	Chapter 14 Lab 3: Acids & Bases: Titration (p.193)	HW 5	HW 4
Week 7 10 / 4	Chapter 15: Chemical Equilibrium Lab 4: Acids, Bases, pH, and Buffers (p.185)	HW 6	HW 5 Lab 3
Week 8 10 / 11	Chapter 15 Lab 5: Solubility of KNO <sub>3</sub> (p.160)	HW 7	HW 6 Lab 4
Week 9 10 / 18	Chapter 16: Oxidation and Reduction <b>EXAM II</b>	HW 8	HW 7 Lab 5
Week 10 10 / 25	Chapter 16 Lab 6: Oxidation Reduction Activity (worksheet)	HW 9	HW 8
Week 11 11 / 1	Chapter 17: Radioactivity and Nuclear Chemistry Lab 7: Nuclear Chemistry Activity (worksheet)	HW 10	HW 9
Week 12 11 / 8	Chapter 18: Organic Chemistry <b>EXAM III</b>	HW 11	HW 10
Week 13 11 / 15	Chapter 18 Lab 8: Molecular Modeling Activity (worksheet)	HW 12	HW 11
Week 14 11 / 22	Chapter 18 Lab 9: TBA	HW 13	HW 12
Week 15 11 / 29	Chapter 19: Biochemistry Lab 10: Synthesis of Fragrant Esters (handout)	HW 14	HW 13 Lab 9
Week 16 12 / 6	Chapter 19 Lab 11: Paper Chromatography (handout)	HW 15	HW 14 Lab 10
Week 17 12 / 13	<b>FINAL EXAMINATION</b>		HW 15 Lab 11

Lab 9 will be announced in class during the course of the semester.