

**Syllabus**

**Fall 2016      Chem 103, Chemistry in a Changing World      CRN #12733**

**Contact Information:**

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Course Websites: Launchpad: <http://www.macmillanhigher.com/launchpad/johl3e/3402730>

Blackboard: <http://www.fullcoll.edu/blackboard>

This course is for non-science students seeking general education credit in a physical science course without a laboratory. The course emphasizes basic principles of chemistry and prepares students by developing thinking skills applied to challenges in a changing world. This course serves as an introduction to the world of chemistry in the context of forensic examination used during investigation of case studies provided in each chapter of the textbook. The case studies provide a focus for chemical concepts used during the scientific investigation. Both a novel and fun approach to chemistry, I hope you enjoy this course!

**ONLINE CLASS:** This course section is entirely ONLINE and uses

**LaunchPad:** <http://www.macmillanhigher.com/launchpad/johl3e/3402730>

**and Blackboard:** <http://blackboard.noccd.edu>. Access to LaunchPad is required for this course.

Students must log onto LaunchPad by 12:00 pm, Fri, Aug 26 at 11:59 PM or they will be dropped.

LaunchPad has a three week trial period and includes the e-text so if you receive financial aid, you still have access to the course while waiting to purchase text and supplies. The assignments are organized by textbook chapter and typically all assignments are due on or near when you begin to study the next chapter. After reading the syllabus in its entirety, there is an additional **student contract** in LaunchPad listed under **and is time sensitive**. Complete the student contract by Monday, Monday, August 29 at 11:59. If login to both LaunchPad and Blackboard along with submission of the student contracts are not completed by these due dates, you will be dropped from the course. If you do not plan on taking this course, please drop the course early on since there are many students wait-listed that would like to take the course. Before you logon and complete the student contract, read all of the information in the syllabus first. All of your assignments, quizzes will be taken at Blackboard along with examinations, including the final. LaunchPad contains tutorials, ChemCasts, and other media and all are required material for this course. My faculty website at <http://staffwww.fullcoll.edu/jchadwick> houses the syllabus and course information just in case of emergency. For general information, answers to frequently asked questions regarding online courses, and more, go to the Fullerton College Distance Education website at <http://online.fullcoll.edu>.

The online portion of our course in LaunchPad is open for student registration. Follow these steps to get started. If you need additional guidance, consult the student [Get Started guide](#), especially the [system requirements](#) which list the recommended browsers. To register for the course go to:

<http://www.macmillanhigher.com/launchpad/johl3e/3402730> PLEASE bookmark the page to make it easy to return to. You have three options to enroll in the course: you can purchase direct access, you can buy an access code, or you can get free 21 day access while deciding. [Your registration options are explained here](#). To navigate and start using LaunchPad please consult

the [Get Started guide](#) and/or [view this video](#).

If you have problems registering, purchasing, or logging in, please contact Customer Support. You can reach a representative 24 hours a day, 7 days a week:

- through the [online form](#)
- by [chat](#)

Or from 9 a.m. to 3 a.m. EST, 7 days a week:

- by phone at (800) 936-6899

Be aware of the following dates:

Class begins on August 22.

Log onto LaunchPad by 12:00 pm, Fri, August 26 or you will be dropped.

Complete the Student Contract by 11:59 pm on Mon, August 29 or you will be dropped.

The last day to drop without a W is September 5

The last day to drop with a refund is September 5.

The last day to drop with a W is November 13.

The last day of term is May December 10.

Holidays: 9/5, 11/11, 11/24-11/25

### **Credits, Hours, and Workload**

Chemistry 103 is a 3 unit course. Since this is offered as an online course this spring, there are no meetings for this course on campus, but regular participation online is expected. Participation online is mandatory and is monitored rigorously. To give you an idea of the workload for this course, a three unit on-campus course a total of three hours per week in class during the sixteen week semester and it is expected that the minimum amount of time required outside of class is six hours per week. Since your studies are all online, expect to set aside a minimum of ten hours per week for this course. **My expectation is that you will logon to LaunchPad at least once per week and Blackboard at least once per week. Lack of participation or logon for longer than ten days may result in the instructor drop in the course.** Classroom studies are replaced with online media material including ChemCasts, short instructional videos on how-to solve problems and interactive simulations. I have the capability to create additional videos on topics that are difficult for you to grasp, so please feel free to email me and request a short video on a topic. However, these videos do take time to create, so please do not wait until right before an exam or expect the video immediately.

### **Text and Materials**

Textbook: Investigating Chemistry w/ Portal Access by Matthew E Johll, 3<sup>rd</sup> Edition, W.H. Freeman, Publisher. ISBN: 9781319027964

The access code for self-registration to LaunchPad is sold with the textbook in the bookstore. You will need the access code from the textbook, so make sure you do not throw away the access code! If you purchased the textbook elsewhere, you can purchase portal access at the LaunchPad logon page, <http://www.macmillanhighered.com/launchpad/johll3e/3402730> . If you do not wish to purchase a textbook, there is a complete e-text in LaunchPad. If you are waiting for financial aid to purchase the book, the e-text is available in LaunchPad for a trial period of three weeks. **LaunchPad** combines a fully customizable eBook, tutorials, and conceptual learning aids, all in one affordable and easy-to-use learning space. LaunchPad will be used to show due dates for all assignments, quizzes, discussion forums, and a link to the examinations. There are many assignments due in LaunchPad and Blackboard.

## Technology Requirements

There are several aspects to technology requirements described at LaunchPad. To make sure your computer has all the appropriate programs, run the system check at LaunchPad or the direct link to the system check is <http://courses.bfwpub.com/syscheck/>

Homework and worksheet assignments must be hand written and submitted in Blackboard so scanner access or a cell phone with photo capabilities is required for these submissions. It might be possible to find a copy center that will scans and if you place your work on a thumb drive. Course organization is by chapter. The due dates are listed in the Chapters in LaunchPad. All homework, worksheets, online quizzes and exams are submitted in Blackboard. Assignments and each chapter has its own End-of-Chapter Homework or Assignment Drop Box. Submit all homework as scanned pdf, jpeg, gif, or png files in LaunchPad using the Assignment Drop Box for each chapter. PDF files are preferable if you have a choice. Please *do not* submit any cell phone photos of your work as tiff files.

You should have a word processor such as Word or Open Office for writing.

## Browser Requirements

**CHROME and SAFARI** are now supported browsers for the course website. You can use FireFox or Internet Explorer browsers. Mac users: Firefox requires an **Intel processor** and **Mac OS X 10.5** or above **up to Firefox 16, Mac OS X 10.6** or above **from Firefox 17**. If you need to install the Firefox browser, just google “Install Firefox for Mac” for more information. In addition, if you run the system check at <http://courses.bfwpub.com/syscheck/> you will be advised of compatible browsers.

## Plug-in Requirements

You should have the plug-ins below installed on your computer. Click on the link to make sure you have the most recent version installed on check at the Fullerton College [plug-in page](#):

- a) [Flash Player](#)
- b) [Shockwave](#)
- c) [Adobe Acrobat Reader](#).

## Virus Protection

Computer viruses can cause damage to your computer and the files stored in it. If you send a file with a virus to someone else in your class, that person's computer may become "infected" as well. Anti-virus software is available to help protect your computer. It isn't required for the course, but you should consider virus protection of some sort for your computer.

## Security Issues

If you have an ad or pop-up blocker, I recommend disabling it for course materials. Disable any pop-up blockers while viewing material for this course. Browsers, spyware, anti-virus software, firewalls all can have pop-up blockers, so one usually has to look several places before all of the pop-up blockers are disabled. More plug-in and browser information is available at [http://online.fullcoll.edu/Bkbd/Resources/stdntfaqs\\_new.html](http://online.fullcoll.edu/Bkbd/Resources/stdntfaqs_new.html)

## Computer and Internet Access

You will need access to a computer and the Internet 5 out of 7 days a week for a total of 10 or more hours a week for this course. You can use more than one computer (home, work, and school), but make sure others will not need to get on the computer when you are taking quizzes and examinations.

## Course Readiness

This course is offered entirely online and requires and requires good study skills and a lot of self-discipline. If you think this course will be easier or take less time than a traditional, fully on-campus course, you are mistaken. Before you take an online class, you should be confident about your computer and study skills. Review the following list of requirements to assess your readiness to take online classes.

- I know how to download a browser, connect, and navigate around the Web and use a search.
- I know how to do basic word processing, including cutting and pasting.
- I can scan documents or take a photo with a cell phone, save them, and email them to others.
- I know how to open, save, and manage files.
- I have access to a computer 5-7 days per week.
- The computer I will use meets the basic requirements for online classes. I am not using Chrome or Safari because the course website has issues with these browsers. However, I know I can use FireFox or Internet Explorer as browser.
- I have 10 to 15 hours a week to work on my online class.
- I am willing to participate in a discussion forum in writing.
- I will participate in online group discussions and respond to other students on a regular basis.
- I can motivate myself to log in to the course website at least 4 days a week.
- I check my email regularly and ensure my mailbox is not full.
- I have good reading comprehension and written communication skills, and I enjoy communicating in writing.
- I enjoy figuring things out on my own but am able to ask for help when I need it.

If you can't answer "Yes" to all these questions, you may not be quite ready for online learning

## General Teaching Methods

Students will demonstrate an appreciation for diversity by assessing the impact of diverse perspectives and contributions to our world through chemistry by studying issues in the past, present, and future. Some of the methods to achieve this goal are described below. Activities and assessments online include:

1. Required online quizzes are available in Blackboard.
2. Required Homework Submissions - any end-of-chapter homework assignments in LaunchPad should be scanned and submitted in the Drop Box in Blackboard. A list of all the homework problems are listed at the end of the syllabus, as well as individually in each chapter assignment in LaunchPad.
3. Required Worksheets - any worksheet or problem solving assignments shown in the Chapters in LaunchPad should be scanned and submitted in the Assignment Drop Box in Blackboard. The list of assignments due are posted by chapter in LaunchPad. Open each chapter and scroll down to view what is due by the due date.
4. Textbook and any recommended external website readings will be posted in LaunchPad.
5. Required Simulations - Simulations in LaunchPad are worth 1-2 points and are click-through. Simulations in Blackboard require submission and are worth more points.
6. Chapter assignments posted in LaunchPad. You will rely primarily on the Assignments section of LaunchPad for your activities. Read each chapter assigned before attempting challenging assignments such as end-of-chapter homework or online quizzes. The end-of-chapter homework assignments are submitted in Blackboard along with some of the simulations. The online quizzes are taken in Blackboard. Solutions to the end-of-chapter homework are posted in Blackboard after the assignment due date.

7. Required Discussion Forums – Discussion forums are group discussions and group work available in Blackboard. In addition to the textbook, we will discuss at least three additional case studies in the discussion forum in Blackboard. To find which group you are randomly assigned to for discussion, click on Groups in the Content area of Blackboard. The first case study begins immediately and there is a written response required. Discussions occur after I have received submitted work and may extend over a number of weeks.

8. Examinations in Blackboard. There are three examinations covering the chapters and a final comprehensive exam. Examinations are usually available from Thursday until the following Monday and are taken online in Blackboard. The last day to take the three examinations is typically a Monday at 11:55 PM. I will post grades after all of the exams are graded. There is less time to take the final since exam 3 is due the same week. I will make the final available on Thursday and Friday during the last week of class and will overlap the window to take the final with Exam 3. See the course schedule in Blackboard, LaunchPad, or my website for the dates of the exams.

9. Required Contact - Contact with instructor and students in the course by email and the discussion forum. The instructor is available for appointments or on the phone if needed. I also have a tablet and can record videos for any content where you may have issues. I would prefer to see what is needed rather than post material that no one reads. Let me know if and when you have issues with the material well in advance so I can create a custom video for you.

9. An assortment of media could be used such as computer software, slides, streaming video, and audio files.

Each week begins Monday at 4:00 am PST. Discussion boards, online quizzes, and self-assessments are turned off for posts or entry when the new chapter begins on Monday or Wednesday at 4 am. See the course schedule and also check at the Assignments in LaunchPad Calendar to determine when all assignments are due.

Quizzes are available for 20 minutes with a 5 minute warning in Blackboard. You can take the online quiz for each chapter two times, but the average score for up to two trials is taken.

Homework is typically due on Mondays or Fridays before examinations in the Homework Drop Box in Blackboard. Examinations are *usually* available from Thursday or Saturday until the following Monday and are taken online in Blackboard.

### **Course Student Learning Outcomes for CHEM 103, Chemistry in a Changing World**

1. Students will identify fundamental chemical principles.
2. Students will analyze common observations using fundamental chemical principles.
3. Students will interpret and analyze simple experiments.

### **Course Objectives**

- Develop analytical and conceptual thinking skills as well as writing and oral expression skills in evaluating chemical discoveries and theories associated with forensic science.
- Using critical thinking, recognize patterns that integrate ideas and reduce the need to learn many individual facts.
- Analyze current forensic science problems and potential problems of the future utilizing forensic chemistry concepts as examples.

- Describe/apply the process by which chemistry investigates the world around us and adds to our body of knowledge.
- Prepare you to participate in our technological society through exposure to reading and writing about science and chemistry topics using case studies in forensic science as a framework.
- Expose you to concepts of chemistry such as atomic theory, radioactivity, chemical bonding, chemical nomenclature, polarity, states of matter, acids and bases, and nomenclature.
- Demonstrate knowledge of chemical principles through problem solving.

## Chapter Objectives

### Chapter 1

Gain an appreciation for the global role of forensic science

Describe the three states of matter and distinguish elements from compounds

Interpret and use atomic symbols, the periodic table, and chemical formulas.

Describe a critical skill scientists must learn- observation.

Think like a scientist to address a problem.

### Chapter 2

Distinguish chemical changes and properties from physical changes and properties.

Distinguish mass from weight and explain the importance of units of measurement.

Use conversion factors properly in solving mathematical problems.

Identify significant figures in measurements and know how to determine them

Explain the rules for determining the number of significant figures required in answers to calculations.

Use density as another physical property to investigate chemical evidence.

Use density measurements to illustrate their use in the forensic laboratory.

### Chapter 3

Distinguish the two early schools of thought on the nature of the atom.

Describe how the political and scientific groundwork for a modern atomic theory was established.

Show how Dalton's atomic theory could explain and predict the behavior of matter.

List the main subatomic particles and show how their discovery furthered our insight into the nature of the atom.

Distinguish isotopes and describe how they can be used in scientific research.

Determine the atomic mass of an element with isotopes.

Show how the distribution of isotopes relates to the atomic masses listed in the periodic table.

Assess data from clues that the emission spectra of elements provide about the location of electrons within an atom.

Examine and use the relevant mathematical equations to describe the behavior of light.

Describe the modern model of the atom and contrast it to earlier, obsolete models.

Write the electron configuration for an atom of an element.

### Chapter 4

Describe the various regions of the periodic table and the terminology used to discuss the elements.

Write the names and formulas of covalent compounds.

Write the names and determine the formulas of ionic compounds.

Designate chemical compounds when common names are used.

Master the basic terminology of chemical reactions.

Balance chemical equations systematically.

Determine the molar mass of compounds and do basic gram-mole conversion problems.

Use balanced chemical equations to determine the relationship between quantities of reactants and products.

Identify and classify chemical reactions.

Apply stoichiometry calculations in solving limiting reactant problems.

#### Chapter 5

Explain the valence bond theory of covalent bonding.

Construct the Lewis structures of ionic compounds.

Draw the Lewis structures of covalent compounds.

Draw resonance structures for compounds that have multiple equivalent Lewis structures to accurately depict the bonding in a compound.

Predict the three-dimensional shape of a molecule.

Determine the polarity and solubility of compounds.

Describe how the molecular geometry at individual carbons can be used to visualize large molecules.

Describe how drug molecules interact with neurons to produce a high.

#### Chapter 6

Distinguish between a solvent and a solute.

Distinguish between electrolytic and nonelectrolytic solutions.

Explain how the driving force behind a precipitation reaction is the formation of an insoluble compound.

Determine when a solution is unsaturated, saturated, or supersaturated.

Determine the concentration of a solution.

Distinguish between strong and weak acids.

Distinguish between strong and weak bases.

Explain the products of a neutralization reaction and what chemists mean by "salt."

Describe what the pH scale measures and what a buffer does.

Calculate the pH of solutions.

#### Chapter 9

Explain the concept of thermal equilibrium and the chemistry of fire.

Balance the chemical equations for combustion reactions.

Assign oxidation numbers and identify reduction and oxidation processes.

Describe how heat affects both physical and chemical processes.

Describe what happens when heat is added to a substance.

Calculate the heat needed for phase changes and temperature changes.

Describe how to measure the amount of heat produced in combustion reactions.

Perform calculations in calorimetry.

#### Chapter 10

Differentiate between high and low explosives.

Explain the properties and behaviors of gases using kinetic-molecular theory.

Using the gas laws, describe how gases behave.

Show how the pressure, volume, temperature, and quantity of a gas are interrelated.

Use the gas laws to calculate the variables of a gaseous system.

Use the ideal gas law in advanced calculations.

#### Chapter 12

Explain the risks in handling radioactive material.

Write balanced reactions for the radioactive decay of an isotope.

Use half-lives of isotopes to determine the risk level of different sources of radiation.

Explain how the properties of radioisotopes are used for medical diagnosis and treatment of disease.  
Explain how the half-life of carbon-14 can be used in forensic investigations.  
Describe how nuclear power plants generate electricity.  
Describe the military use of uranium isotopes.  
Explain the nature and potential danger to public safety by a dirty bomb.

## Evaluation Methods

Evaluation of students may be based on: exams, quizzes on simulations and coursework, homework assignments of problem-solving, course discussion participation, and case studies. Written assignments may include synopsis and/or critique of online material, case studies, explanation of chemical principles, qualitative, and quantitative problem solving.

Each week begins at Monday 4:00 am PST and each week ends on Sunday at 12:59 PST. Discussion boards, online quizzes, and self-assessments are turned off for posts or entry at the end of each week on Sunday at 11:59 pm PST.

Examinations are usually available from Thursday or Saturday until the following Monday and are **taken online in Blackboard**.

## Late Policy

This is a sixteen week semester if you fall behind in this course or it will be difficult to catch up. This course goes by very quickly and it is important to read the textbook thoroughly and complete all assignments. No late work is accepted.

## Participation Policy

It is extremely important that you participate in this course online. Along with quizzes and examinations, I grade you based on not just logging into LaunchPad, but your participation in course, and on the quality and quantity of your online postings. There is a timestamp on all access so I can tell if you have spent time viewing media and working tutorials. Do not simply click through assignments as this will be detrimental to your learning. This course has many assignments and you will not pass this course by simply taking the exams and quizzes. **My expectation is that you will logon to LaunchPad at least once per week and Blackboard at least once per week. Lack of participation or logon for longer than ten days will result in a drop in the course by the instructor. If you do not participate in the group discussions in the discussion forum for two out of three discussions, you may be dropped from the course.** We will use the discussion board online and I expect you to participate in the conversations with your classmates in this course. My expectation is that you will respond a minimum of three times to three different students in your group to receive credit for the forum discussions. What you post on the board should have some meaningful content, not just remarks like “I agree”. For more details on how letter grades and points are assigned, see my grading policy.

### **Adds/Withdrawal Policy for this Course**

The official college withdrawal policy will be adhered to for this class. Ultimately, it is the RESPONSIBILITY OF THE STUDENT to withdraw from the class on time. SHOULD YOU DECIDE YOU WANT TO DROP THE COURSE, YOU ARE RESPONSIBLE FOR DROPPING THE COURSE ON TIME! The INSTRUCTOR WILL NOT BE RESPONSIBLE FOR DROPPING A STUDENT from the course based on attendance or participation. The url to drop, WebStar, is located on the Fullerton College portal, [myGateway](#).

### **Grading Policy**

There are three exams and each exam is worth 100 points. Because of the nature of the online experience, the exams will be primarily multiple choice. The exams will rely heavily on the content of the textbook, including the case studies. Do not assume you can pass the exam without thoroughly mastering the textbook material. The exams will be designed with the context of forensic chemistry in mind. The final is comprehensive and worth 200 points. The final examination covers all of the textbook readings, quizzes, and any other materials discussed online.

Each ChemCast, Interactive Applet, Forensic Simulation, and Interactive Simulation in LaunchPad assigned is worth 1 point. Problem-Solving Tutorials are worth 2 points and there are additional worksheets assignments in LaunchPad but submitted in Blackboard worth 10 points to 20 points, depending on the number of problems. All worksheets and homework assignments are submitted in Blackboard. Make sure you watch and do all the assignments, especially the material in LaunchPad. They are not that time consuming and you will lose points if you do not complete each assigned activity in LaunchPad.

Each online quiz is worth 10 points. The online quizzes are available in Blackboard and the each quiz is submitted online and graded automatically. Details are found in Blackboard.

Chemistry 103 is graded on a *percentage basis*. Points are assigned for every assignment, but each assessment contributes to a percentage of the score in a category such as online quizzes, homework, exams, activities, case studies etc. A list of all the assignments and their assigned points is posted on the [instructor's website](#). I use an online grading tool that permits me to enter your scores as points and then the assignments are adjusted to the relative weights below. You will be given access to this grading tool so you can see any graded material online at any time. However, remember that your grade at any time during the semester is just a snapshot of how you are doing at that time based on what I have graded and may not reflect your overall score at the end of the course.

### **Grading Categories and Percentages**

I assign points for everything, but each assignment or exam resides in a category and categories are weighted differently. I will post your scores on a secure server and will provide you a link once there are a few assignments completed. This will show your score in points and indicate how well you are doing at that time in each category. Exams are more heavily weighted than other chapter assignments, but you will not pass this course simply by taking the exams and the online quizzes. You must participate in the group discussion at the discussion forum in Blackboard in order to pass this course. Your grade may change significantly up or down throughout the course depending how well you do in each category. The breakdown of percentages is as follows:

## Point Breakdown and Percentages

Category for Assessments	Percentage of Grade
Exam (100 pts each)	40%
Final (200 points)	20%
Online Quizzes (10 points each)	5%
End-of-Chapter Homework)	10%
Case Studies (vary in points)	15%
Chapter Assignment Activities such as ChemCasts, Simulations, worksheets, etc.	10%

## Letter Grades

Letter grades are based on percentage scores. Grades are assigned only at the end of the semester when all items have been graded; the percentage on a portion of the course is not a meaningful measure of your total performance. However, please note that at the discretion of the instructor, if you fail a portion of this course you will not pass the entire course. A failing grade is considered receiving less than 55% of the score in the final, examination total, or discussion board total. In this event, you will have to take all components of this course again in order to receive credit for the entire course. Letter grades will be assigned based on the following range of total percentage for the course

Letter Grade	Range
A	100-90
B	89-80
C	79-68
D	67-57
F	less than 57

## Cheating, Plagiarism, Dishonesty

All cases of cheating, plagiarism, or dishonesty will be reported to the appropriate authorities and will result in an F in the work as the very least form of penalty. An act in cheating, plagiarism, or dishonesty, may result in an F in the course or dismissal from this college. Certainly you will receive a zero for any work submitted that is not your own and not properly cited. You must complete and turn in your own work. Any work that is not your own that is submitted for grading constitutes plagiarism. Plagiarism is defined as stealing or passing off as one's own ideas or words of another or using a creative production without crediting the source. Plagiarism consists of:

1. Copying homework, lab reports, research reports, and any quizzes or tests not made available to all students in the course. Any collaboration on laboratory experiments or research reports is not allowed unless announced by the instructor. In other words, don't copy from other students.
2. Paraphrasing published material without acknowledging the source.
3. Making significant use of an idea or arrangement of ideas, e.g., outlines.

4. Writing a paper after consulting persons who provide suitable ideas and incorporating these ideas into the paper without acknowledgement.
5. Submitting under one's own name term papers, or other reports which have been prepared partially or fully by others.
6. Copy and pasting from the Internet without proper citation.

Cheating is defined as

1. Using notes, aids or the help of other students on tests or exams in ways other than those expressly permitted by the instructor.
2. Misreporting, dry-lab, or altering the data in laboratory or research projects involving the collection of data.

Papers or projects used for another course cannot be used in this course. Any material previously submitted for this course will not be accepted in this course. Any material previously submitted by other students is maintained by the instructor and used for verification that what you hand in is your own work.

To aid as a preventive measure in cheating, primary sources for assessment in this course will be the textbook examinations, online quizzes, and homework. It is important that you complete all of the work and that you do not use the work of others in this course.

#### Student Disabilities

Fullerton College is committed to providing reasonable accommodations for students with disabilities *upon request of the student* (in a timely fashion) and upon verification of disability. Please contact the the Fullerton College Disabilities Support Services at <http://dsp.fullcoll.edu/> .