Chemistry 110 Syllabus

Section 2

Spring Semester 2019

Course Description

This introductory course in chemistry stresses basic principles necessary for further chemistry study. Included are the following topics: mathematical preparation, atomic and molecular structure, chemical formulas, nomenclature, and equations, the mole concept, application of chemical principles to common substances, and ideal gas law calculations. Lab exercises will supplement course lectures.

Due to the amount of math involved, this course has a prerequisite of MAT 102 (or successful completion of a high school Algebra II course).

Meeting Times

Lecture meetings

- Monday from 2:00 PM until 3:15 PM in Room 5404, *and*
- Wednesday from 2:00 PM until 3:15 PM in Room 5404

Laboratory meeting

- Tuesday from 2:00 PM until 4:50 PM in Room 5402

Course Web Site

Course documents, schedules, daily notes, announcements, and other important course information will be posted on the course web site: http://scienceattech.com. Check the course web site at least once after each class period.

Instructor Contact Information

Your instructor for lecture is Mr. Charles Taylor. Mr. Taylor's office is located in Room 5416-G. While you can contact Mr. Taylor by phone at 843-661-8093, you will get a much faster response by sending an e-mail to charles.taylor@fdtc.edu.

Office hours will be posted on the course web site and Mr. Taylor's door.

Required Materials

Textbooks

The main course textbook is OpenStax Chemistry. You may download the book for free from the OpenStax web site: https://openstax.org/details/books/chemistry . The ISBN is 978-1-947172-09-8 for the download edition.

To make sure you're getting the exact same edition as the references in the class notes assume, you may also download the book from this link: http://www.scienceattech.com/Chemistry-OP.pdf .

The download is about 220 megabytes and may take a few minutes, depending on the speed of your Internet connection.

The digital textbook may be used with any device that supports PDF files. Apple iOS tablets/phones, Android tablets/phones, PCs, and Macs are all compatible with the OpenStax text. It's recommended to download and save the book to local storage on your device rather than access the book over the network every time, as having the book on your local storage will save much data if you are on a mobile network. You may also print as many of the sections of the book as you wish – printing is not restricted.

For those who prefer a wholly printed version of the textbook, print copies are available for purchase in the bookstore and online.

The lab manual is Wentworth, R.A.D; Experiments in General Chemistry, Brooks/Cole. (***Tenth** Edition*) ISBN 978-1-111-98942-2.

Both of these textbooks are required for the course. For the lab manual, each student does not have to purchase their own copy of the manual as long as at least one person in their lab team has a copy. The lab manual is only available as a print copy and can be purchased in the bookstore, purchased online, or rented via several textbook rental services.

Other materials

You will need a computer or tablet (with Internet access) and printer to effectively use the course web site. The site works with most phones as well, but the content is designed for larger devices. If you do not have access to a computer or tablet, you may use computers in the school computer labs. If you do not have access to a printer, you may use printers in the school computer lab for a small per-page fee.

You will need a scientific calculator. A TI-83 or TI-84 is recommended. However, if you do not

currently have a scientific calculator and are unable to get a TI-83 or TI-84, there are simple models like the Texas Instruments TI-25X and CASIO fx-300es available at area retailers for under $20 that will work for CHM 110. If you aren't sure whether you have the right calculator for the course, please ask.

Evaluation and Grading

Lecture grades

In lecture, your course grade will be determined by your attendance, your performance on four tests, and your performance on a final exam given during finals week. Each of the four tests will be counted once, and the final exam will be counted as two test grades. The average of these six grades (four plus the final exam counted twice) will be your lecture test average.

One of your lecture grades will be replaced by the final exam grade at the end of the semester - if it is to your benefit. This will help you recover from either a "bad day" or simply a test which you missed. More details on this policy are in the "Attendance and Class Participation" section of this syllabus.

Class participation will count as 5% of your overall course grade, and is described in detail in the "Attendance and Class Participation" portion of this syllabus.

The lecture test average will count 70% of your overall course grade.

Lab grades

Grading of the laboratory portion of this course will be discussed by your laboratory instructor at your first laboratory meeting.

The laboratory average counts as 25% of your overall course grade.

Course grade

Your course grade will be determined by your performance in both lecture and laboratory. You will receive a combined grade for CHM 110 – lecture and laboratory are not shown separately on your transcript.

The grading scale is a traditional ten-point scale, and the final average is rounded to the nearest whole point at the end of the term to determine your letter grade.

Letter grades

- 90 points and higher earns an A

- 80-89 points earns a B
- 70-79 points earns a C
- 60-69 points earns a D
- Any grade below 60 earns an F

Keep in mind that if you want transfer credit to another institution and for certain degrees here at Florence-Darlington Technical College, you will need a minimum of a C average at the end of the courses. Grades of D or F are typically not transferable.

Attendance and Class Participation

Class participation will count as 5% of the course grade. You will receive a "100" (full credit) for each session you are present on time for lecture and lab. If you arrive 10 or more minutes after the start of a lecture or lab session, you will receive a "50" for the session (half credit). If you are absent, you will receive a "0" (no credit) for the session Your participation grade for the semester will be calculated by averaging all session participation grades after dropping the three (3) lowest. This means that you can miss up to three lecture or lab sessions (combined) without a participation grade penalty. Be aware that there are no "excused" or "unexcused" absences – all absences are treated equally. Also, if you miss a lab session, you will not get credit for work done that day and may lose points on your lab grade independently of the participation grade.

It is your responsibility to attend all scheduled classes and observe all participation requirements in each of your courses. By school policy, if you are absent or fail to participate in more than 10% of the total hours that a course usually meets during a semester, you may be subject to a failing grade or administrative withdrawal from the course. It is your responsibility to initiate a withdrawal if you are unable to complete course requirements. If you simply stop coming to class without withdrawing from the course, you may be assigned a failing grade at the end of the course. Exceptions to this policy can be made only by the appropriate Associate Vice President.

If you must be absent from the class for any reason, you are responsible for any missed notes or assignments. Each day's notes will be posted on the course web site.

You will not be allowed to make up labs. One laboratory grade will be dropped at the end of the term. If you miss one laboratory session for any reason, that report grade will be dropped. If you attend every lab, your lowest grade will be dropped.

You will receive a zero grade for the second and any further missed lab.

There are no make-up tests. If you miss a single test, the final exam grade will count in place of the missed test. If you know in advance that you will be absent on test day, you may contact the

instructor at least 3 days prior to the test date and you may – with the instructor's approval - be allowed to take an early exam in the testing center. If you take an exam early, you will be counted as having attended class on test day. You will receive a zero grade for the second and any further missed tests. If you do not miss any of the scheduled lecture tests, your final exam grade will replace your lowest test grade if that is to your advantage.

In short, it's vitally important that you be in class and lab. In a college-level chemistry course, you can't afford to fall behind.

Withdrawal Policy

The last day to withdraw from CHM 110 with a "W" is March 28, 2019. After this date, you may withdraw from the class only with the permission of the appropriate FDTC associate vice president. If you simply stop coming to class without completing the withdrawal paperwork, you may be assigned an "F" grade.

Disability Statement

If you have a disability for which reasonable accommodations may be required in this class, please contact the Student Disabilities Office (SDO) in 114-A as soon as possible to discuss your needs and register for accommodations with the college. If you have already arranged accommodations through the SDO, please discuss them with me during my office hours. Students who have medical needs related to pregnancy or parenting may be eligible for accommodations upon a referral from the SDO.

While I am happy to assist you, I am unable to provide accommodations until I have received a referral from the Student Disabilities Office. The SDO will work with students and faculty to arrange proctored exams for students whose accommodations include extra time for exams and/or assistive technology. Students with approved accommodations for extra time should talk with me as soon as possible. The SDO must be contacted in advance to schedule proctored examinations or to arrange other accommodations. The SDO would be grateful for advance notice of at least two weeks. Students requiring service animals as part of their reasonable accommodations must register their animals with the SDO. For more information you may contact the SDO at (843) 661-8124.

Florence-Darlington Technical College does not discriminate against any pregnant or parenting student. Pregnant or parenting students seeking accommodations are encouraged to contact the FDTC Disabilities Coordinator. [Rhonda Tuten, Room 111B located in the 100 Building. Her contact information is; phone:843-661-8124; email: rhonda.tuten@fdtc.edu].

Florence-Darlington Technical College does not discriminate against any student on the basis of pregnancy, parenting or related conditions. In accordance with Title IX, absences due to pregnancy or related conditions, including recovery from childbirth, shall be excused for as long as the student's doctor deems the absences to be medically necessary. Students seeking pregnant and/or parenting accommodations are encouraged to disclose the pregnancy in a timely manner and shall be afforded the opportunity to establish make up work or other alternative arrangements. A student who elects to withdraw from the course on or after census will be assigned a "W" or "I;" however, the "W/I" will not be considered in satisfactory academic progress calculations, until the designated accommodations period ends.

Students seeking accommodations for pregnancy and/or parenting are encouraged to contact the college's Disabilities Coordinator. [Rhonda Tuten, Room 111B located in the 100 Building. Her contact information is; phone:843-661-8124; email: rhonda.tuten@fdtc.edu].

Student Sexual Misconduct Policy

FDTC is committed to fostering a safe, productive learning environment. Title IX and FDTC policy prohibit discrimination on the basis of sex, which regards sexual misconduct - including harassment, domestic and dating violence, sexual assault, and stalking. We understand that sexual violence can undermine students' academic success and we encourage students who have experienced some form of sexual misconduct to talk to someone about their experience, so they can get the support they need. Alleged violations of Title IX can be reported confidentially to the Title IX Coordinator at https://www.fdtc.edu/human-resources/title-ix. Anonymous reporting is not acceptable as this will hinder the investigative process.

Terry Dingle, Associate Vice President for Human Resources/Internal Relations, is the Title IX Coordinator. You may contact the Title IX Coordinator at (843) 661-8321.

If you or someone you know is sexually assaulted or harassed, these additional resources can assist:

- Florence Police Department – (843) 669-3911
- Florence County Sheriff Department – (843) 669-3911
- Pee Dee Coalition Against Domestic and Sexual Assault – (843) 669-4600, 1-800-273-1820 (24-hour hotline)

Mandatory Reporting Policy

As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. I also have a mandatory reporting responsibility related to my role as a faculty member. I am required to share information regarding sexual misconduct or information about a crime that

may have occurred on FDTC campus with college authorities. All information relating to sexual misconduct will be reported to the Title IX Coordinator. Confidentiality will always be maintained to the fullest extent possible.

Academic Dishonesty Policy

All forms of academic dishonesty including, but not limited to, cheating on tests, plagiarism, collusion, and falsification of information will be subject to disciplinary action.

Cheating is defined to include, but not limited to, the following:

- Copying another student's work or test.
- Using unauthorized materials during a test.
- Collaborating with another during a test or on non-collaborative assignments.
- Knowingly obtaining, using, buying, selling, transporting, or soliciting in whole or in part contents of a test or other work.
- Bribing another person to obtain tests or information about tests.
- Substituting for another student, or permitting another to substitute for oneself.

Plagiarism is defined as the appropriation of any other person's work and the unacknowledged incorporation of that work in one's own work offered for credit.

Falsification of information is defined to include, but not limited to the following:

- Forgery, alteration, or misuse of college documents, records, or identification.
- Destruction of evidence with the intent to deny its presentation to the appropriate hearing or panel.

Any proven case of academic dishonesty will result in an "F" for the assigned work or test and may result in administrative withdrawal from the course, with a grade of "F" assigned after an administrative hearing. Additional sanctions, including administrative probation or suspension, appropriate to the incidents may be imposed pursuant to the Student Code and Grievance Procedures.

Cell Phone Policy

Cell phones and other electronic communications devices must be placed into silent mode before class or laboratory starts. If your cell phone or other device rings or vibrates loudly enough to disrupt the class, you may be asked to leave the classroom for the remainder of class. If you are employed in a job where you are required to be "on call" during class hours (police, fire, EMT, etc.), please provide the instructor with appropriate documentation at the beginning of the

semester. If you have an emergency situation that requires your cell phone to be on during class, please let the instructor know before class.

Since cell phones and similar devices can be used to transmit test answers to and from the classroom, any use of cell phones or similar devices during a test will be considered cheating and will be dealt with accordingly.

Administrative Information for Students

A handout containing more administrative information you may find useful is available on the course web site at the following link:

http://scienceattech.com/?page_id=1848

You may access it on the web site by following the "FDTC Student Information" link on the sidebar.

Course Student Learning Outcomes (CSLOs)

Upon completion of CHM 110, students will be able to demonstrate compliance with personal protective equipment (PPE) standards where appropriate in laboratory investigative work, demonstrate precaution in the handling and disposal of chemical materials, and demonstrate the safe use of laboratory equipment.

Upon the completion of CHM 110, students will be able to manipulate scientific data in a variety of different unit systems to solve chemical problems.

Course Objectives

Upon completion of this course a student should be able to:

- Understand and apply nomenclature.
- Balance chemical equations.
- Define and use correctly basic chemical vocabulary (i.e. chemical vs. physical properties, element vs. compound).
- State atomic theory.
- Convert units without equivalencies.
- Use significant figures and scientific notation correctly.
- Demonstrate factor-label method of solving problems.
- Explain the basis of the atomic scale.
- Determine from experimental data empirical and molecular formulas.
- Calculate percent composition from a chemical formula.

- Employ the atomic theory and Avogadro's number and associated mass relationships to solve problems.
- Interpret the coefficients in a chemical equation in terms of moles.
- Given quantities of reactants calculate quantities of products in a reaction and vice versa.
- Apply concepts of theoretical yield, actual yield and percent yield to chemical reaction problems and limiting and excess reagents.
- Demonstrate an understanding of the empirical gas laws and solve associated problems (Charles's Law, Boyle's Law etc.).
- Apply the ideal gas law to stoichiometric problems.
- Explain the empirical gas laws in terms of KMT.
- Explain why real gases don't behave as ideal gases.
- Make a distinction between line spectrum and continuous spectrum.
- Explain line spectrum in terms of energy changes in the atom. (Bohr hydrogen atom model).
- Derive electron configurations.
- Interpret electron configuration in terms of the orbital structure derived from quantum numbers.
- Demonstrate knowledge of the correlation between atomic structure and the periodic properties of the elements (the periodic table).
- Apply concepts of atomic structure to chemical bonding, explaining ionic and covalent bonds (polar/nonpolar).
- Derive the Lewis Dot structure of an atom showing valence electrons.
- Derive formulas of ionic compounds.
- Draw Lewis structures for covalent compounds.
- Apply VSEPR Theory to predict molecular geometry.
- Calculate heats of reaction given heats of formation and other applications of Hess's Law.
- Calculate the heat of reaction from calorimetric data.
- Use specific heats to calculate the relationship between heat flow and temperature changes.

Important Dates

Here are a list of test dates and other important dates during the semester. The lab schedule is not included here; you will get a copy from your laboratory instructor.

Date	Event
January 21, Monday	MLK Holiday. No lecture or lab.
February 6, Wednesday	Test 1
March 6, Wednesday	Test 2
March 11 to March 15, Monday to Friday	Spring Break. No lecture or lab.
March 28, Thursday	Last day to withdraw with "W" grade
April 10, Wednesday	Test 3
May 1, Wednesday	Test 4
May 6, Monday from 2:00 PM until 4:00 PM	Cumulative final exam

Signature Page

I,_____ (print name), have received a copy of the course syllabus for CHM 110. The instructor has reviewed the syllabus with the class and I have had the opportunity to ask questions. I understand the requirements, restrictions, course objectives, and am aware of all deadlines for assignments. I hereby do agree to abide by them.

_____

Student Signature

_____

Date