

Course Syllabus

CHM 095 – Basic Lab Chemistry

- Credits:** Equivalent to one year of high school chemistry
- Prerequisites:** None
- Instructor:** Dr Ken Hartman, PhD
- Facilitators:** Elaine Frey, MS and Kathy Austin, MS
- Contact Info:** Faculty may be contacted through the NursingABC messaging system
- Course web site address:** www.nursingabc.com

Course Meeting times: CHM 095 is offered continuously

Course Description: An introduction to the basic concepts of chemistry, with particular emphasis on symbolic and numerical aspects, culminating in the study of the principles of organic chemistry. CHM 095 is designed to be used to satisfy entrance prerequisites at nursing and health profession schools and to serve as the prerequisite course for a beginning-level college chemistry course.

Course Outcome: As a result of this course experience a student should be able to:

- Understand how the structure and bonding of compounds determines their chemical properties.
- Apply quantitative principles to the solution of chemical problems (particularly reaction stoichiometry and gas law problems).
- Predict the bonding and shapes of molecules.
- Have a useful knowledge of the metric system.
- Understand the application of pH and the acid-base system to biological systems.
- Comprehend the effect of reaction rates on chemical systems.
- Know the fundamentals of organic chemistry and biochemistry and nuclear chemistry.
- Be familiar with the use of basic chemistry lab equipment.
- Be aware of lab safety concerns.
- Be familiar with basic chemistry lab techniques.

Each of these ten CHM 095 student learning outcomes is measured:

Directly by: (1) module application problems (with instructor feedback)
(2) exams
(3) lab response
(4) comparison of pre-course / post-course exam results

Indirectly by an end of course student-completed evaluation survey

Course Delivery: This course is asynchronously delivered 100% online and is composed of 10-15 hours of module assignments, 20-25 hours of video lectures and 10-15 hours of secure online exams.

Required Computer Accessories: It is recommended that student use a desktop or laptop computer, PC or Mac, when taking the course. Some tablet computers are compatible with the course, but not all features are available for all tablet computers. The latest full version of Firefox is required for the optimal operation of the NursingABC Course Management System. In addition, you must have the latest full version of Adobe Flash Player installed as a plug-in in order to view any of the videos on the site. We highly recommend using a high speed Internet connection to view the video lectures and labs. You may experience significant difficulties viewing the videos using a dial-up connection.

Required readings, lectures and assignments: NursingABC courses do not use paper textbooks. Students are required to read the CMS lesson modules written by the course author which contain the standard information covered in a typical course. Video lectures which supplement each lesson module subject should be viewed as many times as is necessary to fully understand the material.

The practice problems within the modules are not quantitatively part of your final grade, but the module work is a pass/fail component of the course and will be reviewed for completeness by the instructor. Be sure to answer all of the problems since this is an important part of adequate preparation for the exams. After you answer the practice problems, compare your answers to the solutions at the end of the module. If your answers do not match those at the end, attempt to figure out why there is a difference. If you have any questions please contact the instructor via the My Messages tab or call the help line at 1-888-724-3590 x2 especially for questions that require long answers or discussion.

Grading Rubric:

6 Module exams = 100 pts. each x 8 =	800 pts.
<u>Final exam = 160 pts.</u>	<u>160 pts.</u>
Total	960 pts.

The current course grade and progress is continuously displayed on the student desktop within the CMS.

Grading Scale:

89.5%-100% (860-960 pts) = A
79.5%-89.4% (764-859 pts) = B
69.5%-79.4% (667-763 pts) = C
59.5%-69.4% (572-666 pts) = D
<59.4% (<571 pts) = F

Course Topics:

<u>Module 1</u>	Exponential Numbers, Metric System, Matter, Physical and Chemical Changes
<u>Module 2</u>	Atomic Theory, Chemical Formulas, Chemical Names
<u>Module 3</u>	Molecular Weights, Moles, Percent Composition, Empirical Formulas
<u>Module 4</u>	Balancing Equations, Equation Calculations, Gas Laws
<u>Module 5</u>	Electron Configurations, Orbital Diagrams, Atomic Properties, Lewis Structures, Polarity
<u>Module 6</u>	Acids/Bases/Salts, pH, Buffers, Titrations, Solutions
<u>Module 7</u>	Equilibrium, Kinetics
<u>Module 8</u>	Organic Chemistry, Biochemistry, Nuclear Chemistry

Lab Topics:

<u>Lab 1</u>	Lab Apparatus and Equipment
<u>Lab 2</u>	Mass and Volume
<u>Lab 3</u>	Density
<u>Lab 4</u>	Distillation and Filtration
<u>Lab 5</u>	Chemical Reactions
<u>Lab 6</u>	Acids and Bases
<u>Lab 7</u>	Paper Chromatography
<u>Lab 8</u>	Synthesis of Aspirin
<u>Lab 9</u>	Urinalysis
<u>Lab 10</u>	Carbonate Analysis
<u>Lab 11</u>	Hydrate Analysis

Holidays:

During the following holidays, all administrative and instructional functions are suspended, including the grading of exams and issuance of transcripts.

New Year's Day	Easter
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Memorial Day
Labor Day
Christmas Break (one week before Christmas through New Year's Day).

Independence Day
Thanksgiving weekend

The schedule of holidays for the current calendar year may be found under the Student Services menu at www.nursingabc.com

Additional Tools

A built-in **scientific calculator** for the course has been incorporated into the website and can be found in the tool bar above each module and exam page. If you choose to purchase a calculator, keep in mind that you do not need to purchase an expensive calculator as the features you will need are available on basic scientific calculators with a cost of less than \$20. Many mobile phones also include a scientific calculator and you may use a calculator during any exam.

Suggested Timed Course Schedule (to complete the course within a typical college semester)

All NursingABC courses are offered asynchronously with no required schedule to better fit the normal routine of adult students, but the schedule below is suggested to allow a student to complete the course within a typical college semester. Despite this suggestion, the students may feel free to complete the course at their desired pace and on a schedule determined by them.

<u>Time Period</u>	<u>Assignments</u>	<u>Subject Matter</u>
Days 1-12	Module 1, Exam 1 Labs 1-3	Exponential Numbers, Metric System, Matter, Changes Equipment, Mass/Volume, Density
Days 13-24	Module 2, Exam 2 Lab 4	Atomic Theory, Chemical Formulas, Chemical Names Distillation and Filtration
Days 25-36	Module 3, Exam 3 Labs 10-11	Molecular Weight, Moles, % Composition, Empirical Formulas Carbonate Analysis, Hydrate Analysis
Days 37-48	Module 4, Exam 4 Lab 5	Balancing Equations, Equation Calculations, Gas Laws Chemical Reactions
Days 49-60	Module 5, Exam 5 Lab 7	Electron Configurations, Orbital Diagrams, Atomic Properties Lewis Structures, Polarity Paper Chromatography
Days 61-72	Module 6, Exam 6 Lab 6	Acids/Bases/Salts, pH, Buffers, Titrations, Solutions Acids and Bases
Days 73-84	Module 7, Exam 7	Equilibrium, Kinetics
Days 85-96	Module 8, Exam 8 Labs 8-9	Organic Chemistry, Biochemistry, Nuclear Chemistry Synthesis of Aspirin, Urinalysis
Days 97-108	Final Exam	Comprehensive - including all course material

Suggested External References:

If the student desires to consult a reference for additional information, the following textbooks are recommended as providing complete treatment of the course subject matter.

Jean Umland, **General Chemistry**, West Publishing
Darrell Ebbing, **General Chemistry**, Houghton Mifflin Publishing

Learning Support Services:

Each student should be sure to take advantage of and use the following learning support services which are provided to increase student academic performance:

Video lectures which supplement the text material of each course module

Messaging system which provides individual instructor/student interaction

Toll-free phone tutoring help line which is available daily at appointed times (see below)

Tech support which is available by submitting a help ticket

Accommodations for Students with Learning Disabilities:

Students with documented learning disabilities may receive accommodations in the form of an extended time limit on exams, when applicable. In order to receive the accommodations, the student should furnish documentation of the learning disability prior to registration, if possible. Upon receipt of the documentation of a learning disability, Nursing ABC staff will provide the student with registration instructions for a variation of the course containing exams with extended time limits. This accommodation does not alter the content of any assignments/exams, change what the exam is intended to measure or otherwise impact the outcomes of objectives of the course.

Student Help Line:

NursingABC students have access to our help-line phone service. The phone service is staffed by instructors who will answer questions regarding material in those courses. Please call 1-888-724-3590 and choose option #2 if you would like assistance with your course work. Due to high call volume, we cannot guarantee that your call can be answered immediately so you may be required to leave a voicemail. The help-line instructors will return the voicemails as soon as possible and within one business day. If the hours above do not fit your personal schedule, please leave a message on the help line voicemail requesting an appointment. In the voicemail, please leave several dates and times convenient for a return call. If a help line representative cannot call you at one of your preferred times, you will be contacted to set up a mutually suitable time. Appointment slots are limited and will be granted as instructor time becomes available and at the discretion of the help line instructor. No appointments will be scheduled for Sunday.

Help Line Hours

Mon - Fri: 9 AM - 9 PM ET

Sat: 9 AM - 11 AM ET

Sun: Closed

Code of Conduct: Students are expected to conduct themselves in a way that supports learning and teaching and promotes an atmosphere of civility and respect in their interactions with others. Verbal and written aggression, abuse, or misconduct is prohibited and may be grounds for immediate dismissal from the program.

Academic Integrity is a serious matter. In the educational context any dishonesty violates freedom and trust, which are essential for effective learning. Dishonesty limits a student's ability to reach his or her potential. Portage places a high value on honest independent work. In a distance learning situation, we depend on the student's desire to succeed in the program he or she is entering. It is in a student's own best interests not to cheat on an exam, as this would compromise the student's preparation for future work. It is required of each student to take exams without consulting course materials or study aids including another person, the lesson pages, printed materials, or the Internet. To this end, your instructor will be alert to any indications that a student may be violating this principle. It will be necessary to show all your work on exams. When the nature of the course does not require numerical or symbolic determination (perhaps instead just requires recitation of learned descriptions), be assured that our experienced staff is able to detect use of lesson materials to answer exam questions. A violation of the academic integrity policy may result in a score of zero on the exam and possible expulsion from the course, at the discretion of the instructor with consultation with an administrative-instructional committee.

Grievances: If for any reason a student has a complaint about the course work or the instructor, they are advised to first consult the instructor, who will be willing to listen and consider your concern. However, if you don't feel you have received a satisfactory reply, you are encouraged to contact the Executive Director of Portage Learning for further consideration of your complaint. The formal grievances process must be initiated via written communication. If desired, please file a written grievance to info@nursingabc.com to initiate the process.

Remediation:

At NursingABC we allow a "one-time" only opportunity to re-take an alternate version of **one** exam on which a student has earned a grade lower than 70%. If an exam is retaken, the original exam grade will be erased and the new exam grade will become a permanent part of the course grade. However, before scheduling and attempting this retest, the student must resolve the questions they have in regard to the material by reviewing both the old exam and the lesson module material. The student is also encouraged to contact the phone help line for assistance. Once ready to attempt the retest of the exam they must contact their instructor to request that the exam be reset for the retest.