

Dakota College at Bottineau Course Syllabus

Course Prefix/Number/Title:

CHEM 115-Introduction to Chemistry

Course Description:

Topics will include measurements, states of matter, ionic and covalent bonds, chemical formulas, chemical reactions, solutions, acids and bases, basic stoichiometry, nuclear chemistry, functional organic groups, and a brief introduction to biochemical compounds. Introduction to Chemistry is required for acceptance into the nursing program at MSU-Bottineau. The course works well for fulfilling the physical science requirement for an elementary education degree in North Dakota. For other students this class is a slower paced, less math oriented opportunity to fulfill the general education science requirement. This course is especially good for students who have had no high school chemistry. Includes a laboratory session.

Course Objectives:

1. To develop and understanding of the basic theories and concepts of inorganic chemistry.
2. To develop problem solving skills.
3. To gain an appreciation of the chemical world around us.
4. To develop the ability to make informed decisions about scientific and technological issues that abound today.

Instructor:

Clarence (Gene) Bender

Office:

Nelson Science Center 113

Office Hours:

Check schedule on office door, but generally open when class is not in session.

Phone:

701-228-5471

Email:

gene.bender@dakotacollege.edu

Lecture/Lab Schedule:

MWF 11:00-11:50

Labs: Tuesday, 8:00-9:50

Textbook(s):

Introductory Chemistry, by Zumdahl, 6th edition.
Faculty Generated Lab Manual

Course Requirements:

The formula for grades is as follows.

Exams (7)	700pts
Lab Reports (15 pts. Each)	180pts
Final Lab	100pts
Quizzes, Random (20 @ 5 pts. Each)	100pts

Total pts. available = 1080 pts.

90-100% - 972-1080 pts. = A

80-90% - 864-971 pts. = B

70-80% - 756-863 pts. = C

60-70% - 648-755 pts. = D

<59% - <647 pts. = F

No Incompletes will be given.

Make-up exams at 20% reduction

No make-up for missed labs.

No make-up for missed quizzes.

Tentative Course Outline

Lab Schedule

Week	Topic
1	No Lab.
2	Safety, Equipment, Scientific Method
3	Measurement, Accuracy, Density
4	Elemental Properties, Percent Composition
5	Bonding, Chemical ,Formulas
6	Physical/Chemical Change, Chemical Equations
7	Chemical Reactions and Rates of Reaction
8	Atoms, Molecules and Relative Atomic Mass
9	Molecular Geometry and Valence Electrons
10	Thermodynamics and Gas Laws
11	Solubility and Concentration
12	Acids, Bases, and Titration
13	Reversible Reactions, Moles and Molarity

14	Final Lab
15	Final Lab
16	Final Lab
17	Final Lab due

Day	<u>Lecture Chapter and Reading Assignment</u>
1	Ch. 1, Pages 1-18
2	Ch. 2, Pages 18-33
3	Ch. 2, Pages 33-45
4	Ch. 3, Pages 55-67
4	Ch. 1-3 Wrap Up and Review
5	Ch. 1-3 Exam
6	Ch. 4, Pages 73-88
7	Ch. 4, Pages 88-102
8	Ch. 5, Pages 113-126
9	Ch. 5&6, Pages 126-149
10	Ch. 6&7, Pages 149-175
11	Ch. 7, Pages 175-191
12	Ch. 4-6 Exam
13	Ch. 8, Pages 203-218
14	Ch. 8, Pages 218-229
15	Ch. 9, Pages 239-251
16	Ch. 9, Pages 251-259
17	Ch. 8-9 Exam
18	Ch. 10, Pages 271-286
19	Ch. 10, Pages 287-297
20	Ch. 11, Pages 303-316
21	Ch. 11, Pages 317-332
22	Ch. 12, Pages 341-356
23	Ch. 12, Pages 356-373
24	Ch. 10-12 Exam
25	Ch. 13, Pages 387-401
26	Ch. 13, Pages 401-416
27	Ch. 14, Pages 427-444
28	Ch. 15, Pages 451-462
29	Ch. 15, Pages 462-473
30	Ch. 13-15 Exam
31	Ch. 16, Pages 487-507
32	Ch. 17, Pages 515-526
33	Ch. 17, Pages 526-541
34	Ch. 18, Pages 553-566

35	Ch. 18, Pages 566-575
36	Ch. 16-18 Exam
37	Ch. 19, Pages 583-600
38	Ch. 19, Pages 600-607
39	Ch. 20, Pages 607-620
40	Ch. 20, Pages 620-635
41	Ch, 20, Pages 635-643
42	Ch. 21, Pages 655-668
43	Ch. 21, Pages 668-677
44	Final Test/Ch. 19-21

General Education Goals/Objectives:

Goal 1: Explains the interrelationships between humans and their environment and the role of science in their lives

Objective 1: Demonstrates the application of the scientific method of inquiry

Skill 1: Recognizes the principles of the scientific method of inquiry to solve problems

Skill 2: Analyzes and interprets experimental data to draw logical conclusions

Objective 3: Demonstrates an awareness of the role of science in everyday life

Skill 1: Applies scientific principles to life experiences

Skill 2: Recognizes the role of science in understanding nature and society

Relationship to Campus Theme:

Students will get a brief introduction to some of the analytical tools such as colorimeters, pH probes, and computer probes that help understand the workings of medical laboratory. Some discussion of the environment is conducted, primarily as a factor in some health issues.

Classroom Policies:

Reading the assigned text is the student's responsibility, and is essential to success in this course. Students will be more successful if they read the material prior to lecture/discussion. In order to learn to effectively solve chemistry problems and be successful in chemistry, students are expected to work all practice problems. Should a student have difficulty with practice work, it is essential that the student ask questions in class and seek assistance from the instructor outside class time.

Students are expected to be respectful of others if they desire the same respect in return. Please refrain from disruptive activities: frequently arriving late, visiting during class, leaving the classroom before discussion is finished, and using a cell phone or texting. All electronic devices are to be off during class time with the exception of calculators. This class does not require the use of a laptop computer; therefore they are not allowed to be operated in lecture periods.

This academic environment is an open and harassment free one. All students are free to express their personal opinions without threat of reprisal. Participation within the classroom is highly encouraged and is an integral part of the higher education experience. Ask questions – comment on discussions.

Academic Integrity:

Webster's Encyclopedic Unabridged Dictionary defines plagiarism as: "The appropriation or imitation of the language, ideas, and thoughts of another author, and representation of them as one's original work." Students will be expected to abide by all rules and laws pertaining to plagiarism and use of copyrighted material. Failure to do so is grounds for failing this course. At the very least, you will receive no score for any assignment where a violation has occurred. There will be *zero tolerance* of any form of academic dishonesty. Cheating is unacceptable and will result in the loss of all points for the exercise in which the cheating occurred. Cell phones, especially text messaging, increase the opportunity to cheat. If your phone is on, this will be considered cheating regardless of the reason for the phone being operational. If a true emergency occurs, the office will be able to contact the instructor during class.

Disabilities and Special Needs:

Please inform the instructor within the first week of classes if any assistance is required due to disabilities or special needs and make sure the accommodations are on file in the student learning center. Only verified accommodations can be provided on an individual basis.