Chemistry 100

Develop a profound enjoyment of learning about the functioning of the material world.

Syllabus Fall 2012
17142 MO 381-7 mo/we 9:00am – 10:15am

Dr. Bernhard Laurich
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Phone 934-2737 (during office hours only, no messages)
934-2583 (for messages)
Office-hours: MO 381-7 We/Thu 12:05pm – 1:20pm
Fri 9:00am - 10:40am

Student Learning Outcomes:
Students will be able to:

1. Apply scientific method,
2. Analyze data to solve problems,
3. Apply models or rules to unfamiliar problems,
4. Observe accurately and record measurement precisely,
5. Interpret and construct visual information (such as charts and graphs).

Objectives:

1. Basic knowledge of the beginnings of Chemistry and its part in human culture.
2. Basic knowledge of atoms, electrical charge, electron structure, chemical bonds and the classification of elements, compounds and chemical reactions.
3. Knowledge of Acids/Bases, Redox reactions, and Organic Chemistry.
4. Understanding how compounds are formed and how chemical reactions happen.
5. Ability to describe chemical compounds and chemical reactions and to perform simple quantitative calculations.
6. Understanding of modern Chemistry as part of human (and your) culture.

--- Chemistry 100 is a College level course. Successful completion requires regular attendance. Taking notes is encouraged.
--- Keep notes, assignments, quizzes, etc. in a portfolio. You will need it for review.
--- For every hour in class you will need between two and three hours study time at home
--- Come to the office hours when - or better before - you run into problems.
--- Quizzes will not be announced. Be there. No make-up quizzes. Exceptions only if absence is justified, and notification has been sent before or at the beginning of the absence (by e-mail or call to secretary)
--- The grades are based on performance. Note that the final exam is cumulative and not multiple choice, and it yields 40% of the grade.
--- Enrollment in the accompanying laboratory course, Chem 100L, is recommended. *The hands-on experience will increase the success and the fun.*

Required material:
Conceptual Chemistry
John Suchock., Benjamin Cummings,

Folder for notes, homework, quizzes, and assignments.
Calculator (optional)

Grades:

homework	15%	
assignments	10%	
quizzes, in-class	15%	
quizzes, take-home	5%	
final assignment	15%	
final exam, cumulative	40%	A 90%, B 80%, C 70%, D 60%

Every student is expected to be familiar with and abide by the Hawaii Community College Student Conduct Code. The Student Conduct Code states: "impermissible behavior...includes that which directly or indirectly interferes with or disrupts the process of teaching, learning, research, and administration." Refer to the college catalog for more information.

Hawaii Community College is committed to **provide equal access to the campus, course information and activities for students who have disabilities**. If you have a documented disability and / or related access needs, please see me during my office hours, or contact Karen Käne, Counselor for the Ha`awi Kokua Program **933-0702, kkane@hawaii.edu** The office is located on the Manono Campus - Building 388, Room 106.

If you are a student who needs to have an accommodation, please discuss your needs and make your request in a timely manner.

Hawaii Community College also has generalist counselors available if you have any issues, which may have a negative impact on your ability to successfully complete this course, and other courses you are taking.
Call 974-7741 if you have a need to see a counselor.

Part 1: **Foundation of Chemistry**

Introduction	(.5)	(in class units, 1:15hrs)
Chemistry in Our World	(.5)	
(chapters 1,2)		(1/2 week)

Part 2: **Atoms as Building Blocks**

Dalton's ideas	(.5)	
Rutherford's Experiment	(.5)	
Building Atoms, Isotopes,	(.5)	
Periodic table	(.5)	
Bohr's Model	(.5)	
Energy Levels	(.5)	
Electron Configuration	(.5)	
(chapters 3,5)		(2 weeks)

Assignment 1 (written, Element)

Part 3: **Chemical Bonds**

Ionic Bond	(1)	
Covalent Bond	(1)	
Shapes	(.5)	
Electronegativity, Polarity	(1)	
(chapter 6)		(2 weeks)

Part 4: **Chemical Reactions**

Solutions	(1)	
Water	(1)	
Reactions and Equations	(1.5)	(1 1/2 weeks)
(chapters 7 – 9)		

Part 5: **Acids**

How Acids and Bases Work	(1)	
Neutralization	(.5)	
pH	(1)	
(chapter 10)		(1 1/2week

Assignment 2 (written/oral/group, Selected Areas in Chemistry)

Part 5: **Redox**

Oxidation and Reduction	(.5)	
Oxidation States	(.5)	
Electrochemistry	(.5)	
Photovoltaic Cells	(.5)	
(chapter 11)		(1 week)

Assignment 3 (written/(oral, time permitting), Nobel Prize)

Part 6: **Organic Chemistry**

Hydrocarbons	(1)	
Chlorinated Hydrocarbons	(.5)	
Functional Groups	(1.5)	
Polymers	(.5)	
(chapter 12)		(2 weeks)

Part 7: **Biochemistry**

Saccharides	(.5)	
Lipids	(.5)	
Proteins	(.5)	
DNA/RNA	(.5)	
(chapter 13)		(1 week)

Part 8: **Applications of Chemistry (time permitting)**

Nuclear Chemistry
Chemistry of Drugs
Food
Materials
Energy

(choice of chapters 4,14,15,18,19) (2 weeks)

Final Assignment (written/oral, Drug) (1 week)

Review (1 week)

Final Exam MO 381-7 **12/12/12** **7:30am – 9:30am**