Chemistry1

Syllabus Number 5A103
Basic Major Subjects
Requisites 2 credit
YANAGIHARA, Naohisa

1. Course Description

Chemistry is the science that focuses on learning the characteristics and structure of all matter of which the universe is composed. Thus, chemistry directly and/or indirectly concerns all students acquiring higher education in all disciplines and who are taking courses through this faculty of science and engineering. The major aims of this course are to enable students to (1) describe concepts and principles used in chemistry and (2) obtain a strong foundation in chemistry.
This course is designed for those students who have not completed all the credit requirements for "Chemistry 1" in the first semester, and/or to those students who have completed the credits required for "Basic Chemistry". In order to provide a better understanding of this lecture material, many exercises will be introduced throughout the course.
Although the lecture is a lecture form while using OHC and a board book together, we will plan short discussions or group discussions on a question form as appropriate for exercise problems or lecture contents within lecture time.
This lecture can acquire knowledge and ability on DP1 and DP2 of the Department of Biosciences.

2. Course Objectives

(1) By understanding the atomic structure, you can master the concept of ions and molecules.
(2) By understanding the fundamentals of chemical bonding, you can acquire knowledge about the properties of substances.
(3) By understanding the concept of the amount of substance (mol), you can acquire the ability on the chemical stoichiometry.

3. Grading Policy

(1) Attendance confirmation is taken in each time, and students who do not attend more than 2/3 classes are not allowed to take the regular exam.
(2) Perform grading with the regular test results as the sole evaluation criterion (100%).
(3) It is planned to answer and explain the exercises in the textbook and handouts, and also to confirm the degree of progress of understanding appropriately.
(4) A retest will not be done.

4. Textbook and Reference

Textbook
There is no text specifically used. Please bring your own texts of chemistry 1 (see below) or auxiliary teaching materials (can be a reference book at high school) designated by your department in the previous term.
Reference
Yoshio Masuda and Kiyoshi Sawada Basic Chemistry for Science Kagaku Doujin

5. Requirements(Assignments)

(1) Please be sure to enter the room at least within 30 minutes. Students who are late more than 30 minutes are allowed to attend, but will be considered as absent.
(2) Eating and drinking during lectures and unnecessary entry and exit are not permitted.
(3) It is prohibited to shoot the content written on the blackboard or taking the video material of PowerPoint with a mobile phone or smartphone.

6. Note

7. Schedule

[1] Classification of Substances
[2] Atom and Molecule (1): The Structure of the Atom
[3] Atom and Molecule (2): Ion and Molecule
[4] Electron Configuration of Atom (1): Electron Configuration
[5] Electron Configuration of Atom (2): Atomic Orbitals
[6] Electron Configuration of Atom (3): Hybrid Orbitals
[7] Elements and the Periodic Table(1): Periodic Law of Elements
[8] Elements and the Periodic Table(2): Typical Elements
[9] Elements and the Periodic Table(3): Transition Elements
[10] The Chemical Bond (1): Ionic Bond
[11] The Chemical Bond (2): Covalent Bond
[12] The Chemical Bond (3): Metallic Bond
[13] Stoichiometry (1): Concept of The Amount of Substance (mole)
[14] Stoichiometry (2): The Chemical Equation and Stoichiometry
[15] Summary and Exams