

Toyama College		Year	2022	Course Title	Science I A
Course Information					
Course Code	0034		Course Category	General / Elective	
Class Format	Lecture		Credits	School Credit: 1	
Department	Department of International Business		Student Grade	1st	
Term	First Semester		Classes per Week	2	
Textbook and/or Teaching Materials	新版化学基礎(実教出版), フォローアップ化学基礎(実教出版), アクセス化学基礎(実教出版), フォトサイエンス化学図録(数研出版)				
Instructor	Terasaki Yukiko				
Course Objectives					
1. Learn about the relationship between daily life and chemistry. 2. Understand the composition of the substance and the constituent particles, and can roughly write chemical formulas. In addition, it is possible to understand the bonds constituting the substance. 3. Understand the amount of substance and write chemical equations. In addition, understand the relationship between the amount of substance and the chemical equation, and solve basic problems. 4. Understand the definitions of acids and bases, basic matters concerning pH, quantitative relation in neutralization, and solve basic problems. 5. Explain the definition of oxidation / reduction and understand the function of oxidizing / reducing agents. In addition, they can understand redox reactions and solve basic problems. Understand the basics of batteries and electrolysis, which are applications of redox reactions.					
Rubric					
	Ideal Level		Standard Level		Unacceptable Level
The components of substances	Explain the difference between pure substances and mixtures, and simple substances and compounds. Select the method of separating the mixture according to the substance.		Understand the differences between pure substances and mixtures, and simple substances and compounds. Understand how to separate the mixture.		Do not understand the difference between pure substances and mixtures, and simple substances and compounds. Don't know how to separate the mixture.
the composition of substances, and chemical bonds	Understand the composition of substances and the constituent particles, and be able to make predictions from actual substances. Write most chemical formulas . Understand and explain the various chemical bonds. Understand the characteristics and properties of crystals and explain them with actual substances.		Understand the composition and constituent particles of a substance. Write most chemical formulas. Understand the bonds that make up a substance. Understand the characteristics and characteristics of various crystals.		Do not understand the basics of constituent particles. Can't write the chemical formula. Don't understand the various chemical bonds. Do not understand the characteristics of crystals.
Amount of substance	Understand the amount of substance and solve various combined problems.		Understand the amount of substance and solve basic problems.		Don't understand the amount of substance.
Assigned Department Objectives					
ディプロマポリシー 3					
Teaching Method					
Outline	In this lesson you will learn the basics of chemistry. First, from a microscopic point of view, we understand that substance are composed of atoms, molecules, and ions. Then, from a macro perspective, you will understand that chemical reactions are microscopic changes between molecules and ions, and learn the basics to understand quantitative relationships. In addition, students will learn the concepts and rules of basic chemical reactions such as neutralization and oxidation / reduction, and will be able to understand them quantitatively.				
Style	Lectures, exercises and experiments by teachers alone The lesson plan may be changed depending on the students' understanding Must be reviewed after class				
Notice	Those with less than 60 points can take a supplementary examination upon request. Those who have earned the credits as a result of the supplementary examination will be given a score of 60 points. Lesson improvement measures: In order to fix the content, mini test and assignment (homework) will be imposed. Experiments and audiovisual materials may be incorporated.				
Characteristics of Class / Division in Learning					
<input type="checkbox"/> Active Learning		<input type="checkbox"/> Aided by ICT		<input type="checkbox"/> Applicable to Remote Class	
				<input type="checkbox"/> Instructor Professionally Experienced	
required course					
Course Plan					
			Theme	Goals	
1st Semester	1st Quarter	1st	Orientation To conduct experiments safel	Explain class policies and plans based on the syllabus. After that, caution relating to the experiment are explained.	
		2nd	Separation and purification of substances	Understand that substances can be classified into pure substances and mixtures. Also know some ways to get pure substances from mixtures	
		3rd	The elements of substance Atomic structure	Learn about the composition of substances and the elements that are the basic components of substances. Then, learn about the atomic structure, which is the smallest particle among the constituent particles of substance.	

		4th	Electron configuration Periodic table of the elements	Understand electron configuration and valence electrons. Also learn the relationship between valence electrons and properties of element . After that, learn the history of the periodic table of elements and learn that some properties of atoms can be predicted from the periodic table.
		5th	[Experiment] Separation of mixture	Perform experiments on distillation and filtration.
		6th	Generation of ions Ionic bond Compositional formula	Learn about the relation between ion and electron configuration. Then, learn how to represent polyatomic ions and chemical formulas. afterwards, Learn the characteristics and representation of ionic crystals.
		7th	Covalent bond Molecule	Learn how to make covalent bonds and the molecules that can be formed by covalent bonds.
		8th	a mid-term examination	Questions on basic matters related to the structure of atoms, molecules, and ions.
	2nd Quarter	9th	Exam answers and commentary Three states of substance, and thermal motion	Return the mid-term exam answers and explain the quastions what they do not understand . After that, we will learn that there are three states of matter, and the particles of each state has different thermal motion .
		10th	Polarity of molecular, and intermolecular force	
		11th	Covalent crystal Metallic bond	Learn about the characteristics of each crystal due to the difference in the bonding method.
		12th	Atomic weight, Molecular weight, Formula weight	Learn that the minimum weight of atom becomes easier to handle by incorporating the relative weight of atom, called atomic weight.
		13th	Relationship between amount of substance and mass / number / volume	Substance is an aggregate of many particles, but we will learn that expressing it in units of moles makes it easier to handle mass and volume.
		14th	The concentration of a solution [Practice] Amount of substance	Learn how to represent the concentration of a solution, so that you can actually adjust the solution. Do practice quantitative relationships.
		15th	Final examination	Ask about the types of bonds and the differences in their properties. Also check whether the amount of the substance can be expressed in various units.
		16th	Grade evaluation / confirmation	Checking the results of the final exam Questionnaire regarding class evaluation

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	80	0	0	0	0	20	100
Basic Proficiency	80	0	0	0	0	20	100
Specialized Proficiency	0	0	0	0	0	0	0
Cross Area Proficiency	0	0	0	0	0	0	0