

## Special Subjects of the Department of Structural Molecular Science

Field	Course Code	Subject	Credit	Content of subject	Instructor
Theoretical Chemistry, Structural Photo-Molecular Science, Basic Electronic Chemistry, Vacuum UV Spectroscopy, Materials Chemistry, Structural Materials Science, Structural Biomolecular Science, Coordination Chemistry	20DSM002**	Structural Photo-Molecular Science	2	The basic frameworks of various spectroscopic methods such as laser spectroscopy, nonlinear and time-resolved spectroscopy and microscopic methods, for investigation of structures and dynamics of small molecules to molecular assemblies are overviewed. Examples of applications of those methods for understanding/control of materials functionalities are also introduced.	Hiromi Okamoto
	20DSM003**	Materials Chemistry	2	The basic concept of structure-property relationship in organic/inorganic chemistry, materials chemistry, and solid-state physics and relevant experimental methods are overviewed. Actual examples of structural analysis, physical property measurement, and elucidation of functional activation mechanisms based on spectroscopic and surface science methods are also introduced.	Hikaru Kuramochi Takashi Kumagai
	20DSM004**	Structural Biomolecular Science	2	The molecular mechanisms of various biological processes will be lectured in this course. Especially, the molecular mechanisms of the following topics will be provided: Structure and function of proteins, DNA replication, transcription and translation of DNA, cellular homeostasis, biological energy conversion such as respiration and photosynthesis, biological metabolism and some recent research topics.	Shigetoshi Aono Nobuyasu Koga
	20DSM005**	Fundamental Electronic Physics	2	Lecture on characteristics of crystal and electronic structures for solid-state materials. The methods of X-ray diffraction, vacuum UV spectroscopy and other related techniques using synchrotron radiation are introduced.	Kiyohisa Tanaka Genki Kobayashi
Common Courses	90DSM001**	Exercise on Structural Molecular Science I	4	Discussion, experimental instructions, and/or theoretical studies for the student to perform the individual fundamental and applied research in the field of structural molecular science. This program is provided by appropriate teaching stuffs based on the research subject of the individual student.	
	90DSM002**	Exercise on Structural Molecular Science II	4		
	90DSM003**	Exercise on Structural Molecular Science III	4		
	90DSM004**	Exercise on Structural Molecular Science IV	4		
	90DSM005**	Exercise on Structural Molecular Science V	4		
	90DSM006**	Seminar on Structural Molecular Science I	4	Small size seminar to gain scientific knowledge, competence for scientific consideration, discussion, and research performance, and original scientific conceptions in the field of fundamental and applied structural molecular science. This program is provided by appropriate teaching stuffs based on the research subject of the individual student.	
	90DSM007**	Seminar on Structural Molecular Science II	4		
	90DSM008**	Seminar on Structural Molecular Science III	4		
	90DSM009**	Seminar on Structural Molecular Science IV	4		
	90DSM010**	Seminar on Structural Molecular Science V	4		
	10DSM001**	English for scientific research	2	The principal aim of this course is to improve academic reading, academic writing, listening, and speaking in English for scientific research.	Sechrist, Jeremiah S Members of dept. of structural molecular science

A two-digit number or letter will be entered to \*\* according to the semester or the lecturer in charge.