

Common Specialized Subjects of the School of Life Science

Course Code	Subject	Credit	Content of subject	Instructor
10SLS002**	Molecular and Cellular Biology II	2	Basic features of molecular and cellular biology will be lectured and discussed. These include regulation of transcription and translation, protein structure and function, post-translational modification, structure and dynamics of chromosome, structure and dynamics of cell, organelles and cytoskeleton, metabolism, protein traffic, signal transduction and cell imaging.	Kazuhiro Maeshima Jun-ichi Nakayama
10SLS007**	Principle and Methodology in Brain Science	1	Basic principles and methodologies essential to understand brain science will be explained.	Atsushi Nanbu
10SLS011**	Training Course for Bioinformatics	1	The following objectives are attained through lectures and hands-on tutorials. 1. To understand basic principles in biological sequence analyses and learn the practical skills. 2. To understand the theoretical background of transcriptome and proteome data analysis, and learn the practical skills to analyse these data. 3. To learn current topics and future directions of genomics.	Shuji Shigenobu
10SLS013**	Introductory statistics for life science	1	Basic knowledge regarding statistics for life science is lectured by the statistics specialists.	Atsushi Nambu
10SLS014**	Imaging Science	1	Imaging science is a novel discipline trying to integrate the old and the new. It consists of three categories, hardware tools to generate primary data, software tools to digitally process the primary data and imaging analysis to quantitatively analyze imaging digital data. In this lecture, 3D imaging and quantitative image analysis are in a particular focus. The former includes the theoretical background of 3D imaging and its practical applications with electron and light microscopy. The latter includes a novel quantitative image analysis based on various numerical algorithms.	Kazuyoshi Murata Shigenori Nonaka
10SLS021**	Introduction to Integrative Bioscience	1	First, the educational program for Integrative Bioscience is introduced. Then, driving forces for rapid development of biology are reviewed from a historical point of view, and the features of contemporary life science are overviewed. Based on these reviews what the Integrative bioscience is and why it is necessary are discussed. Particularly, it is emphasized that a large volume of information on sequences and structures of genome, RNA, proteins, sugars, metabolites etc. and that of spacio-temporal expression of these molecules are integrated to understand their meaning at a cell, tissue, organ or organism level and to unravel the mechanisms of high order biological functions, diseases, environmental responses etc.	Makoto Tominaga
10SLS022**	Integrative Bioscience Series	1	To learn biological processes at various levels, covering molecular, cellular and individual processes, with broader perspective in an integrative manner, seven departments (Departments of Structural Molecular Science, Functional Molecular Science, Basic Biology, Physiological Sciences, Genetics, Evolutional Studies of Biosystems, and Statistical Science), which participate in the Integrative Bioscience Education Program, offer a series of 7 lectures in a manner understandable for every student.	Makoto Tominaga

Course Code	Subject	Credit	Content of subject	Instructor
90SLS016**	Life Science Progress I A	2	Advice on research and presentation will be given by the Progress Committee, which is organized for each student.	
90SLS017**	Life Science Progress I B	2		
90SLS018**	Life Science Progress II A	2		
90SLS019**	Life Science Progress II B	2		
90SLS020**	Life Science Progress III A	2		
90SLS021**	Life Science Progress III B	2		
90SLS022**	Life Science Progress IV A	2		
90SLS023**	Life Science Progress IV B	2		
90SLS024**	Life Science Progress V A	2		
90SLS025**	Life Science Progress V B	2		
90SLS026**	Life Science Experiments I A	2	The supervisor of each student will teach research and thesis writing with the help of teaching staffs in the laboratory.	
90SLS027**	Life Science Experiments I B	2		
90SLS028**	Life Science Experiments II A	2		
90SLS029**	Life Science Experiments II B	2		
90SLS030**	Life Science Experiments III A	2		
90SLS031**	Life Science Experiments III B	2		
90SLS032**	Life Science Experiments IV A	2		
90SLS033**	Life Science Experiments IV B	2		
90SLS034**	Life Science Experiments V A	2		
90SLS035**	Life Science Experiments V B	2		
90SLS036**	Life Science Reading Seminar I A	2	Recent papers in life science will be introduced, explained, and discussed.	
90SLS037**	Life Science Reading Seminar I B	2		
90SLS038**	Life Science Reading Seminar II A	2		
90SLS039**	Life Science Reading Seminar II B	2		
90SLS040**	Life Science Reading Seminar III A	2		
90SLS041**	Life Science Reading Seminar III B	2		
90SLS042**	Life Science Reading Seminar IV A	2		
90SLS043**	Life Science Reading Seminar IV B	2		
90SLS044**	Life Science Reading Seminar V A	2		
90SLS045**	Life Science Reading Seminar V B	2		
10SLS016**	Life Science Seminar I	1	Active scientists will give presentations on their own research in life science in seminars and symposiums held within the Department.	
10SLS017**	Life Science Seminar II	1		
10SLS018**	Life Science Seminar III	1		
10SLS019**	Life Science Seminar IV	1		
10SLS020**	Life Science Seminar V	1		

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