Course Title	Advanced Microbiology		
Instructor	Yasurou KURUSU, Hirofumi NISHIHARA		
Code	MA051700	Semester	2nd (Oct-)
Credit(s)	1	Day／Period	Fri, 3
Description Code	A-AGC-612		
Outline	Molecular mechanisms of plasmid replication and stable partition will be reviewed as well as examples of various bacteria as hosts. Microbial energy metabolism, functional redox molecules, and application of such redox reactions will also be reviewed.		
Keywords	Plasmid, genetic engineering, DNA replication, plasmid partition, energy metabolism, biological redox carrier, biosensor, biofuel cell, hydrogenase		
Goals	Deepen your understanding concerning above key words through the lecture. These terms should be explained appropriately in both basic and applicatory aspects after the lecture.		
Course Plan	1. Molecular character of plasmids 2. Molecular mechanism of plasmid replication 3. Molecular mechanism of plasmid partition 4. Application for various bacteria as hosts (Short exam: 50%) 5. Energy metabolism and functional redox carriers 6. Application of redox carriers – Biosensor 7. Application of redox carriers - Biofuel cell (Short exam: 25%) 8. Hydrogen-oxidizing bacteria and hydrogenase (Short exam: 25%) Elements of Diploma Policy: 1 Academic and research skills in the specialized field		
Advice for Preview and Review	The contents of lecture will be questioned by several short examinations to check the level of your understanding. We recommend re-studying your note and handout after lecture.		
Prerequisite	This class needs a knowledge of molecular biology. Office hour /Wednesday 11:50~12:40 (Kurusu, Nishihara)		
Grading Criteria	Examination (100 %; sum of short exam.)		
Texts／References	Handouts are used.		