Division of Life Science
The Hong Kong University of Science and Technology

LIFS 3210 Principles of Recombinant DNA Technology

Fall semester, 2015-2016
Credits: 1
Time: Monday, 9:30 – 10:20, Room 2464

Instructor: Dr. Helen Cheung (E-mail: cheungh@ust.hk)

Intended Learning Outcomes

On successful completion of this course, students are expected to be able to:

1. Acquire a sound knowledge in up-to-date methodologies used in recombinant DNA technology
2. Understand the fundamental principles behind commonly used recombinant DNA methodologies
3. Recognize the applications of basic and state-of-the-art recombinant DNA techniques
4. Describe the logical approach in synthetic gene design

Course description

This course aims to provide students with contemporary knowledge of recombinant DNA technology; which has opened up many new opportunities to understand the meaning of "LIFE" at the molecular level. The course is taught in the format of lectures and is complementary to LIFS 3110 in which hand-on experience is provided upon introduction of basic concepts and principles. The goals of the present course is to familiarize students with current procedures utilized in recombinant DNA technology and to highlight the applications of these procedures in related areas of scientific research.

Method of assessment

Form of assessment	Course ILOs assessed
100% Final examination (MCQs)	1-4

Class Schedule

		Date
Lecture 1	Aseptic and microbial techniques	12 September
Lecture 2	Analysis of plasmid DNA by restriction digestion and agarose gel electrophoresis	19 September
Lecture 3	Amplification of DNA by polymerase chain reaction	26 September
Lecture 4a	Plasmid construction by Gibson Assembly	
Lecture 4b	Transformation of *Escherichia coli* by plasmid DNA	3 October
Lecture 6	Plasmid mini-prep and restriction analysis	17 October
Lecture 7	QuikChange site-directed mutagenesis	24 October
Lecture 8	Quantitative analysis of recombinant green fluorescent proteins	31 October
	Final Examination	**TBF**