

New course title: Advanced Biotechnology 高等生物科技學

Semester: 2009 Spring

Credit hours: 3

Time: T6T7T8 (2:10 pm-5:10 pm)

Biotechnology is technology based on biology, often used to refer to genetic engineering technology of the 21st century especially when used in drug development. Biotechnology however the term encompasses a wider range and history of procedures for modifying biological organisms for useful applications. Biotechnology combines disciplines like genetics, molecular biology, biochemistry, embryology and cell biology, which are in turn linked to practical disciplines. This course includes six thematic areas: (i) expression technology (ii) genomics technology (iii) biotherapeutics (iv) diagnosis (v) regenerative medicine (vi) translational medicine. The lectures are designed based on the text book “Molecular Biotechnology- principle and applications of recombinant DNA” by Glick and Pasternak, ASM press, also the most recent papers published in several leading biotechnology journals such as Nature Biotechnology, Trends in Biotechnology, Current Opinion in Biotechnology, ... etc.

<u>Date</u>	<u>Chap</u>	<u>Topics</u>
3/03	6, 7	expression technology – prokaryotic/eukaryotic expression (張晁猷)
3/10	6, 7	expression technology – cell line development & engineering (吳夙欽)
3/17	6, 7	expression technology – inducible gene expression system (彭明德)
3/24	9	diagnostics - nucleic acid based diagnosis (張晁猷)
3/31	9	diagnostics - serology-based diagnosis (張晁猷)
4/07	9	diagnostics - nanotechnology in diagnosis (張晁猷)
4/14	8, 10	biotherapeutics – protein drugs (吳夙欽)
4/21	11	biotherapeutics – vaccines (吳夙欽)
4/28	—	biotherapeutics – nucleic acid drugs 張壯榮)
5/05	20	(1 st hour for mid-term exam) genomics technology – yeast genomics techniques (張壯榮)
5/12	9	diagnostics– green fluorescent protein for biomedical imaging (彭明德)
5/19	—	genomics technology – microarray technology (彭明德)
5/26	21	regenerative medicine – stem cell technology (彭明德)
6/02	21	regenerative medicine – gene therapy (張壯榮)
6/09	—	translational medicine for neuron degenerative diseases(張壯榮)
6/16	—	translational medicine for cancer vaccines development (吳夙欽)
6/23		final exam