

LIFS 4200 Concepts and Issues in Contemporary Biotechnology (17/18)

Lecturer:	Prof. Karl Tsim (Course Director) Prof. SC Ng	Rm 5456 Rm 5470	X-7332 X 8677
Tutor	Dr. Wing Leung (lkwing@ust.hk)	Rm 6145	X-7338
Time:	Monday Friday	13:30 – 14:50 9:00 – 10:20	Rm 5583 Rm 5583

Text Book: Thieman and Palladino, Introduction to Biotechnology, 2014, 3rd edition

Web site at <http://lmes2.ust.hk/portal#>

Course Description:

This course will survey the methods and applications of biotechnology, in the aspect related to animals, microbes, agriculture, human health and environment. The consequences of developments in this area will be examined, with emphasis on the aroused great public interest and increasing demand for the informed debate. Pre-requisite: LIFS 2040 or CENG 1600

Intended Learning Outcome:

1. Gain familiarity with basic approaches to biotechnology research and development, and the wide range of biotechnology applications
2. Apply functional knowledge to solve problems in the wide range of Industrial biotechnology applications.
3. Evaluate/analyze the information relevant to contemporary biotechnological innovations, with a global perspective by reviewing international journals.
4. Demonstrate self-reflective thinking for consequences of development in the field of biotechnology
5. Communicate effectively to lay audiences about the concepts and issues of current biotechnology and the types of contributions that can be offered to the society.
6. Recognize the importance of ethics and social responsibilities relevant to controversial applications of biotechnology.

Assessment:

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| 1. | Mid-term examination | 30% |
| 2. | Project | 20% |
| 3. | Final Examination | 50% |

Course Outline:

Date	Subject	Lecturer
1/9; 4/9; 8/9	Dawn of biotech century ; Insulin and diabetes : from dog pancreas to nasal delivery of insulin (Afreeza); Analysis of Sanofi deal with Mannkind	NG
11/9; 15/9	Antibody engineering: chimeric, humanized, and fully human monoclonal antibodies	NG
18/9; 22/9	Autoimmune diseases and anti-TNF, the world's current best selling drugs	NG
25/9; 29/10; 6/10	Herceptin for breast cancer therapy and the concept of personalized medicine; Guest lecture 1	NG
9/10; 13/10	Turning concepts into products: Angiogenesis and Avastin; Drug Repurposing: Avastin, Lucentis and Age-related Macular Degeneration(AMD)	NG
16/10	Mid-term Examination	NG
20/10, 23/10, 27/10	The US Supreme Court case on whether genes can be patentable; emerging consumer genomics industry; Guest lecture 2	NG
30/10; 3/11	From Dolly to CRISPR : germline modifications and bioethics	NG
6/11; 10/11	Contemporary development of Chinese medicine	TSIM
13/11; 17/11 20/11	Student project presentations	NG
24/11, 27/11	Review; Provenge: the first approved cell based therapy for prostate cancer and its bankruptcy (good science but bad business)	NG
	Final Examination (2 hours)	NG