

LIFS 4200 Concepts and Issues in Contemporary Biotechnology (Fall 2022)

Lecturer:	Prof. Karl Tsim (Course Director)	botsim@ust.hk	Rm 5456 X-7332 Prof.
	Sunny Tam		Rm 5455
	Prof. Chi-Ming Lee	cmleeor@aol.com	Rm 5455
Teaching Assistants:	YUEN Ka Wing Gary	kwgyuen@connect.ust.hk	Lab: 2358 7924
	WU Jiahui	jwuct@connect.ust.hk	Lab: 2358 7924
Time:	Tuesday 12:00 – 13:20		Venue: LT-J
	Thursday 12:00 – 13:20		Venue: LT-J

Course Description:

This course will survey contemporary concepts and issues of biotechnology, especially as it related to human health and the environment. The technical, legal, societal and bioethical consequences of developments in this area will be examined, with emphasis on the aroused great public interest and increasing demand for the informed debate.

The course will examine these issues from 2 perspectives; namely scientific and real- world implications, as well as issues resulting from the intersection and translation from one to the other.

Textbook: Reading materials from current biotech development will be provided.

Intended Learning Outcomes:

1. Gain familiarity with basic approaches to biotechnology research and development, and the wide range of biotechnology applications across sectors
2. Apply functional knowledge to solve problems in the wide range of Industrial, health, consumer and environmental 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:

1. Individual Tests (2 x 25%)	50%
2. Team Project	40%
3. Attendance	10%

Course Outline:

	<u>Date</u>	<u>Topic</u>	<u>Instructor</u>
1	5 Sep	Course overview and team topics	S Tam/K Tsim
2	7 Sep	Health food development in HK/China	K Tsim
3	12 Sep	Health food development in HK/China	K Tsim
4	14 Sep	Development of Protein Biologics & Biosimilars	S Tam
5	19 Sep	Biomarker Discoveries with Proteomic Technology	S Tam
6	21 Sep	High Throughput Drug Screening: Past & Future	S Tam
7	26 Sep	Savior Siblings through Gene Manipulation	S Tam
8	28 Sep	GLP, GCP, & GMP in Cell Gene Therapy	S Tam
9	3 Oct	Medical Device(s): The Future of Clinical Diagnostics	S Tam
10	5 Oct	Microbiome: A Harvard Case Study	S Tam
11	10 Oct	Artificial Intelligence in Transomics for Drug Discoveries	S Tam
12	12 Oct	The Future of Healthcare (1): Wellness vs Sick Care	CM Lee
13	17 Oct	The Future of Healthcare (2): Personalized & Preventive Medicine	CM Lee
14	19 Oct	Translational Medicine (1): From Bench to Bedside	CM Lee
15	24 Oct	Translational Medicine (2): Utility of Biomarkers	CM Lee
16	26 Oct	Vaccines: Past, Present and Future	CM Lee
17	31 Oct	Pharmaceutical Industry: The Good, The Bad and the Ugly	CM Lee
18	2 Nov	Biotechnology: Integrity and Sustainability	CM Lee
19	7 Nov	Team Presentation	Tam/Lee
20	9 Nov	Mid-term Test	Tam/Lee
21	14 Nov	Team Presentation	Tam/Lee
22	16 Nov	Team Presentation	Tam/Lee
23	21 Nov	Team Presentation	Tam/Lee
24	23 Nov	Team Presentation	Tam/ Lee
25	28 Nov	Team Presentation	Tam/Lee
26	30 Nov	Team Presentation	Tam/Lee
		* Note: Class topics / content may be subject to change	