

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

Lecturer:	Prof. Karl Tsim (Course Director)	botsim@ust.hk	Rm 5455	X-7332
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Time:	Monday 15:00 – 16:20			Venue: LT-D
	Friday 10.30 – 11.50			Venue: LT-D

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:

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| 1. Individual Tests (2 x 25%, one from each professor) | 50% |
| 2. Team Project | 40% |
| 3. Attendance | 10% |

Course Outline:

	<u>Date</u>	<u>Topic</u>	<u>Instructor</u>
1	2 Sep	Course overview and team topics	WK Wong
2	5 Sep	Health food development in HK/China	Karl Tsim
3	9 Sep	Health food development in HK/China	Karl Tsim
4	16 Sep	Eukaryotic vs prokaryotic protein expression systems	WK Wong
5	19 Sep	E. coli and Bacillus subtilis as hosts for protein expression	WK Wong
6	23 Sep	Modes of protein expression in E. coli and B. subtilis	WK Wong
7	26 Sep	Modes of protein expression in E. coli and B. subtilis	WK Wong
8	30 Sep	Strategies of enhancement of protein expression in E. coli	WK Wong
9	3 Oct	Strategies of enhancement of protein expression in B. subtilis	WK Wong
10	7 Oct	Examples of recombinant protein expression in E. coli	WK Wong
11	10 Oct	Examples of recombinant protein expression in B. subtilis	WK Wong
12	14 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	21 Oct	Translational Medicine (1): From Bench to Bedside	CM Lee
15	24 Oct	Translational Medicine (2): Utility of Biomarkers	CM Lee
16	28 Oct	Vaccines: Past, Present and Future	CM Lee
17	31 Oct	Pharmaceutical Industry: The Good, The Bad and the Ugly	CM Lee
18	4 Nov	Biotechnology: Integrity and Sustainability	CM Lee
19	7 Nov	Mid-term Test + Team Presentation	CM Lee
20	11 Nov	Team Presentation	CM Lee
21	14 Nov	Team Presentation	C M Lee
22	18 Nov	Team Presentation	C M Lee
23	21 Nov	Team Presentation	WK Wong?
24	25 Nov	Team Presentation	WK Wong?
25	28 Nov	Team Presentation	WK Wong?
		* Note: Class topics / content may be subject to change	