

LIFS1010 - Appreciation of Biological Sciences (3-credit)

Fall 2022-23

Monday 4:30pm - 5:50pm & Friday 12:00noon - 1:20pm

Room 2464 (L25/26)

Instructors

- Prof. Andrew L. MILLER (Course Director) (email: almiller@ust.hk)
- Prof. Zhenguo WU (email: bczgwu@ust.hk)
- Dr. Ice KO (email: iceko@ust.hk)

Course Description

This course introduces students to the fundamental concepts and principles of biological sciences, including chemical basis of life, cell structure and function, genetics and molecular biology, evolution, origin of life, diversity of life forms and their influence on human, structure and life processes in human, and ecology and environment. The inter-relationships between human, environment and society in daily life will be focused.

Entry Levels & Course Exclusions

This course is designed for non-biology major students who are interested in learning about the biology related to the human body functions and the rest of the world.

Exclusions: LIFS1901, LIFS1902, Level 3 or above in HKDSE 1/2xBiology OR in HKDES 1xBiology, a passing grade in HKCEE Biology OR HKAL Biology.

Intended Learning Outcomes (ILOs)

- 1) Explain fundamental principles and inter-relationship among biochemicals, cells, and life.
- 2) Describe the process of evolution and its implication in biodiversity.
- 3) Describe the structure and life processes in human.
- 4) Explain the inter-relationship between organisms and the environment.
- 5) Apply the biological knowledge in explaining current issues relating to human life.

Assessment Scheme (assessing Course ILOs 1-5)

- Mid-term Examination (50%)
- Final Examination (50%)

Teaching and Learning Activities

Scheduled activities: 2 lectures per week (each lecture 1 hour 20 minutes)

<u>Teaching Activities</u>	<u>Attaining Course ILOs</u>
Lectures	1-5
In-class discussions	5

Textbooks

Cunningham W.P. and Cunningham M.A. (2020) *Principles of Environmental Science: Inquiry and Application* (9th edition). McGraw-Hill Companies, Inc

Raven P.H., Johnson G.B., Mason K.A., Losos J.B. and Duncan T. (2020) *Biology* (12th edition). McGraw-Hill Companies, Inc.

Urry L.A., Cain M.L., Wasserman S.A., Minorsky P.V. & Reece J.B. (2016) *Campbell Biology* (11th edition). Pearson.

Date (2022)	Lecture Topic	Instructor
Part 1 - Fundamentals of Life [Wu]		
Sep 2 (Fri) & Sep 5 (Mon)	Atoms, Molecules, and Life's Chemistry	Wu
Sep 9 (Fri) & Sep 16 (Fri)	The Cell: Basic Unit of Life	Wu
<i>Note: Sept 12 (Mon) - Public Holiday</i>		
Part 2 - The Perpetuation of Life [Wu]		
Sep 19 (Mon) & Sep 23 (Fri)	Cell Cycle and Meiosis	Wu
Sep 26 (Mon) & Sep 30 (Fri)	Chromosomes and DNA	Wu
Part 3 - Evolution [Ko]		
Oct 3 (Mon)	The Origin of Life	Ko
Oct 7 (Fri)	Evolution	Ko
Part 4 - Biodiversity [Ko]		
Oct 10 (Mon)	Biodiversity	Ko
Oct 14 (Fri)	Threats to Biodiversity	Ko
Oct 17 (Mon)	Mid-term Exam	Wu & Ko
Part 5 - Ecology, Behavioral Biology & Conservation Biology [Ko]		
Oct 21 (Fri) & Oct 24 (Mon)	Behavioral Biology	Ko
Oct 28 (Fri) & Oct 31 (Mon)	Ecology of Individuals and Populations	Ko
Nov 4 (Fri)	Community Ecology	Ko
Nov 7 (Mon)	Conservation Biology	Ko
Part 6 - Human Biology [Miller]		
Nov 11 (Fri)	The Nervous System	Miller
Nov 14 (Mon)	Senses and the Brain	Miller
Nov 18 (Fri)	Muscles and Movement	Miller
Nov 21 (Mon)	Heart and Circulation	Miller
Nov 25 (Fri)	Lungs and Breathing	Miller
Nov 28 (Mon)	Kidney and Excretion	Miller
Dec 1 to Dec 6	Study Break	
Dec 7 to Dec 19	Final Exam (to be arranged by ARO)	