Tamkang University Academic Year 107, 1st Semester Course Syllabus

Course Title	INTRODUCTION TO CELL BIOLOGLY	Instructor	CHERN MING-KAI
Course Class	TSAXB2A BACHELOR'S PROGRAM IN ADVANCED MATERIAL SCIENCES, 2A	Details	◆ Selective ◆ One Semester ◆ 3 Credits

Departmental Aim of Education

Ⅰ. Enrich the fundamental knowledge of advanced material sciences.

Ⅱ. Emphasize the ability of self-expression.

Ⅲ. Strengthen the ability to experiment and team spirit.

Ⅳ. Develop an international perspective and international exchanges.

Departmental core competences

A. Possess a fundamental knowledge of mathematics, physics, chemistry and biology.

B. Cultivate professional knowledge, experimental skills and the applications of nano, optoelectronic, biomedical and macromolecular materials.

Course Introduction	This course introduces what the life will be performed from the point of view of a cell. The contents include the structures and functions of the cell and related application of cell biology.

The Relevance among Teaching Objectives, Objective Levels and Departmental core competences

I.Objective Levels (select applicable ones) :

(i) Cognitive Domain : C1-Remembering, C2-Understanding, C3-Applying, C4-Analyzing, C5-Evaluating, C6-Creating

(ii) Psychomotor Domain : P1-Imitation, P2-Mechanism, P3-Independent Operation, P4-Linked Operation, P5-Automation, P6-Origination

(iii) Affective Domain : A1-Receiving, A2-Responding, A3-Valuing, A4-Organizing, A5-Charaterizing, A6-Implementing

II.The Relevance among Teaching Objectives, Objective Levels and Departmental core competences :

(i) Determine the objective level(s) in any one of the three learning domains (cognitive, psychomotor, and affective) corresponding to the teaching objective. Each objective should correspond to the objective level(s) of ONLY ONE of the three domains.

(ii) If more than one objective levels are applicable for each learning domain, select the highest one only. (For example, if the objective levels for Cognitive Domain include C3,C5,and C6, select C6 only and fill it in the boxes below. The same rule applies to Psychomotor Domain and Affective Domain.)

(iii) Determine the Departmental core competences that correspond to each teaching objective. Each objective may correspond to one or more Departmental core competences at a time. (For example, if one objective corresponds to three Departmental core competences: A,AD, and BEF, list all of the three in the box.)

No.	Teaching Objectives	Relevance	
		Objective Levels	Departmental core competences
1	To understand the structures and functions of the cell and related application of cell biology.	C3	AB

Teaching Objectives, Teaching Methods and Assessment

No.	Teaching Objectives	Teaching Methods	Assessment
1	To understand the structures and functions of the cell and related application of cell biology.	Lecture, Discussion, Problem solving	Written test, Report, Participation

This course has been designed to cultivate the following essential qualities in TKU students

Essential Qualities of TKU Students	Description
◇ A global perspective	Helping students develop a broader perspective from which to understand international affairs and global development.
◆ Information literacy	Becoming adept at using information technology and learning the proper way to process information.
◇ A vision for the future	Understanding self-growth, social change, and technological development so as to gain the skills necessary to bring about one's future vision.
◇ Moral integrity	Learning how to interact with others, practicing empathy and caring for others, and constructing moral principles with which to solve ethical problems.
◆ Independent thinking	Encouraging students to keenly observe and seek out the source of their problems, and to think logically and critically.
◇ A cheerful attitude and healthy lifestyle	Raising an awareness of the fine balance between one's body and soul and the environment; helping students live a meaningful life.
◆ A spirit of teamwork and dedication	Improving one's ability to communicate and cooperate so as to integrate resources, collaborate with others, and solve problems.
◇ A sense of aesthetic appreciation	Equipping students with the ability to sense and appreciate aesthetic beauty, to express themselves clearly, and to enjoy the creative process.

Course Schedule

Week	Date	Subject/Topics	Note
1	107/09/10 ~ 107/09/16	Introduction to Cell Biology	Including the rules for the course and class
2	107/09/17 ~ 107/09/23	Methods in Cell Biology I	
3	107/09/24 ~ 107/09/30	Methods in Cell Biology II	
4	107/10/01 ~ 107/10/07	Cellular Membranes I	
5	107/10/08 ~ 107/10/14	Cellular Membranes II	
6	107/10/15 ~ 107/10/21	Mitochondrial Structure and Function	
7	107/10/22 ~ 107/10/28	Chloroplast Structure and Function	
8	107/10/29 ~ 107/11/04	The Extracellular Matrix and Cell Interactions	
9	107/11/05 ~ 107/11/11	Cellular Organelles and Membrane Trafficking I	
10	107/11/12 ~ 107/11/18	Midterm Exam Week	
11	107/11/19 ~ 107/11/25	Cellular Organelles and Membrane Trafficking II	
12	107/11/26 ~ 107/12/02	The Cytoskeleton I	

13	107/12/03 ~ 107/12/09	The Cytoskeleton II	
14	107/12/10 ~ 107/12/16	Cell Division	
15	107/12/17 ~ 107/12/23	Cell Signaling Pathways	
16	107/12/24 ~ 107/12/30	Cancer	
17	107/12/31 ~ 108/01/06	Immunity	
18	108/01/07 ~ 108/01/13	Final Exam Week	

Requirement	Students should obey the rules accordingly.
Teaching Facility	Computer, Projector
Textbook(s)	Karp's cell biology / Janet Iwasa, Wallace Marshall., 2016
Reference(s)	Molecular Biology of the Cell 6e, by Bruce Alberts, Alexander Johnson (2014) Molecular Cell Biology 8e, by Harvey Lodish, Arnold Berk, Chris A. Kaiser (2016)
Number of Assignment(s)	(Filled in by assignment instructor only)
Grading Policy	◆ Attendance： % ◆ Mark of Usual：50.0 % ◆ Midterm Exam： 25.0 % ◆ Final Exam： 25.0 % ◆ Other〈 〉： %
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php . **※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.**