

Tamkang University Academic Year 112, 1st Semester Course Syllabus

Course Title	INTRODUCTION TO CELL BIOLOGY	Instructor	CHERN MING-KAI
Course Class	TSAXB2A BACHELOR'S PROGRAM IN ADVANCED MATERIALS SCIENCE, 2A	Details	<ul style="list-style-type: none"> ◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	SDG3 Good health and well-being for people		
Departmental Aim of Education			
<ul style="list-style-type: none"> 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. 			
Subject Departmental core competences			
<ul style="list-style-type: none"> A. Possess a fundamental knowledge of mathematics, physics, chemistry and biology. (ratio:60.00) B. Cultivate professional knowledge, experimental skills and the applications of nano, optoelectronic, biomedical and macromolecular materials.(ratio:40.00) 			
Subject Schoolwide essential virtues			
<ul style="list-style-type: none"> 1. A global perspective. (ratio:5.00) 2. Information literacy. (ratio:20.00) 3. A vision for the future. (ratio:20.00) 4. Moral integrity. (ratio:10.00) 5. Independent thinking. (ratio:15.00) 6. A cheerful attitude and healthy lifestyle. (ratio:15.00) 7. A spirit of teamwork and dedication. (ratio:5.00) 8. A sense of aesthetic appreciation. (ratio:10.00) 			

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.
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The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.

Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.

I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.

II.Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.

III.Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.

No.	Teaching Objectives	objective methods
1	To understand the structures and functions of the cell and related application of cell biology.	Cognitive
2	Learn about the structure and function of cells. Understand the relationship between cells and living organisms. Learn about the applications of cells in biomedicine and biotechnology applications.	Cognitive

The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	AB	12345678	Lecture, Discussion	Testing, Study Assignments, Discussion(including classroom and online)
2	AB	12345678	Lecture, Discussion	Testing

Course Schedule

Week	Date	Course Contents	Note
1	112/09/11 ~ 112/09/17	Introduction to Cell Biology	Including the rules for the course and class
2	112/09/18 ~ 112/09/24	Methods in Cell Biology I	

3	112/09/25 ~ 112/10/01	Methods in Cell Biology II	
4	112/10/02 ~ 112/10/08	Cellular Membranes I	
5	112/10/09 ~ 112/10/15	Cellular Membranes II	
6	112/10/16 ~ 112/10/22	Mitochondrial Structure and Function	
7	112/10/23 ~ 112/10/29	Chloroplast Structure and Function	
8	112/10/30 ~ 112/11/05	The Extracellular Matrix	
9	112/11/06 ~ 112/11/12	Midterm Exam Week	
10	112/11/13 ~ 112/11/19	The Extracellular Matrix	
11	112/11/20 ~ 112/11/26	Cellular Organelles and Membrane Trafficking II	
12	112/11/27 ~ 112/12/03	The Cytoskeleton I	
13	112/12/04 ~ 112/12/10	The Cytoskeleton II	
14	112/12/11 ~ 112/12/17	Cell Division	
15	112/12/18 ~ 112/12/24	Cell Signaling Pathways	
16	112/12/25 ~ 112/12/31	Cancer	
17	113/01/01 ~ 113/01/07	Final Exam Week	
18	113/01/08 ~ 113/01/14	Flex week, learning activities should be arranged.	
Key capabilities	self-directed learning Humanistic Caring Problem solving Interdisciplinary		
Interdisciplinary	STEAM course (S:Science, T:Technology, E:Engineering, M:Math, A field:Integration of Art and Humanist)		
Distinctive teaching			
Course Content	Logical Thinking Sustainability issue		

Requirement	Students should obey the rules accordingly.
Textbooks and Teaching Materials	Using teaching materials from other writers:Textbooks
References	Essential Cell Biology 5e, by Bruce Alberts, Karen Hopkin, Alexander D. Johnson, David Morgan, Martin Raff (2018, W. W. Norton & Company) Molecular Cell Biology 8e, by Harvey Lodish, Arnold Berk, Chris A. Kaiser (2016) Karp's Cell and Molecular Biology 9e, by Gerald Karp (2020)
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.