2025Year 1st Semester Syllabus

Created Date	2024-12-24 09:23:36	Last-Modified	2024-12-24 09:25:32
Course Title	INTRODUCTION TO BIOCHEMISTRY	Course Code-Section	DAA2140-01
Credit/Time/ Experiment,Lab,Practical Technique Time	3/Tue2,Wed3,4	Department	Chemical Engineering
Time	Tue2,Wed3,4	Location	EngHD507
Exam Date & Time	Midterm exam	Final exam	
Class Language	English	Evaluation Type	Absolute evaluation

Instructor's Profile	Name	LEE SANG-YUP	Contact Information	Telephone	
	Department	DEPARTMENT OF CHEMICAL AND BIOMOLECULAR ENGINEERING		Mail	LEESSY@YONSEI.AC.KR
	Office	GS산학관 306호		Interview information	화 14:00-17:00 / 수 14:00-17:00

TA's Name & Contact Information	Name	김예원	Contact Information	Telephone	02-2123-5758

Course Description Brief Introduction of the Course	In this class, fundamentals of biochemistry will be covered, which are required for the modern chemical and biomolecular engineering. There are increasing needs for the basic knowledge of biochemistry with the convergence of diverse science and engineering. The objective of this lecture is cultivate basic knowledge on the biochemistry to the student. To achieve this object, core subjects of the biochemistry are to be covered; cell, protein, membrane, nucleic acid and carbohydrates. With the basics on these subjects several engineering applications are to be introduced.			
Course Goals	1.	Korean	기본적인 생화학 지식의 학습	60%
		English	Learn basic biochemistry knowledge	
	2.	Korean	생명 현상에 대한 물리적 화학적 이해	20%
		English	Physical and chemical understanding of the biological phenomena	
	3.	Korean	생명화학공정 응용을 위한 기초 능력 배양	20%
		English	Cultivating basic skills for application of biochemical processes	
	4.	Korean		0%
		English		
	5.	Korean		0%
		English		

Core Competencies	The total measurable competencies must be 100%. Each course objective should set the competency as 25%. The core and major competencies should equal at least 50%.		
	학업기초능력 50%	창의적사고 40%	지역사회관심 10%
Sub-Competencies/Learning Unit1			
Sub-Competencies/Learning Unit2			
Sub-Competencies/Learning Unit3			
Core Competencies(Liberal Arts)Major competency(	**Must reflect the interrelationship between core competencies (elective courses) and major competencies (major studies).**		
학업기초능력	본 교과목은 의약학을 포함한 생명화학공학 분야에서 발생하는 다양한 생명 현상을 화학적인 관점에서 이해하기 위해, 생명체의 기본이 되는 다양한 분자 물질의 특성과 그들의 상호 작용을 이해하는데 중점을 두고 있다. 이를 위해 일반 화학, 유기화학, 물리화학 분야의 기초 지식이 있는 경우, 학습 활동에 도움이 될 수 있다. 본 교과목을 수강함으로써 향후 생명화학공학 관련 분야의 실무와 연구를 수행하는데 필요한 기초 지식을 배양할 수 있다.		
Sustainable Development Goals			

Average Recommended Amount of Learning per	Average Reading Volume	교과서 1개 챕터	Average amount of writing(Based on A4)	2장 내외

Course Methods (%) Total Amount 100	Lecture	Practice Training	Presentation	Dabate	Team Project
	100%	0%	0%	0%	0%
Course Methods 2 Select Relevant Items	PBL Subject	Capstone Design	CBL, Social Innovation Course	Flipped Classroom	Work Experience,Internsh

Grading Policy(%) Total Amount 100 Free Input for Other Information	Midterm exam	Final exam	Quiz	Individual Assignment	Team Assignment	Attendance	Others
	50%	50%	0%	0%	0%	0%	0%

Assignment/ Report, Project Guide	Title of Assignment/Project Name, and Method of Filling Out	Submission Deadline	Type of Submission and Method
Prerequisite	College chemistry and organic chemistry (recommended)	Online Course Address	LearnUs

Course Material	Course Material Name	Author	Publisher	Publish Year	ISBN
주교재	Biochemistry (7th ed.)	McKee & McKee	Oxford	2022	

Main Learner Precautions	Sophomore students majoring chemical and biomolecular engineering
Attatchment	

Weekly Plan

week	Period	Weekly Topic & Contents	Remarks
1	2025-03-04 2025-03-10	Introduction - What is Biochemistry? - Why should we study it? Water: the matrix of life - Basic chemistry Living Cells - Organelles in a cell	(3.4.) Spring semester classes begin (3.6. - 3.10.) Course add and drop period
2	2025-03-11 2025-03-17	Living Cells - Functions and structure Energy - Thermodynamics - ATP	
3	2025-03-18 2025-03-24	Water and pH: physicochemical properties	
4	2025-03-25 2025-03-31	Amino acids, Peptides, and Proteins	
5	2025-04-01 2025-04-07	Amino acids, Peptides, and Proteins(2)	
6	2025-04-08 2025-04-14	Protein purification	(4.9.) First third of the semester ends
7	2025-04-15 2025-04-21	Enzymes(1)	(4.15. - 4.17.) Course withdrawal period
8	2025-04-22 2025-04-28	mid-term examination	(4.22. - 4.28.) Midterm Examinations
9	2025-04-29 2025-05-05	Enzymes(2)	(4.29. - 5.1.) Application period for S/U evaluation (5.5.) Children's day, The day of Buddha's coming 05.05 부처님오신날
10	2025-05-06 2025-05-12	Carbohydrate	(5.6.) Alternative holiday for Children's Day 05.06 대체공휴일
11	2025-05-13 2025-05-19	Lipids and membranes	(5.16.) Second third of the semester ends
12	2025-05-20 2025-05-26	Nucleic acid (1)	
13	2025-05-27 2025-06-02	Nucleic acid (2) Genetic information(1)	
14	2025-06-03 2025-06-09	Genetic information(2)	(6.6.) Memorial day 06.06 현충일
15	2025-06-10 2025-06-16	Self-study & Term paper submission	(6.10. - 6.16.) Self-study
16	2025-06-17 2025-06-23	Final examination	(6.17. - 6.23.) Final Examinations

• Students with disabilities(SWDs) can request accommodations related to lectures, assignments, or tests by contacting t

he course professor at the beginning of semester.
(However, accommodations may vary depending on the essentiality of lecture and discretion of professors.)

[Lecture]

- Visual Impairment: alternative, braille, enlarged reading materials, note-taker
- Physical Impairment: alternative reading materials, access to classroom, note-taker, assigned seat
- Hearing Impairment: note-taker/stenographer, recording lecture
- Intellectual Disability/Autism: note-taker

[Assignments and Test]

- Visual/Physical/Hearing Impairment: (reasonable) extra days for submission, alternative type of assignment, extended test time, alternative type of test, arranging separate test room, and proctors, test ghostwriter
- Intellectual Disability/Autism: (reasonable) extra days for submission, alternative type of assignment