

Tsuyama College		Year	2022		Course Title	Biochemistry
Course Information						
Course Code	0071			Course Category	Specialized / Elective	
Class Format	Lecture			Credits	Academic Credit: 2	
Department	Department of Integrated Science and Technology Communication and Informations System Program			Student Grade	4th	
Term	Year-round			Classes per Week	1	
Textbook and/or Teaching Materials	基礎からしっかり学ぶ生化学 (Yuki Yamaguchi, Takashi Narita. YODOSHA 2014)					
Instructor	TAKAGI Kenji					
Course Objectives						
Learn the functions of chemical substances in the body and understand when and where they are synthesized.						
Rubric						
	Ideal Level		Standard Level		Unacceptable Level	
Achievement 1	Understand glucose metabolism and be able to explain energy production.		Be able to explain glucose metabolism.		Be not able to explain glucose metabolism.	
Achievement 2	Understand photosynthesis and be able to explain energy production.		Be able to explain photosynthesis.		Be not able to explain photosynthesis.	
Achievement 3	Understand lipid metabolism and be able to explain the difference between synthesis and degradation pathways.		Be able to explain lipid metabolism.		Be not able to explain lipid metabolism.	
Assigned Department Objectives						
Teaching Method						
Outline	General or Specialized : Specialized Field of learning : Biology Foundational academic disciplines : Biology/Life science Relationship with Educational Objectives : This class is equivalent to "(1) Cultivate human creative talent, rich in practical abilities", "(2) Acquire basic science and technical knowledge", and "(3) Acquire deep foundation knowledge of the major subject area". Course outline : Biochemistry is a fusion of biology and chemistry. Outline the structure and function of chemical substances in the living body. In addition, their synthetic pathways will be described.					
Style	Course method : In line with the textbook, the main points will be explained while projecting materials such as figures and tables with a projector or explaining with a board. In a timely manner, issue report assignments that match the content of the lesson, and encourage review and self-study. This course is a single semester course. Grade evaluation method : The scores of the two regular exams are evaluated equally (50%), and the quizzes, reports, and class attitudes up to each regular exam are added to this (50%) and evaluated each time. Textbooks and notebooks are not allowed for the exam.					
Notice	Precautions on the enrollment : This subject is a "subject that requires study outside of class hours". Classes are offered for 15 credit hours per credit, but 30 credit hours are required in addition to this. Follow the instructions of your instructor for these studies. Course advice : Instead of memorize the knowledge of living things, understand and acquire the mechanism of life phenomena Foundational subjects : Biology I (1st year) Chemistry I (2nd year), Chemistry II (3rd year), Experiments in Science (2nd year), General Biology (2nd year), Molecular Biology (3rd year) Related subjects : Organic Chemistry I (4th year), Organic Chemistry II (5th year), Applied Biology (4th year), Developmental Biology (4th year), Experiments in Biology (4th year), Cell Biology (4th year), Bioinformatics (5th year) Attendance advice : Strictly adhere to the deadline for report assignments. Late arrivals will be treated as absent after half the class time has passed. If you have any questions about the lecture or anything related to it, please actively ask questions and deepen your understanding.					
Characteristics of Class / Division in Learning						
<input type="checkbox"/> Active Learning		<input type="checkbox"/> Aided by ICT		<input type="checkbox"/> Applicable to Remote Class		<input type="checkbox"/> Instructor Professionally Experienced
Elective must complete subjects						
Course Plan						
			Theme	Goals		
1st Semester r	1st Quarter	1st	Guidance Biological design from a biochemical perspective (textbook p.12-22)	Understand the field of biochemistry		
		2nd	Monosaccharides and polysaccharides, lipids and membranes (textbook p.58-75)	Be able tp explain monosaccharides and polysaccharides, lipids and membranes		
		3rd	Glucose metabolism 1 (textbook p.90-108)	Be able to explain glycolysis		
		4th	Glucose metabolism 1 (textbook p.90-108)	Be able to explain gluconeogenesis		
		5th	Glucose metabolism 2 (textbook p.109-123)	Be able to explain the citric acid cycle		
		6th	Glucose metabolism 2 (textbook p.109-123)	Be able to explain the electron transport chain		
		7th	Photosynthesis (textbook p.124-135)	Be able to explain the light-dependent reaction		

	2nd Quarter	8th	Mid-term exams	
		9th	Return of mid-term exams and explanation of answers	
		10th	Photosynthesis (textbook p.124-135)	Be able to explain the Calvin cycle
		11th	Lipid metabolism (textbook p.136-153)	Be able to explain the fatty acid metabolism
		12th	Lipid metabolism (textbook p.136-153)	Be able to explain the metabolism of phospholipids and glycolipids
		13th	Amino acid and nucleotide metabolism (textbook p.154-170)	Be able to explain the amino acid metabolism
		14th	Amino acid and nucleotide metabolism (textbook p.154-170)	Be able to explain nucleotide metabolism
		15th	Final exams	
		16th	Return of final exams and explanation of answers	
2nd Semester	3rd Quarter	1st		
		2nd		
		3rd		
		4th		
		5th		
		6th		
		7th		
		8th		
	4th Quarter	9th		
		10th		
		11th		
		12th		
		13th		
		14th		
		15th		
		16th		

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	50	0	0	0	0	50	100
Basic Proficiency	0	0	0	0	0	0	0
Specialized Proficiency	50	0	0	0	0	50	100
Cross Area Proficiency	0	0	0	0	0	0	0