Tsuyama C	Tsuyama College Year 2021		2021	2021		Biology		
Course Information								
Course Code	0003	0003			General	General / Compulsory		
Class Format	Lecture			Credits	School C	School Credit: 2		
Department	Department of Integrated Science and Technology Communication and Informations System Program		Student Grade	1st	1st			
Term	Year-round	Year-round			2	2		
Textbook and/or Teaching Materials	book and/or Textbooks: Ministry of Education, Culture, Sports, Science and Technology authorized textbook "Revised Biology Basics" (Tokyo Shoseki), Reference books : Bilology Square (Daiichi Gakushusha)							
Instructor	SHIBATA Norito							
Course Objective	)C				-			

## Course Objectives

Course Objectives:

- 1. Understand the commonality and diversity of living things on the earth
- . Explain the properties of DNA as genetic information common to all living things 3. Understand the regulatory mechanisms of the internal environment of living things
- 4. Explain the ecosystem of the earth

## Rubric

RUDIC								
	Excellent	Good	Acceptable	Not acceptable				
Achievement 1	Understand the commonality and diversity of living things, and explain with concrete examples	Understand and explain the commonality and diversity of living things.	Understand the commonality and diversity of living things.	Do not understand the commonality and diversity of living things.				
Achievement 2	Understand the properties of DNA, and explain the mechanism and advantages of DNA as genetic information.	Understand the properties of DNA and explain how DNA works as genetic information	Explain the properties of DNA that are common to all living things.	Do not explain the properties of DNA that are common to all living things.				
Achievement 3	Understand the regulatory mechanism of the internal environment, and explain several specific examples of the mechanisms of homeostasis in the body.	Understand the regulatory mechanisms of the internal environment, and explain the homeostasis maintenance	Explain the regulatory mechanism of the internal environment.	Do not explain the regulatory mechanism of the internal environment				
Achievement 4	Explain the ecosystem on the earth, and specific maintenance methods can be considered.	Explain the ecosystems on the earth, and learn how to conserve them.	Explain the ecosystem on the earth.	Do not explain the ecosystem on the earth.				

## Assigned Department Objectives

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Outline

Style

General or Specialized: General

Field of learning: Organisms Biology

Foundational academic disciplines: Biology/Basic Biology

Relationship with Educational Objectives: This class is equivalent to (2) "Acquire basic science and technical

Relationship with Educational Objectives: The main goals of learning / education in this class is "(A)", and "A-

Course outline: The development of molecular biology and biotechnology has made it possible to understand biological phenomena at the molecular and cellular levels. In addition, the ecosystem of the earth is affected by our human activities. Biology has become an area where basic background is required not only in the field of science but also in a wide range of fields such as engineering, medicine, and agriculture. In this class, we

will explain the basics of biology

Course method: We will explain the main points using figures and tables. By conducting exercises that match the content of the lesson appropriately, review and self-study are encouraged.

Grade evaluation method: The scores of each of the four regular exams are evaluated equally (70%), and the quizzes and reports up to each regular exam are added (30%). As a general rule, the first semester grades are the average of interim and final exam, and the grade grades are the average of all the results.

Textbooks and notebooks are not allowed for the exam.

Precautions on the enrollment: Students must take this class (no more than one-third of the required number of class hours missed) in order to complete the 1st year course.

Notice Foundational subjects: Science up to junior high school

Related subjects: General Biology (2nd year), Applied Biology(4th)

Attendance advice: Strictly adhere to the deadline for report assignments. If you are late for class, you will be considered absent after half the class time. If you have any questions about the lecture or related topics, we encourage you to ask for your deep understanding.

## Characteristics of Class / Division in Learning

Mu s t c omp   et e   su b   et t s  Course Plan    The me	☐ Active Learning			☐ Aided by ICT	☑ Applicable t	o Remote Class	☐ Instructor Professionally Experienced		
Theme  1st (Guidance, Biological Diversity and Commonality of programs and evolution. Explain the commonality of programs and servicture of DNA (textbook p. 12-23)  2nd Quarter  1st (Quarter)  1st (Qua	Must	compl	ete su						
1st   Guidance, Biological Diversity and Commonality (custbook p.12-23)   Explain the diversity of life on the earth. Explain the diversity of life on the earth. Explain the customorphic of programsma and evolution. Explain the common structure of DNA in conjunction with problems of the problems of									
1st   Guidance, Biological Diversity and Commonality   Scheduler   Commonality   Com			Т	Theme Goals					
Semeste   Part			1st G	uidance, Biological Diversity and C extbook p.12-23)	Commonality	the relationship between the commonality of organisms and evolution. Explain the common			
st Quarter  the Genomes and Genetic information (Textbook p. 66-63)  sth Genetic information and protein synthesis (textbook p. 72-85)  for Genetic information and protein synthesis (textbook p. 72-85)  for Genetic information and protein synthesis (textbook p. 72-85)  for Genetic information and protein synthesis (textbook p. 72-85)  for Genetic information and protein synthesis (textbook p. 72-85)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information and protein synthesis (textbook p. 72-83)  for Genetic information in deptation (Textbook p. 64-7)  for Genetic information in deptation (Textbook p. 72-83)  for Genetic information (Textbook p. 72-83)  for Genetic information in deptation (Textbook p. 100-101-101-101-101-101-101-101-101-101			2nd C	rganisms and genes, Structure of .52-59)	DNA (textbook	Explain the structure of DNA in conjunction with			
Quarter  4th 60-63)  Sub Genetic information and protein synthesis (chethook p. 72-85)  Sub Genetic information and protein synthesis (chethook p. 72-85)  Genetic information and protein synthesis (chethook p. 72-85)  The Genetic information and protein synthesis (chethook p. 72-85)  Bith (First semester midterm exam)  Semester  Provided and DNA Replication (Textbook p. 64-  10th Cell Cycle and DNA Replication (Textbook p. 64-  11th Cell Cycle and DNA Replication (Textbook p. 64-  11th Cell Cycle and DNA Replication (Textbook p. 64-  11th Life Activity and Energy (Textbook p. 26-39)  12th Semester final exam)  12th Return of answers and explanations for the first semester final exam  12th Return of answers and explanations for the first semester final exam  12th Return of answers and explanations for the first semester final exam  12th Return of answers and explanations for the first semester final exam  12th Return of answers and explanations for the first semester final exam  12th Regulation by the autonomic nervous system, Regulation of inverting the function of liver and kidney.  12th Regulation by the autonomic nervous system, Regulation by the autonomic nervous system, Regulation by the endocrine system (textbook p. 116-133)  12th Regulation by the autonomic nervous system, Regulation by the endocrine system (textbook p. 116-133)  12th Regulation by the autonomic nervous system, Regulation by the endocrine system (textbook p. 116-133)  12th Regulation by the autonomic nervous system, Regulation by the endocrine system (textbook p. 116-133)  12th Climate and Biome (textbook p. 184-197)  12th Climate and Biome (textbook p. 184-197)  12th Climate and Biome (					junction with	Understanding the chemical property of DNA by extracting DNA from plant			
Semester   Genetic information and proteins   Explain the relationship between genetic (textbook p. 72-85)   Explain the relationship between genetic information and proteins   Semester mideram exam					Textbook p.				
Semeste   Part   Continue   Con			5th G	enetic information and protein syr extbook p. 72-85)	thesis				
1st Semester   Semeste			6th	enetic information and protein syr extbook p. 72-85)	thesis	information and p	proteins.		
Semeste   9th   Return of answers and explanations for the first semester middrem exam   10th   71   11th   71   12th			7th G	enetic information and protein syr extbook p. 72-85)	thesis	Genetic information (textbook p. 72-8	on and protein synthesis 5)		
semester midterm exam.    10th   Cell Cycle and DNA Replication (Textbook p. 64-   Explain the structure of chromosomes and the distribution of genome.									
10th   Coll Cycle and DNA Replication (Textbook p. 64   Stribution of genome.					for the first				
2nd Quarter  12th Life Activity and Energy (Textbook p. 26-39) Understand the words, metabolism, catabolism, and anabolism, and explain the role of ATP as the content of the content of the past of the content of the			10th C	ell Cycle and DNA Replication (Tex	tbook p. 64-	Explain the struct distribution of ger	ure of chromosomes and the nome.		
2nd Quarter   12th   Life Activity and Energy (Textbook p. 26-39)   Content of the processes of photosynthesis and its role in metabolism.					tbook p. 64-				
13th   Life Activity and Energy (Textbook p. 26-39)   and respiration, and also explain the relationship between the two processes.   Explain the theory of chloroplast and mitochondrial evolution.			12th L	ife Activity and Energy (Textbook	o. 26-39)	and anabolism, and explain the role of ATP as the currency of energy for life activities. Also, explain			
15th   (First semester final exam)   16th   Return of answers and explanations for the first semester final exam   16th   Return of answers and explanations for the first semester final exam   1st   Return of answers and explanations for the first semester final exam   1st   Return of answers and explanations for the first semester final exam   2nd   The heart and blood circulation (Textbook p. 100-105)   3rd   Organs regulating the body's internal environment (Textbook p. 108-115)   Regulation by the autonomic nervous system, Regulation by the autonomic nervous system, Regulation by the endocrine system (textbook p. 116-133)   Regulation by the endocrine system (textbook p. 116-133)   Regulation by the endocrine system (textbook p. 116-133)   Explain the function of neuro transmitters and their receptors.   Regulation by the endocrine system (textbook p. 116-133)   Explain how the immune system protects the body.   Standard protects for the second semester midterm exam   Standard protects for the second protects for the second protects and the loss of biodiversity.   Standard protects and the			13th L	ife Activity and Energy (Textbook	o. 26-39)	and respiration, a	and also explain the relationship		
16th Return of answers and explanations for the first semester final exam 1st Return of answers and explanations for the first semester final exam 1nc April 1st Return of answers and explanations for the first body through feedback regulation. 2nd The heart and blood circulation (Textbook p. 100-105) 3rd Organs regulating the body's internal environment (Textbook p. 108-115) 4th Regulation by the autonomic nervous system, Regulation by the endocrine system (textbook p. 116-133) 5th Regulation by the endocrine system (textbook p. 116-133) 6th Immunity (textbook p. 134-157) 8th Resultation by the endocrine system (textbook p. 116-133) 6th Immunity (textbook p. 134-157) 8th (Second semester midterm exam ) 8th Return of answers and explanations for the second semester midterm exam ) 9th Return of answers and explanations for the second semester midterm exam 1 10th Vegetation diversity and transition (textbook p. 172-183) 12th Climate and Biome (textbook p. 184-197) 8th Climate an			14th L	ife Activity and Energy (Textbook	o. 26-39)				
1st   Return of answers and explanations for the first semester final exam   1st   Return of answers and explanations for the first semester final exam   1st   Return of answers and explanations for the first semester final exam   1st   1									
Semester final exam   body through feedback regulation.			s s	emester final exam					
2nd			1St s	emester final exam					
State			<sup>2110</sup> 1	05)		'	ulation by the heart.		
P.116-133   Regulation by the autonomic nervous system, Regulation by the endocrine system (textbook p. 116-133)			310	Textbook p. 108-115)		Explain the function	on of liver and kidney.		
Sth Regulation by the autonomic nervous system, Regulation by the autonomic nervous system, Regulation by the endocrine system (textbook p.116-133)  6th Immunity (textbook p. 134-157) Explain how the immune system protects the body.  7th Immunity (textbook p. 134-157) Explain how the immune system protects the body.  8th (Second semester midterm exam)  9th Return of answers and explanations for the second semester midterm exam  10th Vegetation diversity and transition (textbook p. 172-183)  11th Vegetation diversity and transition (textbook p. 172-183)  12th Climate and Biome (textbook p. 184-197) Explain the transition of vegetation.  Explain the global biome and its distribution. Explain the decline of tropical forests and the loss of biodiversity.  4th Quarter 14th Climate and Biome (textbook p. 184-197) Explain the horizontal and vertical distribution of the Japanese biome.  Explain the components of an ecosystem (producers, consumers, decomposers, and the nonliving environment) and their relationships. Explain the ecological pyramid. Explain the corpolement of toxic substances. Explain the bioaccumulation of toxic substances. Explain the problems of global warming, its causes, and countermeasures.			4th R	egulation by the autonomic nervol egulation by the endocrine system .116-133)	us system, ı (textbook		on of neuro transmitters and		
2nd Semeste r    Sth			5th  R	egulation by the endocrine system	us system, ı (textbook	Regulation by the	autonomic nervous system, endocrine system (textbook		
2nd Semeste  Pth Second semester midterm exam )  9th Return of answers and explanations for the second semester midterm exam    10th Vegetation diversity and transition (textbook p. 172-183)  11th Vegetation diversity and transition (textbook p. 172-183)  12th Climate and Biome (textbook p. 184-197)  4th Quarter    13th Climate and Biome (textbook p. 184-197)  Explain the global biome and its distribution. Explain the decline of tropical forests and the loss of biodiversity.  Explain the horizontal and vertical distribution of the Japanese biome.  Explain the components of an ecosystem (producers, consumers, decomposers, and the nonliving environment) and their relationships. Explain the ecological pyramid. Explain the horizontal the bioaccumulation of toxic substances. Explain the bioaccumulation of toxic substances. Explain the problems of global warming, its causes, and countermeasures.			6th I	mmunity (textbook p. 134-157)			mmune system protects the		
Peth Return of answers and explanations for the second semester midterm exam  10th Vegetation diversity and transition (textbook p. 172-183)  11th Vegetation diversity and transition (textbook p. 172-183)  12th Climate and Biome (textbook p. 184-197)  24th Quarter 13th Climate and Biome (textbook p. 184-197)  25th Climate and Biome (textbook p. 184-197)  26th Climate and Biome (textbook p. 184-197)  27th Climate and Biome (textbook			7th I	mmunity (textbook p. 134-157)			mmune system protects the		
Semeste r  9th Return of answers and explanations for the second semester midterm exam  10th Vegetation diversity and transition (textbook p. 172-183)  11th Vegetation diversity and transition (textbook p. 172-183)  12th Climate and Biome (textbook p. 184-197)  13th Climate and Biome (textbook p. 184-197)  13th Climate and Biome (textbook p. 184-197)  Explain the global biome and its distribution. Explain the decline of tropical forests and the loss of biodiversity.  Explain the horizontal and vertical distribution of the Japanese biome.  Explain the components of an ecosystem (producers, consumers, decomposers, and the nonliving environment) and their relationships. Explain the ecological pyramid. Explain the carbo cycle and energy flow in ecosystems. Explain the bioaccumulation of toxic substances. Explain the problems of global warming, its causes, and countermeasures.	2nd		8th (:	Second semester midterm exam )					
11th Vegetation diversity and transition (textbook p. 12th Climate and Biome (textbook p. 184-197)  2th Climate		_	Sill S	econd semester midterm exam					
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12th   Climate and Biome (textbook p. 184-197)   Explain the decline of tropical forests and the loss of biodiversity.    13th   Climate and Biome (textbook p. 184-197)   Explain the horizontal and vertical distribution of the Japanese biome.					textbook p.	'			
Quarter  13th Climate and Biome (textbook p. 184-197)  Explain the nonzontal and vertical distribution of the Japanese biome.  Explain the components of an ecosystem (producers, consumers, decomposers, and the nonliving environment) and their relationships. Explain the ecological pyramid. Explain the carbo cycle and energy flow in ecosystems. Explain the bioaccumulation of toxic substances. Explain the problems of global warming, its causes, and countermeasures.			12th C	limate and Biome (textbook p. 184	4-197)	Explain the declin	l biome and its distribution. e of tropical forests and the loss		
14th Ecosystems and their conservation (textbook p.198-223)  [Consider the cological pyramid. Explain the ecological pyramid. Explain the bioaccumulation of toxic substances. Explain the problems of global warming, its causes, and countermeasures.			13th C	limate and Biome (textbook p. 184	4-197)				
15th (Sacond samestar last ovam )					(textbook	(producers, consumonliving environi Explain the ecologicycle and energy bioaccumulation of problems of globa	umers, decomposers, and the ment) and their relationships. gical pyramid. Explain the carbon flow in ecosystems. Explain the of toxic substances. Explain the al warming, its causes, and		
			15th (	Second semester last exam )					

		16th	Return of answers and explanations for the second semester last exam					
Evaluation Method and Weight (%)								
	-	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	-	70	0	0	0	0	30	100
Basic Proficiency	, -	70	0	0	0	0	30	100
Specialized Proficiency	d (	0	0	0	0	0	0	0
Cross Area Proficiency		0	0	0	0	0	0	0