



**Universitas Negeri Surabaya**  
**Faculty of Mathematics and Natural Sciences**  
**Biology Undergraduate Study Program**

Document Code

**SEMESTER LEARNING PLAN**

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Parasitology	4620102140	Study Program Elective Courses	T=2	P=0	ECTS=3.18	7	August 16, 2022
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator	
	Reni Ambarwati, M.Sc		Rofiza Yolanda, Ph.D			Dr. H. Sunu Kuntjoro, S.Si., M.Si.	

Learning model	Project Based Learning
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Program Learning Outcomes (PLO)	<b>PLO study program that is charged to the course</b>				
	PLO-5	Able to communicate scientific ideas, both orally and in writing using appropriate communication media according to the target, as a means of lifelong learning for academic self-development.			
	PLO-7	Able to work independently and collaboratively, as well as responsibly, in completing various tasks in class, in the laboratory and in the field.			
	PLO-12	Able to demonstrate basic knowledge of biology relevant to science and mathematics to understand current scientific phenomena and issues and apply them in problem solving			
	<b>Program Objectives (PO)</b>				
	PO - 1	Master the basic concepts of parasite science and be able to apply them in everyday life			
	PO - 2	Apply parasitological concepts or theories that have been mastered to provide solutions to problems that occur in accordance with their field of expertise			
	PO - 3	Design, carry out field surveys regarding the presence of parasitic organisms and document/describe them in the form of scientific writing/paper			
	PO - 4	Having the soul and spirit of ecopreneurship, research or quality control that can be developed and applied related to parasitology			
	PO - 5	Communicate the results of discoveries or reviews of scientific literature expressed in the form of seminars or written in the form of scientific articles/proceedings			
	PO - 6	Have the ability and attitude to work well (independently/team), honest and responsible in applying the concepts and principles of parasitology			
	<b>PLO-PO Matrix</b>				
		P.O	PLO-5	PLO-7	PLO-12
		PO-1			
	PO-2				
	PO-3				
	PO-4				
	PO-5				
	PO-6				
<b>PO Matrix at the end of each learning stage (Sub-PO)</b>					

	P.O	Week															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	PO-1																
	PO-2																
	PO-3																
	PO-4																
	PO-5																
	PO-6																
<b>Short Course Description</b>	This course discusses all parasitic organisms, specifically studying parasitic organisms that are classified as parasitic animals, including: protozoa, helminths, arthropods, insects and fungi, both zoonotic and anthroponotic. The scope of parasitology includes taxonomy, morphology, parasite life cycles, as well as the pathology and epidemiology of the diseases they cause. The material is delivered using a student-centered approach in practical activities and assignments given in the form of research projects carried out by students honestly and independently.																
<b>References</b>	<p><b>Main :</b></p> <ol style="list-style-type: none"> <li>Bendryma SS, Koesdarto S, Sosiawati SM, Kusnoto. 2011. Buku Ajar Ilmu Penyakit Helminth . Surabaya: Airlangga University Press.</li> <li>Chiodini, PL. Moody, AH, Manser, DW. 2001. Atlas of Helminthology and Protozoology. Fourth Edition. London: Churchill Livingstone.</li> <li>Ideham B, Pusarawati S. 2007. Helminthologi Kedokteran . Surabaya: Airlangga University Press.</li> <li>Noble ER, Noble GA. 1989. Parasitologi Biologi Parasit Hewan . Diterjemah oleh drh. Wardiarto. Yogyakarta: Penerbit Gadjah Mada University Press</li> <li>Prasetyo H. 2005. Atlas Berwarna, Protozoologi Kedokteran . Surabaya: Airlangga University Press</li> <li>Prasetyo H. 2007. Pengantar Praktikum Protozoologi Kedokteran . Edisi Kedua. Surabaya: Airlangga University Press.</li> <li>Soedarto. 2007. Sinopsis Kedokteran Tropis . Surabaya: Airlangga University Press.</li> <li>Anderson, C.A. 2000. Nematode Parasites of Vertebrates: Their Development and Transmission. 2nd Edition. UK: Cabi Publising</li> <li>Deigendesch, N., Nunez, J.C. dan Stenzel, W. 2017. Parasitic and fungal infections. Dalam Kovacs, G.G. dan Alafuzoff, I. (eds.), Handbook of Clinical Neurology: Neuropathology, 145: 245-262</li> <li>Fikriyah, L., Haryono, T. dan Ambarwati, R. 2015. Identifikasi ektoparasit dan endoparasit pada burung kenari (Serinus canaria) di Penangkaran. LenteraBio 4(1): 82-86</li> <li>Juni Priyanto, L.A., Tjahaya, P.U. dan Darwanto. 2006. Atlas Parasitologi Kedokteran. Jakarta: PT Gramedia Pustaka Utama</li> <li>Köhler, J.R., Casadevall, A. dan Perfect, J. 2015. The spectrum of fungi that infects humans. Cold Spring Harb Perspect Med 5: a019273</li> <li>Sardjono, T.W. 2020. Helminthologi: Kedokteran dan Veteriner. Malang: UB Press</li> </ol> <p><b>Supporters:</b></p> <ol style="list-style-type: none"> <li>Sholihah, N., Bai, S., Hidanah, S., Wardhana, D.K., Sunarso, A., Hastutiek, P., Gandul, M. dan Yuliani, A. 2022. Ectoparasite detection in culling layer hen that sold at Wonokromo market Surabaya City. Journal of Parasite Science 6(2): 38-41</li> <li>Rachmawati, K., Koesdarto, S., Hamid, I.S. dan Permatasari, D.A. 2022. Identification of ectoparasites and gastrointestinal tract endoparasitesin stray cats at traditional market of Bojonegoro City. Journal of Parasite Science 6(2): 46-49</li> <li>Handoko, T.A., Hastoetik, P., Mufasirin, Hermadi, H.A. dan Triakoso, N. 2022. Prevalences of gatrointestinal parasitic in dogs and cats at Kaki 4 and K-5 Clinics Kediri City. Journal of Parasite Science 6(2): 50-53</li> <li>Salsabila, F.S., Sardjana, I.K.W., Sarudji, S., Budiarto, Hastutiek, P. dan Ririn. 2022. Prevalence of Helminthiasis in cattle through fecal examination in Magetan Regency. Journal of Parasite Science 6(1): 1-6</li> </ol>																
<b>Supporting lecturer</b>	Dr. Rinie Pratiwi Puspitawati, M.Si. Reni Ambarwati, S.Si., M.Sc. Dwi Anggorowati Rahayu, S.Si., M.Si.																
Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [ Estimated time]		Learning materials [ References ]	Assessment Weight (%)										
		Indicator	Criteria & Form	Offline ( offline )	Online ( online )												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)										
1	Understand the meaning of parasitology	<ul style="list-style-type: none"> <li>Explain the meaning of parasitology</li> <li>Explain examples of parasitology studies</li> </ul>	<p><b>Criteria:</b> UTS; Paper &amp; Pencil Test</p> <p><b>Form of Assessment :</b> Participatory Activities, Tests</p>	Presentation, Discussion (4 x 50 minutes) 2 X 50	Flipped Learning, asynchronous learning at Vinesa: <ul style="list-style-type: none"> <li>Studying teaching materials</li> <li>Working on LKM</li> </ul>	<p><b>Material:</b> Parsitology <b>Literature:</b> <i>Bendryma SS, Koesdarto S, Sosiawati SM, Kusnoto. 2011. Textbook of Helminth Diseases. Surabaya: Airlangga University Press.</i></p>	5%										

						<p><b>Material:</b> Parasitology <b>Bibliography:</b> <i>Chiodini, PL.</i> <i>Moody, A.H., Manser, D.W.</i> <i>2001. Atlas of Helminthology and Protozoology. Fourth Edition. London: Churchill Livingstone.</i></p> <p><b>Material:</b> Parasitology <b>References:</b> <i>Ideham B, Pusarawati S.</i> <i>2007. Medical Helminthology. Surabaya: Airlangga University Press.</i></p> <p><b>Material:</b> Parasitology <b>Bibliography:</b> <i>Noble ER, Noble GA.</i> <i>1989. Parasitology Biology of Animal Parasites. Translated by Drh. Wardiarto. Yogyakarta: Publisher Gadjah Mada University Press</i></p> <p><b>Material:</b> Parasitology <b>Reference:</b> <i>Prasetyo H.</i> <i>2007. Introduction to Medical Protozoology Practicum. Second Edition. Surabaya: Airlangga University Press.</i></p> <p><b>Material:</b> Parasitology <b>Reader:</b> <i>Prasetyo H.</i> <i>2005. Color Atlas, Medical Protozoology. Surabaya: Airlangga University Press</i></p>	
2	Understand the concept of parasites and parasitism	<ul style="list-style-type: none"> <li>• Explain the meaning of parasites</li> <li>• Explain the meaning of parasitism</li> <li>• Distinguish between types of hosts</li> <li>• Give examples of parasitic animals</li> </ul>	<p><b>Criteria:</b> Participation : Assignments : UTS : UAS = 20% : 30% : 20% : 30%</p> <p><b>Form of Assessment :</b> Project Results Assessment / Product Assessment, Test</p>	Presentation, Discussion (4 × 50 minutes) 2 X 50	Flipped Learning, asynchronous learning at Vinesa: • Study teaching materials • Actively discuss in forums	<p><b>Material:</b> Parasitology <b>Literature:</b> <i>Bendryma SS,</i> <i>Koesdarto S,</i> <i>Sosiawati SM,</i> <i>Kusnoto.</i> <i>2011. Textbook of Helminth Diseases. Surabaya: Airlangga University</i></p>	6%

Press.

**Material:**  
Parasitology  
**Bibliography:**  
Chiodini, PL.  
Moody, A.H.,  
Manser, D.W.  
2001. *Atlas of Helminthology and Protozoology. Fourth Edition.* London: Churchill Livingstone.

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Manser, D.W.  
2001. *Atlas of Helminthology and Protozoology. Fourth Edition.* London: Churchill Livingstone.

**Material:**  
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**Bibliography:**  
Noble ER,  
Noble GA.  
1989.  
*Parasitology Biology of Animal Parasites.* Translated by Drh. Wardiarto. Yogyakarta: Publisher Gadjah Mada University Press

**Material:**  
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**Reader:**  
Prasetyo H.  
2005. *Color Atlas, Medical Protozoology.* Surabaya: Airlangga University Press

**Material:**  
Parasitology  
**Reference:**  
Prasetyo H.  
2007.  
*Introduction to Medical Protozoology Practicum. Second Edition.* Surabaya: Airlangga University Press.

3	Understand the morphology, physiology, and classification of parasitic protozoa.	1. Explain the morphology of parasitic protozoa 2. Explain the physiology of parasitic protozoa 3. Explain the classification of parasitic protozoa	<p><b>Criteria:</b> Participation : Assignments : UTS : UAS = 20% : 30% : 20% : 30%</p> <p><b>Form of Assessment :</b> Project Results Assessment / Product Assessment</p>	Presentation, Discussion (4 × 50 minutes) 2 X 50	Flipped Learning, asynchronous learning at Vinesa: • Study teaching materials • Actively discuss in forums	<p><b>Material:</b> Parasitology <b>Literature:</b> <i>Bendryma SS, Koedarto S, Sosiawati SM, Kusnoto. 2011. Textbook of Helminth Diseases. Surabaya: Airlangga University Press.</i></p> <p><b>Material:</b> Parasitology <b>Reference:</b> <i>Prasetyo H. 2007. Introduction to Medical Protozoology Practicum. Second Edition. Surabaya: Airlangga University Press.</i></p> <p><b>Material:</b> Parasitology <b>References:</b> <i>Ideham B, Pesarawati S. 2007. Medical Helminthology. Surabaya: Airlangga University Press.</i></p> <p><b>Material:</b> Parasitology <b>Bibliography:</b> <i>Soedarto. 2007. Synopsis of Tropical Medicine. Surabaya: Airlangga University Press.</i></p>	10%
4	Understand the protozoa that live in the blood and tissues of the human body	1. Analyze the life cycle of parasitic protozoa in human blood and body tissue. 2. Give examples of parasitic protozoa in human blood and body tissue and examples of the diseases they cause	<p><b>Criteria:</b> Participation : Assignments : UTS : UAS = 20% : 30% : 20% : 30%</p> <p><b>Form of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment</p>	Presentation, Discussion 2 X 50			9%
5	Understand the morphology, physiology, classification of parasitic worms	1. Explain the morphology of parasitic worms 2. Explain the physiology of parasitic worms 3. Explain the classification of parasitic worms	<p><b>Criteria:</b> Participation : Assignments : UTS : UAS = 20% : 30% : 20% : 30%</p> <p><b>Forms of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment, Tests</p>	Presentation, Discussion 2 X 50			2%

6	Understand the life cycle of cestode worms and parasitic trematodes and provide examples of the diseases they cause	1. Analyze the life cycle of parasitic cestodes and trematodes 2. Give examples of parasitic cestodes and trematodes and examples of the diseases they cause	<b>Criteria:</b> Participation : Assignments : UTS : UAS = 20% : 30% : 20% : 30%  <b>Forms of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment, Tests	Presentation, Discussion 2 X 50			2%
7	Understand the life cycle of parasitic nematode worms and provide examples of the diseases they cause	1. Analyze the life cycle of parasitic nematodes. 2. Give examples of parasitic nematodes and examples of the diseases they cause	<b>Criteria:</b> Participation : Assignments : UTS : UAS = 20% : 30% : 20% : 30%  <b>Forms of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment, Tests	Nematodes 2 X 50			2%
8	UTS	UTS	<b>Criteria:</b> UTS  <b>Form of Assessment :</b> Participatory Activities, Tests	UTS 2 X 50			10%
9	Understand the morphology, physiology, classification and life cycle of parasitic Arachnids	1. Explain the morphology of parasitic arachnids. 2. Explain the physiology of parasitic arachnids. 3. Explain the classification of parasitic Arachnids. 4. Analyze the life cycle of parasitic arachnids. 5. Give examples of parasitic arachnids and examples of the diseases they cause	<b>Criteria:</b> Participation : Assignments : UTS : UAS = 20% : 30% : 20% : 30%  <b>Forms of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment, Tests	Presentation, Discussion 2 X 50			9%
10	Understand the morphology, physiology, classification and life cycle of parasitic crustaceans.	1. Explain the morphology of parasitic crustaceans 2. Explain the physiology of parasitic crustaceans 3. Explain the classification of parasitic crustaceans 4. Analyze the life cycle of parasitic crustaceans 5. Give examples of parasitic crustaceans and examples of the diseases they cause	<b>Criteria:</b> Participation : Assignments : UTS : UAS = 20% : 30% : 20% : 30%  <b>Forms of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment, Tests	Presentation, Discussion 2 X 50			2%

11	Understand the morphology, physiology, classification and life cycle of parasitic insects	1. Explain the morphology of Insecta parasites 2. Explain the physiology of Insecta parasites 3. Explain the classification of Insecta parasites 4. Analyze the life cycle of Insecta parasites 5. Give examples of Insecta parasites and examples of the diseases they cause	<b>Criteria:</b> Participation : Assignments : UTS : UAS = 20% : 30% : 20% : 30%  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment	Presentation, Discussion 2 X 50			7%
12	Understand the morphology, physiology, classification and life cycle of parasitic fungi. Explain the diseases caused by fungi	1. Explain the morphology of parasitic fungi 2. Explain the physiology of parasitic fungi 3. Explain the classification of parasitic fungi 4. Analyze the life cycle of parasitic fungi 5. Give examples of parasitic fungi 6. Explain the diseases they cause	<b>Criteria:</b> Participation : Assignments : UTS : UAS = 20% : 30% : 20% : 30%  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment, Test	Discussion of 2 X 50 Project Research Practices			5%
13	1. Identify protozoan parasites 2. Communicate the results of parasitological research	1. Identify protozoan parasites. 2. Present the results of research in the field of parasitology. 3. Write articles on research results in the field of parasitology	<b>Criteria:</b> Participation : Assignments : UTS : UAS = 20% : 30% : 20% : 30%  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment	Project Research Presentation of Project Research Results 2 X 50			5%
14	1. Identify protozoan parasites 2. Communicate the results of parasitological research	1. Identify parasitic worms 2. Present the results of research in the field of parasitology. 3. Write articles on research results in the field of parasitology	<b>Criteria:</b> Participation : Assignments : UTS : UAS = 20% : 30% : 20% : 30%  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment	Project Research Presentation of Project Research Results 2 X 50			5%
15	1. Identify parasitic arthropods 2. Skilled in making dry preparations of parasitic arthropods 3. Communicate results of parasitological research	1. Identifying parasitic arthropods 2. Making dry preserves of parasitic arthropods 3. Presenting research results in the field of parasitology. 4. Write articles on research results in the field of parasitology	<b>Criteria:</b> Participation : Assignments : UTS : UAS = 20% : 30% : 20% : 30%  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment	Project Research Presentation of Project Research Results 2 X 50			10%

16			<b>Form of Assessment :</b> Participatory Activities, Tests	UAS	UAS		10%
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#### Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	22.68%
2.	Project Results Assessment / Product Assessment	52.68%
3.	Test	23.68%
		99.04%

#### Notes

- Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
- The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
- Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
- Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
- Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
- Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
- Forms of assessment:** test and non-test.
- Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
- Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
- Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
- The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
- TM=Face to face, PT=Structured assignments, BM=Independent study.