	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
Aquatic Ecosystem Management*	4620102116		T=1	P=1	ECTS=3.18	7	July 17, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	.....	.....	Dr. H. Sunu Kuntjoro, S.Si., M.Si.

Learning model	**Project Based Learning**
Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**
	Program Objectives (PO)
	PLO-PO Matrix

	P.O

PO Matrix at the end of each learning stage (Sub-PO)

P.O	Week															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Short Course Description	The Aquatic Ecosystem Management (MEP) course studies the scope and technology of Aquatic Ecosystem Management including; concept of aquatic ecosystem management, characteristics, structure and dynamics of aquatic ecosystems, potential and problems of aquatic ecosystems, policies and strategies for aquatic ecosystem management, elements and processes of aquatic ecosystem management, guidelines for aquatic ecosystem management, institutional development in planning and managing aquatic ecosystems, ecosystem management rivers, lake ecosystem management, coastal ecosystem management, marine ecosystem management, economics of aquatic ecosystem resources, development of information systems, science and technology and human resources to support integrated management of aquatic ecosystems, aquatic ecosystems from a global perspective and how to preserve them. The product or output of the Aquatic Ecosystem Management course is the Aquatic Ecosystem Management report. This course is presented in the form of presentations, discussions and practicums in the field and laboratory.
References	**Main :**

1. Castro, P. and Huber, M.E. 1989. *Marine Biology, Second edition* . Boston: WCB McGraw- Hill.
Dahuri, R., dkk. 2008. *Pengelolaan Sumberdaya Wilayah Pesisir dan Lautan Secara Terpadu.* Jakarta: PT. Pradnya Paramita.
Muhammad, S. 2003. *Ekonomi Sumberdaya dan Lingkungan. Sebuah Pengantar untuk Kebijakan Pengembangan Green Industry* . Malang: Bahtera Press.
Muhammad, S. 2003. *Kebijakan Publik Sektor Perikanan dan Kelautan pada Era Otonomi Daerah. Sebuah Pengantar Rekonstruksi Pengelolaan Sumberdaya Perikanan secara Bertanggungjawab* . Malang: Bahtera Press.
Ryding, S.O., and Rast, W. 1989. *The Control of Eutrophication of Lakes and Reservoirs.* Paris: The Parthenon Publishing Grou.

	Supporters:
Supporting lecturer	Dr. Tarzan Purnomo, 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	Explain the concept and definition of aquatic ecosystem management	1. Explain the concept of aquatic ecosystem management 2. Explain the definition of aquatic ecosystem management 3. Explain integrated management of aquatic ecosystems	**Criteria:** 1. Practical reports and products are assessed as ASSIGNMENTS with weight 2. 30% 3. USS weight 20% 4. Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5. US weight 30% 6. Essay questions are assessed together at USS 7. Performance questions are integrated during learning **Form of Assessment** : Participatory Activities	Presentation and discussion 2 X 50			5%
2	Explains about. Potential and problems of aquatic ecosystems	1. Identify the characteristics of aquatic ecosystems 2. Explain the structure of aquatic ecosystems 3. Explain the dynamics of aquatic ecosystems	**Criteria:** 1. Practical reports and products are assessed as ASSIGNMENTS with weight 2. 30% 3. USS weight 20% 4. Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5. US weight 30% 6. Essay questions are assessed together at USS 7. Performance questions are integrated during learning **Form of Assessment** : Project Results Assessment / Product Assessment	Presentation and discussion 2 X 50			5%

3	Describe the potential and problems of aquatic ecosystems	1. Explain the potential of aquatic ecosystems. 2. Identify problems in aquatic ecosystems	**Criteria:** 1. Practical reports and products are assessed as ASSIGNMENTS with weight 2. 30% 3. USS weight 20% 4. Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5. US weight 30% 6. Essay questions are assessed together at USS 7. Performance questions are integrated during learning **Form of Assessment** : Project Results Assessment / Product Assessment	Presentation and discussion 2 X 50			5%
4	Explain the policies and strategies for managing aquatic ecosystems	1. Explaining aquatic ecosystem management policies. 2. Designing aquatic ecosystem management strategies	**Criteria:** 1. Practical reports and products are assessed as ASSIGNMENTS with weight 2. 30% 3. USS weight 20% 4. Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5. US weight 30% 6. Essay questions are assessed together at USS 7. Performance questions are integrated during learning **Form of Assessment** : Project Results Assessment / Product Assessment	Presentation and discussion 2 X 50			5%

5	Explain the elements and processes of aquatic ecosystem management	1. Identify the elements and structure of aquatic ecosystem management. 2. Explain the process of planning and managing aquatic ecosystems	**Criteria:** 1. Practical reports and products are assessed as ASSIGNMENTS with weight 2. 30% 3. USS weight 20% 4. Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5. US weight 30% 6. Essay questions are assessed together at USS 7. Performance questions are integrated during learning **Form of Assessment** : Project Results Assessment / Product Assessment	Presentation and discussion 2 X 50			5%
6	Explain guidelines for managing aquatic ecosystems	1. Explain the guidelines for managing river ecosystems 2. Explain the guidelines for managing lake ecosystems 3. Explain the guidelines for managing coastal ecosystems 4. Explain the guidelines for managing marine ecosystems	**Criteria:** 1. Practical reports and products are assessed as ASSIGNMENTS with weight 2. 30% 3. USS weight 20% 4. Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5. US weight 30% 6. Essay questions are assessed together at USS 7. Performance questions are integrated during learning **Form of Assessment** : Project Results Assessment / Product Assessment	Presentation and discussion 2 X 50			5%

7	Explains institutional development in integrated planning and management of aquatic ecosystems.	1. Identifying problems in managing aquatic ecosystems 2. Planning integrated management of aquatic ecosystems 3. Explaining institutional development	**Criteria:** 1.Practical reports and products are assessed as ASSIGNMENTS with weight 2.30% 3.USS weight 20% 4.Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5.US weight 30% 6.Essay questions are assessed together at USS 7.Performance questions are integrated during learning **Form of Assessment** : Project Results Assessment / Product Assessment	Presentation and discussion 2 X 50			5%
8	Confluence indicators 1-7	Confluence indicators 1-7	**Criteria:** 1.Practical reports and products are assessed as ASSIGNMENTS with weight 2.30% 3.USS weight 20% 4.Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5.US weight 30% 6.Essay questions are assessed together at USS 7.Performance questions are integrated during learning **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Tests	- 2 X 50			15%

9	Explaining River Ecosystem Management	1. Identifying problems in river ecosystem management 2. Explaining integrated river ecosystem management 3. Explaining institutional development in river ecosystem management	**Criteria:** 1. Practical reports and products are assessed as ASSIGNMENTS with weight 2. 30% 3. USS weight 20% 4. Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5. US weight 30% 6. Essay questions are assessed together at USS 7. Performance questions are integrated during learning **Form of Assessment** : Project Results Assessment / Product Assessment	Presentation and discussion 2 X 50			5%
10	Explaining lake ecosystem management	1. Identifying problems in lake ecosystem management 2. Explaining integrated lake ecosystem management 3. Explaining institutional development in lake ecosystem management	**Criteria:** 1. Practical reports and products are assessed as ASSIGNMENTS with weight 2. 30% 3. USS weight 20% 4. Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5. US weight 30% 6. Essay questions are assessed together at USS 7. Performance questions are integrated during learning **Form of Assessment** : Project Results Assessment / Product Assessment	Presentation and discussion 2 X 50			5%

11	Explaining coastal ecosystem management	1. Identifying problems in coastal ecosystem management 2. Explaining integrated coastal ecosystem management 3. Explaining institutional development in coastal ecosystem management	**Criteria:** 1. Practical reports and products are assessed as ASSIGNMENTS with weight 2. 30% 3. USS weight 20% 4. Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5. US weight 30% 6. Essay questions are assessed together at USS 7. Performance questions are integrated during learning **Form of Assessment** : Project Results Assessment / Product Assessment	Presentation and discussion 2 X 50			5%
12	Explaining marine ecosystem management	1. Identifying problems in marine ecosystem management 2. Explaining integrated marine ecosystem management 3. Explaining institutional development in marine ecosystem management	**Criteria:** 1. Practical reports and products are assessed as ASSIGNMENTS with weight 2. 30% 3. USS weight 20% 4. Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5. US weight 30% 6. Essay questions are assessed together at USS 7. Performance questions are integrated during learning **Form of Assessment** : Participatory Activities	Presentation and discussion 2 X 50			10%

13	Explaining the Economy and Resources of Aquatic Ecosystems	1. Identify the economic value of aquatic ecosystem resources. 2. Explain the strategic value of aquatic resources	**Criteria:** 1. Practical reports and products are assessed as ASSIGNMENTS with weight 2. 30% 3. USS weight 20% 4. Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5. US weight 30% 6. Essay questions are assessed together at USS 7. Performance questions are integrated during learning **Form of Assessment** : Participatory Activities	Presentation and discussion 2 X 50			5%
14	Explains the development of information systems, science and technology to support integrated management of aquatic ecosystems	1. Explain the development of aquatic ecosystem information systems. 2. Identify the development of aquatic ecosystem science and technology	**Criteria:** 1. Practical reports and products are assessed as ASSIGNMENTS with weight 2. 30% 3. USS weight 20% 4. Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5. US weight 30% 6. Essay questions are assessed together at USS 7. Performance questions are integrated during learning **Form of Assessment** : Participatory Activities	Presentation and discussion 2 X 50			5%

15	Explain the influence of aquatic ecosystems from a global perspective, their existence and how to preserve them.	1. Explain the role of aquatic ecosystems in a global perspective. 2. Put forward ideas for preserving aquatic ecosystems.	**Criteria:** 1. Practical reports and products are assessed as ASSIGNMENTS with weight 2. 30% 3. USS weight 20% 4. Students' activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 5. US weight 30% 6. Essay questions are assessed together at USS 7. Performance questions are integrated during learning **Form of Assessment** : Participatory Activities	Presentation and discussion 2 X 50			5%
16			**Form of Assessment** : Participatory Activities				10%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	45%
2.	Project Results Assessment / Product Assessment	50%
3.	Test	5%
		100%

Notes

1. **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.
2. **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.
3. **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.
4. **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.
5. **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.
6. **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.
7. **Forms of assessment:** test and non-test.
8. **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.
9. **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.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **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%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.