SEMESTER LESSON PLAN

LESSON PLAN DEVELOPER(S):
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AQUACULTURE MASTER'S PROGRAM
FACULTY OF FISHERIES AND MARINE SCIENCE
UNIVERSITAS BRAWIJAYA
2021

SEMESTER LESSON PLAN

1. Course Identity

Study Program	: Aquaculture Master's Program
Course	: Aquatic Animal Physiology
Course Code	: PIB8103
Course Group	: Scientific Skill Course
Credit	: 3
Degree	: Master's Degree
Semester	: 3
Prerequisite	: (If any, write the course code)
Status	: Compulsory
Lecturers' Names and Codes	: Prof. Yenny Risjani, DEA., Ph.D
	Prof. Dr. Ir. Maftuch, M.Si
	Dr. Ir. Agoes Soeprijanto, MS
	Prof. Dr. Ir. Diana Arfiati, MS
	Dr. Ir. Mohamad Fadjar, M.Sc
	Dr. Ir. Abd. Rahem Faqih, M.SI

2. Course Description

This course discusses various physiological processes and mechanisms that affect the quality of aquatic biota systems as well as the concepts of physiology, cell physiology, metabolism, homeostatic concepts, circulation processes, respiration, digestion, osmoregulation, reproduction, bioenergetics and hormones, including those related to aquatic animal physiology.

3. Program Learning Outcome

1. Being able to develop the concept and new knowledge in the field of aquaculture. (CPL 2)

4. **Course Learning Outcomes**

After completing this course, students will be able to:

1. understand the basic concepts of animal physiology and comprehend the scope of aquatic animal physiology.
2. understand and explain various physiological processes and mechanisms affecting the quality of aquatic biota systems.
3. understand the function of the relationship between aquatic biota and the surrounding environment.

5. Lesson Plan

Week	PLO Indicator	Topic	Learning Method	Time Allotment	Learning Activities	Scoring	Learning Sources
1	1.1 Accuracy in explaining the general knowledge of aquatic animal physiology in the field of aquaculture	**Introduction and Basic Concept** - Definition of aquatic animal physiology - Physiological systems in aquatic biota	● Lecture (S)	2	Note taking (A) Working on assignments (A)	Criteria: Scoring Guidelines Non-test: summarizing the course materials(A)	1) Adam, M.A., Magtuch, Y. Kilawati and Y. Risjani. 2019. The effect od cadmium exposure on the cytoskeleton and morphology of the gill chloride cells in juvenile mosquito fish (Gambusia affinis). The Egyptioan Journal of Aquatic Research. Vol 45 (4): 337-343. 2) Heath, A.G. (1995). Water pollution and Fish Physiology. Lewis Publishers. 3) Livingstone, D.R. J.K. Chipman, D.M. Lowe, C. Minier, C.L. Mitchelmore, M.N. Moore, L.D. Peters and R.K. Pipe. 2000. Development of biomarkers to detect the effects of organic pollution on aquatic invertebrates: recent molecular, genotoxic, cellular

							and immunological studies on the common mussel (Mytilus edulis L.) and other mytilids. J. Environment and Pollution, Vol. 13, Nos. 1–6. 4) Mujtahidah, T., M.S. Widodo and A. R. Faqih. 2019. Reproduction Response of Nile Tilapia (Oreaochromis niloticus) After Induced The Gonadal Supernatant of yello Fin Fish (Thunnus albacares). Journal of A1uaculture Development and Emviroment. Vol 1 (1): 17-24. 5) Sigee, D.C. (2005). Fresswater Microbiology. British Library Cataloguing
2	2.1 Accuracy in explaining prokaryotic cells, history and evolution of aquatic biota	**Physiological systems of aquatic biota, Cells, Glycolysis history,** ● Physiology of aquatic animal based on cellular level. ● Cell changes due to water pollution.	● Lecture (S) ● Assignment (A) & Presentation (S)	2	Note taking (A) Working on assignments (A)	Criteria: Scoring Guidelines Non-test: - summarizing the course materials(A) - group or independent presentation (S)	1) Adam, M.A., Magtuch, Y. Kilawati and Y. Risjani. 2019. The effect od cadmium exposure on the cytoskeleton and morphology of the gill chloride cells in juvenile mosquito fish (Gambusia affinis). The Egyptioan Journal of Aquatic Research. Vol 45 (4): 337-343. 2) Heath, A.G. (1995). Water pollution and Fish Physiology. Lewis Publishers.

							3) Livingstone, D.R. J.K. Chipman, D.M. Lowe, C. Minier, C.L. Mitchelmore, M.N. Moore, L.D. Peters and R.K. Pipe. 2000. Development of biomarkers to detect the effects of organic pollution on aquatic invertebrates: recent molecular, genotoxic, cellular and immunological studies on the common mussel (Mytilus edulis L.) and other mytilids. J. Environment and Pollution, Vol. 13, Nos. 1–6. 4) Mujtahidah, T., M.S. Widodo and A. R. Faqih. 2019. Reproduction Response of Nile Tilapia (Oreaochromis niloticus) After Induced The Gonadal Supernatant of yello Fin Fish (Thunnus albacares). Journal of A1uaculture Development and Emviroment. Vol 1 (1): 17-24. 5) Sigee, D.C. (2005). Fresswater Microbiology. British Library Cataloguing
3	2.2 Accuracy in explaining and understanding the definition of Physiology of microalgae	**Physiology System of microalgae** ● Physiology of microalgae	● Lecture (S) ● Assignment (A) & Presentation (S)	2	Note taking (A) Working on assignments (A)	Criteria: Scoring Guidelines Non-test: - summarizing the	1) Adam, M.A., Magtuch, Y. Kilawati and Y. Risjani. 2019. The effect od cadmium exposure on the cytoskeleton and morphology of the gill

		● Photosynthesis process ● Physiological processes in mangroves				course materials(A) - group or independent presentation (S)	chloride cells in juvenile mosquito fish (Gambusia affinis). The Egyptioan Journal of Aquatic Research. Vol 45 (4): 337-343. 2) Heath, A.G. (1995). Water pollution and Fish Physiology. Lewis Publishers. 3) Livingstone, D.R. J.K. Chipman, D.M. Lowe, C. Minier, C.L. Mitchelmore, M.N. Moore, L.D. Peters and R.K. Pipe. 2000. Development of biomarkers to detect the effects of organic pollution on aquatic invertebrates: recent molecular, genotoxic, cellular and immunological studies on the common mussel (Mytilus edulis L.) and other mytilids. J. Environment and Pollution, Vol. 13, Nos. 1–6. 4) Mujtahidah, T., M.S. Widodo and A. R. Faqih. 2019. Reproduction Response of Nile Tilapia (Oreaochromis niloticus) After Induced The Gonadal Supernatant of yello Fin Fish (Thunnus albacares). Journal of A1uaculture Development and Emviroment. Vol 1 (1): 17-24.

							5) Sigee, D.C. (2005). Fresswater Microbiology. British Library Cataloguing
4	3.1 Accuracy in explaining the physiology of aquatic macroalgae	**Physiological System in macroalgae** ● Physiology of macroalgae ● Physiological system in seagrass	● quiz 1 (S) ● Lecture (S) ● Assignment (A) & Presentation (S)	2	Note taking (A) Working on assignments (A)	Criteria: Scoring Guidelines Non-test: - summarizing the course materials(A) - group or independent presentation (S)	
5	3.2 Accuracy in explaining the Integration and coordination Systems in aquatic animal physiology	**Integration and coordination systems in aquatic animal physiology** - Basic understanding of the coordination system in aquatic biota.	● Lecture (S) ● Assignment (A) & Presentation (S)	2	Note taking (A) Working on assignments (A)	Criteria: Scoring Guidelines Non-test: - summarizing the course materials(A) - group or independent	1) Adam, M.A., Magtuch, Y. Kilawati and Y. Risjani. 2019. The effect od cadmium exposure on the cytoskeleton and morphology of the gill chloride cells in juvenile mosquito fish (Gambusia affinis). The Egyptioan Journal of Aquatic Research. Vol 45 (4): 337-343. 2) Heath, A.G. (1995). Water pollution and Fish Physiology. Lewis Publishers.

						presentation (S)	3) Livingstone, D.R. J.K. Chipman, D.M. Lowe, C. Minier, C.L. Mitchelmore, M.N. Moore, L.D. Peters and R.K. Pipe. 2000. Development of biomarkers to detect the effects of organic pollution on aquatic invertebrates: recent molecular, genotoxic, cellular and immunological studies on the common mussel (Mytilus edulis L.) and other mytilids. J. Environment and Pollution, Vol. 13, Nos. 1–6. 4) Mujtahidah, T., M.S. Widodo and A. R. Faqih. 2019. Reproduction Response of Nile Tilapia (Oreaochromis niloticus) After Induced The Gonadal Supernatant of yello Fin Fish (Thunnus albacares). Journal of A1uaculture Development and Emviroment. Vol 1 (1): 17-24. 5) Sigee, D.C. (2005). Fresswater Microbiology. British Library Cataloguing
6	4.1 Accuracy in explaining the respiratory system of aquatic biota	**The respiratory system in aquatic biota** - Respiratory mechanism in aquatic biota	● Lecture (S) ● Lecture (S) ● Assignment (A) &	2	Note taking (A) Working on assignments (A)	Criteria: Scoring Guidelines Non-test: - summarizing the	1) Adam, M.A., Magtuch, Y. Kilawati and Y. Risjani. 2019. The effect od cadmium exposure on the cytoskeleton and morphology of the gill

		- Hypoxia in aquatic biota - Effect of hypoxia on aquatic biota,	Presentation (S)			course materials(A) - group or independent presentation (S)	chloride cells in juvenile mosquito fish (Gambusia affinis). The Egyptioan Journal of Aquatic Research. Vol 45 (4): 337-343. 2) Heath, A.G. (1995). Water pollution and Fish Physiology. Lewis Publishers. 3) Livingstone, D.R. J.K. Chipman, D.M. Lowe, C. Minier, C.L. Mitchelmore, M.N. Moore, L.D. Peters and R.K. Pipe. 2000. Development of biomarkers to detect the effects of organic pollution on aquatic invertebrates: recent molecular, genotoxic, cellular and immunological studies on the common mussel (Mytilus edulis L.) and other mytilids. J. Environment and Pollution, Vol. 13, Nos. 1–6. 4) Mujtahidah, T., M.S. Widodo and A. R. Faqih. 2019. Reproduction Response of Nile Tilapia (Oreaochromis niloticus) After Induced The Gonadal Supernatant of yello Fin Fish (Thunnus albacares). Journal of A1uaculture Development and Emviroment. Vol 1 (1): 17-24.

							5) Sigee, D.C. (2005). Fresswater Microbiology. British Library Cataloguing
7	4. 2 acccuracy in explaining osmoregulation	**Osmoregulation System in Aquatic Biota** - Mechanism of osmoregulation system in aquatic biota	● Lecture (S) ● Assignment (A) & Presentation (S)	2	Note taking (A) Working on assignments (A)	Criteria: Scoring Guidelines Non-test: - summarizing the course materials(A) - group or independent presentation (S)	1) Adam, M.A., Magtuch, Y. Kilawati and Y. Risjani. 2019. The effect od cadmium exposure on the cytoskeleton and morphology of the gill chloride cells in juvenile mosquito fish (Gambusia affinis). The Egyptioan Journal of Aquatic Research. Vol 45 (4): 337-343. 2) Heath, A.G. (1995). Water pollution and Fish Physiology. Lewis Publishers. 3) Livingstone, D.R. J.K. Chipman, D.M. Lowe, C. Minier, C.L. Mitchelmore, M.N. Moore, L.D. Peters and R.K. Pipe. 2000. Development of biomarkers to detect the effects of organic pollution on aquatic invertebrates: recent molecular, genotoxic, cellular and immunological studies on the common mussel (Mytilus edulis L.) and other mytilids. J. Environment and Pollution, Vol. 13, Nos. 1–6. 4) Mujtahidah, T., M.S. Widodo and A. R. Faqih. 2019.

							Reproduction Response of Nile Tilapia (Oreaochromis niloticus) After Induced The Gonadal Supernatant of yello Fin Fish (Thunnus albacares). Journal of A1uaculture Development and Emviroment. Vol 1 (1): 17-24. 5) Sigee, D.C. (2005). Fresswater Microbiology. British Library Cataloguing
8	**MIDTERM EXAM**						
9	5. 1 accuracy of explaining reproduction physiology in aquatic biota	**Reproductive Physiology System** - vittelogenesis physiological system	● Lecture (S) ● Assignment (A) & Presentation (S)	2	Note taking (A) Working on assignments (A)	Criteria: Scoring Guidelines Non-test: - summarizing the course materials(A) - group or independent presentation (S)	1) Adam, M.A., Magtuch, Y. Kilawati and Y. Risjani. 2019. The effect od cadmium exposure on the cytoskeleton and morphology of the gill chloride cells in juvenile mosquito fish (Gambusia affinis). The Egyptioan Journal of Aquatic Research. Vol 45 (4): 337-343. 2) Heath, A.G. (1995). Water pollution and Fish Physiology. Lewis Publishers. 3) Livingstone, D.R. J.K. Chipman, D.M. Lowe, C. Minier, C.L. Mitchelmore, M.N. Moore, L.D. Peters and R.K. Pipe. 2000. Development of biomarkers to detect the effects of organic pollution on aquatic invertebrates: recent

							molecular, genotoxic, cellular and immunological studies on the common mussel (Mytilus edulis L.) and other mytilids. J. Environment and Pollution, Vol. 13, Nos. 1–6. 4) Mujtahidah, T., M.S. Widodo and A. R. Faqih. 2019. Reproduction Response of Nile Tilapia (Oreaochromis niloticus) After Induced The Gonadal Supernatant of yello Fin Fish (Thunnus albacares). Journal of A1uaculture Development and Emviroment. Vol 1 (1): 17-24. 5) Sigee, D.C. (2005). Fresswater Microbiology. British Library Cataloguing
10	5.2 Accuracy in explaining the physiology of protein absorption, carbohydrate absorption, etc.	**Physiology of protein and carbohydrate absorption** - Basic Concept of protein and carbohydrates in biota - Physiology of protein and carbohydrate absorption	● Lecture (S) ● Assignment (A) & Presentation (S)	2	Note taking (A) Working on assignments (A)	Criteria: Scoring Guidelines Non-test: - summarizing the course materials(A) - group or independent	1) Adam, M.A., Magtuch, Y. Kilawati and Y. Risjani. 2019. The effect od cadmium exposure on the cytoskeleton and morphology of the gill chloride cells in juvenile mosquito fish (Gambusia affinis). The Egyptioan Journal of Aquatic Research. Vol 45 (4): 337-343. 2) Heath, A.G. (1995). Water pollution and Fish Physiology. Lewis Publishers.

						presentation (S)	3) Livingstone, D.R. J.K. Chipman, D.M. Lowe, C. Minier, C.L. Mitchelmore, M.N. Moore, L.D. Peters and R.K. Pipe. 2000. Development of biomarkers to detect the effects of organic pollution on aquatic invertebrates: recent molecular, genotoxic, cellular and immunological studies on the common mussel (Mytilus edulis L.) and other mytilids. J. Environment and Pollution, Vol. 13, Nos. 1–6. 4) Mujtahidah, T., M.S. Widodo and A. R. Faqih. 2019. Reproduction Response of Nile Tilapia (Oreaochromis niloticus) After Induced The Gonadal Supernatant of yello Fin Fish (Thunnus albacares). Journal of A1uaculture Development and Emviroment. Vol 1 (1): 17-24. 5) Sigee, D.C. (2005). Fresswater Microbiology. British Library Cataloguing
11	6.1 accuracy in understanding the identification of harmful organisms	**Identification of harmful organisms** ● Identification of harmful organisms in the environment	● Lecture (S) ● Assignment (A) & Presentation (S)	2	Note taking (A) Working on assignments (A)	Criteria: Scoring Guidelines Non-test: - summarizing the	1) Adam, M.A., Magtuch, Y. Kilawati and Y. Risjani. 2019. The effect od cadmium exposure on the cytoskeleton and morphology of the gill

		● The roles and impacts of harmful organisms to the environment				course materials(A) - group or independent presentation (S)	chloride cells in juvenile mosquito fish (Gambusia affinis). The Egyptioan Journal of Aquatic Research. Vol 45 (4): 337-343. 2) Heath, A.G. (1995). Water pollution and Fish Physiology. Lewis Publishers. 3) Livingstone, D.R. J.K. Chipman, D.M. Lowe, C. Minier, C.L. Mitchelmore, M.N. Moore, L.D. Peters and R.K. Pipe. 2000. Development of biomarkers to detect the effects of organic pollution on aquatic invertebrates: recent molecular, genotoxic, cellular and immunological studies on the common mussel (Mytilus edulis L.) and other mytilids. J. Environment and Pollution, Vol. 13, Nos. 1–6. 4) Mujtahidah, T., M.S. Widodo and A. R. Faqih. 2019. Reproduction Response of Nile Tilapia (Oreaochromis niloticus) After Induced The Gonadal Supernatant of yello Fin Fish (Thunnus albacares). Journal of A1uaculture Development and Enviroment. Vol 1 (1): 17-24.

							5) Sigee, D.C. (2005). Fresswater Microbiology. British Library Cataloguing
12	6.2 accuracy in understanding the immune system in aquatic biota against diseases	**Physiology of protection against bacterial infection, physiology of organogenesis, domestication.** ● Immune system of aquatic biota ● Handling diseases that attack aquatic biota	● Lecture (S) ● Assignment (A) & Presentation (S)	2	Note taking (A) Working on assignments (A)	Criteria: Scoring Guidelines Non-test: - summarizing the course materials(A) - group or independent presentation (S)	1) Adam, M.A., Magtuch, Y. Kilawati and Y. Risjani. 2019. The effect od cadmium exposure on the cytoskeleton and morphology of the gill chloride cells in juvenile mosquito fish (Gambusia affinis). The Egyptioan Journal of Aquatic Research. Vol 45 (4): 337-343. 2) Heath, A.G. (1995). Water pollution and Fish Physiology. Lewis Publishers. 3) Livingstone, D.R. J.K. Chipman, D.M. Lowe, C. Minier, C.L. Mitchelmore, M.N. Moore, L.D. Peters and R.K. Pipe. 2000. Development of biomarkers to detect the effects of organic pollution on aquatic invertebrates: recent molecular, genotoxic, cellular and immunological studies on the common mussel (Mytilus edulis L.) and other mytilids. J. Environment and Pollution, Vol. 13, Nos. 1–6. 4) Mujtahidah, T., M.S. Widodo and A. R. Faqih. 2019. Reproduction Response of

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13	6.3 accuracy in understanding the immune system and resistance to diseases.	**Protective physiology (βflucan, cyanotoxin, fungus)** ● Immune system of aquatic biota - How to handle	● Lecture (S) ● Assignment (A) & Presentation (S)	2	Note taking (A) Working on assignments (A)	Criteria: Scoring Guidelines Non-test: - summarizing the course materials(A) - group or independent presentation (S)	1) Adam, M.A., Magtuch, Y. Kilawati and Y. Risjani. 2019. The effect od cadmium exposure on the cytoskeleton and morphology of the gill chloride cells in juvenile mosquito fish (Gambusia affinis). The Egyptioan Journal of Aquatic Research. Vol 45 (4): 337-343. 2) Heath, A.G. (1995). Water pollution and Fish Physiology. Lewis Publishers. 3) Livingstone, D.R. J.K. Chipman, D.M. Lowe, C. Minier, C.L. Mitchelmore, M.N. Moore, L.D. Peters and R.K. Pipe. 2000. Development of biomarkers to detect the effects of organic pollution on aquatic invertebrates: recent molecular, genotoxic, cellular and immunological studies on

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14	6.5 accuracy in understanding the concept of environmental pollution, bioremediation and remediation processes	**Impacts of pollution on biota and how to handle it** - The concept of environmental pollution. - Impacts of pollution on the environment and aquatic biota. - How to control pollution	● Lecture (S) ● Assignment (A) & Presentation (S)	2	Note taking (A) Working on assignments (A)	Criteria: Scoring Guidelines Non-test: - summarizing the course materials(A) - group or independent presentation (S)	1) Adam, M.A., Magtuch, Y. Kilawati and Y. Risjani. 2019. The effect od cadmium exposure on the cytoskeleton and morphology of the gill chloride cells in juvenile mosquito fish (Gambusia affinis). The Egyptioan Journal of Aquatic Research. Vol 45 (4): 337-343. 2) Heath, A.G. (1995). Water pollution and Fish Physiology. Lewis Publishers. 3) Livingstone, D.R. J.K. Chipman, D.M. Lowe, C. Minier, C.L. Mitchelmore,

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15	7.1 accuracy in understanding the physiological regulatory processes in aquatic biota	**Regulatory physiology** ● Basic physiological regulatory systems in aquatic biota	● Lecture (S) ● Assignment (A) & Presentation (S)	2	Note taking (A) Working on assignments (A)	Criteria: Scoring Guidelines Non-test: - summarizing the course materials(A)	1) Adam, M.A., Magtuch, Y. Kilawati and Y. Risjani. 2019. The effect od cadmium exposure on the cytoskeleton and morphology of the gill chloride cells in juvenile mosquito fish (Gambusia affinis). The Egyptioan

						- group or independent presentation (S)	Journal of Aquatic Research. Vol 45 (4): 337-343. 2) Heath, A.G. (1995). Water pollution and Fish Physiology. Lewis Publishers. 3) Livingstone, D.R. J.K. Chipman, D.M. Lowe, C. Minier, C.L. Mitchelmore, M.N. Moore, L.D. Peters and R.K. Pipe. 2000. Development of biomarkers to detect the effects of organic pollution on aquatic invertebrates: recent molecular, genotoxic, cellular and immunological studies on the common mussel (Mytilus edulis L.) and other mytilids. J. Environment and Pollution, Vol. 13, Nos. 1–6. 4) Mujtahidah, T., M.S. Widodo and A. R. Faqih. 2019. Reproduction Response of Nile Tilapia (Oreaochromis niloticus) After Induced The Gonadal Supernatant of yello Fin Fish (Thunnus albacares). Journal of A1uaculture Development and Emviroment. Vol 1 (1): 17-24. 5) Sigee, D.C. (2005). Fresswater Microbiology. British Library Cataloguing
16	**FINAL EXAM**						

Notes: S = Synchronous, A = Asynchronous, all soft skills (soft-skill) achievement will be scored based on the analysis referring to the Learning Management System

6. References

1) Adam, M.A., Magtuch, Y. Kilawati and Y. Risjani. 2019. The effect od cadmium exposure on the cytoskeleton and morphology of the gill chloride cells in juvenile mosquito fish (Gambusia affinis). The Egyptioan Journal of Aquatic Research. Vol 45 (4): 337-343.
2) Heath, A.G. (1995). Water pollution and Fish Physiology. Lewis Publishers.
3) Livingstone, D.R. J.K. Chipman, D.M. Lowe, C. Minier, C.L. Mitchelmore, M.N. Moore, L.D. Peters and R.K. Pipe. 2000. Development of biomarkers to detect the effects of organic pollution on aquatic invertebrates: recent molecular, genotoxic, cellular and immunological studies on the common mussel (Mytilus edulis L.) and other mytilids. J. Environment and Pollution, Vol. 13, Nos. 1–6.
4) Mujtahidah, T., M.S. Widodo and A. R. Faqih. 2019. Reproduction Response of Nile Tilapia (Oreaochromis niloticus) After Induced The Gonadal Supernatant of yello Fin Fish (Thunnus albacares). Journal of A1uaculture Development and Emviroment. Vol 1 (1): 17-24.
5) Sigee, D.C. (2005). Fresswater Microbiology. British Library Cataloguing

7. Appendices

Appendices 1. *Learning Materials*

PPT 1 : Introduction and Basic Concept
PPT 2 : Physiology System of aquatic biota, cell, Glycolysis history
PPT 3 : Physiological System of microalgae
PPT 4 : Physiological System of macroalgae
PPT 5 : System integration and coordination in aquatic physiology
PPT 6 : Respiration system in aquatic biota
PPT 7 : Reproductive Physiology System
PPT 8 : Physiology of protein and carbohydrate absorption
PPT 9 : Identification of harmful organisms
PPT 10 : Identification of harmful organisms
PPT 11 : physiology of protection against bacterial infection, physiology of domestic organogenesis
PPT 12 : Protection Physiology (βflucan, fungal cyanotoxin)
PPT 13 : Impacts of pollution on biota and how to control
PPT 14 : Regulatory Physiology
Online learning resources: (URL/link)
and other learning resources: (URL/link)

Appendix 2. *Media*
Zoom Meeting: (*URL/link*)
Google Meet: (*URL/link*)

Appendix 3. *Assessment Instrument*

Scoring Rubric

Oral Presentation

Close to the Expectation (score 1-2)	Meeting the Expectation (score 3-4)	Exceeding the Expectation (score 5)
1) Presentation is not organized and not well developed 2) Material is not well-explained well 3) Theories and concepts are not thoroughly discussed 4) Presentation is not clear and not fluent 5) Lack of confidence in delivery, mostly note reading 6) Voice is unclear 7) Presentation does not attract audiences' attention 8) Inadequate responses to questions, inadequate comprehension of the material 9) Unsynchronized presentations 10) Exceeding the time limit, failing to complete the presentation	1) Presentation is rather well -organized and developed 2) Fair comprehension of the material being delivered 3) Theories and concepts are fairly discussed thoroughly 4) Presentation is fairly clear and fluent 5) Showing fairly strong confidence and speakers read notes wisely 6) Voice is quite clear 7) Able to engage audience's attention 8) Fairly good in responding to questions, showing excellent comprehension of the material being presented 9) Good synchronization of presentation flow 10) Exceeding the time limit yet presenters managed to complete the presentation	1) Presentation is very well organized and creatively developed 2) Very strong knowledge regarding the material being presented 3) Theories and concepts are very thoroughly-discussed 4) Presentation is very clear and smooth 5) Excellent confidence in delivery, reading notes very wisely 6) Voice is very clear 7) Adequately attracts audiences' attention well 8) Responding to questions very well, very strong comprehension of the material being delivered 9) Very clear synchronization in presentation flow 10) Not exceeding the time limit, presentation is completed

Written Assignments

Essay

Under the average (score 1 – 4)	Within the Average (score 5 – 8)	Above the Average (score 9 – 12)	Perfect (score 13 – 15)
1) Not using the right	1) Using acceptable analytical methods	1) Using a relatively precise analysis method	1) Using the correct analytical method

analytical method 2) Incorrect data analysis 3) Making wrong conclusions 4) No critical analysis of the data available 5) No references 6) Unmatched literature review (theory, research) and questions 7) Using non-standardized language and poor cohesion 8) No explanation about the implications of the topics being discussed 9) Essay is not systematically-structured	2) Data are well analyzed 3) Making relevant conclusions 4) There is a fairly critical analysis of the data 5) There are only one or two references yet irrelevant 6) Matching literature review (theory, research) and question 7) Using standard language with good cohesion between sentences 8) The implications of the topics being discussed are explained yet less thoroughly 9) Essay is not systematically-structured	2) Proper data analysis 3) Making the right conclusion 4) Critical analysis of the data is found 5) There are many references yet irrelevant at this point 6) Matching literature review (theory, research) and questions 7) Using standard language and sentences are cohesive 8) There is a unique and critical explanation of the implications of the topics being discussed 9) Essay is systematically-arranged	2) Effective data analysis 3) Making strongly effective conclusions 4) There is a strong critical analysis of the data 5) There are many references with strong relevancy 6) Strongly matching literature review (theory, research) and questions 7) Using standard language with strong cohesion between sentences 8) There is a unique and very critical explanation of the implications of the topics being discussed 9) Essay is systematically and neatly arranged

Report

Under the average (score 1 – 4)	**Within the Average (score 5 – 8)**	**Above the Average (score 9 – 12)**	**Perfect (score 13 – 15)**
1) Not using the right analytical method 2) Incorrect data analysis 3) Making wrong conclusions 4) No critical analysis of the data available 5) No references 6) Unmatched literature review (theory, research) and questions 7) Using non-standardized language and poor cohesion 8) No explanation about the	1) Using acceptable analytical methods 2) Data are well analyzed 3) Making relevant conclusions 4) There is a fairly critical analysis of the data 5) There are only one or two references yet irrelevant 6) Matching literature review (theory, research) and question 7) Using standard language with good cohesion between sentences	1) Using a relatively precise analysis method 2) Proper data analysis 3) Making the right conclusion 4) Critical analysis of the data is found 5) There are many references yet irrelevant at this point 6) Matching literature review (theory, research) and questions 7) Using standard language and sentences are	1) Using the correct analytical method 2) Effective data analysis 3) Making strongly effective conclusions 4) There is a strong critical analysis of the data 5) There are many references with strong relevancy 6) Strongly matching literature review (theory, research) and questions 7) Using standard language with strong cohesion between

implications of the topics being discussed 9) Report is not systematically-structured	8) The implications of the topics being discussed are explained yet less thoroughly 9) Report is relatively not systematically-structured	cohesive 8) There is a unique and critical explanation of the implications of the topics being discussed 9) Report is systematically-arranged	sentences 8) There is a unique and very critical explanation of the implications of the topics being discussed 9) Report is systematically and neatly arranged