



TEACHING INSTRUCTIONAL DESIGN (BRP)
COURSE
ANATOMY AND PHYSIOLOGY

by

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PREFACE

This Teaching Instructional Design (BRP) was prepared to be used as a reference for conducting the Anatomy and Physiology course in the FMIPA UI Undergraduate Physics Program. Physics students with a special interest in medical physics and biophysics attend this course in their fifth semester with the requirement that they had taken the General Biology course. Through series of lectures, students will be taught to identify the anatomical structure of the human body and explain the physiological mechanisms of hemostasis to solve daily life problems. It is hoped that this BRP can be a reference in the learning process for both lecturers and students as course participants so that all materials are perfectly delivered.

Depok, 18 November 2016

dr. Nurhadi Ibrahim Ph.D.

I. General Information

1. Name of Program / Study Level : Physics / Undergraduate
2. Course Name : Anatomy and Physiology
3. Course Code : SCFI603912
4. Semester : 5
5. Credit(s) : 2 credits
6. Teaching Method(s) : Interactive lectures, presentations, lectures, question-based learning, self-directed study, discussion, and written examinations.
7. Prerequisite course(s) : General Biology
8. Requisite for course(s) : Radiobiology
9. Integration Between Other Courses : None
10. Lecturer(s) : dr. Nurhadi Ibrahim Ph.D.
11. Course Description : By completing this course, physics students with interest in medical physics and biophysics will be able to describe (C2) the anatomical structure and physiological mechanisms of homeostasis in the human's body in daily lives to solve (A5) existing problems, under the applicable laws of Physics and Biology. The language used in this course is Bahasa Indonesia.

II. Course Learning Outcome (CLO) and Sub-CLO

A. CLO

Students can describe (C2) the anatomical structure and physiological mechanisms of homeostasis in the human's body in daily lives to solve (A5) existing problems. (ELO(s) 3, 4, 6, 7)

B. Sub-CLO

1. To identify (C1) anatomical structure in daily lives to solve (A5) existing problems.
2. To describe (C2) physiological mechanisms of homeostasis in the human's body in daily lives to solve (A5) existing problems.

III. Teaching Plan

Week	Sub-CLO	Study Materials	Teaching Method	Time Required	Learning experiences (*O-E-F-)	Sub-CLO Weight on Course (%)	Sub-CLO Achievement Indicator	References
1	Introduction: course contract							
2	1	Anatomical nomenclature	Interactive lecture, presentation, question-based learning, self-directed study, discussion	100 minutes	20% O, 60% E, 20% F	8.33	Able to identify anatomical nomenclature of human's body.	R. Putz dan R. Pabst, <i>Atlas Anatomi Manusia Sobotta</i> , EGC, 2010.
3	1	Human bone	Interactive lecture, presentation, question-based learning, self-directed study, discussion	100 minutes	20% O, 60% E, 20% F	8.33	Able to name human bones.	R. Putz dan R. Pabst, <i>Atlas Anatomi Manusia Sobotta</i> , EGC, 2010.
4	1	Human brain	Interactive lecture, presentation, question-based learning, self-directed study, discussion	100 minutes	20% O, 60% E, 20% F	8.33	Able to name parts of human brain.	R. Putz dan R. Pabst, <i>Atlas Anatomi Manusia Sobotta</i> , EGC, 2010.
5	1	Spinal column	Interactive lecture, presentation, question-based learning, self-directed study, discussion	100 minutes	20% O, 60% E, 20% F	8.33	Able to name parts of spinal column.	R. Putz dan R. Pabst, <i>Atlas Anatomi Manusia Sobotta</i> , EGC, 2010.
6	1	Thorax	Interactive lecture, presentation, question-based	100 minutes	20% O, 60% E, 20% U	8.33	Able to name parts of thorax.	R. Putz dan R. Pabst, <i>Atlas</i>

			learning, self-directed study, discussion					<i>Anatomi Manusia Sobotta, EGC, 2010.</i>
7	1	Abdomen	Interactive lecture, presentation, question-based learning, self-directed study, discussion	100 minutes	20% O, 60% E, 20% F	8.33	Able to name parts of abdomen.	R. Putz dan R. Pabst, <i>Atlas Anatomi Manusia Sobotta, EGC, 2010.</i>
8	Mid-Term Exam							
9	2	Nerve system	Interactive lecture, question-based learning, self-directed study, discussion	100 minutes	20% O, 60% E, 20% F	7.14	Able to describe the nerve system.	Serwood, <i>Fisologi Manusia: dari sel ke sistem, EGC, 2001</i>
10	2	Respiratory system	Interactive lecture, question-based learning, self-directed study, discussion	100 minutes	20% O, 60% E, 20% F	7.14	Able to describe the respiratory cycle.	Serwood, <i>Fisologi Manusia: dari sel ke sistem, EGC, 2001</i>
11	2	Digestive system	Interactive lecture, question-based learning, self-directed study, discussion	100 minutes	20% O, 60% E, 20% F	7.14	Able to describe the digestion cycle.	Serwood, <i>Fisologi Manusia: dari sel ke sistem, EGC, 2001</i>
12	2	Urinary system	Interactive lecture, question-based learning, self-directed study, discussion	100 minutes	20% O, 60% E, 20% F	7.14	Able to describe the urinary cycle.	Serwood, <i>Fisologi Manusia: dari sel ke sistem, EGC, 2001</i>
13	2	Reproduction system	Interactive lecture, question-based	100 minutes	20% O, 60% E, 20% F	7.14	Able to describe the reproduction cycle.	Serwood, <i>Fisologi Manusia: dari sel ke</i>

			learning, self-directed study, discussion					<i>sistem, EGC, 2001</i>
14	2	Circulation system	Interactive lecture, question-based learning, self-directed study, discussion	100 minutes	20% O, 60% E, 20% F	7.14	Able to describe the circulation cycle.	Serwood, <i>Fisiologi Manusia: dari sel ke sistem, EGC, 2001</i>
15	2	Pathology	Interactive lecture, question-based learning, self-directed study, discussion	100 minutes	20% O, 60% E, 20% F	7.14	Able to name existing pathology.	Serwood, <i>Fisiologi Manusia: dari sel ke sistem, EGC, 2001</i>
16	Ujian Akhir Semester							

*) O : Orientation
E : Exercise
F : Feedback

References:

1. R. Putz dan R. Pabst, *Atlas Anatomi Manusia Sobotta*, EGC, 2010.
2. Serwood, *Fisiologi Manusia: dari sel ke sistem*, EGC, 2001

IV. Assignment Design

Week	Assignment Name	Sub-CLO	Assignment	Scope	Working Procedure	Deadline	Outcome
2-7, 9-15	Papers	SUB-CLO 1-2	Group papers	Respective materials of the week	Group work, take home	1 week	Group papers, uploaded on EMAS
2-7, 9-15	Presentation	SUB-CLO 1-2	Group presentation	Respective materials of the week	Group work, take home	1 week	On-class presentation
8	Mid-Term Exam	SUB-CLO 1	Problem set	<ul style="list-style-type: none"> • Anatomical nomenclature • Human bone • Spinal column • Thorax • Abdomen 	Mid-term exam on EMAS	100 minutes	Mid-term exam answer sheet, uploaded on EMAS
16	Final Exam	SUB-CLO 2	Problem set	<ul style="list-style-type: none"> • Nerve system • Respiratory system • Digestive system • Urinary system • Reproduction • Circulation system • Pathology 	Final exam on EMAS	100 minutes	Final exam answer sheet, uploaded on EMAS

V. Assignment Criteris (Learning Outcome Evaluation)

Evaluation Type	Sub-CLO	Assesment Type	Frequency	Evaluation Weight (%)
Papers	1-2	Group papers	1 per week	30
Presentation	1-2	Group presentation	1 per week	20
Mid-term Exam	1	Problem set on EMAS	1	25
Final Exam	2	Problem set on EMAS	1	25
Total				100

VI. Rubric(s)

A. Criteria of Group Paper and Presentation

Criteria	A (90)	B (75)	C (60)	D (50)
Organizatiton (Overall sequence, flow, and transition)	Information is presented in an effective sequence. The excellent structure of paragraphs and transitions improves readability and comprehension. An Executive summary or abstract is presented beforehand, allowing readers to easily follow the rest of the report.	Information is logically presented through paragraphs and transitions. Order of ideas within sections may confuse the readers.	Information is scattered and needs further development.	A clear sequence of paragraphs is not found, no progressive flow of ideas. Details and examples are disorganized, difficult to follow and understand.

Information quality	Supporting details are specific to the topic and provide necessary information.	Some details do not support the topic of the report.	Details are a bit vague.	Unable to find specific details.
Introduction	The introductory paragraph is clearly stated, has a sharp focus, novel, and increases the report's impact.	The introductory paragraph is clearly stated and has a sharp focus.	The introductory paragraph is not clear.	The introductory paragraph is not clear.
Summary	Summarize paragraphs, engaging, clear, and effective conclusion increases the report's impact.	Summarize the report and providing conclusion.	The closing paragraph is remotely related to the topic of the report.	The introductory paragraph is not clear.
Use of language: diction, grammar, structure of sentence.	Sentences are complete, grammatical, and flow together easily. The word is chosen for its proper meaning.	For the most part, sentences are complete, grammatical, and flow together easily. Every mistake is minor and does not distract the reader. Repetition of words and phrases is avoided.	Minor mistakes in sentence structure and grammar are frequent enough to distract the reader and interfere with meaning. There are unnecessary repetitions of words and phrases.	Major mistakes in sentence structure and grammar are frequent enough to distract the reader and interfere with meaning. There are unnecessary repetitions of words and phrases.

Use of visuals: numbers, graphs & pictures	All numbers, graphics, and images used are accurate, consistent with the text, and good quality. Appropriate and consistent labeling.	Most of the numbers, graphics, and images used are accurate, consistent with the text, and good quality. Some labels are imprecise.	Few of the numbers, graphics, and images used are accurate, consistent with text, and good quality. They are not properly labeled.	Numbers, graphics, and images are poor quality, have lots of inaccuracies, followed by mislabelling or none at all.
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B. Mid-Term Exam and Final Exam

- 1) Able to express ideas in solving problems (25%)
- 2) Able to determine the right basic concepts in solving problems (35%)
- 3) Able to formulate the final solution of problems correcting language errors (30%)
- 4) Able to use appropriate units and significant figures (10%)

C. Lecture Affective Rubrics

Criteria	5	4	3	2	1
Communication	Students provide specific and easy-to-understand explanations in the discussion and use various tools/methods to facilitate understanding.	Students provide specific and partly easy-to-understand explanations in the discussion and use various tools/methods to facilitate understanding.	Students provide less specific explanations; some are difficult to understand in discussions and do not use various tools/methods to facilitate understanding.	Students provide explanations that are non-specific and difficult to understand in the discussion and did not use various tools/methods to facilitate understanding.	Students provide explanations that are non-specific and difficult to understand in the discussion and did not use various tools/methods to facilitate understanding.
Class Atmosphere	Students use polite language in their interactions, contribute	Students use polite language in their interactions, contribute	Students use less polite language in their interactions, contribute	Students use less polite language in their interactions, does not	Students use impolite language in their interactions, does not

	actively, and do not dominate the discussion.	partly, and do not dominate the discussion.	partly, and dominate the discussion.	contribute much, and dominates the discussion.	contribute, and dominates the discussion.
Openness	Students give feedbacks and value the opinions of others.	Students give some feedbacks and value the opinions of others.	Students give few feedbacks and value less the opinions of others.	Students give few feedbacks and does not value the opinions of others.	Students does not give feedbacks and does not value the opinions of others.
Behavior	Students listen very well and behave politely in class.	Students listen well and behave politely in class.	Students listen well and behave politely in class.	Students do not pay attention and behave casually in class.	Students do not listen and behave disrespectfully in class.