



**FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN  
UNIVERSITAS MULAWARMAN  
(FACULTY OF TEACHER TRAINING AND EDUCATION  
MULAWARMAN UNIVERSITY)**

**SEMESTER GANJIL – UTS – TAHUN AKADEMIK 2022/2023  
(ODD SEMESTER – MID TEST - ACADEMIC YEAR 2022/2023)**

Jurusan/Program Studi/ Kelas (Study Program/Class)	Pendidikan Matematika dan IPA/ Pendidikan Fisika/ A/B (Mathematics and Science Education/Physics Education/ A / B)		Beban (Credits) : 3 sks (4.77 ECTS)
Kode>Nama Mata Kuliah (Code/Course)	19050362W016	<b>Belajar dan Pembelajaran (<i>Learning and Instruction</i>)</b>	
Jenis Mata Kuliah (Type of Course)	TEORI (THEORY)	Sifat Ujian: Tutup Buku ( <b>Close Book</b> )	Total Page: 2
Aturan ( <i>Rule</i> ): 1. HP, Laptop, dll tidak aktif dan tidak digunakan selama UTS ( <i>Smartphone, Laptop, etc is not active and is not used during the mid-test</i> ) 2. Dilarang bekerjasama dan melakukan kecurangan ( <i>It is forbidden to cooperate and commit fraudulent acts</i> )			
Dosen (Lecturers)	Dr. Muhammad Junus, M.Pd & Shelly Efwinda, M.Pd		
Hari (Day): Senin / Selasa (Monday /Tuesday)	Tanggal (Date): 3 /4 Oktober 2022 (2022, October, 3 / 4 )	Waktu (Time): 07.30 - 09.10 WITA	Ruang (Room): 001 / 002

**Program Learning Outcomes to be achieved**

CPL 2	Menerapkan technology, pedagogy, content, knowledge dalam pembelajaran fisika
PLO 2	<i>Applying technology, pedagogy, content, knowledge in the field of physics education</i>

**Course Learning Outcomes to be achieved**

CPMK 2 CLO 2	Menguraikan Kembali teori-teori belajar dan penerapan pembelajarannya. <i>Redefine learning theories and the application of learning.</i>
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**CPMK 2 (CLO 2)**

3. Pak Adi adalah seorang guru fisika SMA, ia mengajarkan materi Fisika Modern. Langkah kegiatan yang Pak Adi lakukan dimulai dari penyajian atau penjelasan konsep-konsep tentang Fisika Modern, menampilkan gambar-gambar yang berhubungan dengan materi tersebut, melakukan tanya-jawab dengan siswa, membuat kesimpulan, dan menutup pembelajaran. Jelaskan apakah langkah kegiatan pembelajaran yang dilakukan Pak Adi bersesuaian dengan teori yang dikemukakan (*Mr. Adi is a high school physics teacher, he teaches Modern Physics. The activity steps that Mr. Adi did started from presenting or explaining the concepts of Modern Physics, displaying pictures related to the material, conducting questions and*

answers with students, making conclusions, and closing the lesson. Explain whether the steps of learning activities carried out by Mr. Adi are in accordance with the theory put forward):



- a. Jean Piaget
- b. Bruner

### CPMK 2 (CLO 2)

Pendekatan pembelajaran yang sesuai dengan kurikulum misalnya adalah Pendekatan STEM, Pak Rudi menyajikan materi tentang Energi (A learning approach that is in accordance with the curriculum, for example, is the STEM Approach, Mr. Rudi presents topic on Energy).

Questions:

- 4. Bagaimanakah implementasi pendekatan sains, teknologi, engineering, dan matematika pada materi ini (How is the implementation of science, technology, engineering, and mathematics approaches in this topic)?
- 5. Problematika apa saja yang dapat ditemukan dalam mengimplementasikan pendekatan sains, teknologi, engineering, dan matematika pada materi di atas (What problems can be found in implementing the science, technology, engineering, and mathematics approaches to the topic above)?

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Jurusan/Program Studi/ Kelas  (Study Program/Class)	PMIPA/Pendidikan Fisika  Physics Education Study Program/ A/B	Beban (Credits): 2 SKS (3,18 ECTS)	
Kode>Nama Mata Kuliah  (Code/Course)	19050362W050	<b>Statistik 2 / Statistics 2</b>	
Jenis Mata Kuliah  (Type of Course)	Theory	Sifat Ujian: Open Book and Laptop	Jumlah halaman (Total Page): 2
Aturan (Rule): 1. HP, Laptop, dll tidak aktif dan tidak digunakan selama UTS ( <i>Smartphone, Laptop, etc is not active and is not used during the mid-test</i> ) 2. Dilarang bekerjasama dan melakukan kecurangan ( <i>It is forbidden to cooperate and commit fraudulent acts</i> )			
Dosen (Lecturers)	Nurul Fitriyah Sulaeman, Ph.D Puardmi Damayanti, M.Pd		
Hari (Day): Kamis (Thursday)	Tanggal (Date): 9 Juni 2022	Waktu (Time): 08.00-10.40 WITA	Ruang (Room): GB 25

**Program Learning Outcomes to be achieved**

CPL 4  PLO 4	Memahami keterkaitan science-technology-engineering-mathematics dan bidang ilmu terkait lainnya <i>(Understanding the connection among sciencetechnologyengineering-mathematics and other related subjects)</i>
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**Course Learning Outcomes to be achieved**

CPMK 1 <i>CLO 1</i>	Memahami prinsip statistik parametrik dan non-parametrik <i>(Understand the principles of parametric and non-parametric statistics)</i>
CPMK 2 <i>CLO 2</i>	Memahami dan mampu menggunakan statistik inferensial untuk kebutuhan penelitian terkait di bidang pendidikan fisika <i>(Understand and be able to use inferential statistics for related research needs in the field of physics education)</i>
CPMK 3 <i>CLO 3</i>	Mampu menggunakan software yang sesuai untuk mempermudah perhitungan statistik inferensial <i>(Able to use appropriate software to simplify inferential statistical calculations)</i>

**CLO 1**

Soal 1: Jelaskan apa yang dimaksud dengan teorema kurva normal!

*Problem 1: Explain what is meant by the normal curve theorem!*

Soal 2: Suatu data IPK mahasiswa pendidikan fisika dikatakan memiliki varian yang homogen. Sebagai peneliti, bagaimana kita membuktikan homogenitas pada suatu data?

*Problem 2: Data on the GPA of physics education students is said to have a homogeneous variance. As researchers, how do we prove the homogeneity of the data?*

**CLO 2**

Soal 3: Seorang guru IPA di SMP Gn Kelua ingin meneliti apakah ada perbedaan antara kemampuan belajar siswa pada kelas A yang belajar secara luring dan kelas B yang belajar secara daring. Uji apakah yang dapat Anda sarankan bagi guru tersebut? Jelaskan pula uji prasarat analisisnya jika ada.

*Problem 3: A science teacher at Mt Kelua Junior High School wants to examine whether there is a difference between the learning abilities of students in class A, who study offline, and class B, who study online. What test could you suggest for the teacher? Also, explain the prerequisite analysis test, if any.*

Soal 4: Setelah diamati lebih lanjut, guru pada kasus soal no 5 ingin memperjelas penelitiannya dengan memisahkan data ujian IPA siswa berdasarkan kelas (A dan B) dan gender (laki-laki dan perempuan). Apakah Anda masih menyarankan uji statistik yang sama? Jelaskan jawaban Anda.

*Problem 4: After further observation, the teacher, in the case of question no 5, wants to clarify his research by separating the students' science test data based on class (A and B) and gender (male and female). Would you still suggest testing the same statistic? Explain your answer.*

**CLO 3**



Soal 5: Seorang peneliti ingin mengeksplorasi *pro-environmental behavior* (PEB) siswa SMP di Kalimantan Timur. PEB terdiri dari 3 aspek yaitu *appreciation* (6 soal), *utilization* (7 soal), dan *preservation* (7 soal). Peneliti ini mengumpulkan data seperti pada data excel yang terlampir. Lakukanlah:

*Problem 5: A researcher wants to explore the pro-environmental behavior (PEB) of junior high school students in East Kalimantan. PEB consists of 3 aspects, namely appreciation (6 questions), utilization (7 questions), and preservation (7 questions). This researcher collects data as in the attached excel data. Do it:*

- a. Analisis deskriptif yang sesuai beserta grafik yang diperlukan untuk memberi gambaran keseluruhan data yang ada (*Appropriate descriptive analysis along with the necessary graphs to give an overall picture of the existing data*)!
- b. Analisis inferensial yang sesuai untuk 2 variabel gender dan 2 variabel lokasi yang menurut anda menarik diuji lebih lanjut (*The appropriate inferential analysis for 2 gender variables and 2 location variables that you find interesting is further tested*)!

**(Kerjakan soal no 5 menggunakan laptop dan dikumpulkan melalui mols)**

**(Do question number 5 using a laptop and collect it through mols)**

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Code/Course	19050363W041	<b>Bahasa Inggris untuk Pembelajaran Fisika (English for Physics Instruction)</b>	
Type of Course	<i>Theory</i>	Type: Take Home	Total Page: 2
<i>Rule: It is forbidden to cooperate and commit fraudulent acts</i>			
Lecturers	Nurul Fitriyah Sulaeman, Ph.D. & Atin Nuryadin, Ph.D		
Day: Wednesday	Date: 14 <sup>th</sup> - 15 <sup>th</sup> October 2022	Time: 07.30 – 07.30 WITA (1 Day)	Room: GB25

**Program Learning Outcomes to be achieved**

PLO 1	<i>Having communication skills in the Indonesia language and being familiar with English.</i>
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**Course Learning Outcomes to be achieved**

CLO 1	<i>Understanding the principles of communication in physics learning.</i>
CLO 2	<i>Knowing the terms of physics concepts in English.</i>
CLO 3	<i>Understanding the content of physics articles in English.</i>
CLO 4	<i>Reporting physics research data.</i>

***CLO 1: Understanding the principles of communication in physics learning.***

1. Based on the video “How miscommunication happens (and how to avoid it)” by Katherine Hampsten (<https://www.youtube.com/watch?v=gCfzeONu3Mo>), communication between people can be thought of as a game of catch. Explain how communication can be explained as a game of catch based on the video.
2. How do you think to build effective communication in a classroom?

***CLO 2: Knowing the terms of physics concepts in English.***



3. Find a Physics or Learning article from a scientific journal and list 20 words or phrases related to physics or learning along with its translation in Bahasa Indonesia.

***CLO 3: Understanding the content of physics articles in English.***

4. From the Physics or Learning article you found, determine the topic, main idea, and some supporting details in 3 paragraphs in the Introduction section.

***CLO 4: Reporting physics research data.***

5. From the Physics or Learning article you found, choose 2 data presentations (tables or graphs) and answer the following questions:
  - a) Explain why the chosen data presentations fit with the presented data.
  - b) What are the dependent and independent variables.
  - c) What are the significant results that can be obtained from the tables or graphs?
  - d) What conclusions can be drawn from the tables or graphs?
6. From the Physics or Learning article you found, choose 3 sentences and paraphrase them.

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