Student study guide

Investigation and Discovery/Scholarly Project
Epidemiology and data management

Block IDP-338

2024-2025

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A. Basic information about the block

- **Program on which the course is given**: Bachelor of Medicine andSurgery (M.B., B.Ch.).
- **Elements (major or minor) of the program:** (undergraduate)
- **Departments offering the course:** (Education development department)
- **Academic year/level**: 3rd year, 6th semester.
- **Date of specification approval:** 2022/2023, 2024/2025
- **Title:** Investigation and Discovery/Scholarly Project Epidemiology and data management
- **Code:** IDP -338
- **Credit points:** 2
- **Lecture:**14 hours.
- **Practical:** 16 hours
- **Student learning activities: 30** hours {self-directed learning (SDL), group discussion & quiz} 30 hours
- **Total:** 60 hours

Block Map of: Principles of studying medicine

Block	Points	days/week	Learning Activities		
			Contact hours/points	Formative assessment/feedback	Assignment
Investigation and Discovery/Scholarly Project Epidemiology and data management IDP-338	**2**	**2 hours/week**	**30 hours 1 point**	**0.25 point**	**0.75 point**

B. Professional Information

Θ Overall aim of the block:

1- Block aims

The aim of this block is to enable the students to use statistical principles and to select the appropriate statistical tests for the different statistical analyses. Moreover, to enable the student to develop the concept of data interpretation.

2-Intended Learning Outcomes

At the end of this block, the students will be able to:

A- Knowledge and understanding:

A1- Describe graphical presentation of data.

A2-Describe the types of variables, scales of measurement in epidemiologic studies.

A3- Identify measures of central tendency, outliers, and dispersion.

A4- Recognize Hypothesis testing and probability.

A5- Identify types and uses of the different significance tests.

B) Intellectual skills:

B1 Classify variable scales.

B2- Describe the normal curves and data illustration.

B3- Analyze measures of central tendency and dispersion for a population sample.

B4- Analyze standard normal scores and resulting probabilities.

B5- Interpret confidence intervals for population means and proportions

B6- Select the proper test of significance.

B7- Interpret the proper test of significance.

C) Psychomotor Skills:

C1- Use SPSS statistics package to analyze a dataset

D) General and transferable skills:

D1- Integrate with his colleagues, tutors, and teaching staff to accomplish group work duties effectively and solve issuing problems.

D2- Practice evaluation of their own performance.

NARS Competencies covered by the block

NARS areas covered by the block

The competency areas of the NARS- Medicine competency framework are

1- The graduate as a health care provider.

2- The graduate as a health promoter.

3- The graduate as a professional.

4- The graduate as a scholar and scientist.

5- The graduate as a member of the health team and a part of the health care system.

6- The graduate as a lifelong learner and researcher.

Competency Area 1: The graduate as a health care provider:

1.3 Assess the mental state of the patient.

1.6 Select the appropriate investigations and inteipret their results taking into consideration cost/ effectiveness factors.

1.10 Integrate the results of history, physical examination and laboratory test findings into a meaningful diagnostic formulation.

1.12 Adopt strategies and apply measures that promote patient safety.

Competency Area II: The graduate as a health promoter:

2.5 Describe the principles of disease prevention, and empower communities, specific groups or individuals by raising their 2170/2101055 and building their capacity.

2.7 Provide care for specific groups including pregnant women, newborns and infants, adolescents and the elderly

Competency Area VI: The graduate as a lifelong learner and researcher:

6.7 Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and Contribute to the work of a 1250261 study.

6.9 Analyze and use numerical data including the use of basic statistical methods.

6.10 Summarize and present to professional and lay audiences the findings of relevant research and scholarly inquiry.

Course Content

Topics to be Covered

List of Topics		Weeks	Hours
A. Lectures			
1	Types of Variables and graphical presentation of data A1, A2, B1, B2	1st	2 hours
2	Measures of central tendency and outliers and measures of dispersion., Normal distribution curve A3, B3	2nd	2 hours
3	Introduction to inferential statistics concepts (null hypothesis, alternate hypothesis, probability, types of errors and CI) A4, B4, B5	3rd	2 hours
4	Parametric Vs non parametric tests, tests of significance (, t-test, ANOVA) A5, B5,B6	4th	2 hours
5	Chi square, Correlation and regression A5, B5,B6	5th	2 hours
	Revisions		4 hours
TOTAL			14
B. Practical Sessions (TBL)			
1	Uses SPSS statistics package to analyze a dataset. C1	2nd	2 hours
2	Uses SPSS statistics package to analyze a dataset. C1	3rd	2 hours
3	Uses SPSS statistics package to analyze a dataset. C1	4th	2 hours
4	Uses SPSS statistics package to analyze a dataset. C1	5th	2 hours
	Revisions		8
TOTAL			16 hours
Self-Directed Learning (SDL) {Portfolio-based}			
1	Statistical tests. C1, D1, D2	6th	
2	Statistical tests. C1, D1, D2	7th	

Assignments/ learning activities:

#	Title of Activities	Week number	% of points
1	SDL 1	6th	
2	SDL 2	7th	

Formative assessment and Assignments

This is used to monitor student's learning to provide ongoing feedback that can be used by instructors to improve their teaching and by students to improve their learning.

It's given at least once in the form of quizzes that is made available for the students at the E-learning site at the end of the block.

Answers are presented instantly after the attempts and discussed on the students groups or in person with the teaching staff

Questions should be consistent with the level of the final exam. The student's attendance is a condition for entering the summative exams. The electronic or paper achievement file must be used to follow up on the students' evaluation, and its completion is a condition for entering the final exams

Course components (total contact hours and credits per semester):							
	Lecture	Practical	*SDL Revision	Tutorial (Discussion)	Formative	Quiz	Total
Contact Hours	14	16	30	0			60
Credit	1				0.25	0.75	2

*Not included in contact hours.

Teaching and Learning Methods

1- Lectures for knowledge and intellectual skill outcomes.

2- Practical sessions to gain practical skills.

3- Self-directed learning (SDL) for the topics studied in lectures or related topics, including E learning (questions of different topics available online for student's assessments) and consulting professors for gathering information

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Methods of Student Assessment

Formative:

This is used to monitor student's learning to provide ongoing feedback that can be used by instructors to improve their teaching and by students to improve their learning.

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Answers are presented instantly after the attempts and discussed on the students groups or in person with the teaching staff

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Summative:

It is used to evaluate student's achievements at the end of an instructional unit. The grades tell whether the student achieved the learning goal or not.

The student's performance will be assessed according to the following:

Assessment task	Type of assessment	Proportion of Total Assessment	
		%	Marks
Mid-term exam	MCQ (only correct one answer)	**30%**	**12**
Portfolio		**10 %**	**4**
Final written exams	75% MCQ (12 marks) 25% short answer and modified essay questions (4 marks)	**60%**	**24**
Total		**100%**	**40**

Note: 1 credit point= 20 marks

Student Assessment Plan:

1- End of block: assignments :30% of total.
2- Evaluation of portfolio: 10%.
3- Final written exam: 60%.

List of references (Recommended books)

1. Power point handout
2. **Essential books**
   - Amboss knowledge cards /USMLE step1
3. **Recommended books**
   - Kaplan step 1 2020

Facilities required for teaching and learning

1- Data show for power point presentations.
2- Computer club in the Faculty with net access.
3- Libraries with available textbooks for gathering of information.

Blue print of the block

	List of Topics	ILOS	Hours	Marks	Weight	Mid-term exam	Final exam 25% SAQs & MEQs
1	Types of Variables and graphical presentation of data	A1, A2B1,B2	2 hours	7	**20** %	**3**	**4**
2	Measures of central tendency and outliers and Measures of dispersion., Normal distribution curve.	A3,B3	2 hours	8	**20%**	**3**	**5**
3	Introduction to inferential statistics concepts (null hypothesis, alternatehypothesis, probability, types of errors and CI)	A4, B4,B5	2 hours	8	**20%**	**3**	**5**
4	Parametric Vs nonparametric tests, tests of significance (, t- test, ANOVA)	A5, B5,6	2 hours	7	**20%**	**2**	**5**
5	Chi square, Correlation andregression	A5,B5,6	2 hours	6	**20%**	1	**5**
	Total		10	36 marks	**100%**	**12 M**	**24 M** 6 منهم **marks** مقالى

Blue print practical

No.	Class Work Titles	ILOs	Hours	Weight	Final practical exam
1	Uses SPSS statistics package to analyze adataset.	C1	2 hours		X
2	Uses SPSS statistics package to analyze adataset.	C1	2 hours		X
3	Uses SPSS statisticspackage to analyze a dataset.	C1	2 hours		X
4	Uses SPSS statisticspackage to analyze a dataset.	C1	2 hours		X

5	Uses SPSS statisticspackage to analyze a dataset.	C1	2 hours		X
	Total		8 hours		**X**

SDL					
1	Statistical tests.	C1, D1, D2			
2	Statistical tests.	C1, D1, D2			
	Total				20%

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Exam(100%)	**Final (100 %)** **40 Marks** **75 % MCQ (30 marks)** **25 % short answer and modified essay questions (10 marks)**	**Total** **40 Marks**
Total	**40 Marks**	**40 Marks**

Topic outlines

Lecture (1) Types of Variables and graphical presentation of data
By the end of the lecture the student will be able to: • Describe the type of different variables • Identify the appropriate graphic presentation of different variables **Content of the lecture** ▪ Definition of variable ▪ Types of variables ▪ Data illustration
Sources
❖ Power point handout

Lecture (2) Measures of central tendency and outliers and Measures of dispersion.
By the end of the lecture the student will be able to: ▪ Identify measures of central tendency and outliers ▪ Identify measures of dispersion. ▪ Calculate measures of central tendency and dispersion for a population sample. ▪ Describe the normal distribution curve **Content of the lecture** ▪ Definition ▪ Measures of central tendency ▪ Outliers Measures of dispersion Normal distribution curve
Sources
❖ Power point handout

Lecture (3) Introduction to inferential statistics concepts (null hypothesis, alternate hypothesis, probability, types of errors and CI)
By the end of the lecture the student will be able to: **Content of the lecture** ▪ Recognize Hypothesis testing and probability. ▪ Identify type I and type II errors ▪ Interpret confidence intervals for population means and proportions **Content of the lecture**

- Hypothesis testing
- Probability
- Type I and type II errors
- Confidence interval

Sources

Power point handout

Lecture (4)
Tests of significance

By the end of the lecture the student will be able to:

- Identify types and uses of the different significance tests.
- Select the proper test of significance.
- Interpret the proper test of significance.

Content of the lecture

- Statistical significance vs. clinical significance
- Parametric tests
- Non-parametric tests
- t test, ANOVA, Chi square test

Sources

❖ Power point handout

Lecture (5)
Statistical tests (cont.)

By the end of the lecture the student will be able to:

- Describe the Correlation concept
- Identify the Regression concept

Content of the lecture

- Correlation
- Linear regression
- Logistic regression

Sources

Power point handout