

STUDY GUIDE PHYSIOLOGY 2nd Year

MBBS COURSE

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Mission Statement



Guiding your passion to profession

IMC Strives to improve health care in Faisalabad, our country and the world through excellence.

We seek to foster the development of dedicated clinicians, scientists, professionals and educators to provide leadership in education, services and discovery.

Vision:

To be an institution with

- An environment to develop creative free thinking and life long learners.
- A culture of objective research to transform health care delivery.
- Quality professional educational program based on innovation and collaboration.
- High moral and ethical values.
- Serving the needs of community in the best tradition of profession.

Goals:

- To develop humanist, skilled, intellectually disciplined and innovative medical professionals with dedication to those who they treat, lead and serve
- To educate and guide the next generation of leaders in healthcare and medical science to provide and sustain achievements in service, teaching and research.
- To provide comprehensive and effective patient centered, culturally sensitive, compassionate and innovative health care of highest quality to all.
- To recruit, develop and nurture and independent and academically outstanding community of faculty, student, trainees and staff, who each contribute to excellence in our missions.
- To promote professional and personal growth, productive, accountability, integrity and synergistic collaboration and synergy of faculty, students and staff

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INTRODUCTION

WHAT IS A STUDY GUIDE?

It is an aid to:

- Inform students how student learning program of the subject has been Organized
- Help students organize and manage their studies throughout the year
- Guide students on assessment methods, rules and regulations

THE STUDY GUIDE:

- Communicates information on organization and management of the module.
- This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the program.
- Identifies the learning strategies such as lectures, small group teachings, clinical skills, Demonstration, tutorial and case based learning that will be implemented to achieve the Learning objectives.
- Provides a list of learning resources such as books, computer assisted learning program, web- links, and journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous and term test on the Student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's Achievement of objectives.
- Focuses on information pertaining to examination policy, rules and regulations.

PHYSIOLOGY FOR 2nd YEAR MBBS

Subject: Physiology

Year: 2nd year

Duration: 36 weeks

Year	Theory	Practical	Total
2nd year	150 hours (100 Lecture, 50 SGD / PBL)	150 hours	300

AT THE END OF 2nd YEAR MBBS STUDENT WILL BE ABLE TO

- To explain various physiological terms.
- To distinguish different physiological mechanism.
- To discuss principles of Physiology.
- To demonstrate ability to perform certain laboratory test.
- To describe various normal laboratory reports.
- To explain the physiological principles of different clinical methods.
- To identify different cellular structures & tissue on microscopic slides.
- To describe different organs & functioning of physiological systems.
- To explain the clinical application of knowledge of Physiology.
- To describe function of human organs.
- To discuss various homeostatic anomalies.

RULES AND REGULATION

- 75% attendance in theory and clinical classes in mandatory.
- All progress will be recorded on clinical log book.
- Pass marks for assessment will be 50%.
- All this will be credited in internal assessment for Final Professional.
- Any Conflict will be resolved by Co-Ordinator.
- All students will have to fill online feedback perfroma.

LEARNING RESOURCES

The department of Anatomy will require following resources for implementation resources:

- Human resource
- Instructors (faculty members)
- Curriculum coordinator curriculum secretary
- Infrastructure
- Lecture hall with AV aids
- Tutorial room with AV aids
- Dissection Hall and Museum with Anatomy Models
- Histology Lab with Pool of slides
- Simulated patients and simulated manikins
- Computers

LISTS OF CONTENT RESOURCES

- Textbook of Physiology by Guyton and Hall, Latest Ed.
- Review of Medical Physiology by William F. Ganong, Latest Ed.
- Human Physiology by Laurali Sherwood.
- Physiology by Berne and Levy, Latest Ed.
- Physiology by Linda and Constanzo.

E-LEARNING

- e-IMC phone app for online lectures
- IMC youtube channel

JOURNALS

- The Professional Medical Journal
- Independent Review (H-2000)
- Independent Journal of Allied Health Sciences
- Online Journals and Reading Materials through HEC Digital Library Facility

LEARNING METHODOLOGY

The following teaching / learning methods are used to promote better understanding:

- Interactive Lectures
- Hospital / Clinic visits
- Small Group Discussion
- Case- Based Learning
- Skills session
- E-Learning
- Self-Directed Study

INTERACTIVE LECTURES: In large group, the lecturer introduces a topic or common clinical conditions and Explains the underlying phenomena through questions, pictures, videos of patients' interviews, Exercises, etc. Students are actively involved in the learning process.

SMALL GROUP DISCUSSION (SGD): This format helps students to clarify concepts acquire skills or attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics. Students exchange opinions and apply knowledge gained from lectures, tutorials and self-study. The facilitator role is to ask probing questions, summarize, or rephrase to help clarify concepts.

CASE- BASED LEARNING: A small group discussion format where learning is focused around a series of questions based on a clinical scenario. Students discuss and answer the questions applying relevant knowledge gained in clinical and basic health sciences during the module.

SKILLS SESSION: Skills relevant to respective module are observed and practiced where applicable in skills laboratory or Department of Physiotherapy.

SELF DIRECTED STUDY: Students assume responsibilities of their own learning through individual study, sharing and discussing with peers, seeking information from Learning Resource Center, teachers and resource persons within and outside the college. Students can utilize the time within the college scheduled hours of self-study.

E-LEARNING: E-Learning is a strategy by which learning occurs through the utilization of electronic media, typically the Internet. The basic aspects of medical professionalism and ethics will be addressed through an e-learning course

VIDEO SESSIONS: Anatomy is a subject which involves visual learning and formulating concepts. Video assisted learning sessions also provides opportunities to learn gross anatomy.

LABORATORY SESSIONS: Laboratory sessions are important as they provide opportunity for experiential learning in terms of study of slides and identification of tissues

EARLY CLINICAL EXPOSURE (ECE): Clinical skills session are important part of curriculum to achieve psychomotor and affective outcomes. This provide opportunity for medical students in early years and will stimulate contextual learning.

ASSESSMENT

MCQ's and SEQ's

Multiple choice question and short essay question test will be used at the end of part of curriculum to assess the learning of knowledge. These all assessment exercises will be formative. The written tests like Multiple-Choice Questions (MCQs) and Short-Essay Questions (SEQs) test formats are used for the assessment of cognitive domain. The MCQs are more objective and essentially select type of item response format. MCQs have a cueing effect, which promotes guessing and leads to higher scores. In addition, writing MCQs of higher cognitive level of problem solving is challenging. On the contrary, the SEQs are more subjective and have a supply or construct type item response format, which does not have any cueing effect and can effectively assess problem solving skills(8).

OSCE AND SHORT CASE

Short case and OSCE will be used to evaluate clinical skills and procedural skills at the ward end of placement. The OSCE is a method of clinical skill assessment, and it has been reported to be appropriate for assessing learning achievement levels in the psychomotor and emotional domains, which are difficult to evaluate with written examinations(9).

VIVA VOCE

Viva voce is used for assessment of knowledge and problem solving ability of students. This method is useful evaluating cognitive domain.

ASSIGNMENTS

Students of different year will be given assignment of different nature such as research and literature search and surveys

Evaluation plan		
Term Test	Written test (MCQ and SEQ)	Formative
After each region / Module	Term Test (OSCE and viva voce)	Formative

INTERNAL ASSESSMENT

- i. The weightage of internal assessment shall be 10% of totals marks.
- ii. Continuous internal assessment shall consist of evaluation at the end of each assignments, e.g. stages/ sub-stage, class tests etc., attitudinal assessment from educational supervisors.
- iii. Assessment of knowledge, Skills and Attitude shall contribute toward internal assessment. Methods used to assess these domains shall include Multiple Choice Questions of one-best type, Short essay questions, Oral/Viva, and Practical/Clinical examinations.
- iv. The score of internal assessment shall contribute to the score in the final examination, Final university examination of each subject shall contribute 90 to total score, and the candidate shall pass in aggregate.
- v. Proper record of continuous internal assessment shall be maintained.



PHYSIOLOGY 2ND YEAR MBBS EDUCATION PLAN

	Module	Topic	Assessment	Week
1st Term (11 weeks)				1
				2
				3
				4
				5
				6
				7
				8
				9
				10
	1st Term Test			
2nd Term (11 weeks)				12
				13
				14
				15
				16
				17
				18
				19
				20
				21
	2nd Term Test			
3rd Term (9 weeks)				23
				24
				25
				26
				27
				28
				29
				30
	3rd Term Test			
(4 Weeks)				32
				33
				34
				35
Sendup Examination				36

DEPARTMENT OF MEDICAL EDUCATION

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Modules	Objectives	Instructional strategy				Assessment			
		Lecture	SGD	PBL	Lab	MCQ	SEQ	OSPE	Viva
Module 8: Body fluids and kidney	Describe the components & quantitative measurements of body fluids.								
	Discuss the different fluid compartments, tissue and lymph fluid.								
	Describe the structure of the kidney and nephron, and explain general functions of the kidney.								
	Describe the GFR and its regulation.								
	Describe the formation of urine including filtration, re-absorption and secretion.								
	Discuss plasma clearance.								
	Describe the mechanism of concentration and dilution of urine								
	Describe regulation of osmolality, water balance and acid base balance								
	Describe the role of the kidney in blood pressure regulation.								
	Describe the hormonal functions of the kidney.								
	Describe acidification of urine and its importance.								
	Describe the mechanism of micturition and its control.								
	Explain Renal plasma clearance tests and their clinical significance.								
	Describe Dehydration, rehydration, over hydration and oedema.								
	Explain Renal failure and dialysis.								
	Compare Metabolic acidosis and alkalosis.								
Describe Abnormalities of micturition									
Module 9: Endocrine system	Classify the hormones and describe mechanism of their action								
	Name the hormones secreted by the anterior and posterior pituitary and describe their regulation and functions.								
	Describe the neuroendocrine functions of the hypothalamus								
	Describe the physiological changes of growth and aging.								
	Describe the functions and regulation of the hormones secreted by thyroid gland.								
	Describe the hormones regulating calcium homeostasis								
	Name the hormones secreted by the adrenal cortex and describe their functions and regulation.								
	Name the hormones secreted by the adrenal medulla and describe their functions and regulation.								
	Describe the endocrine functions of the pancreas and regulation of pancreatic hormones.								
	Describe the endocrine functions of pineal gland.								
	Explain Acromegaly, gigantism and dwarfism and Effects of panhypopituitarism.								
	Describe Diabetes insipidus.								
	Explain Thyrotoxicosis, myxoedema and cretinism								
	Describe Pheochromocytoma.								
	Explain Cushing's disease/syndrome and Addison's disease.								
	Compare Hypocalcemia and hypercalcemia.								
Discuss Adrenogenital syndrome and Conn's syndrome.									
Discuss Diabetes mellitus and hypoglycaemia.									

Modules	Objectives	Instructional strategy				Assessment			
		Lecture	SGD	PBL	Lab	MCQ	SEQ	OSPE	Viva
Module 10: Gastrointestinal system	Describe the general functions of gastrointestinal tract.								
	Describe the enteric nervous system, control of gastrointestinal motility and secretion								
	Describe mastication, swallowing and their control								
	Describe the motility of the stomach, small intestine, large intestine and regulation.								
	Describe the functions of GIT hormones								
	Describe gallbladder motility and its regulation								
	Explain mechanism of vomiting and its control pathway								
	Explain defecation and its control pathway								
	Describe Dysphagia, Achalasia cardia.								
	Explain Diarrhea and constipation, Megacolon								
Module 1.1 : Reproductive System	Describe the functions of the male reproductive system.								
	Describe the mechanism of erection .and ejaculation.								
	Describe the production and function of testosterone.								
	Describe the physiological changes during male puberty.								
	Describe the function of the female reproductive system.								
	Explain the production and function of oestrogen and progesterone.								
	Describe the functions of hypothalamo hypophysio gonadal axis.								
	Describe the ovarian and endometrial cycle.								
	Describe the physiological changes during female puberty and menopause.								
	Discuss pregnancy and explain the physiological changes taking place in the mother.								
	Describe the functions of placenta.								
	Discuss the hormones regulating parturition, lactation and development of breast.								
	Explain Male infertility, Female infertility.								
	Describe Postmenopausal syndrome I Andropause, Contraception.								
	Discuss Basis for pregnancy tests.								
Explain Hypogonadism I hypergonadism, Cryptorchidism.									

Modules	Objectives	Instructional strategy				Assessment			
		Lecture	SGD	PBL	Lab	MCQ	SEQ	OSPE	Viva
Module 12: Special senses	Describe optics of the eye, mechanism of accommodation, light reflex.								
	Explain visual acuity, depth perception, neural functions of the retina.								
	Describe the errors of refraction and their corrections.								
	Describe secretion, circulation, drainage and functions of aqueous humor.								
	Describe the movements of eyeballs.								
	Describe the visual transduction, color vision, visual cortex and visual pathway.								
	Describe the mechanisms for the light and dark adaptation.								
	Describe the functions of external ear.								
	Enumerate the contents of middle ear cavity and functions of the middle ear								
	Describe the structure and functions of internal ear.								
	Explain the determination of the sound frequency, loudness, direction of sound, auditory pathway and auditory cortex.								
	Describe the signal transduction for hearing.								
	Describe the signal transduction for taste and smell.								
	Describe the pathways for the sense of taste and smell.								
	Explain Types of deafness.								
	Explain Errors of refraction, Lesions of visual pathway, Night blindness.								
	Explain Colour blindness, Squint, Argyll Robertson pupil,								
	Explain Horner's syndrome, Glaucoma.								
	Demonstrate Abnormalities of sense of smell and taste.								
	Plotting of the field of vision (perimetry and confrontational methods).								
	Testing the visual acuity for near and distant vision.								
	Elicitation of light reflex (direct and consensual) and accommodation reflex.								
	Ophthalmoscopy.								
	Testing the colour vision.								
	Testing for hearing.								
	Testing taste and smell.								

TABLE OF SPECIFICATION (ToS)			
		MCQ'S	SEQ'S
	Kidney and body fluids	08	02
	Nervous system	12	02
	Special system	06	01
	Endocrines	08	02
	Reproduction	06	01
	GIT	05	01
	Total	45	09

PHYSIOLOGY

Total marks: 90

The structure of OSPE/ Practical/ Viva should be as follows:

Viva Voice (35 marks)

- Internal — 15 marks
- External — 20 marks

OSPE (25 marks)

- Non-observed stations 10 of 01 marks each (2 minutes each)
- Observed stations 03 of 05 marks each (4 minutes each)

30% C1, 40% C2, 30% C3 OSPE

Practical (30 marks)

- Practical 20 marks
- Procedure Writing 05 marks
- Yearly Workbook Assessment 05 marks

WEEKLY TIME TABLE



WEEKLY TIME TABLE

1ST YEAR MBBS INDEPENDENT MEDICAL COLLEGE, FAISALABAD.

Time	08:00-10:00	10:00-11:45	Lecture 12:15-02:00	SGD / Practical 12:15-02:00
Mon	Anatomy	Physiology	Biochemistry	SDL (Self Directed Learning)
Tue	Anatomy	Physiology	Biochemistry	SDL (Self Directed Learning)
Wed	Anatomy	Physiology	Biochemistry	SDL (Self Directed Learning)
Thu	Anatomy	Physiology	Biochemistry	SDL (Self Directed Learning)
Fri	Behavioral Sciences 08:00-08:45 Islamiyat / Pak Studies 08:45-09:30	Islamiyat / Pak Studies 08:45-09:30	Physiology 10:30-11:15	Off
		Anatomy 09:30-10:30	Biochemistry 11:15-12:00	
Sat	Anatomy	Physiology	Biochemistry	SDL (Self Directed Learning)

BREAK 11:45 TO 12:15

1st Year MBBS	
Session:	36 Weeks
Duration	Test
First Term:	9 Weeks 1 Week
Second Term:	9 Weeks 1 Week
Third Term:	9 Weeks 1 Week
Send Up:	6 Weeks