

Department of Physiology
Teaching Schedule: First Semester, M.B.B.S.
July - December, 2013

VENUE: Lectures: LT-II (Monday, Thursday and Friday)
Tutorials: Demonstration room, Department of Physiology
Practicals: Undergraduate Laboratory, Department of Physiology

Date & Day	Time	Teaching - learning methodology	Topic	Faculty/ Tutors
05.08.13 Monday	9-10 am	Lecture	Introduction to department of Physiology	Prof.R Mathur
	10-5 pm (Each practical is for half day and then batches interchange)	Practical	<p>Batch A: Recording of biological phenomena following electrical stimulation (Inner UG laboratory)</p> <p>Batch B: Use of microscope, counting chambers and pipettes in hematology (Main UG laboratory)</p>	<p>Prof. HN Mallick Dr Geetanjali Dr Kumar Dr Anita Dr Sankanika Dr Avinash Dr Bhupender Dr. Navdeep Dr. Manju Dr. Pankaj Dr. Priyanka Dr. Komal</p> <p>Dr KK Deepak Dr Gaurav Dr Nishanth Dr Manpreet Dr Suneeta Dr Suriya Dr Neha Dr. Shival Dr. Jojo Dr. Sivaraj Dr. Arjun Dr. Bhvya</p>

08.08.13 Thursday	9-10 am	Lecture	Principles of physiological control and Homeostasis	Dr D Ghosh
	11-12 pm	Lecture	Physicochemical properties of cell membrane	Dr R Sharma
	12-1 pm	Lecture	Physiology of the cell	Dr D Ghosh
12.08.13 Monday	9-10 am	Lecture	Rationale and ethics in animal experimentation	Dr Nalin Mehta
	10-5 pm (Each practical is for half day and then students interchange)	Practical	<p>Batch A: Expt 1 and 2</p> <p>Expt. 1: Total red blood cells in peripheral blood sample (Main UG Lab)</p> <p>Expt. 2: Preparation of blood film and identification of cells in peripheral blood sample (Main UG Lab)</p> <p>Batch B: Expt. 3 and 4</p> <p>Expt. 3: To study the excitable and contractile properties in an amphibian nerve muscle preparation and demonstration of isotonic contraction (inner UG Lab)</p> <p>Expt. 4: Estimation of hemoglobin concentration in peripheral blood sample. Determination of osmotic fragility of erythrocytes. (Inner UG Lab)</p> <p>Batch C: Expt. 5 and 6</p> <p>Expt. 5: Determination of</p>	<p>Dr RK Yadav Dr Geetanjali Dr Shival Dr Jojo</p> <p>Dr AK Jaryal Dr. Anita Dr Bhupender Dr. Sivraj Dr. Bhvya Dr. Pankaj</p> <p>Dr Asmita Patil Dr Gaurav Dr Manpreet Dr Neha Dr Manju</p> <p>Dr A Talwar Dr Nishanth Dr Suriya Dr Avinash Dr Priynaka</p> <p>Dr R Bhatia Dr Kumar</p>

			eosinophil count. (Main UG Lab)	Dr Navdeep Dr Komal
			Expt. 6: Total white blood cells in peripheral blood sample (Main UG Lab)	Dr S Jain Dr Suneetha Dr Sankanika Dr Arjun
16.08.13 Friday	9-10 am	Lecture	Molecular building blocks of cell and their function	Dr D Ghosh
	2-3 pm	Lecture	Cell membrane: permeability and transport	Dr R Sharma
	3-4 pm	Lecture	Intercellular connections and communication	Dr D Ghosh
19.08.13 Monday	9-10 am	Lecture	Body fluids: intercellular, intracellular and blood: Principles of methods for determination of body fluid	Dr D Ghosh
	10-5pm	Practical	Batch A: Expt. 3 and 4 Batch B: Expt. 5 and 6 Batch C: Expt. 1 and 2	
22.08.13 Thursday	9-10 am	Lecture	Principles of bioelectricity: Genesis of resting membrane potential	Dr R Sharma
	11-12 pm	Lecture	Introduction to blood and functions of plasma proteins	Dr D Ghosh
	12-1 pm	Lecture	Film show	Dr. S Jain Dr. Kumar
23.08.13 Friday	9-10 am	Lecture	Principles of hemopoiesis	Dr D Ghosh
	2-3 pm	Lecture	Action potential	Dr R Sharma
	3-4 pm	Tutorial	Nerve- muscle Physiology	Dr R Sharma

26.08.13 Monday	9-10 am	Lecture	Properties of nerve fibre	Dr R Sharma
	10-5pm	Practical	Batch A: Expt. 5 and 6 Batch B: Expt. 1 and 2 Batch C: Expt. 3 and 4	
29.08.13 Thursday	9-10 am	Lecture	Regulation of erythropoiesis	Dr D Ghosh
	11-12 pm	Lecture	Neuromuscular transmission	Dr R Sharma
	12-1 pm	Tutorial	Haematology	Dr D Ghosh
30.08.13 Friday	9-10 am	Lecture	Contractile and tubular elements of skeletal muscle: Physiology of contraction	Dr R Sharma
	2-3 pm	Lecture	Functions of RBC	Dr D Ghosh
	3-4 pm	Tutorial/Lecture	Applied aspects of neuromuscular transmission: Myasthenia gravis and botulinism toxicity	Dr R Sharma
02.09.13 Monday	9-10 am	Lecture	Hemoglobin and Hemoglobinopathies	Dr D Ghosh
	10-5pm	Practical	Batch A: Expt. 7 and 8 Expt. 7: Differential leucocyte count (Main UG lab) Expt. 8: To study the excitable and contractile properties in an amphibian nerve muscle preparation: (a) Effect of threshold, subthreshold and suprathreshold stimuli (b) Effect of two or more successive stimuli (Inner UG lab) Batch B: Expt. 9 and 10 Expt. 9 (a) Recording of isometric	Dr R Sharma Dr Suneetha Dr Suriya Dr Priyanka Dr S Jain Dr Kumar Dr Nishanth Dr Neha Dr Jojo Dr N Mehta Dr Geetanjali

			<p>contraction.* (b)Length – tension relationship* (* Demonstraiton experiments) (Inner UG Lab)</p> <p>Expt. 10: Platelet count (Main UG lab)</p> <p>Batch C: Expt. 11 and 12</p> <p>Expt. 11: Determiation of ESR and PCV. Calculation of absolute values Determination of prothrombin time, bleeding time, clotting time and blood groups. (PG Lab)</p> <p>Expt. 12: Determiation of reticulocyte count. Examination of bone marrow smears. (Main UG Lab)</p>	<p>Dr Avinash Dr Komal Dr Arjun</p> <p>Dr KP Kochhar Dr Gaurav Dr Shival Dr Manju</p> <p>Dr D Ghosh Dr Anita Dr Bhupender Dr Navdeep Dr Sivraj</p> <p>Dr H N Mallick Dr Manpreet Dr Sankanika Dr Pankaj Dr Bhvya</p>
05.09.13 Thursday	9-10 am	Lecture	Destruction of red blood cell: Physiological basis of jaundice	Dr D Ghosh
	11-12 pm	Lecture	Excitation-contraction coupling	Dr R Sharma
	12-1 pm	Lecture/Tutorial	Iron metabolism	Dr D Ghosh
06.09.13 Friday	9-10 am	Lecture	Physiology of smooth muscle-I	Dr R Sharma
	2-3 pm	Lecture	Classification and physiological basis of anaemia	Dr D Ghosh
	3-4 pm	Tutorial	Physiological basis of investigations for anaemia and jaundice	Dr D Ghosh
09.09.13 Monday	9-10 am	Lecture	Physiology of smooth muscle-II	Dr R Sharma
	10-5pm	Practical	<p>Batch A: Expt. 9and 10 Batch B: Expt. 11 and 12 Batch C: Expt. 7 and 8</p>	

12.09.13 Thursday	9-10 am	Lecture	Granulopoiesis: Principles and regulation	Dr D Ghosh
	11-12 pm	Lecture	Injury and repair in nerve and muscle	Dr R Sharma
	12-1 pm	Tutorial	Energetics of nerve and muscle: Work physiology	Dr R Sharma
13.09.13 Friday	9-10 am	Lecture	Functions and fate of white blood cells	Dr D Ghosh
	2-3 pm	Lecture	Development, functions and fate of platelets	Dr D Ghosh
	3-4 pm	Lecture	Mini PBL: Nerve- muscle Physiology	Dr R Sharma
Cultural Week 16 th to 22 th September, 2013				
23.09.13 Monday	9-10 am	Lecture	Hemostasis and coagulation	Dr D Ghosh
	10-5pm	Practical	Batch A: Expt. 11 and 12 Batch B: Expt. 7 and 8 Batch C: Expt. 9 and 10	
26.09.13 Thursday	9-10 am	Lecture	Physiology of immune system: innate immunity	Dr D Ghosh
	11-12 pm	Lecture	Physiology of immune system: Adaptive immunity	Dr D Ghosh
	12-1 pm	Lecture	Introduction to cardiovascular system and functional anatomy of heart	Dr A Patil
27.09.13 Friday	9-10 am	Lecture	Thrombosis and thrombolysis	Dr D Ghosh
	2-3 pm	Lecture	Blood groups; physiological basis of blood transfusion and its reactions	Dr D Ghosh
	3-4 pm	Lecture	Properties of cardiac muscle	Dr A Patil

30.09.13 Monday	9-10 am	Lecture	Introduction to respiratory system and functional anatomy of respiratory system	Dr AK Jaryal
	10-5pm	Practical	Revision practical	Dr S Jain and all residents
Mid Semester Examination: 1 st -11 th october 2013				
14.10.13 Monday	9-10 am	Lecture	Composition of respired air and pulmonary ventilation	Dr A K Jaryal
	10-5pm	Practical	<p>Batch A: Expt. 13 and 14</p> <p>Expt. 13 : Study of the factors controlling ionotropic and chronotropic functions in isolated and perfused amphibian heart preparation (Inner UG lab)</p> <p>Expt. 14: Study of human fatigue using: (a) Mosso's ergograph (b) Hand grip dynamometer (Main UG Lab)</p> <p>Batch B: Expt. 15 and 16</p> <p>Expt. 15: # a) Recording and analysis of compound action potential in amphibian nerve muscle preparation b) Recording of strength- duration curve in amphibian nerve muscle preparation c) Recording of conduction velocity in human ulnar nerve (# Demonstration experiment) (Inner UG Lab)</p> <p>Expt. 16: Clinical examination of respiratory system. (PG lab)</p>	<p>Dr R Bhatia Dr Gaurav Dr Suneetha Dr Avinash Dr Shival</p> <p>Dr KP Kochhar Dr Geetanjali Dr Bhupender Dr Sivraj Dr. Bhvya</p> <p>Dr Ratna Sharma Dr Kumar Dr Suriya Dr Sankanika Dr Arjun</p> <p>Dr RK Yadav Dr Nishanth Dr Navdeep</p>

			<p>Batch C: Expt. 17 and 18</p> <p>Expt. 17: Determination of blood pressure in a human subject. (Main UG lab)</p> <p>Expt. 18: Clinical examination of CVS (PG lab)</p>	<p>Dr Pankaj</p> <p>Dr A Patil Dr Manpreet Dr Neha Dr Jojo Dr Priyanka</p> <p>Dr Nalin Mehta Dr Anita Dr Manju Dr Komal</p>
17.10.13 Thursday	9-10 am 11-12 pm 12-1 pm	Lecture Lecture Lecture	<p>Properties of cardiac muscle</p> <p>Mechanics of respiration-I</p> <p>Action potential and spread of impulse in the heart</p>	<p>Dr Asmita Patil</p> <p>Dr AK Jaryal</p> <p>Dr Asmita Patil</p>
18.10.13 Friday	9-10 am 2-3 pm 3-4 pm	Lecture Lecture Tutorial	<p>Excitation-contraction coupling in myocardium</p> <p>Mechanics of respiration-II</p> <p>Cardiac physiology: comparison of action potentials of various types of muscle fibers</p>	<p>Dr Asmita Patil</p> <p>Dr AK Jaryal</p> <p>Dr Asmita Patil</p>
21.10.13 Monday	9-10 am 10-5pm	Lecture Practical	<p>Pressure changes in the heart and cardiac cycle</p> <p>Batch A: Expt. 15 and 16 Batch B: Expt. 17 and 18 Batch C: Expt. 13 and 14</p>	<p>Dr Asmita Patil</p>
24.10.13 Thursday	9-10 am 11-12 pm 12-1 pm	Lecture Lecture Tutorial	<p>Exchange of gases in the lungs</p> <p>Neural regulation of cardiac activity and cardiac reflexes</p> <p>Lung volumes, capacities and artificial</p>	<p>Dr AK Jaryal</p> <p>Dr Asmita Patil</p> <p>Dr AK Jaryal</p>

			respiration	
25.10.13 Friday	9-10 am	Lecture	Functional basis of heart sounds and murmurs	Dr Asmita Patil
	2-3 pm	Lecture	Ventilation- perfusion ratio	Dr AK Jaryal
	3-4 pm	Tutorial	1 st Mid semester feedback	Dr Suman Jain and all senior residents
28.10.13 Monday	9-10 am	Lecture	Intrinsic regulation of cardiac activity	Dr Asmita Patil
	10-5pm	Practical	Batch A: Expt. 15 and 16 Batch B: Expt. 17 and 18 Batch C: Expt. 13 and 14	
31.10.13 Thursday	9-10 am	Lecture	Oxygen carriage and oxygen dissociation curve	Dr AK Jaryal
	11-12 pm	Lecture	Electrocardiography	Dr Asmita Patil
	12-1 pm	Tutorial	Respiratory Physiology	Dr AK Jaryal
01.11.13 Friday	9-10 am	Lecture	Cardiovascular reflex	Dr Asmita Patil
	2-3 pm	Lecture	Carbon dioxide carriage	Dr AK Jaryal
	3-4 pm	Tutorial	Cardiac Physiology	Dr Asmita Patil
04.11.13 Monday	9-10 am	Lecture	Cardiac output: measurement and regulation	Dr Asmita Patil
	10-5pm	Practical	Revision practical	
07.11.13 Thursday	9-10 am	Lecture	General principles of hemodynamics	Dr R Bhatia
	11-12 pm	Lecture	Nutrition and metabolism of the heart	Dr Asmita Patil
	12-1 pm	Tutorial	Pulmonary function tests and assisted ventilation	Dr AK Jaryal
08.11.13 Friday	9-10 am	Lecture	Neural and local control of circulation	Dr R Bhatia
	2-3 pm	Lecture	Chemical regulation of respiration	Dr AK Jaryal
	3-4 pm	Lecture	Exercise physiology	Dr Asmita Patil

11.11.13 Monday	9-10 am 10-5pm	Lecture Practical	<p>Regulation of blood pressure, Hypertension</p> <p>Batch A: Expt. 19</p> <p>Expt. 17[§] a: Study of neuromuscular transmission in an amphibian nerve muscle preparation: (a) phenomenon of fatigue (b) site of fatigue* (c) neuromuscular blocking* (* demonstration experiments)</p> <p>b: Study of work performed by skeletal muscle using amphibian nerve muscle preparation under (a) free loading and (b) after loading conditions (§ Full Day Experiment) (Inner UG lab)</p> <p>Batch B: Expt. 20</p> <p>Expt. 20: Electrocardiography[§] (§ Full day experiment) (Demonstration room)</p> <p>Batch C: Expt. 21 and 22</p> <p>Expt. 21: Spirometry: Determination of various lung volumes; capacities, timed vital capacity and maximum voluntary ventilation. (Main UG Lab)</p> <p>Expt. 22: Effect of posture on blood pressure. (PG lab)</p>	<p>Dr R Bhatia</p> <p>Dr A K Jaryal Dr Manpreet Dr Suneetha Dr Bhupendra Dr Shival Dr Jojo Dr Komal Dr Arjun</p> <p>Dr K K Deepak Dr Nishanth Dr Anita Dr Suriya Dr Avinash Dr Sivraj</p> <p>Dr D Ghosh Dr Gaurav Dr Sankanika Dr Manju Dr Pankaj</p> <p>Dr A Talwar Dr Geetanjali Dr Neha Dr Navdeep Dr Bhvya</p>
15.11.13 Friday	9-10 am 2-3 pm	Lecture Lecture	<p>Neural regulation of respiration</p> <p>Hypoxia, cyanosis and dyspnoea</p>	<p>Dr AK Jaryal</p> <p>Dr AK Jaryal</p>

	3-4 pm	Lecture	UG seminar: How to assess vascular function	Dr R Bhatia
18.11.13 Monday	9-10 am	Lecture	Physiology of capillaries and lymphatics	Dr R Bhatia
	10-5pm	Practical	Batch A: Expt. 20 Batch B: Expt. 21 and 22 Batch C: Expt. 19	
21.11.13 Thursday	9-10 am	Lecture	Special features of coronary circulation	Dr R Bhatia
	11-12 pm	Lecture	Special features of circulation in skeletal muscle, skin and mesentery	Dr R Bhatia
	12-1 pm	Tutorial	Respiratory Physiology	Dr AK Jaryal
22.11.13 Friday	9-10 am	Lecture	Special features of pulmonary circulation	Dr AK Jaryal
	2-3 pm	Lecture	Introduction to nutrition and energy metabolism	Dr K P Kochhar
	3-4 pm	Tutorial	Vascular system	Dr R Bhatia
25.11.13 Monday	9-10 am	Lecture	Macronutrients : functions and sources	Dr K P Kochhar
	10-5pm	Practical	Batch A: Expt. 21 and 22 Batch B: Expt.19 Batch C: Expt. 20	
28.11.13 Thursday	9-10 am	Lecture	Special features of cerebral circulation	Dr R Bhatia
	11-12 pm	Lecture	Micronutrients and functional food: functions and sources	Dr K P Kochhar
	12-1 pm	Lecture	Special features of circulation in foetus and neonate	Dr R Bhatia
29.11.13 Friday	9-10 am	Lecture	Recommended dietary allowances, food guide pyramids	Dr K P Kochhar
	2-3 pm	Lecture	Dietary requirements in health and disease	Dr K P Kochhar
	3-4 pm	Tutorial	Applied aspects: Pathophysiology of	Dr R Bhatia

			circulatory shock and cardiac failure	
--	--	--	---------------------------------------	--

End Semester Examination: 2nd-12th December 2013