



PHYSIOLOGY DEPARTMENT

PSL 113 COURSE CURRICULUM

HUMAN PHYSIOLOGY FOR DENTAL STUDENTS

1442H (2020-2021)



LIST OF RESOURCE PERSONS

- Dr. Abdulrehman Al-Howaikan (**Chairman**)
- Dr. Hana Al-Zamil (**CO-Chairman**)
- Dr. Aida Korish (**Course Cordinator**)

<u>INSTRUCTORS</u>	<u>FACILITATORS</u>
<ul style="list-style-type: none"> • Dr. Laila Dokhi (Lailadokhi@yahoo.com) • Dr. Aida Korish (iaidakorish@yahoo.com) • Dr. Abeer Gomlas (abeerkg@yahoo.com) • Dr. Manan Hakbani (malhakbany@gmail.com) • Dr.Maha Saja (msaja@gmail.com • Dr. Asma Al Yahya (drasmalyahya@hotmail.com) 	<ul style="list-style-type: none"> • Dr. Ola Mawlana (olamawlana@gmail.com) • Dr. Rema Altaweraqi (raltaweraqi@KSU.EDU.SA)
<u>TECHNICAL ASSISTANTS</u>	
<ul style="list-style-type: none"> • Mrs. Sulfa AlThibiti • Mrs. Shorouq Al Saidi 	
<u>RECOMMENDED TEXTBOOK</u>	<u>REFERENCE BOOKS</u>
<ul style="list-style-type: none"> ➤ Human Physiology By: Linda S. Costanzo 6th Edition 	<ul style="list-style-type: none"> ➤ Textbook of Human Physiology By: Guyton and Hall 13th Edition

ADVICE TO STUDENTS

Please read this booklet carefully and keep it with you throughout the year for continuous references. This booklet contains the programme for the academic year 2020-21 (1442) providing information regarding the lectures, practical sessions and tutorials. It also gives the timetable of various continuous assessments and examinations, all of which contribute to your grade at the end of the year.

YOU ARE STRONGLY ADVISED TO:

- 1- Attend all your lectures, practicals and tutorials. They are there for your benefit. If you fall short of your attendance you will not be allowed to attend the final exam. Do not skip any of the continuous assessments. They are designed to check whether you are coping adequately with the course or are having difficulties with particular topics and are lagging behind. Their marks also have a weightage in your final grade. It will be much easier to pass if you compile your marks during the continuous assessments rather than to try to score very highly in the final examination.
- 2- Make sure, as soon as possible, after a lecture or practical, that you have understood the objectives of that session. If you can do this on the same day as the lecture or practical so much the better. Try to create a learning environment within your circle of friends and discuss academic topics of interest and/or difficulty, rather than engaging in frivolous and time waisting chatter, the more you discuss the better you will understand and retain knowledge.
- 3- Actively participate in the practicals whenever possible. Most students find that they can understand the topic more easily if they are the subjects for the experiments in the laboratory. Please read the practical notes before coming to the laboratory, sometimes it is possible to read about a topic before attending a lecture/class. This is highly recommended, as it will help you understand the topic better.
- 4- Be careful **NOT TO** depend **SOLELY** on handouts. If you have the time to write a few notes of your own, as well as read the recommended textbook, you will find the topics easier to understand. If you are having any difficulties, ask a member of staff for help. Do not be shy! All the teaching staff are approachable and will be happy to help you and answer your questions.

MARKING AND EVALUATION

FIRST TERM:

1st CAT (WEEK- 10) ----- 25 marks

1st PRACTICAL EXAM (Mid-year) (WEEK-17) ----- 5 marks

SUB-TOTAL===== 30 MARKS

SECOND TERM:

2nd CAT ----- 25 marks

2nd PRACTICAL EXAM (Final) ----- 5 marks

SUB-TOTAL===== 30 MARKS

FINAL EXAMINATION (end of year) ----- 40 marks

TOTAL MARKS ===== 100

LECTURE SCHEDULE

After an introduction to the course by the Chairman of Department and the Course Organizer the following topics and their stipulated lecture will be given throughout the academic year.

<u>Term I</u>	<u>No. of lectures</u>
1. Introduction to physiology	3
2. Cell membrane and body fluids	}
3. Blood physiology	6
4. ANS	3
5. Nerve and Muscle	6
6. Respiratory physiology	6
7. Cardiovascular physiology	12
8. Gastrointestinal physiology	6

Term II

9. Renal and acid-base physiology	9
10. Endocrinology	9
11. Central Nervous System and the Special Senses	11

PRACTICAL SCHEDULE

Term I

1. Blood physiology	2 classes
2. Cardiovascular physiology	3 classes
3. Respiratory physiology	1 classes

Term II

4. Renal physiology	1 class
5. Endocrinology	1 classes
6. Central Nervous System and the Special Senses	2 class

TUTORIAL SCHEDULE

During this time, students will discuss topics taught in the lectures, apply this knowledge to problems particularly relevant to students of Dentistry.

TERM 1 -1442 (2020-21)

LECTURE TIME TABLE -FEMALE SECTION

WEEK 1

CELL MEMBRANE AND BODY FLUIDS

Dr. Aida Korish

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages	Venue
01-09-2020 13-01-1442	Tue	8-9am		Intoduction to Physiology		
02.09.2020 14.01.1442	Wed	8-11 am	1-2	Cell membrane, Structure and Functions. Transport accross the cell membrane	1-5 Text	G3 College of Denistry
			3	Body fluid composition and homeostasis	5-15 Text	G3 College of Denistry

WEEK 2**BLOOD PHYSIOLOGY****DR. Abeer Gomlas**

Date	Day	Time	Lecture No. Practical	Topic	Reference Pages	Venue
08.09.2020 20.01.1442	Tue	8-9 am	1	Composition & Functions of Blood. Functions of Plasma Proteins.	285-287 Refernce book	G3 College of Denistry
09.09.2020 21.01.1442	Wed	8-9 am	2	RBCs: Erythropoiesis: Site, Regulation & Factors Affecting.	413-421 Referenc book	G3 College of Denistry
		9-10 am	3	WBCs: Types and functions of WBCs. Phagocytosis. Immunity in brief.	423-432 433-444 Referene book	G3 College of Denistry

WEEK 3**DR. Abeer Gomlas**

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages	Venue
15.09.2020 27.01.1442	Tue	8-9 am	4	Blood groups <ul style="list-style-type: none"> ▪ ABO System ▪ Rh System Complications of Blood Transfusion	445-450 Referene book	G3 College of Denistry
16.09.2020 28.01.1442	Wed	8-10 am	5-6	Haemostasis and blood coagulation. <ol style="list-style-type: none"> 1. Events of hemostasis Initiation of coagulation. <ul style="list-style-type: none"> ▪ The Extrinsic pathway. ▪ The Intrinsic pathway. ▪ Interaction between both the pathways. 2. Mechanism of Coagulation. Conversion of prothrombin to thrombin. <ul style="list-style-type: none"> ▪ Conversion of fibrinogen to fibrin ▪ Formation of a clot. 3. Bleeding Disorders & Anti-Coagulants. 	451-460 Referene book	G3 College of Denistry
		10-12 noon	<u>Practical</u>	<u>1st Practical on Blood</u> CBC, TLC, DLC	<i>In Dept: of Physiology, Lab 1& 2</i>	

WEEK 4**AUTONOMIC NERVOUS SYSTEM Prof. Faten Zakaria**

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages	Venue
22.09.2020 05.02.1442	Tue	8-9 am	1	ANS	45-63 Text	G3 College of Denistry
23.09.2020 06.02.1442	Wed	8-10 am	2-3	ANS	45-63 Text	G3 College of Denistry

NOTE:

The National Day holiday is on Wednesday 23rd of September. Since due to COVID the teaching is online, the respected teachers are requested to kindly conduct the sheduled lecture affected by the holiday with mutual agreement of students at an appropriate time.

WEEK 5**NERVE AND MUSCLE****Dr. Manan Hakbany**

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages	Venue
29.09.2020 12.02.1442	Tue	8-10 am	1	Basic Physics of Membrane Potentials and Resting membrane potential. Equilibrium potential.	15-18 Text	G3 College of Denistry
30.09.2020 13.02.1442	Wed	8-10 am	2-3	<ul style="list-style-type: none"> ▪ The Nerve Action Potential. ▪ Excitability changes of the nerve and propagation of AP 	18-23 Text	
		10-12 noon	<u>Practical</u>	<u>2nd Practical on Blood</u> Blood Group, BT, CT	<i>In Dept: of Physiology, Lab 1 & 2</i>	

WEEK 6**Dr. Manan Hakbany**

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages	Venue
06.10.2020 19.02.1442	Tue	8-9 am	4	Neuromuscular junction	24-26 Text	G3 College of Denistry
07.10.2020 20.02.1442	Wed	8-10 am	5-6	Physiological Anatomy of Skeletal Muscle. The Motor Unit. Mechanics of Skeletal Muscle Contraction.	32-37 Text	G3 College of Denistry
		10-12 am	<u>CD</u> <u>Sessio</u> <u>n</u>	CD session on (Nerve and Muscle)	<i>In Dept: of Physiology, Lab 1 & 2</i>	

WEEK 7**RESPIRATORY PHYSIOLOGY****Dr. Laila Dokhi**

Date	Day	Time	Lecture No. Practical	Topic	Reference Pages	Venue
13.10.2020 26.02.1442	Tue	8-9 am	1	<p>Functions and organization of the respiratory system. Pulmonary ventilation.</p> <ul style="list-style-type: none"> ▪ Mechanics of pulmonary ventilation. ▪ Respiratory muscles. ▪ Movement of air in and out of the lungs. ▪ Various pressure in the lungs. <p>Surfactant and surface tension</p>	183-201 Text	G3 College of Denistry
14.10.2020 27.02.1442	Wed	8-9 am	2	<p>Mechanics of breathing. Pulmonary volumes & capacities,</p> <ul style="list-style-type: none"> ▪ Pulmonary volumes. ▪ Pulmonary capacities. ▪ Alveolar Ventilation. ▪ Dead Spaces. ▪ Functions of Respiratory passages. 	183-201 Text	G3 College of Denistry
		9-10 am	3	<p>Transport of gasses between heart and the lungs.</p> <ul style="list-style-type: none"> ▪ Diffusion of O₂ and CO₂. ▪ Partial pressure of individual gasses. <p>Diffusion of gasses through the respiratory membrane.</p>	202-208 Text	G3 College of Denistry

WEEK 8

Dr. Laila Dokhi

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages	Venue
20.10.2020 03.03.1442	Tue	8-9 am	4	Loading and deloading of gasses at alveolar and tissue levels. <ul style="list-style-type: none"> ▪ Loading of O₂ at alveolar level. ▪ Deloading of O₂ at tissue level. ▪ Loading of CO₂ at tissue level. ▪ Deloading of CO₂ at alveolar level 	209-217 Text	G3 College of Denistry
21.10.2020 04.03.1442	Wed	8-9 am	5	Oxy-Hemoglobin dissociation curve. <ul style="list-style-type: none"> ▪ Factors affecting it. ▪ Transport of O₂. ▪ Transport of CO₂. Transport of CO	209-217 Text	G3 College of Denistry
		9-10	6	Regulation of respiration <ul style="list-style-type: none"> ▪ Respiratory centers. ▪ DRG. ▪ Pneumotaxic center. ▪ VRG. ▪ Hearing-Breuer reflex. Regulation of respiration(Continued) <ul style="list-style-type: none"> ▪ Chemical control of respiration. Peripheral chemoreceptors and the role of O ₂ .	223-230 Text	G3 College of Denistry
		10-12 noon	<u>Practical</u>	<u>1st Practical on Respiration.</u> <u>Simple Spirometry</u>	<i>In Dept: of Physiology, Lab 1 & 2</i>	

WEEK 9**CONSOLIDATION AND REVISION WEEK :**

Ask and inform your teachers about any academic problems that you are facing.

From: Sunday 25.10.2020 (08.03.1442)

To: Saturday 31.10.2020 (14.03.1442)

WEEK 10**1st CONTINUOUS**
ASSESSMENT

Wednesday: 04.11.2020 (18.03.1442)

WEEK 11**CARDIOVASCULAR PHYSIOLOGY****Dr. Asma Yahya**

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages	Venue
10.11.2020 24.03.1442	Tue	8-9am	1	Heart Muscle: Heart as a pump. <ul style="list-style-type: none"> ▪ Physiology of the cardiac muscle. ▪ Properties of the cardiac muscle. ▪ Cardiac excitation-contraction coupling. 	101-104 Reference book	G3 College of Denistry
11.11.2020 25.03.1442	Wed	8-9am	2-3	Rythmical excitaion of the heart. <ul style="list-style-type: none"> ▪ Specialized excitatory and conductive system of the heart. ▪ Control of excitation and conduction in the heart. ▪ S.A. node as a pacemaker. Control by the cardiac nerves.	115-120 Reference book	G3 College of Denistry

WEEK 12**Dr. Asma Yahya**

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages	Venue
17.11.2020 02.04.1442	Tue	8-9 am	4	Cardiac cycle: <ul style="list-style-type: none"> ▪ Systole and Diastole. ▪ Function of the Atria as a "Primer" pump. ▪ Function of the Ventricles as a pump. 	104-112 Reference book	G3 College of Denistry
18.11.2020 03.04.1442	Wed	8-10 am	5-6	Function of the valves. <ul style="list-style-type: none"> ▪ Aortic pressure curves. ▪ Relationship of heart sounds. ▪ Regulation of the heart pump. Effects of K^+ and Ca^{++} .	104-112 Reference book	G3 College of Denistry
		10-12 noon	<u>Practical</u>	<u>1st Practical on CVS</u> <ul style="list-style-type: none"> ▪ (Heart Sounds) 	<i>In Dept: of Physiology, Lab 1 & 2</i>	

WEEK 13**Dr. Maha Saja**

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages	Venue
24.11.2020 09.04.1442	Tue	8-9 am	7	The Electrocardiogram (ECG) An introduction	121-127 Reference book	G3 College of Denistry
25.11.2020 10.04.1442	Wed	8-10 am	8-9	<p>Blood pressure(B.P)</p> <ul style="list-style-type: none"> ▪ Defination. ▪ The Factors affecting ▪ B.P <p>Regulation of blood pressure.</p> <ul style="list-style-type: none"> ▪ Nervous regulation (Short term regulation). ▪ Role of Baro-receptors and Chemoreceptors ▪ The central nervous system's Ischemic response. 	162-170 Reference book	G3 College of Denistry
		10-12 noon	<u>Practical</u>	<u>2nd Practical on CVS (E.C.G.)</u>		

WEEK 14**Dr. Maha Saja**

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages	Venue
01.12.2020 16.04.1442	Tue	8-9 am	10	Role of the Kidney in long term regulation of blood pressure. <ul style="list-style-type: none"> The Renin-Angiotensin - Aldosterone System. 	201-211 Reference book	G3 College of Denistr y
02.12.2020 17.04.1442	Wed	8-10 am	11-12	Cardiac output and Venous Return. <ul style="list-style-type: none"> Factors affecting cardiac output and venous return. 	113-124 229-239 Reference book	G3 College of Denistr y
		10-12 noon	<u>Practical</u>	<u>3rd Practical on CVS (B.P)</u>	<i>In Dept: of Physiology, Lab 1 & 2</i>	

WEEK 15**GASTRO-INTESTINAL PHYSIOLOGY****Dr. Aida Korish**

Date	Day	Time	Lecture No./ Practical	Topic	Reference Pages	Venue
08.12.2020 23.04.1442	Tue	8-9 am	1	Gastro-Intestinal tract. <ul style="list-style-type: none"> ▪ Parts of the GIT. ▪ Oral cavity. ▪ Salivary glands. ▪ Secretion of saliva. ▪ Contents of saliva. ▪ Functions of saliva. Control of salivary secretion. Digestion of CHO in the mouth. Mastication and Deglutation.	753 & 763-765 & 773-775 Reference book	G3 College of Denistry
09.12.2020 24.04.1442	Wed	8-10 am	2-3	Oesophagus, Stomach and its functions. <ul style="list-style-type: none"> ▪ Gastric glands. ▪ Gastric secretion and digestion. ▪ Regulation of gastric secretion. 	765-767 Reference book	G3 College of Denistry

WEEK 16

GASTRO-INTESTINAL PHYSIOLOGY **Dr. Aida Korish**

Date	Day	Time	Lecture No./ Practica 1	Topic	Reference Pages	Venue
15.12.2020 30.04.1442	Tue	8-9 am	4	<p>Pancreatic secretions.</p> <ul style="list-style-type: none"> ▪ Physio-anatomy of the Pancreas. ▪ Enzymes of the pancreas and the intestinal brush border. <p>Regulation of the pancreatic secretion.</p>	780-783 Reference book	G3 College of Denistry
16.12.2020 01.05.1442	Wed	8-10 am	5-6	<p>Liver, bile and the billiary tree.</p> <ul style="list-style-type: none"> ▪ Pysio-anatomy. ▪ Bile and its secretion. ▪ Constituents of bile. <p>Gall bladder and its functions. Emptying of the gall bladder. Process of digestion and absorption.</p> <ul style="list-style-type: none"> ▪ Digestion and absorption of CHO. ▪ Digestion and absorption of Proteins. ▪ Digestion and absorption of Fats. ▪ Role of bile salts in fat absorption. 	783-786 & 789-798 Reference book	G3 College of Denistry

WEEK 17**1st PRACTICAL EXAMINATION (OSPE)**

Wednesday 23.12.2020 (08.05.1442)

WEEK 18 & 19**MID-YEAR BREAK**

From: End of Thursday 31.12.2020 (16.05.1442)

To: Saturday 16.01.2020 (03.06.1442)

2nd HALF OF THE ACADEMIC YEAR STARTS

Sunday 17.01.2020 (04.06.1442)