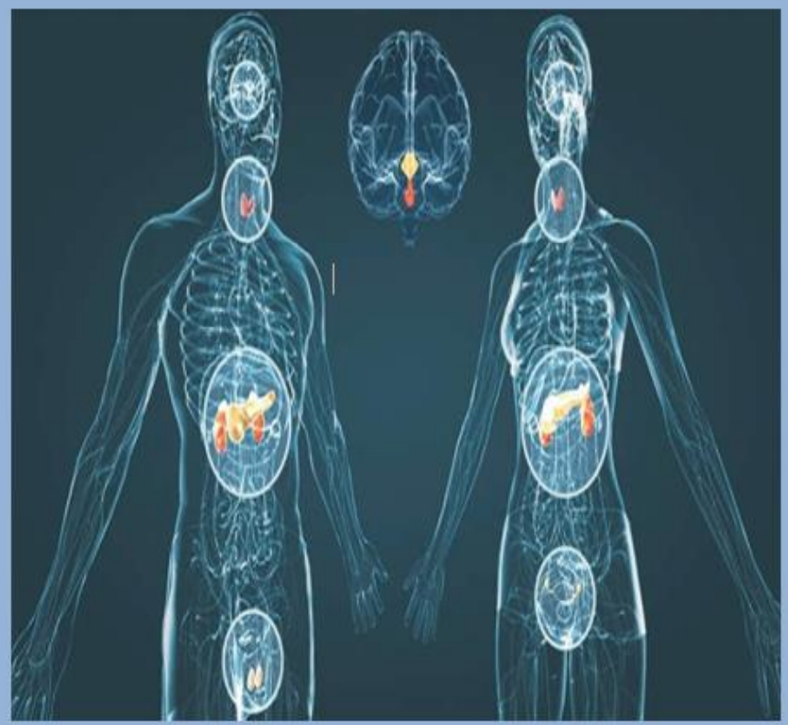
Department of Medical Education (DME)

Endocrinology Module

Study Guide
Second Year MBBS 2021 - 2022



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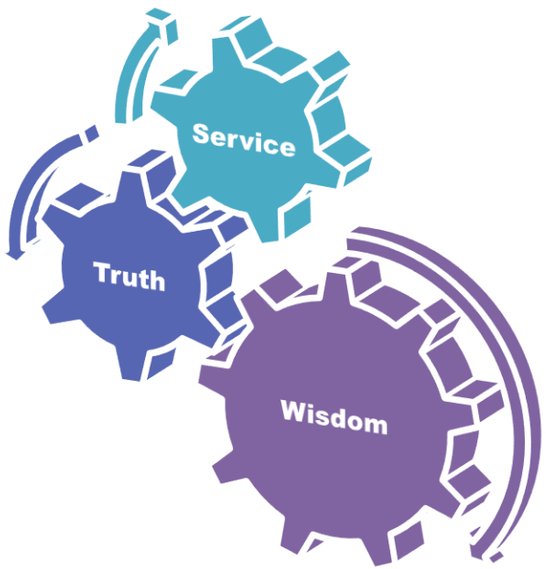
University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

To impart evidence-based research-oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability.

Vision and Values

Highly recognized and accredited centre of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable.

Goals of the Undergraduate Integrated Modular Curriculum

The Undergraduate Integrated Learning Program is geared to provide you with quality medical education in an environment designed to:

- Provide thorough grounding in the basic theoretical concepts underpinning the practice of medicine.
- Develop and polish the skills required for providing medical services at all levels of the health care delivery system.
- Help you attain and maintain the highest possible levels of ethical and professional conduct in your future life.
- Kindle a spirit of inquiry and acquisition of knowledge to help you attain personal and professional growth & excellence.

Second Year MBBS 2023

Study Guide

Endocrinology Module

Discipline wise Details of Modular Contents

Block	Subjects	Embryology	Histology	Histology Practical SKL. Lab.	Gross Anatomy	CBL	SDL
III	• Anatomy	• Development of pituitary & pineal gland • Developmnt of thyroid & parathyroid gland • Developmnt adrenal gland and pancreas	• Pituitary & pineal gland • Thyroid & parathyroid gland • Adrenal gland and pancreas	• Pituitary Gland • Thyroid & parathyroid gland • Adrenal gland • Pancreas	• Bones of neck. Hyoid Bone & Cervical vertebrae • Fascias of Neck • Superficial structurs of neck • Lateral-cervical region (muscles & triangles) • Latera-cervical-region (neurovascular organization) • Interior-cervical region(muscles) • Interior-cervical region (vessels of neck & cervical plexus) • Submandular region • Soft palate • Deep structures of neck • Root of neck • Thyroid&Parathyroid gland • Larynx • Pharynx • pancreas		• Bones of neck • SCM region & superficial & deep fascia • lateral cervical region • Anterior Triangle of neck & its subdivisions • Thyroid and para thyroid gland • Online SDL Evaluation • soft palate, larynx
	• Physiology	• Classification of hormones, Mechanism of action of different hormones Physiology of Thyroid hormones, Adrenal hormones, Insulin and glucagon, Blood glucose regulation, Role of Calcium & Phosphate					
	• Biochemistry	• Classification of hormones, Thyroid hormones, Adrenal hormones, Insulin and glucagon, Blood glucose regulation, Calcium revisit					
	• Biomedical Ethics	• History of Medical Ethics					
	• Behavioral Sciences	• Professionalism In Healthcare					
	• Research Club Activity	• Poster Presentation					
	• Radiology & Artificial Intelligence	• Basics of Radiology					
	• Family Medicine	• Approach to patient diabetes mellitus					
	• Vertical components	• The Holy Quran Translation • Islamiayat					

	• Vertical Integration	• Growth problems due to Endocrine causes (Peads) • Thyroid Disorders (Surgery) • Hypothyroidism and hyperthyroidism (Pathology) • Diabetes Mellitus (Medicine) • Endocrine Disorders In Pregnancy (Diabetes Mellitus, Thyroid Disorders) (Obs & Gynae)

Table of Contents

Endocrinology Module Team

Module Name	:	Endocrinology Module
Duration of module	:	04 Weeks
Coordinator	:	Dr. Sidra Hamid
Co-coordinator	:	Dr. Nayab
Reviewed by	:	Module Committee

Module Committee		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar
2.	Director DME	Prof. Dr. Rai Muhammad Asghar
3.	Convener Curriculum	Prof. Dr. Naeem Akhter
4.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf
5.	Additional Director DME	Prof. Dr. Ifra Saeed
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar
7.	Chairperson Biochemistry	Dr. Aneela Jamil
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9.	Focal Person Physiology	Dr. Sidra Hamid
10.	Focal Person Biochemistry	Dr. Aneela Jamil
11.	Focal Person Pharmacology	Dr. Zunera Hakim
12.	Focal Person Pathology	Dr. Asiya Niazi
13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom
15.	Focal Person Quran Translation Lectures	Dr. Fahad Anwar
16.	Focal Person Family Medicine	Dr. Sadia Khan

Module Task Force Team		
1.	Coordinator	Dr. Sidra Hamid (Assistant Professor of Physiology)
2.	DME Focal Person	Dr. Saira Aijaz (Senior Demonstrator)
3.	Co-coordinator	Dr. Nayab (Senior Demonstrator of Biochemistry)
4.	Co-Coordinator	Dr. Aneela Yasmin (Senoir Demonstrator of Physiology)
5.	Co-coordinator	Dr. Sadia Baqir (APWMO of Anatomy)

DME Implementation Team		
1.	Director DME	Prof. Dr. Rai Muhammad Asghar
2.	Implementation Incharge 1st & 2nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
3.	Deputy Director DME	Dr Shazia Zaib
4.	Module planner & Implementation coordinator	Dr. Sidra Hamid
5.	Editor	Muhammad Arslan Aslam

Module VI – Endocrinology Module

Rationale: The endocrine system is one of the two control systems of the body. It consists of many small organs responsible for the release of hormones. The endocrine system regulates metabolism, growth and development, tissue function and mood of a person. This system acts by means of hormones secreted into the blood to control process that require duration rather than speed e.g, metabolic activities and water and electrolyte balance. In this module we will concentrate on the integrating functions of the endocrine system and focus our teaching on the interaction of hormones and their integration to produce homeostatic regulation.

Module Outcomes

By the end of the module, students will be able to:

Knowledge

- The students should know the hormones and the organs producing them. They should know the chemical nature, biosynthesis and the physiological functions on their target organs. The student should understand & apply the concepts & principles of the basic sciences in context of clinical signs & symptoms to commonly occurring diseases of the endocrine.
- Used technology based Medical Education including
  Artificial Intelligence
- Appreciate concept and importance of
  Family Medicine
  Biomedical Ethics & Professional
  Research

Skills

- Students should be able to recognize the histological features of all the endocrine glands under microscope.

Attitude

- Student should observe lab safety rules
  Should have professional Attitude

SECTION - I

Terms & Abbreviations

Contents

Tables & Figures

Table1. Domains Of Learning According to Blooms Taxonomy

Sr. #	Abbreviation	Domains of learning
1.	C	**Cognitive Domain:** knowledge and mental skills.
	• C1	Remembering
	• C2	Understanding
	• C3	Applying
	• C4	Analyzing
	• C5	Evaluating
	• C6	Creating
2.	P	**Psychomotor Domain:** motor skills.
	• P1	Imitation
	• P2	Manipulation
	• P3	Precision
	• P4	Articulation
	• P5	Naturalization
3.	A	**Affective Domain:** feelings, values, dispositions, attitudes, etc
	• A1	Receive
	• A2	Respond
	• A3	Value
	• A4	Organize
	• A5	Internalize

Teaching and Learning Methodologies / Strategies

Large Group Interactive Session (LGIS)

The large group interactive session is structured format of Prof Umar Model of Integrated lecture. It will the followed for delivery of all LGIS. The lecturer will introduce a topic or common clinical condition and explains the underlying phenomena through questions, pictures, videos of patients, interviews and exercises, etc. Students are actively involved in the learning process.

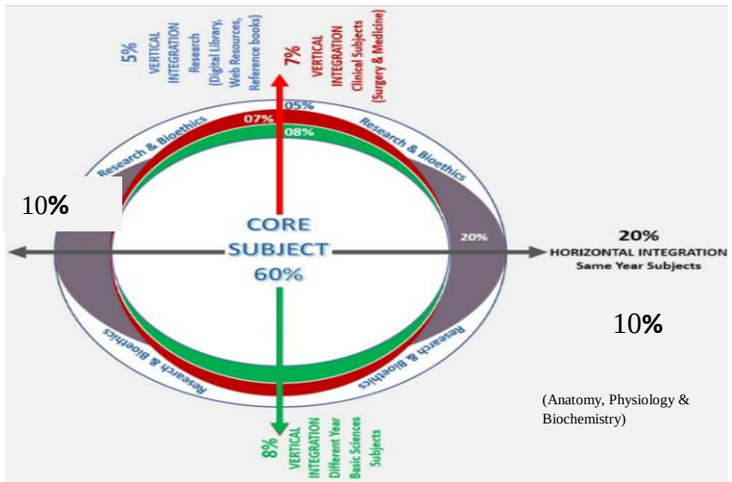


Figure 1. Prof Umar's Model of Integrated Lecture

Small Group Discussion (SGD)

This format helps students to clarify concepts acquire skills and attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics or power point presentations. Students exchange opinions and apply knowledge gained from lectures, SGDs and self study. The facilitator role is to ask probing questions, summarize and help to clarify the concepts.

Table 2. Standardization of teaching content in Small Group Discussions

S. No	Topics	Approximate %
1	Title Of SGD	
2	Learning Objectives from Study Guides	
3	Horizontal Integration	5%+5%=10%
4	Core Concepts of the topic	60%
5	Vertical Integration	20%
6	Related Advance Research points	3%
7	Related Ethical points	2%

Table 3. Steps of Implementaion of Small Group Discussions

Step 1	Sharing of Learning objectives by using students Study guides	First 5 minutes
Step 2	Asking students pre-planned questions from previous teaching session to develop co-relation (these questions will be standardized)	5minutes
Step 3	Students divided into groups of three and allocation of learning objectives	5minutes
Step 4	ACTIVITY: Students will discuss the learning objectives among themselves	15 minutes
Step 5	Each group of students will present its learning objectives	20 min
Step 6	Discussion of learning content in the main group	30min
Step 7	Clarification of concept by the facilitator by asking structured questions from learning content	15 min
Step 8	Questions on core concepts	
Step 9	Questions on horizontal integration	
Step 10	Questions on vertical integration	
Step 11	Questions on related research article	
Step 12	Questions on related ethics content	
Step 13	Students Assessment on online MS teams (5 MCQs)	5 min
Step 14	Summarization of main points by the facilitator	5 min
Step 15	Students feedback on the SGD and entry into log book	5 min
Step 16	Ending remarks	

Self Directed Learning (SDL)

- Self- directed learning is a process where students take primary charge of planning, continuing, and evaluating their learning experiences.
- Time Home assignment
- Learning objectives will be defined
- Learning resources will be given to students = Textbook (page no), web site
- Assessment:

  i Will be online on LMS (Mid module/ end of Module)

  ii.OSPE station

Case Based Learning (CBL)

- It's a learner centered model which engages students in discussion of specific scenarios that typically resemble real world examples.
- Case scenario will be given to the students
- Will engage students in discussion of specific scenarios that resemble or typically are real-world examples.
- Learning objectives will be given to the students and will be based on

  i. To provide students with a relevant opportunity to see theory in practice

  ii. Require students to analyze data in order to reach a conclusion.

  iii. Develop analytic, communicative, and collaborative skills along with content knowledge.

Problem Based Learning (PBL)

- Problem-based learning (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem.
- This problem is what drives the motivation and the learning.

The 7- Jump-Format of PBL (Masstricht Medical School)	
Step 7	Syntheise & Report
Step 6	Collect Information from outside
Step 5	Generate learning Issues
Step 4	Discuss and Organise Ideas
Step 3	Brainstorming to Identify Explanations
Step 2	Define the Problem
Step 1	Clarify the Terms and Concepts of the Problem Scenario
Problem- Scenario	

Figure 2. PBL 7 Jumps Mode

Practical Sessions/Skill Lab (SKL)

Practical Session/ Skill Lab (SKL)	
Demonstration/ power point presentation 4-5 slide	10-15 minutes
Practical work	25-30 minutes
Write/ draw and get it checked by teacher	20-25 minutes
05 mcqs at the end of the practical	10 minutes
At the end of module practical copy will be signed by head of department	
At the end of block the practical copy will be signed by Head of Department Dean Medical education department QEC	

SECTION – II

Learning Objectives, Teaching Strategies & Assesssments

Contents

- Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)
- Large Group Interactive Session:
  - Anatomy (LGIS)
  - Physiology (LGIS)
  - Biochemistry (LGIS)
- Small Group Discussions
  - Anatomy (SGD)
  - Physiology (SGD)
  - Biochemistry (SGD)
- Self Directed Topic, Learning Objectives & References
  - Anatomy (SDL)
  - Physiology (SDL)
  - Biochemistry (SDL)
- Skill Laboratory
  - Anatomy
  - Physiology
  - Biochemistry

Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)

Anatomy Large Group Interactive Session (LGIS)

Topic	Learning Objectives At the end of lecture students should be able to	Learning Domain	Teaching strategy	Assessment Tool
Histology of pituitary gland and pineal gland	• Describe histological structure of pituitary and pineal gland • Enumerate different cells present in both glands • Discuss bio-physiological aspects related to their secretions • Discuss the related clinical • Read relevant research article • Use digital library	C2 C1 C2 C3 C3 C3	LGIS	• MCQS • SEQS • VIVA
Histology of thyroid and parathyroid glands	• Describe histological structure of thyroid and parathyroid gland • Enumerate different cells present in both glands • Discuss bio-physiological aspects related to their secretions • Discuss the related clinical • Read relevant research article • Use digital library	C2 C1 C2 C3 C3 C3	LGIS	• MCQS • SEQS • VIVA
Histology of adrenal gland	• Describe histological structure of adrenal gland. • Enumerate different cells present in gland • Discuss bio-physiological aspects related to secretions. • Discuss the related clinical • Read relevant research article • Use digital library	C2 C1 C2 C3 C3 C3	LGIS	• MCQS • SEQS • VIVA
Development of pituitary and pineal gland	• Describe stages of development of pituitary and pineal glands • Enumerate structures involved in development of glands • Discuss congenital abnormalities related to development of glands • Read relevant research article • Use digital library	C2 C1 C3 C3 C3	LGIS	• MCQS • SEQS • VIVA
Development of thyroid and parathyroid glands	• Describe a stage of development of thyroid and parathyroid glands • Enumerate structures involved in development of glands • Discuss congenital abnormalities associated with their development	C2 C1 C3 C3 C3	LGIS	• MCQS • SEQS • VIVA

	• Read relevant research article • Use digital library			
Development of adrenal gland	• Describe stages of development of adrenal glands • Enumerate structures involved in the development of gland. • Discuss congenital abnormalities associated with its development. • Read relevant research article • Use digital library	C2 C1 C3 C3 C3	LGIS	• MCQS • SEQS • VIVA

Physiology Large Group Interactive Session (LGIS)

Topic	At The End Of Lecture Students Should Be Able To	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
Introduction to endocrinology & Signal transduction - I	• Define endocrinology • Describe several types of chemical messenger systems • Enumerate endocrine glands in the body along with their secretions • Compare two major control systems of the body • Identify different locations and properties of hormone receptors • Explain various intracellular signaling pathways after hormone receptor activation • Describe various mechanism of actions of hormones in detail	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 16, Page 299) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 395) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 231) (Chapter 23,Page 765) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 50,Page 817) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 75, Page 915-928)	• https://youtu.be/QLcxQT1fb_c • https://www.khanacademy.org/science/ap-biology/cell-communication-and-cell-cycle/cell-communication/a/introduction-to-cell-signaling • https://youtu.be/GHwMJnxaiys	1. C1 2. C1 3. C1 4. C2 5.C1 6.C2 7.C1	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Hypothalamic–pituitary axis & GH	• Recall the physiological anatomy and parts of pituitary gland • Enumerate various cell types in pituitary	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 17, Page 307,313,324)	• https://www.mdpi.com/2072-6694/15/15/3820	C1 C1 C2	LGIS	MCQ SEQ VIVA

	gland along with their secretion and function • Explain connections of anterior and posterior pituitary gland with hypothalamus • Enlist various hormones secreted from anterior & posterior pituitary gland • Describe metabolic functions of growth hormone • Elaborate the role of growth hormone in soft tissue and bone growth • Discuss role of somatomedins in relation with growth hormone • Explain regulation of secretion	• Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 407,411) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 241) (Chapter 23,Page 775) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 51,Page 837) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 76, Page 929)	• https://youtu.be/fqz4WOwfz4Q • https://resources.wfsahq.org/atotw/the-hypothalamic-pituitary-axis-part-1-anatomy-physiology/	C1 C1 C2 C2 C2		VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Introduction to endocrinology & Signal transduction-II	• Classify hormones according to solubility and chemical nature • Describe the nature& synthesis of hormones • Differentiate different classes of hormones • Describe the secretion, transport, feedback control& clearance of hormones Differentiate different classes of hormones	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 16, Page 301,304) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 395) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 235,250) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 50,Page 817-831) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 75, Page 915-928)	• https://youtu.be/QLcxQT1fb_c • https://www.khanacademy.org/science/ap-biology/cell-communication-and-cell-cycle/cell-communication/a/introduction-to-cell-signaling • https://youtu.be/GHwMJnxaiys	C2 C1 C2 C1 C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Abnormalities of	• Enlist abnormalities of GH secretion • Describe pan hypopituitarism • Discuss in detail dwarfism & its treatment	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 18, Page 321-334)	1. https://youtu.be/0GuRf5YPGiA 2. https://www.ncbi.n	C1 C1 C2	LGIS	MCQ SEQ VIVA

growth hormone secretion	• Explain gigantism & acromegaly • Differentiate gigantism & acromegaly	• Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 412) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 775) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 76, Page 936)	lm.nih.gov/books/NBK278971/	C2 C2		VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Insulin and glucagon: Structure and metabolic functions	• Describe physiological anatomy of pancreas • Describe chemistry, synthesis and transport of insulin • Describe the factors which affect secretion of insulin • Discuss mechanism of action of insulin • Describe the physiological actions of insulin • Explain mechanism of insulin secretion • Describe mechanism of action of glucagon • Discuss regulation of secretion of glucagon • Explain the functions of glucagon	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 429,445) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 440,446) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 22,Page 743) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 902) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 973,982)	1. https://youtu.be/1c6a0BNsyek 2. https://www.britannica.com/science/insulin 3. https://www.medicalnewstoday.com/articles/316427#overview	C1 C1 C1 C2 C1 C2 C1 C2 C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Hormones of posterior pituitary gland (oxytocin and ADH)	• Recall site of synthesis and secretion of posterior pituitary hormones • Describe mechanism of action, stimuli for secretion, functions and regulation of ADH • Discuss functions of oxytocin	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 17, Page 311) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 415)	1. https://youtu.be/EGl1Oeetxpg 2. https://teachmephysiology.com/endocrine-system/hypothala	C1 C1 C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based

		• Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 241) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 51,Page 849) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 76, Page 938)	mus-pituitary/posterior-pituitary/posterior-pituitary-gland/ 3. https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/posterior-pituitary-hormones			Aseessment, MST based Assessment) OSPE
Regulation of blood Glucose & Diabetes mellitus	• Describe various factors regulating blood glucose concentration • Discuss the importance of blood glucose regulation • Discuss the pathophysiology of diabetes mellitus • Explain the physiology of diagnosis of diabetes mellitus • Explain the treatment of diabetes mellitus • Differentiate between type I & type II diabetes mellitus • Differentiate between diabetes mellitus & diabetes insipidus	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 435-438,446-448) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 445) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 22,Page 743) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 915) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 983)	1. https://youtu.be/KY85BUcQZew 2. https://www.pharmaguideline.com/2022/01/hormonal-regulation-of-blood-glucose-level.html 3. https://www.medicalnewstoday.com/articles/316427	C1 C2 C2 C2 C2 C2 C2 C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Aldosterone and cortisol	• Describe physiological anatomy of adrenal gland • Enumerate its various hormones • Describe synthesis, transport & metabolism of adrenocortical hormones • Describe mechanism, physiological actions	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 20, Page 351-364) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 427)	1. https://youtube/2-Z3Q6BZuBY 2. https://journals.physiology.org/doi/abs/10.1152/ajplega	C1 C1 C1 C1 C1 C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS

	of aldosterone • Explain the phenomenon of aldosterone escape • Describe regulation of aldosterone secretion • Enlist abnormalities of aldosterone secretion • Describe mechanism, physiological actions of cortisol Discuss anti stress and anti-inflammatory actions of cortisol • Describe regulation of cortisol secretion • Discuss functions of adrenal androgens • Describe the chemistry, secretion regulation of secretion of ACTH • Discuss the actions of ACTH	• Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 765) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 53,Page 866) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 78,Page 955)	cy.1964.207.1.109 3. https://www.britannica.com/science/aldosterone	C1 C1 C2 C2 C1 C2 C1 C2		based Aseessment, MST based Assessment) OSPE
Thyroid hormone: Production, storage and release	• Recall physiological anatomy of thyroid gland • Briefly explain secretions of thyroid gland • Compare the features of tri iodothyronine with thyroxine • Describe the steps of synthesis of thyroid hormone • Discuss in detail half-life, release, and transport of thyroid hormones • Explain regulation of secretion of thyroid hormone	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 337) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 419) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 770) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 855) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 941)	1. https://youtu.be/afVX3mlNB80 2. https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/thyroid-hormone-release 3. https://byjus.com/biology/thyroid-hormone/	C1 C2 C2 C1 C2 C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

Abnormalities of adrenocortical hormone	• Discuss in detail Cushing's syndrome • Differentiate between Cushing disease and Cushing's syndrome • Discuss adrenogenital syndrome • Discuss the physiological anatomy of adrenal medulla • Enumerate various hormones secreted by adrenal medulla • Describe the steps involved in synthesis of catecholamines • Explain the function of catecholamines • Discuss stress response • Describe pheochromocytoma	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 20, Page 364-373) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 431,434,437) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 765) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 53,Page 874,875) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 78, Page 969)	1. https://journals.physiology.org/doi/abs/10.1152/ajplegacy.1964.207.1.109 2. https://youtu.be/pSeU9Ei-3u4 3. https://medlineplus.gov/adrenalglanddisorders.html	C2 C2 C2 C2 C2 C1 C1 C2 C2 C1	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Physiological role of thyroid hormone	• Describe mechanism of action of thyroid hormone • Explain physiological functions of thyroid hormone	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 343,345) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 423) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 770) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 855) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 944)	1. https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/thyroid-hormone-release 2. https://youtu.be/IXjRsX50JB4 3. https://journals.physiology.org/doi/full/10.1152/physrev.2001.81.3.1097	C1 C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin)	• Discuss normal levels and metabolism of calcium and phosphate • Describe the effects of hypocalcemia & hypercalcemia • Explain the absorption and excretion of calcium and phosphate • Discuss in detail bone physiology • Describe the steps involved the activation of Vitamin D • Discuss the actions of vitamin D • Describe the physiological anatomy of parathyroid glands • Describe the chemistry & regulation of secretion of parathyroid hormone • Explain the actions of parathyroid hormones • Describe functions and regulation of calcitonin	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 21, Page 375-386) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 448) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 777,779) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 54,Page 881,890) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 80, Page 991)	1. https://youtu.be/JYQL7JEsF_4 2. https://teachmephysiology.com/biochemistry/electrolytes/calcium-regulation	C2 C1 C2 C2 C1 C2 C1 C1 C2 C1	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism)	• Enlist disorders of thyroid gland • Discuss in detail causes, symptoms, diagnosis and treatment of hyperthyroidism • Discuss in detail causes, symptoms, diagnosis and treatment of hypothyroidism • Compare hypothyroidism with hyperthyroidism • Differentiate between pituitary dwarfism and cretinism	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 344,345) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 425) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 773) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 861) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section	1. https://www.hopkinsmedicine.org/health/conditions-and-diseases/disorders-of-the-thyroid 2. https://youtu.be/0vnpmaSI57c	C1 C2 C2 C2 C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

		14. (Chapter 77, Page 950)				
Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)	• Discuss in detail hypoparathyroidism • Describe hyperparathyroidism • Describe osteoporosis	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 21, Page 378,380,381,385,387) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 453) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 779) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 54, Page 881,890) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 80, Page 1003,1006)	1. https://www.orthobullets.com/basic-science/9031/rickets 2. https://youtu.be/Srm2GH1dusg 3. https://www.webmd.com/osteoporosis/what-is-osteomalacia	C2 C1 C1	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

Biochemistry Large Group Interactive Session (LGIS)

Topic	Learning Objectives At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Classification and mechanism of action of hormones	Classify hormones Explain the mechanism of action of hormones	C2 C2	LGIS	MCQs, SAQs & Viva
Thyroxin	Describe nature, formation and mechanism of action of thyroxin Discuss related clinical disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Parathyroid and Calcitonin	Discuss role of various hormones acting on calcium and phosphate metabolism Discuss related clinical disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Adrenal cortical hormones	Describe synthesis, mechanism of action and functions of aldosterone, cortisol and adrenal androgens Discuss related clinical disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Adrenal medullary hormones	Describe mechanism of action and role of adrenal medullary hormones Discuss related diseases	C2 C3	LGIS	MCQs, SAQs & Viva
Insulin and glucagon	Explain formation, mechanism of action and role of insulin and glucagon Discuss related diseases	C2 C3	LGIS	MCQs, SAQs & Viva
Blood glucose regulation	Describe regulation of normal plasma glucose level Explain hypoglycemia	C2 C3	LGIS	MCQs, SAQs & Viva

Anatomy Small Group Discussion (SGDs)

Topic	Learning Objectives At the end of lecture students should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Bones of neck Hyoid Bone Cervical vertebrae	• Describe the borders and surfaces of body and the two cornuas of hyoid bone.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss the attachments on the hyoid bone.	C2		
	• Discuss the related applied of hyoid.	C2		
	• Describe anatomical features of cervical typical & atypical vertebrae .	C2		
	• Discuss the intervertebral joints& movements of cervical region of vertebral column.	C2		
	• Discuss the anatomical basis of cervical pain & injuries of cervical vertebral column	C2		
	• Read relevant research article	C3		
	• Use digital library.	C3		
Fascias of Neck.	• Understand cervical subcutaneous tissue & platysma.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss the deep cervical fascia and the formation of layers due to its condensation.	C2		
	• Discuss the attachments and special features of the investing layer.	C2		
	• Describe the attachments and special features of prevertebral fascia.	C2		
	• Describe the attachments and special features of pretracheal fascia.	C2		
	• Discuss the carotid sheath formation, contents and relations.	C2		
	• Differentiate between the buccopharyngeal fascia and pharyngobasilar fascia.	C2		
	• Discuss related clinicals	C3		
	• Read relevant research article	C3		
	• Use digital library.	C3		
Superficial structures of the neck	• Discuss the location, attachments & actions of SCM & trapezius.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Describe boundaries & location of posterior cervical region .	C2		
	• Discuss suboccipital triangle of neck & its contents.	C2		
	• Discuss related clinicals	C3		
	• Discuss the location, attachments & actions of SCM & trapezius .	C2		
	• Describe boundaries & location of posterior cervical region .	C2		
	• Discuss related clinicals	C2		
	• Read relevant research article	C3		
	• Use digital library.	C3		
lateral cervical	• Describe boundaries of posterior triangle.	C2	Skill lab	MCQS

region-(Muscles & triangles)	• Discuss the muscles in lateral cervical region.(splenius capitus ,levator scapulae ,middle scalene &posterior scalene.	C2		SEQS VIVA OSPE
	• Describe boundaries and contents of occipital triangle	C2		
	• Discuss boundaries and contents of subclavian triangle	C2		
	• Discuss related clinicals	C3		
	• Read relevant research article	C3		
	• Use digital library.	C3		
lateral cervical region-(Neuro vascular organization)	• Discuss arteries in lateral cervical region (supra scapular artery, 3rd part of subclavian artery ,	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss veins of lateral cervical region (EJV&subclavian vein)	C2		
	• Discuss nerve supply of lateral cervical region	C2		
	• Discuss lymphatic drainage in lateral cervical region.	C2		
	• Discuss related clinicals	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		
Anterior cervical region-(Muscles)	• Discuss the Muscles in anterior cervical region (suprahyoid muscle group & infrahyoid muscle group)	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss the anatomical basis of torticollis	C3		
	• Discuss related clinicals.	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		
Anterior Cervical Region-(Vessels of neck & Cervical plexus)	• Discuss arterial supply in anterior cervical region (carotid system of arteries)	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss venous drainage in anterior cervical region	C2		
	• Discuss formation of cervical plexus	C2		
	• Enumerate branches of cervical plexus	C2		
	• Discuss area of distribution	C2		
	• Describe clinical and applied anatomy	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		
Submandibular Region	• Discuss the relations of digastric, mylohyoid and hyoglossus muscles.	C2	Skill lab	MCQS SEQS
	• Describe the gross features, relations, blood supply, lymphatic drainage and nerve supply of submandibular salivary gland.	C2		
	• Describe the details of Wharton's duct, its opening and related clinicopathological	C2		

	conditions			VIVA OSPE
	• Describe the gross features, relations, blood supply, lymphatic drainage and nerve supply of sublingual salivary gland.	C2		
	• Tabulate the comparison of three salivary glands.	C2		
	• Describe the connections and branches with area of supply by the sub-mandibular ganglion.	C2		
	• Read relevant research article	C3		
	• Use digital library	C3		
Soft Palate	• Discuss the anatomy of soft palate along with attachment of muscles and their actions.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Describe boundaries of tonsillar fossa.	C2		
	• Discuss related clinicals	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		
Deep structures of neck	• Discuss prevertebral muscles (ant.vertebral muscles & lateral vertebral muscles)	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss related clinicals.	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		
Root of Neck	• Discuss arteries & veins in root of neck.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss nerve supply in root of neck.	C2		
	• Discuss related clinicals.	C3		
	• Read a relevant research article	C3		
	• Use digital library	C3		
Thyroid and para thyroid glands	• Discuss anatomy & functions of thyroid & parathyroid gland	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss blood supply of thyroid gland	C2		
	• Discuss lymphatic drainage & nerve supply of thyroid gland	C2		
	• Discuss related clinicals.	C3		
	• Read a relevant research article	C3		
	• Use digital library	C3		
larynx	• Discuss larynx in detail with its cartilages and muscles.	C2		
	• Discuss blood supply of larynx	C2		

	• Discuss functions of larynx • Discuss trachea (revisit).	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss related clinicals	C3		
	• Read a relevant research article	C3		
	• Use digital library	C3		
Pharynx	• Tabulate muscles of pharynx with origin, insertion, nerve supply and actions	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss nerve supply of Pharynx	C2		
	• Discuss blood supply of larynx	C2		
	• Discuss esophagus (revisit)	C2		
	• Discuss related clinicals	C3		
	• Read a relevant research article	C3		
	• Use digital library	C3		
Pancreas & Adrenal gland	• Describe location of pancreas & Adrenal gland	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Enlist different parts of pancreas	C2		
	• Describe relations of pancreas	C2		
	• Discuss blood supply of pancreas	C2		
	• Discuss the clinical Anatomy of pancreas	C3		
	• Discuss related clinicals	C3		
	• Read a relevant research article	C3		
	• Use digital library	C3		

Physiology Small Group Discussion (SGDs)

Topic	At The End Of Lecture Students Should Be Able To	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
Signal transduction & Growth hormone.	• Define endocrinology • Describe several types of chemical messenger systems • Enumerate endocrine glands in the body along with their secretions • Compare two major control systems of the body	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 16, Page 299) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 395) • Human Physiology by Dee	• https://youtu.be/QLcxQT1fb_c • https://www.khanacademy.org/science/ap-biology/cell-communication-and-cell-cycle/cell-communication/a/intro	1. C1 2. C1 3. C1 4. C2 5.C1 6.C2 7.C1	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based

	• Identify different locations and properties of hormone receptors • Explain various intracellular signaling pathways after hormone receptor activation • Describe various mechanism of actions of hormones in detail	Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 231) (Chapter 23,Page 765) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 50,Page 817) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 75, Page 915-928)	duction-to-cell-signaling https://youtu.be/GHwMJnxaiys			Aseessment, MST based Assessment) OSPE
Thyroid Hormones	• Recall physiological anatomy of thyroid gland • Briefly explain secretions of thyroid gland • Compare the features of tri iodothyronine with thyroxine • Describe the steps of synthesis of thyroid hormone • Discuss in detail half-life, release, and transport of thyroid hormones Explain regulation of secretion of thyroid hormone	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 337) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 419) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 770) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 855) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 941)	1. https://youtu.be/afVX3mlNB80 2. https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/thyroid-hormone-release **3.** https://byjus.com/biology/thyroid-hormone/	C1 C2 C2 C1 C2 C2	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

Insulin and Glucose Metabolism	• Describe physiological anatomy of pancreas • Describe chemistry, synthesis and transport of insulin • Describe the factors which affect secretion of insulin • Discuss mechanism of action of insulin • Describe the physiological actions of insulin • Explain mechanism of insulin secretion • Describe mechanism of action of glucagon • Discuss regulation of secretion of glucagon Explain the functions of glucagon	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 429,445) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 440,446) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 22,Page 743) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 902) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 973,982)	1. https://youtu.be/1c6a0BNsyek 2. https://www.britannica.com/science/insulin 3. https://www.medicalnewstoday.com/articles/316427#overview	C1 C1 C1 C2 C1 C2 C1 C2 C2	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism	• Discuss in detail hypoparathyroidism • Describe hyperparathyroidism Describe osteoporosis	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 21, Page 378,380,381,385,387) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 453) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 779) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 54, Page 881,890) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 80, Page 1003,1006)	1. https://www.orthobullets.com/basic-science/9031/rickets 2. https://youtu.be/Srm2GH1dusg 3. https://www.webmd.com/osteoporosis/what-is-osteomalacia	C2 C1 C1	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

Insulin and Glucagon:Structure and metabolic functions (Second week)	• Describe physiological anatomy of pancreas • Describe chemistry, synthesis and transport of insulin • Describe the factors which affect secretion of insulin • Discuss mechanism of action of insulin • Describe the physiological actions of insulin • Explain mechanism of insulin secretion • Describe mechanism of action of glucagon • Discuss regulation of secretion of glucagon Explain the functions of glucagon	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 429,445) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 440,446) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 22,Page 743) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 902) 4. Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 973,982)	1. https://youtu.be/1c6a0BNsyek 2. https://www.britannica.com/science/insulin 3. https://www.medicalnewstoday.com/articles/316427#overview	C1 C1 C1 C2 C1 C2 C1 C2 C2	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Adrenal gland and its hormones (Fourth week)	• Describe physiological anatomy of adrenal gland • Enumerate its various hormones • Describe synthesis, transport & metabolism of adrenocortical hormones • Describe mechanism, physiological actions of aldosterone • Explain the phenomenon of aldosterone escape • Describe regulation of aldosterone secretion • Enlist abnormalities of aldosterone secretion • Describe mechanism, physiological actions of cortisol Discuss anti stress and anti-	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 20, Page 351-364) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 427) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 765) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 53,Page 866) 5. Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 78,Page 955)	1. https://youtube/2-Z3Q6BZuBY 2. https://journals.physiology.org/doi/abs/10.1152/ajplegacy.1964.207.1.109 3. https://www.britannica.com/science/aldosterone	C1 C1 C1 C1 C2 C1 C1 C2 C2 C1 C2 C1 C2	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

	inflammatory actions of cortisol • Describe regulation of cortisol secretion • Discuss functions of adrenal androgens • Describe the chemistry, secretion regulation of secretion of ACTH Discuss the actions of ACTH					

Biochemistry Small Group Discussion (SGDs)

Topic	At The End Of Tutorial Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Classification of endocrine hormones,	• Classify Endocrine hormones	C1	SGD	MCQs SAQs Viva
	• Disscus the mechanism of action of endocrine hormones	C2		
Adrenocortical Hormones	• Elaborate formation, functions & related disorders of adrenocortical hormones	C2	SGD	MCQs SAQs Viva

Anatomy Self Directed Learning (SDL)

Topics	Learning objectives	Learning Resources
Bones of neck Hyoid Bone, Cervical vertebrae	• Describe the borders and surfaces of body and the two cornuas of hyoid bone. • Discuss the attachments on the hyoid bone. • Discuss the related applied of hyoid. • Describe anatomical features of cervical typical & atypical vertebrae . • Discuss the intervertebral joints& movements of cervical region of vertebral column. • Discuss the anatomical basis of cervical pain & injuries of cervical vertebral column • Read relevant research article • Use digital library.	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page 982-985). • https://youtu.be/Mrtt9s72a7I?si=-lCPt14ihH7g0tKE • https://youtu.be/4Q244XGveyQ?si=TH6IM2Jf43P_SBv3
Sternocleidomastoid region & superficial & deep fascias of neck	• Discuss the location, attachments & actions of SCM & trapezius . • Describe boundaries & location of posterior cervical region . • Discuss suboccipital triangle of neck & its contents. • Discuss related clinicals • Discuss the location,attachments & actions of SCM & trapezius . • Describe boundaries & location of posterior cervical region . • Discuss related clinicals • Read relevant research article • Use digital library.	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, P 989-992). • https://youtu.be/nSaaWPzG4Zk?si=Muj6xMLX8fYkPOie • https://youtu.be/dEpCSJajCew?si=OM4W_bKbS7Eodte4
Lateral cervical region	• Describe boundaries of posterior triangle. • Discuss the muscles in lateral cervical region . • (splenius capitus ,levator scapulae ,middle scalene &posterior scalene. • Describe boundaries and contents of occipital triangle • Discuss boundaries and contents of subclavian triangle • Discuss related clinicals • Read relevant research article • Use digital library.	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page 992-999). • https://youtu.be/bk9KA2nR7PA?si=jBEzEd-MWZ83ne6a • https://youtu.be/kPUwVJE_j0I?si=--Ozn5s_bZLuoq-a

Anterior Triangle of neck & its subdivisions	• Discuss the Muscles in anterior cervical region (suprahyoid muscle group & infrahyoid muscle group) • Discuss the anatomical basis of torticollis • Discuss related clinicals. • Discuss arteries in anterior cervical region (carotid system of arteries) • Discuss veins in anterior cervical region • Discuss formation of cervical plexus • Enumerate branches of cervical plexus • Discuss area of distribution • Read relevant research article • Use digital library	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page,999-1005). • https://youtu.be/hnLtAYvAMkw?si=EWZCqciSD2K91uo4 • https://youtu.be/YOgE2pmXfZg?si=7hU-ZAw7wcaomUyI	
Thyroid and para thyroid gland	▪ Discuss anatomy & functions of thyroid& parathyroid gland ▪ Discuss blood supply of thyroid gland ▪ Discuss lymphatic drainage of thyroid gland ▪ Discuss nerve supply of thyroid gland ▪ Discuss related clinicals. • Read a relevant research article • Use digital library	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page 1018-1021). • https://youtu.be/7_Rd7HEZPI?si=mhoplCBjHSUL6pwI • https://youtu.be/ruOirrIc6oY?si=frzfEV7Lqb52Pp6Q	
Soft palate, larynx	• Discuss the anatomy of soft palate. • Along with attachment of muscles and their actions. • Describe boundaries of tonsillar fossa. • Discuss larynx in detail with its cartilages and muscles. • Discuss blood supply of larynx • Discuss functions of larynx • Discuss trachea (revisit). ▪ Discuss related clinicals ▪ Read a relevant research article • Use digital library	• Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page 1021-1032). https://youtu.be/eBn3PMX0tfk?si=hCg37nm5DsR6T1_s https://youtu.be/4SDETzyJCVI?si=zWSHGf-prTqR1kqi	

Physiology Self Directed Learning (SDL)

Topic	At The End Of Lecture Students Should Be Able To	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
(ON CAMPUS) Regulation of blood Glucose & Diabetes mellitus	• Describe various factors regulating blood glucose concentration • Discuss the importance of blood glucose regulation • Discuss the pathophysiology of diabetes mellitus • Explain the physiology of diagnosis of diabetes mellitus • Explain the treatment of diabetes mellitus • Differentiate between type I & type II diabetes mellitus • Differentiate between diabetes mellitus & diabetes insipidus	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 435-438,446-448) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 445) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 22,Page 743) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 915) ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 983)	1. https://youtu.be/KY85BUcQZew 2,https://www.pharmaguideline.com/2022/01/hormonal-regulation-of-blood-glucose-level.html 3.https://www.medicalnewstoday.com/articles/316427	C1 C2 C2 C2 C2 C2 C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MST based Assessment) OSPE SDL Evaluation
Abnormalities of adrenocortical hormone	• Discuss in detail Cushing's syndrome • Differentiate between Cushing disease and Cushing's syndrome • Discuss adrenogenital syndrome • Discuss the physiological anatomy of adrenal medulla • Enumerate various hormones secreted by adrenal medulla • Describe the steps involved in synthesis of catecholamines • Explain the function of catecholamines • Discuss stress response • Describe pheochromocytoma	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 20, Page 364-373) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 431,434,437) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 765) • Physiological Basis of Medical Practice by Best & Taylor's.13th	1. https://journals.physiology.org/doi/abs/10.1152/ajplegacy.1964.207.1.109 2. https://youtu.be/pSeU9Ei-3u4 3. https://medlineplus.gov/adrenalglanddisorders.html	C2 C2 C2 C2 C1 C1 C2 C2 C1	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MST based Assessment) OSPE SDL Evaluation

		Edition. Section 07(Chapter 53,Page 874,875) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 78, Page 969)				
Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)	• Discuss in detail hypoparathyroidism • Describe hyperparathyroidism • Describe osteoporosis	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 21, Page 378,380,381,385,387) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 453) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 779) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 54, Page 881,890) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 80, Page 1003,1006)	1. https://www.orthobullets.com/basic-science/9031/rickets 2. https://youtu.be/Srm2GH1dusg 3. https://www.webmd.com/osteoporosis/what-is-osteomalacia	C2 C1 C1	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MST based Assessment) OSPE SDL Evaluation
(OFF CAMPUS) Hypothalamic–pituitary axis & GH	• Recall the physiological anatomy and parts of pituitary gland • Enumerate various cell types in pituitary gland along with their secretion and function • Explain connections of anterior and posterior pituitary gland with hypothalamus • Enlist various hormones secreted from anterior & posterior pituitary gland • Describe metabolic functions of	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 17, Page 307,313,324) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 407,411) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 241)	• https://www.mdpi.com/2072-6694/15/15/3820 • https://youtu.be/fqz4WOwfz4Q https://resources.wfsahq.org/atotw/the-hypothalamic-	1. C1 2. C1 3. C2 4. C1 5. C1 6. C2 7. C2 8. C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MST based Assessment) OSPE

	growth hormone • Elaborate the role of growth hormone in soft tissue and bone growth • Discuss role of somatomedins in relation with growth hormone • Explain regulation of secretion	(Chapter 23,Page 775) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 51,Page 837) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 76, Page 929)	pituitary-axis-part-1-anatomy-physiology/			SDL Evaluation
Introduction to endocrinology & Signal transduction	• Classify hormones according to solubility and chemical nature • Describe the nature& synthesis of hormones • Differentiate different classes of hormones • Describe the secretion, transport, feedback control& clearance of hormones • Differentiate different classes of hormones	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 16, Page 301,304) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 395) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 235,250) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 50,Page 817-831) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 75, Page 915-928)	• https://youtu.be/QLcxQT1fb_c • https://www.khanacademy.org/science/ap-biology/cell-communication-and-cell-cycle/cell-communication/a/introduction-to-cell-signaling https://youtu.be/GHwMJnxaiys	C2 C1 C2 C1 C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MST based Assessment) OSPE SDL Evaluation
Insulin and glucagon:	• Describe physiological anatomy of pancreas • Describe chemistry, synthesis and transport of insulin • Describe the factors which affect secretion of insulin	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 429,445) • Physiology by Linda S. Costanzo 6th Edition.Endocrine	1. https://youtu.be/1c6a0BNsyek 2. https://www.britannica.com/science/i	C1 C1 C1 C2 C1 C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MS

	• Discuss mechanism of action of insulin • Describe the physiological actions of insulin • Explain mechanism of insulin secretion • Describe mechanism of action of glucagon • Discuss regulation of secretion of glucagon • Explain the functions of glucagon	Physiology (chapter 09, page 440,446) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 22,Page 743) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 902) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 973,982)	nsulin 3. https://www.medicalnewstoday.com/articles/316427#overview	C1 C2 C2		T based Assessment) OSPE SDL Evaluation
Aldosterone and cortisol	• Describe physiological anatomy of adrenal gland • Enumerate its various hormones • Describe synthesis, transport & metabolism of adrenocortical hormones • Describe mechanism, physiological actions of aldosterone • Explain the phenomenon of aldosterone escape • Describe regulation of aldosterone secretion • Enlist abnormalities of aldosterone secretion • Describe mechanism, physiological actions of cortisol Discuss anti stress and anti-inflammatory actions of cortisol • Describe regulation of cortisol secretion • Discuss functions of adrenal androgens • Describe the chemistry, secretion	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 20, Page 351-364) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 427) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 765) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 53,Page 866) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 78,Page 955)	1. https://youtube/2-Z3Q6BZuBY 1. https://journals.physiology.org/doi/abs/10.1152/ajplegacy.1964.207.1.109 2. https://www.britannica.com/science/aldosterone	C1 C1 C1 C1 C2 C1 C1 C2 C2 C1 C2 C1 C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MS T based Assessment) OSPE SDL Evaluation

	regulation of secretion of ACTH • Discuss the actions of ACTH					
Thyroid hormone:	• Recall physiological anatomy of thyroid gland • Briefly explain secretions of thyroid gland • Compare the features of tri iodothyronine with thyroxine • Describe the steps of synthesis of thyroid hormone • Discuss in detail half-life, release, and transport of thyroid hormones • Explain regulation of secretion of thyroid hormone	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 337) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 419) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 770) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 855) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 941)	1. https://youtu.be/afVX3mlNB80 2. https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/thyroid-hormone-release 3. https://byjus.com/biology/thyroid-hormone/	C1 C2 C2 C1 C1 C2 C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MST based Assessment) OSPE SDL Evaluation
Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism)	• Enlist disorders of thyroid gland • Discuss in detail causes, symptoms, diagnosis and treatment of hyperthyroidism • Discuss in detail causes, symptoms, diagnosis and treatment of hypothyroidism • Compare hypothyroidism with hyperthyroidism • Differentiate between pituitary dwarfism and cretinism	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 344,345) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 425) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 773) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 861)	1. https://www.hopkinsmedicine.org/health/conditions-and-diseases/disorders-of-the-thyroid 2. https://youtu.be/0vnpmaSI57c	C1 C2 C2 C2 C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MST based Assessment) OSPE SDL Evaluation

		• Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 950)				
Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin)	• Discuss normal levels and metabolism of calcium and phosphate • Describe the effects of hypocalcemia & hypercalcemia • Explain the absorption and excretion of calcium and phosphate • Discuss in detail bone physiology • Describe the steps involved the activation of Vitamin D • Discuss the actions of vitamin D • Describe the physiological anatomy of parathyroid glands • Describe the chemistry & regulation of secretion of parathyroid hormone • Explain the actions of parathyroid hormones Describe functions and regulation of calcitonin	• Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 21, Page 375-386) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 448) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 777,779) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 54,Page 881,890) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 80, Page 991)	1. https://youtu.be/JYQL7JEsF_4 2.https://teachmephysiology.com/biochemistry/electrolytes/calcium-regulation	C2 C1 C2 C2 C1 C2 C1 C1 C2 C1	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MST based Assessment) OSPE SDL Evaluation

Biochemistry Self Directed Learning (SDL)

Topic	At The End Of SDL Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool	Learning Resources
Classification & Mechanism of action of Endocrine Hormones	• Classify Endocrine Hormones • Discuss the Mechanism of action of various Endocrine Hormones	C1 C2	SDL	MCQs SAQs Viva	1. Harper's Illustrated Biochemistry 32nd edition, chapter 41, pages 482-484 2. Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapter 18, pages 265-266 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6761896/ https://www.youtube.com/watch?v=KSclrkk_Ako
Formation & Mechanism of action of Thyroid Hormone	• Elaborate the nature, formation, mechanism of action and related diseases of Thyroxin	C2	SDL	MCQs SAQs Viva	1. Harper's Illustrated Biochemistry 32nd edition, chapter 41, pages 492-493 and 498 2. Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapter 29, pages 452-454 https://www.nature.com/articles/boneres201311 https://www.youtube.com/watch?v=cDGmsR2ZILE
Synthesis & Mechanism of Action of Adrenocortical Hormones	• Describe synthesis, mechanism of action and functions of Aldosterone, Cortisol and Adrenal androgens • Discuss related clinical disorders • Describe mechanism of action and role of Adrenal Medullary Hormones • Discuss related diseases	C2 C2	SDL	MCQs SAQs Viva	1. Harper's Illustrated Biochemistry 32nd edition, chapter 41, pages 485-488, 491- 492, and 495-496, 498-499 2. Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapter 18, pages 262-266 https://www.ncbi.nlm.nih.gov/books/NBK470339/ https://www.youtube.com/watch?v=JlI5N2N4d-k https://www.sciencedirect.com/topics/medicine-and-dentistry/adrenal-medulla https://www.youtube.com/watch?v=afzWLmd72Rk
Synthesis & Mechanism of Action of Insulin & Glucagon	• Explain formation, mechanism of action and role of Insulin and Glucagon • Discuss related diseases	C2	SDL	MCQs SAQs Viva	1. Harper's Illustrated Biochemistry 32nd edition, chapter pages 493-494 2. Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapter 23, pages 341-354 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6515536/ https://www.youtube.com/watch?v=1c6a0BNsyek https://www.youtube.com/watch?v=-3J6QRMerQE

Glucose Tolerance Test Curves Hypoglycemia Diabetic Ketoacidosis & Hyperosmolar Hyperglycemic State Online Clinical Evaluation	• Normal & abnormal curves of glucose tolerance test and factors effecting it. Interpretation of GTT curves for Diabetes Mellitus • Hypoglycemia, Hyperglycemia & Diabetic ketoacidosis	C2	SDL	MCQs SAQs Viva	1. Harper's Illustrated Biochemistry 32nd edition, chapter pages 719-720, 136-138 & 469-470 2. Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapters 23 & 25, pages 350-354 & 375-387 https://www.ncbi.nlm.nih.gov/books/NBK532915/ https://www.youtube.com/watch?v=SRZlYdQWO3g https://www.ncbi.nlm.nih.gov/books/NBK279052/ https://www.youtube.com/watch?v=jCf7W1U4JKE https://www.ncbi.nlm.nih.gov/books/NBK534841/

Histology Practicals Skill Laboratory (SKL)

Topic	Learning Objectives At the end of practical students should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Histology of pituitary gland	• Identify the histological slide of the pituitary gland	P	Skill lab	OSPE VIVA
	• Illustrate the histological structure of the pituitary gland	C2		
	• Enlist two points of identification	C1		
Histology of adrenal gland	• Identify the histological slide of the adrenal gland	P	Skill Lab	OSPE VIVA
	• Illustrate the histological structure of the adrenal gland	C2		
	• Enlist two points of identification	C1		
Histology of thyroid and parathyroid gland	• Identify the histological slide of the thyroid and parathyroid gland	P	Skill lab	OSPE VIVA
	• Illustrate the histological structure of the thyroid and parathyroid gland	C2		
	• Enlist two points of identification	C1		
Histology of pancreas	• Identify the histological slide of the pancreas	P	Skill lab	OSPE VIVA
	• Illustrate the histological structure of the pancreas	C2		
	• Enlist two points of identification	C1		

Physiology Practicals Skill Laboratory (SKL)

Topic	At The End Of Lecture Students Should Be Able To	References	Learning Resources	Learning Domains	Learning Strategy
Examination of pupillary reaction	• Principle • Procedure • Precautions • Clinical correlation OF Pupillary Reactions	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	A3/P3/C1	Practicals /skill lab	Viva Voce Ospe Video Assissted Assessment
Checking for color vision	• Apparatus identification • Principle • Procedure • Precautions • Clinical correlation for color vision	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	A3/P3/C1	Practicals /skill lab	Viva Voce Ospe Video Assissted Assessment
Revision of practical	• Revision	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	A3/P3	Practicals /skill lab	Viva Voce Ospe Video Assissted Assessment

Biochemistry Practicals Skill Laboratory (SKL)

Topic	At The End Of Practical Students Should Be Able To	C/P/A	Teaching Strategy	Assessment Tool
Estimation of Blood Glucose	• Perform estimation of glucose by spectrophotometer	P	Skill lab	OSPE
GTT	• Explain the procedure of practical, normal & abnormal curves of glucose and factors effecting it Interpret the result of GTT	P	Skill lab	OSPE

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

- **CBLs**
- **Vertical Integration LGIS**
- **Longitudinal Themes**
    - **Biomedical Ethics & Professionlism**
    - **Family Medicine**
    - **Artificial Intelligence (Innovation)**
    - **Integrated Undergraduate Research Curriculum (IUGRC)**

Case Based Learning Objectives (CBL)

Subjects	Topics	At the end of the session the student should be able to	Learning Domains
Anatomy	• Multi Nodular Goitre with Hypothyroidism	Apply basic knowledge of subject to study clinical case.	C3
	• Torticollis	Apply basic knowledge of subject to study clinical case.	C3
Physiology	• Adrenocortical Hormone	Apply basic knowledge of subject to study clinical case	C3
Biochemistry	• Thyrotoxicosis	Apply basic knowledge of subject to study clinical case.	C3
	• Addison's Disease	Apply basic knowledge of subject to study clinical case	C3

Vertical Integration LGIS

Pathology

Topic	At the end of this LGIS students of should be able to:	Learning Domain	Teaching Strategy	Assessment Tool
Pituitary disorders	• Discuss pathogenesis of pituitary adenomas	C2	LGIS	MCQ's
	• Causes of hypopituitarism and posterior pituitary syndromes	C2		
Calcium metabolism disorders	• Describe pathogenesis of Tetany	C2	LGIS	MCQ's
	• Causes of Hypoparathyroidism and • Hyperparathyroidism (primary and secondary)	C2		
	• Describe the pathogenesis of Rickets and • Osteomalacia	C2		
	• Describe the pathological features of Osteoporosis and osteopetrosis	C2		
Adrenocortical disorders	• Define and discuss pathogenesis of	C2	LGIS	MCQ's
	• Addison's disease and Conn's syndrome	C2		
	• Describe the pathogenesis of Cushing syndrome	C2		
	• Explain dexamethasone suppression test and its role in diagnosis	C2		
	• Define diabetes	C1		

Diabetes mellitus	• Classify diabetes	C2	LGIS	MCQ's
	• Discuss pathogenesis of type I and type II diabetes mellitus	C2		
Diagnosis of thyroid	• Define hypothyroidism and hyperthyroidism	C1	LGIS	MCQ's
	• Extract lab diagnosis of hypothyroidism and hyperthyroidism	C2		
	• Describe clinical features of hyper and hypothyroidism	C2		

Medicine

Topic	At the end of this LGIS students of should be able to:	Learning Domain	Teaching Strategy	Assessment Tool
Hypothyroidism and hyperthyroidism	• Discuss discuss pathophysiology, clinical manifestations of hypothyroidism and hyperthyroidism	C2	LGIS	MCQ
	• Workup and management	C2		
Hypocalcemia and hypercalcemia	• Discuss pathophysiology, clinical manifestations of hypocalcemia and hypercalcemia	C2	LGIS	MCQ
	• Workup and management	C2		
Diabetes mellitus	• Discuss pathophysiology, clinical manifestations of type I and type II diabetes mellitus	C2	LGIS	MCQ
	• Discuss Workup and management	C2		
Syndrome of inappropriate ADH secretion (SIADH).	• Define and discuss pathophysiology	C2	LGIS	MCQs
	• Discuss the causes	C2		
	• Describe clinical features	C2		
	• Describe the management	C2		
Cushing syndrome	• Define and discuss pathophysiology	C1	LGIS	MCQs
	• Discuss the causes	C2		
	• Describe clinical features	C2		
	• Describe the management	C2		

Surgery

Topic	At the end of this LGIS students of should be able to:	Learning Domain	Teaching Strategy	Assessment Tool
Thyroid	• Enlist swellings infront of neck	C1	LGIS	MCQ
	• How to differentiate swellings in neck	C2		
	• Explain What is Hyperthyroidism	C2		
	• What is Hypothyroidism	C2		
	• Appreciate MNG	C2		
	• Appreciate Solitary Nodule	C2		
	• Appreciate Toxic Nodule	C2		
	• Outline the investigations for Thyroid pathologies	C2		
	• Outline the Management of different thyroid Pathologies	C2		
Adrenal Tumours	• Enlist hormones secreted by Adrenal Gland	C2	LGIS	MCQ
	• Describe Clinical Manifestations of different adrenal disease	C2		
	• Outline the management plan	C2		
Diabetic foot	• Describe Diabetic Foot	C2	LGIS	MCQ
	• Classify Diabetic foot	C1		
	• Describe Pathophysiology of Diabetic foot	C2		
	• Outline Management of Diabetic foot	C2		

Gynaecology & Obstetrics

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Endocrine disorders in pregnancy (diabetes mellitus,thyroid disorders)	Diabetes Mellitus: • Know why pregnancy is a diabetogenic state	C2	LGIS	MCQs
	• Define gestational diabetes mellitus (GDM)	C1		
	• Correlate clinical features with pathophysiology of GDM	C2		
	• Outline brief management plan for these conditions	C2		
	• Know the methods for screening of diabetes in pregnancy	C2		

	• Thyroid disorders:	C1		
	• Know pathophysiology of common thyroid disorders during pregnancy	C2		
	• Understand clinical presentation of thyroid disorders in pregnancy	C2		
	• Comprehend effects of thyroid disorders on mother and fetus	C2		
Primary amenorrhoea/ delayed puberty	• Define primary amenorrhea, secondary amenorrhea and oligomenorrhoea.	C1	LGIS	MCQs
	• Enumerate the causes of amenorrhea: ➢ Hypothalamic ➢ Pituitary ➢ Ovarian ➢ Endometrial ➢ Structural	C1		
	• Understand physical and hormonal changes at puberty / secondary sexual characteristics	C2		
	• Know basic pathophysiology of disorders of puberty ➢ Precocious puberty ➢ Delayed puberty	C2		
	• Identify clinical features of precocious puberty	C1		

Peadiatrics

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Endocrine Problems	• Differentiate between the clinical features of hypothyroidism	C2	LGIS	MCQs
	• Interpret the investigations required for diagnosis of hypothyroidism	C2	LGIS	MCQs

Radiology & Artificial Inteligence

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Basics of Radiology	• Categorize different tissues from most to least opaque on x-ray including: bone, soft tissue, air, metal, and fat	C2	LGIS	MCQs
	• Distinguish between the different types of contrast used in imaging exams and the potential diagnostic benefits of each	C2	LGIS	MCQs

Behaveioural Sciences

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Psychosocial Assessment	• To be able to do a detailed interview keeping in mind the psychological and social aspects in predisposing, precipitating and maintaining diseases.	C2	LGIS	MCQs
Psychosocial Assessment	• To be able to do a detailed interview keeping in mind the psychological and social aspects in predisposing, precipitating and maintaining diseases.	C2	LGIS	MCQs

Biomedical Ethics & Professionalism

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool	
History of Medical Ethics	Discussion on Health Research ethics focusing; •Historical perspective of Tuskegee studies, Willow brook Experiment •Codes of medical ethics: traditional foundations and contemporary practice •Nuremburg code, Belmont report, Declaration of Helsinki and importance of historical background of ethics in current research trends • General ethical principles including explanation of 04 basic principles of Beneficence, non-maleficence, respect and justice. - Interpretation research ethics for; - Informed consent and confidentiality in research HR	At the end of the session students should be able to; • Explain the meaning of the term "'ethics'".**C1** • Describe the historical perspective of global development of medical ethics. **C1** • Describe the codes of medical ethics and their implications.**C1** • Recognize ethical issues relevant to the case situation and apply the ethical codes as appropriate. **C2** • Discuss the development of indigenous ethical codes in the South-East Asian Region. **C2.** • Demonstrate sensitivity to cultural diversity in medical care.**C3**	LGIS 1hr contact session in 2-4 parallel classes, Conducted by Senior faculty.	1 MCQs of level C1 to C3 will cover this session teachings in relevant block examination in pool of total 04 MCQs. Result / marks obtained will contribute towards Internal assessment (IA) in 1st Prof. MBBS exam.	Guidelines and Teachers Handbook for Introducing Bioethics to Medical and Dental Students http://nbcpakistan.org.pk/assets/may-16-bioethics-facilitator-book---may-16%2C-2017.pdf The Nuremberg Code: http://www.hhs.gov/ohrp/archive/nurcode.html 10 WMA Declaration of Helsinki: http://www.wma.net/en/30publications/10policies/b3/ CIOMS Guidelines: http://www.cioms.ch/publications/layout_guide2002.pdf . Nuffield Council on Bioethics Guidelines: http://www.sirc.org/news/nuffield.shtml

Integrated Undergraduate Research Curriculum (IUGRC)

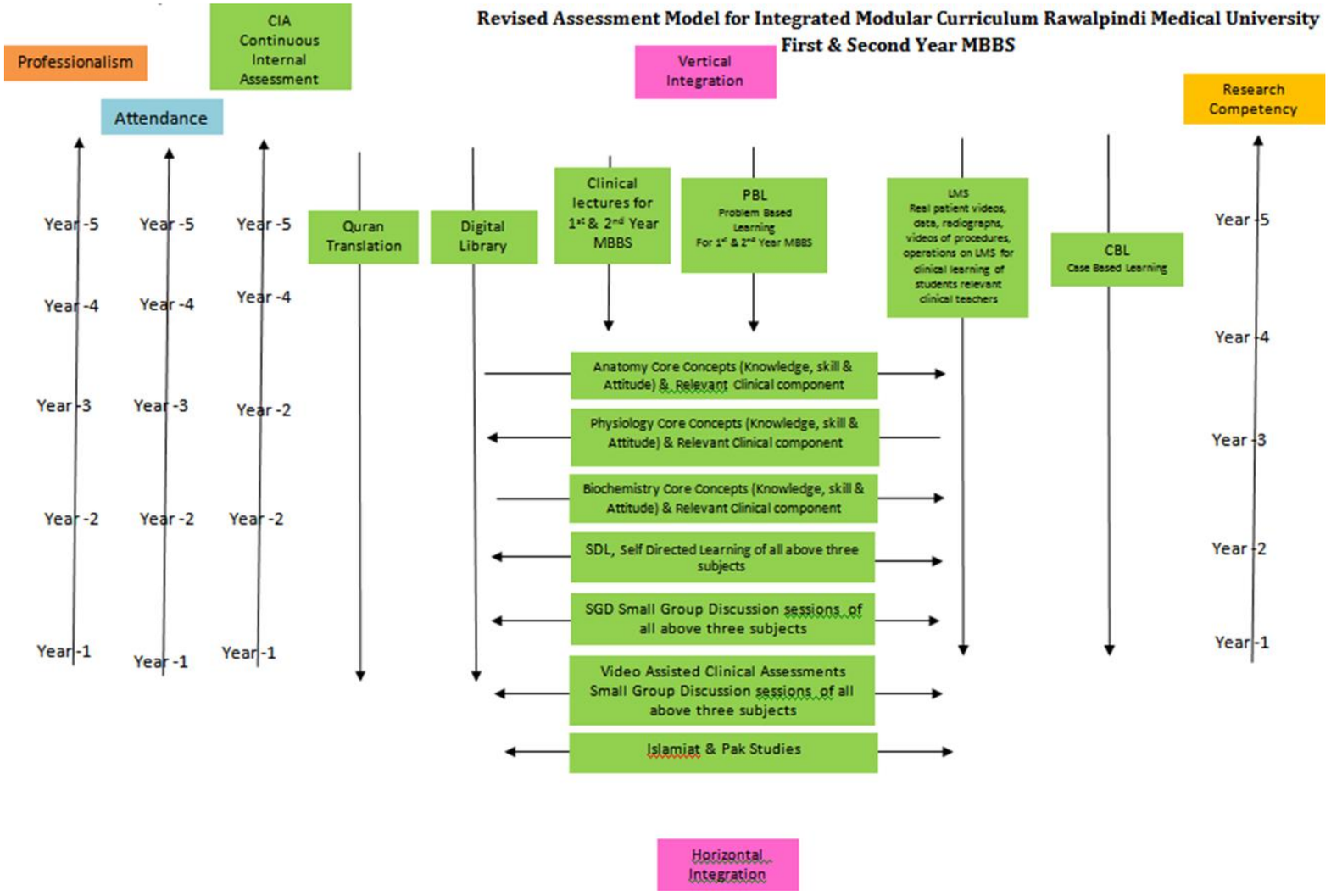
Topics	At the end of the session the student should be able to:	Learning Domains	Teaching Strategy	Assessment Tool
Practice session 6	• Finalization of poster presentation • Submission at SJRMC/any other medical journal	C3	Activity	MCQs

SECTION - IV

Assessment Policies

Contents

- **Assessment plan**
- **Types of Assessment:**
- **Modular Examinations**
- **Block Examination**
- **Table 4: Assessment Frequency & Time in Endocrinology Module**



Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - *50%	51 - 60%	61 – 70%	71 – 80%	81 - 100%

*50% and above is Passing Marks.

Gauge for attendance percentage

Red Zone	High Alert	Yellow Zone-1	Yellow Zone-2	Green Zone	Excellent
0 - 25%	26 - 50%	51 - 60%	61 – 74%	*75 – 80%	81 - 100%

90% is eligibility criteria for appearing in professional examination.

Assessment plan

University has followed the guidelines of Pakistan Medical and Dental Council for assessment. Assessment is conducted at the mid modular,modular and block levels.

Types of Assessment:

The assessment is formative and summative.

Formative Assessment	Summative Assessment
Formative assessment is taken at modular (2/3rd of the module is complete) level through MS Teams. Tool for this assessment is best choice questions and all subjects are given theshare according to their hour percentage.	Summative assessment is taken at the mid modular (LMS Based),modular and block levels.

Modular Assessment

Theory Paper	Viva Voce
There is a module examination at the end of first module of each block. The content of the whole teaching of the module are tested in this examination. It consists of paper with objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module. (Annexure I attached)	Structured table viva voce is conducted including the practical content of the module.

Block Assessement

On completion of a block which consists of two modules, there is a block examination which consists of one theory paper and a structured viva with OSPE.

Theory Paper	Block OSPE
There is one written paper for each subject. The paper consists of objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module.	This covers the practical content of the whole block.

Table 4-Assessment Frequency & Time in Endocirnology Module

Block	Sr #	Module Endocrinology Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module Examinations LMS based (Anatomy, Physiology & Biochemistry)	Summative	30 Minutes	3 Hour 15 Minutes	45 Minutes	2 Formative	6 Summative
	2	Topics of SDL Examination on MS Team	Formative	30 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Anatomy Structured and Clinically Oriented Viva	Summative	10 Minutes				
	5	Physiology Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Assessment of Clinical Lectures	Formative	15 Minutes				
	7	Assessment of Bioethics Lectures	Summative	2 Minutes				
	8	Assessment of IUGRC Lectures	Summative	10 Minutes				

Learning Resources

Subject	Resources
Anatomy	**A. Gross Anatomy** 1. Gray's Anatomy by Prof. Susan Standring 42th edition, Elsevier. 2. Clinical Anatomy for Medical Students by Richard S. Snell 10th edition. 3. Clinically Oriented Anatomy by Keith Moore 9th edition. 4. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III **B. Histology** 1. B. Young J. W. Health Wheather's Functional Histology 6th edition. 2. Medical Histology by Prof. Laiq Hussain 7th edition. **C. Embryology** 1. Keith L. Moore. The Developing Human 11th edition. 2. Langman's Medical Embryology 14th edition. **D. Website** 1. https://my.clevelandclinic.org/health/articles/9117-male-reproductive-system 2. https://teachmeanatomy.info/pelvis/female-reproductive-tract/ 3. https://www.kenhub.com/en/start/pelvis-and-perineum **E. Youtube** 1. https://www.youtube.com/watch?v=G0ZuCilCu3E 2. https://www.youtube.com/watch?v=50iuBgTQCrQ **F. HEC Digital Library** 1. https://www.sciencedirect.com/science/article/pii/S0015028220304350 2. https://link.springer.com/article/10.1007/s11356-021-16581-9 3. https://link.springer.com/chapter/10.1007/978-3-030-30766-0_25 4. https://onlinelibrary.wiley.com/doi/abs/10.1111/and.13712
Physiology	**A. Textbooks** 1. Textbook of Medical Physiology by Guyton and Hall 14th edition. 2. Ganong 'S Review of Medical Physiology 26th edition. **B. Reference Books** 1. Human Physiology by Lauralee Sherwood 10th edition. 2. Berne & Levy Physiology 7th edition. 3. Best & Taylor Physiological Basis of Medical Practice 13th edition. 4. Guyton & Hall Physiological Review 3rd edition. **C. Website** **1.** https://teachmephysiology.com/reproductive-system/ (Reproductive physiology)

	2. https://courses.lumenlearning.com/wm-biology2/chapter/the-ovarian-cycle-the-menstrual-cycle-and-menopause/ 3. https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.ibbiotech.com/en/info/sperm-capacitation/ **D. Youtube** 1. https://youtu.be/2_owp8kNMus (Female Reproductive system) 2. https://youtu.be/V9a2AQSJIMc (Dr Najeeb Lectures) https://youtu.be/rYVGjbzmAtg (Dr Najeeb lectures) **E. HEC Digital Library** 1. https://www.sciencedirect.com/science/article/abs/pii/S1532045621000296 2. https://www.sciencedirect.com/science/article/abs/pii/S001502822200485X **F. Physiology Journals** 1. https://rupress.org/jgp/article/5/4/441/30794/THE-RATE-OF-DECLINE-OF-MILK-SECRETION-WITH-THE 2. https://www.annualreviews.org/doi/abs/10.1146/annurev.ph.36.030174.001515?journalCode=physiol 3. https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.msdmanuals.com/home/women-s-health-issues/normal-pregnancy/stages-of-development-of-the-fetus
Biochemistry	**Textbooks** 1. Harper's Illustrated Biochemistry 32th edition. 2. Lipponcott biochemistry 8th edition **B. Reference Books** 1.Lehninger Principle of Biochemistry 8th edition. 2. Biochemistry by Devlin 7th edition. **C. Website** • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-function • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-functionn • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/purine-synthesis • https://www.sciencedirect.com/topics/medicine-and-dentistry/purine-metabolism-disorder • https://www.cliffsnotes.com/study-guides/biology/biochemistry-ii/purines-and- • https://www.healio.com/hematology-oncology/learn-genomics/genomics-primer/regulation-of-gene-expression-in-eukaryote **D. Youtube** • https://www.youtube.com/watch?v=A5u_TY1A0t8 • https://www.youtube.com/watch?v=A5u_TY1A0t8

	• https://www.youtube.com/watch?v=VXWyWzbigrg • https://www.youtube.com/watch?v=e2KFVvI8Akk • https://www.youtube.com/watch?v=n7Uec8Jtr4E • https://www.youtube.com/watch?v=J9jhg90A7Lw **E. HEC Digital Library** • https://www.ncbi.nlm.nih.gov/books/NBK29/ • https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3243375/ • https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4215161/ • https://www.ncbi.nlm.nih.gov/pmc/articles/PMC378357/ • https://www.nature.com/scitable/topicpage/regulation-of-transcription-and-gene-expression-in-1086/ **F. Biochemistry Journals** • https://academic.oup.com/bmb/article/11/2/126/256755 • https://www.sciencedirect.com/topics/medicine-and-dentistry/gonadal-hormone

SECTION - V

Time Table

Integrated Clinically Oriented Modular Curriculum for Second Year MBBS

Endocrinology Module Time Table

Second Year MBBS

Session 2021-2022

Batch- 49

Endocrinology Module Team

Module Name	:	Endocrinology Module
Duration of module	:	04 Weeks
Coordinator	:	Dr. Sidra Hamid
Co-coordinator	:	Dr. Nayab
Reviewed by	:	Module Committee

Module Committee		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar
2.	Director DME	Prof. Dr. Rai Muhammad Asghar
3.	Convener Curriculum	Prof. Dr. Naeem Akhter
4.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf
5.	Additional Director DME	Prof. Dr. Ifra Saeed
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar
7.	Chairperson Biochemistry	Dr. Aneela Jamil
8.	Focal Person Anatomy Second Year MBBS	Prof. Dr. Ifra Saeed
9.	Focal Person Physiology	Dr. Sidra Hamid
10.	Focal Person Biochemistry	Dr. Aneela Jamil
11.	Focal Person Pharmacology	Dr. Zunera Hakim
12.	Focal Person Pathology	Dr. Asiya Niazi
13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom
15.	Focal Person Quran Translation Lectures	Dr. Fahad Anwar
16.	Focal Person Family Medicine	Dr. Sadia Khan

Module Task Force Team		
1.	Coordinator	Dr. Sidra Hamid (Assistant Professor of Physiology)
2.	DME Focal Person	Dr. Saira Aijaz (Senior Demonstrator)
3.	Co-coordinator	Dr. Nayab (Senior Demonstrator of Biochemistry)
4.	Co-Coordinator	Dr. Aneela Yasmin (Senoir Demonstrator of Physiology)
5.	Co-coordinator	Dr. Sadia Baqir (APWMO of Anatomy)

DME Implementation Team		
1.	Director DME	Prof. Dr. Rai Muhammad Asghar
2.	Implementation Incharge 1st & 2nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
3.	Deputy Director DME	Dr Shazia Zaib
4.	Module planner & Implementation coordinator	Dr. Sidra Hamid
5.	Editor	Muhammad Arslan Aslam

Discipline wise Details of Modular Contents

Block	Subjects	Embryology	Histology	Histology Practical SKL. Lab.	Gross Anatomy	CBL	SDL
III	• Anatomy	• Development of pituitary & pineal gland • Developmnt of thyroid & parathyroid gland • Developmnt adrenal gland and pancreas	• Pituitary & pineal gland • Thyroid & parathyroid gland • Adrenal gland and pancreas	• Pituitary Gland • Thyroid & parathyroid gland • Adrenal gland • Pancreas	• Bones of neck. Hyoid Bone & Cervical vertebrae • Fascias of Neck • Superficial structurs of neck • Lateral-cervical region (muscles & triangles) • Latera-cervical-region (neurovascular organization) • Interior-cervical region(muscles) • Interior-cervical region (vessels of neck & cervical plexus) • Submandular region • Soft palate • Deep structures of neck • Root of neck • Thyroid&Parathyroid gland • Larynx • Pharynx • pancreas		• Bones of neck • SCM region & superficial & deep fascia • lateral cervical region • Anterior Triangle of neck & its subdivisions • Thyroid and para thyroid gland • Online SDL Evaluation • soft palate, larynx
	• Physiology	• Classification of hormones, Mechanism of action of different hormones Physiology of Thyroid hormones, Adrenal hormones, Insulin and glucagon, Blood glucose regulation, Role of Calcium & Phosphate					
	• Biochemistry	• Classification of hormones, Thyroid hormones, Adrenal hormones, Insulin and glucagon, Blood glucose regulation, Calcium revisit					
	• Biomedical Ethics	• History of Medical Ethics					
	• Behavioral Sciences	• Professionalism In Healthcare					
	• Research Club Activity	• Poster Presentation					
	• Radiology & Artificial Intelligence	• Basics of Radiology					
	• Family Medicine	• Approach to patient diabetes mellitus					
	• Vertical components	• The Holy Quran Translation • Islamiayat					

	• Vertical Integration	• Growth problems due to Endocrine causes (Peads) • Thyroid Disorders (Surgery) • Hypothyroidism and hyperthyroidism (Pathology) • Diabetes Mellitus (Medicine) • Endocrine Disorders In Pregnancy (Diabetes Mellitus, Thyroid Disorders) (Obs & Gynae)

Categorization of Modular Contents

Anatomy

Category A*	Category B**	Category C***			
		Demonstrations / SGD	**CBL**	**SKL/Practical's**	**Self-Directed Learning (SDL)**
• Special Embryology	• Special Histology	• Bones of neck • Hyoid Bone & • Cervical vertebrae • Fascias of Neck • Superficial structures of neck • Lateral-cervical region (Muscles & triangles) • Lateral-cervical-region (Neurovascular organization) • Anterior-cervical region (Muscles) • Anterior-cervical region (Vessels of neck & cervical plexus) • Submandibular region • Soft palate • Deep structures of neck • Root of neck • Thyroid & Parathyroid gland • Larynx • Pharynx • Pancreas	• Multi Nodular Goitre with Hypothyroidism • Torticollis	• pituitary gland • Thyroid & parathyroid gland • Adrenal gland • pancreas	• Bones of neck • SCM region & superficial & deep fascia • lateral cervical region • Anterior Triangle of neck & its subdivisions • Thyroid and para thyroid gland • Online SDL Evaluation • SDL Anatomysoft palate, larynx

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrator

Teaching Staff / Human Resources of Department of Anatomy

Sr. #	Designation of Teaching Staff / Human Resource	Total number of teaching staff
1.	Professor of Anatomy department	01
2.	Assistant professor of Anatomy department (AP)	01
3.	Demonstrators of Anatomy department	04

Contact Hours (Faculty)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	6*2=12
2.	Small Group Discussions (SGD)	15*2+2*1=32
3.	Practical / Skill Lab	20*1.5=30

Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	1 * 6 = 06 hours
2.	Small Group Discussions (SGD)	2*15 = 32 hours
3.	Practical / Skill Lab	1.5 * 4 = 06 hours
4.	Self-Directed Learning (SDL)	2 * 4 = 08 hours

Physiology

Category A	Category B	Category C
Thyroid hormone: Production, storage and release **(By Prof. Dr.Samia Sarwar / Dr. Iqra)**	Hypothalamic–pituitary axis& GH **(By Dr. Kamil)**	**CBL:** Adrenocortical Hormone
Physiology of accommodation and clinical abnormalities **(By Prof. Dr. Samia Sarwar / Dr. Uzma)**	Abnormalities of growth hormone secretion **(By Dr. Kamil)**	**PBL:**
Physiological role of thyroid hormone **(By Prof. Dr.Samia Sarwar / Dr. Iqra)**	Insulin and glucagon:	**Practical:** 1. Examination of pupillary reaction 2. Checking for color vision 3. Revision of practica
	Structure and metabolic functions **(By Dr. Fareed)**	**SGD:** 1. Signal transduction & Growth hormone. 2. Thyroid Hormones 3. Insulin and Glucose Metabolism 4. Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism 5. Insulin and Glucagon:Structure and metabolic functions (Second week) 6. Adrenal gland and its hormones (Fourth week)
Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism) **(By Prof. Dr.Samia Sarwar / Dr. Iqra)**	Hormones of posterior pituitary gland (oxytocin and ADH) **(By Dr. Kamil)**	
` Introduction to endocrinology & Signal transduction -I **(By Dr. Shmyla)**	Regulation of blood Glucose & Diabetes mellitus **(By Dr.Fareed)**	**SDL: (ON CAMPUS)** **1.** Regulation of blood Glucose & Diabetes mellitus **2.** Abnormalities of adrenocortical hormone **3.** Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism) **(OFF CAMPUS)** **1.** Hypothalamic–pituitary axis & GH **2.** Introduction to endocrinology & Signal transduction **3.** Insulin and glucagon **4.** Aldosterone and cortisol **5.** Thyroid hormone **6.** Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism) **7.** Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin
	Aldosterone and cortisol **(By Dr.Sheena)**	
Introduction to endocrinology & Signal transduction- II **(By Dr. Shmyla)**	Abnormalities of adrenocortical hormone **(By Dr.Sheena)**	
	Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin) **(By Dr.Fahad)**	

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resources of Department of Physiology

Sr. #	Designation of Teaching Staff / Human Resource	Total Number Of Teaching Staff
1.	Professor of Physiology department	01
2.	Assistant professor of Physiology department (AP)	01
3.	Associate professor of Physiology department	01 (DME)
4.	Demonstrators of Anatomy department	07
5.	Residents of physiology department (PGTs)	08

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	1. 14 * 1= 14 hours
2.	Small Group Discussions (SGD) Case based learning (CBL)	1.5 * 4 = 6 hours + 2 hrs = 8 hours
3.	Problem based learning (PBL)	--
4.	Practical / Skill Lab	1.5 * 3 = 4.5 hours
5.	Self- Directed Learning	3x1=3hours (on campus) + 7x1=7hours (off campus) = 10hours

Biochemistry

Category A*	Category B**	Catogery C***			
LGIS	**LGIS**	**PBL**	**CBL**	**Practical's**	**SGD**
• Insulin & Glucagon	• Classification & mechanism of action of hormones, Calcium metabolism (Revisit) • Thyroid Hormones • Adrenocortical Hormones • Blood Glucose Regulation		• Thyrotoxicosis • Addison's Disease	• Blood Glucose Estimation • Glucose Tolerance Test • Glucose Tolerance Test Revision • Practical Revision/Completion of practical notebooks	• Classification & mechanism of action of Endocrine Hormones • Adrenocortical Hormones

Category A*: By HOD and Assistant Professor

Category B:** By All (HOD, Assistant Professors, Senior Demonstrators)

Category C*:** (By All Demonstrators)

Teaching Staff / Human Resource of Department of Biochemistry

Sr. #	Designation of Teaching Staff / Human Resource	Total number of teaching staff
1	Assistant professor of biochemistry department (AP)	01
2	Demonstrators of biochemistry department	07

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours (Faculty)	Total Hours (student)
1.	Large Group Interactive Session (LECTURES)	2 * 8= 16hours	08
2.	Small Group Discussions (SGD)	1.5 * 5 = 7.5*4=30 hrs	6
3.	Problem Based Learning (PBL)	Zero	zero
4.	Practical / Skill Lab	1.5 * 5 = 7.5*4=30 hrs	6
5.	Self-Directed Learning (SDL)	----------	07

Endocrinology Module (First Week)
(18-09-2023 To 23-09-2023)

Date / Day	8:00am-9:30am	9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm-12:20pm	12:20pm – 2:00pm	Home Assignments(2HRS)
18-09-2023 Monday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS**		**ANATOMY LGIS**		Paper Discussion by Departments		**Break**	**SGD/DISSECTION**	SDL Anatomy lateral cervical region
		Introduction to endocrinology & Signal transduction-I	Hypothalamic–pituitary axis& GH	Development of pituitary&. pineal gland	Histology of pituitary& pineal gland				Bones of neck Hyoid bone& Cervical Vertebrae	
		Dr.Shmyla (Even)	Dr.Kamil (Odd)	Asst Prof Dr. Maria Tasleem (Even)	Prof. Dr Ifra Saeed (Odd)					
19-09-2023 Tuesday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS**		**ANATOMY LGIS**		**BIOCHEMISTRY LGIS**			**SGD/DISSECTION**	SDL Biochemistry Classification of endocrine hormones
		Hypothalamic–pituitary axis& GH	Introduction to endocrinology & Signal transduction-I	Histology of pituitary & pineal gland	Development of pituitary&. pineal gland	Classification & Mechanism of action of Endocrine Hormone,	Thyroid Hormone		Superficial and deep fascias of the neck	
		Dr Kamil (Even)	Dr. Shmyla (Odd)	Asst Prof Dr. Maria Tasleem (Even)	Prof. Dr Ifra Saeed (Odd)	Dr. Isma (Even)	Dr. Almas (Odd)			
20-09-2023 Wednesday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS**		**RESEARCH ACTIVITY**					**CBL/DISSECTION**	SDL physiology Hypothalamic–pituitary axis& GH
		Introduction to endocrinology & Signal transduction-II	Abnormalities of growth hormone secretion	Poster Presentaion Supervised by Dr. Sdira Hamid					Superficial structures of neck (Stnocleido mastoid region of neck, posteripor cervical region suboccipital trangle)	
		Dr. Shmyla (Even)	Dr. Kamil (Odd)	Dr. Imran (Even)		Dr. Abdul Qadoos				
21-09-2023 Thursday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS**		**RADIOLOGY**		**PBL SESSION-I**			**SGD/DISECTION**	SDL Physiology Introduction to endocrinology & Signal transduction
		Abnormalities of growth hormone secretion	Abnormalities of growth hormone secretion	Basics of Radiology		SECOND YEAR TEAM Supervised by Dr. Sdira Hamid			Lateral cervical region (Muscles)	
		Dr. Kamil (Even)	Dr. Shmyla (Odd)	Dr Fiza (even)	Dr Zeenat (odd)					
22-09-2023 Friday	**8:00 AM – 9:00 AM**	**9:00 AM – 10:00 AM**		**10:00 – 11:00AM**		**11:00AM – 12:00PM**				
	BEHAVIOURAL SCIENCES LGIS	**PHYSIOLOGY (LGIS)**		**SGD/DISECTION**						
	Professionalism in healthcare	Insulin and Glucagon:Structure and metabolic functions	Hormones of posterior pituitary gland (Oxytocin and ADH)	Lateral cervical region (Neurovasscular Organization)					SDL Anatomy SCM region & superficial & deep fascia	
	Dr. Zarnain Umar (even) / Dr. SadiaYasir (odd)	Dr. Fareed (Even)	Dr. Kamil (Odd)							
23-09-2023 Saturday	**Practical & CBL/SGD** Topic mentioned at the end	**PEADS**		**ANATOMY**		**Physical Activity**		**Break**	**SGD/DISECTION**	SDL Biochemistry Mechanism of Action of Hormones
		Growth problems due to Endocrine causes		Development of thyroid and parathyroid gland	Histology of thyroid and para thyroid gland				Anterior cervical region (Anterior Triangles of neck)	
		Dr. Hina Sattar		Dr. Prof. Ifra Saeed (Even)	Asst Prof Dr. Maria Tasleem (Odd)					

Topics For Practical With Venue
• Pituitary gland (Anatomy, Histology Practical) • Blood glucose estimation (Biochemistry practical) • Examination of pupillary reaction (Physiology practical)

Topics For Small Group Discussion& CBLs With Venue
• Anatomy CBL: Torticollis • Physiology SGD: Signal transduction & Growth hormone. • Biochemistry SGD: Classification of Endocrines Hormone & Adrenocortical Hormone

Schedule For Practical / Small Group Discussion

Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD
Monday	**C**	**B**	**E**	**A**	**D**
Tuesday	**D**	**C**	**A**	**B**	**E**
Wednesday	**E**	**D**	**B**	**C**	**A**
Thursday	**B**	**A**	**D**	**E**	**C**
Saturday	**A**	**E**	**C**	**D**	**B**

Venue For Second Year Batches For Anatomy Dissection / Small Group Discussion

Batches	Roll No	Anatomy Teacher	Venue
A	01-90	Dr. Maryam	New Lecture Hall Complex Lecture Theater # 04
B	91-180	Dr. Sadia Baqir	Anatomy Lecture Hall no. 3
C	181-270	Dr. Gaiti Ara	New Lecture Hall Complex Lecture Theater # 01
D	271 onwards	Dr. Sajjad Hussain	New Lecture Hall Complex Lecture Theater # 03

VENUE FOR SECOND YEAR BATCHES FOR PBL & SGD TEAM-II

Batches	Roll No	Venue	
Batch-A1	(01-35)	New Lecture Hall complex no.01	Dr. Aneela Yasmeen
Batch-A2	(36-70)	New Lecture Hall complex no.04	Dr. Shazia Nosheen
Batch-B1	(71-105)	Demo Room (Basement)	Dr. Kamil
Batch-B2	(106-140)	Demo Room (Basement)	Dr. Iqra Ayub (PGT Physiology)
Batch-C1	(141-175)	Demo Room (Basement)	Dr. Nayab (PGT Physiology)
Batch-C2	(176-210)	Demo Room (Basement)	Dr. Maryam (PGT Physiology)
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)	Dr. Ali Raza (PBL)
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)	Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)	Dr. Muhammad Usman
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology	Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)

Sr. No	Batch	Roll no	Names of Teachers	
			Biochemistry	Physiology
1.	Batch – A	01-70	Dr. Nayab Ramzan	Dr Aneela Yasmin
2.	Batch – B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
3.	Batch – C	141-210	Dr. Romesa Naeem	Dr. Nayab / Dr. Usman
4.	Batch – D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub
5.	Batch -E	281- onwards	Dr. Almas Ijaz	Dr. Kamil Tahir

Venues for Large Group Interactive Session (LGIS) and SDL	
Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 01
Even Roll Number	New Lecture Hall Complex Lecture Theater # 04

TOPIC DETAILS OF SDL BIOCHEMISTRY
• Classification of Hormones
• Mechanism of Action of Hormones

Endocrinology Module (Second Week)
(25-09-2023 To 30-09-2023)

Date /Day	8:00am-9:30am	9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm-12:20pm	12:20pm – 2:00pm	Home Assignments(2HRS)
25-09-2023 Monday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS)**		**ANATOMY LGIS**		**BIOCHEMISTRY LGIS**		**Break**	**SGD/DISSECTION**	SDL Anatomy lateral cervical region
		Hormones of posterior pituitary gland (Oxytocin and ADH)	Insulin and Glucagon:Structure and metabolic functions	Histology of thyroid parathyroid gland	Development of thyroid &parathyroid gland	Thyroid Hormone	Classification & Mechanism of action of Endocrine Hormone,		Anterior cervical region (Vessels of Neck)	
		Dr. Kamil (Even)	Dr. Fareed (Odd)	Asst Prof Dr. Maria Tasleem (Even)	Prof. Dr Ifra Saeed (Odd)	Dr. Almas (Even)	Dr. Isma (Odd)			
26-09-2023 Tuesday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS**		**BIOCHEMISTRY (LGIS)**		**PBL SESSION II**			**SGD/DISSECTION**	SDL Anatomy Anterior Triangle of neck & its subdivisions
		Regulation of blood Glucose & Diabetes mellitus	Aldosterone and Cortisol	Insulin & Glucagon - I	Parathyroid Hormone & Calcitonin	Second year PBL team Supervised by Dr. Sdira Hamid			Neves of Neck	
		Dr.Fareed (Even)	Dr. Sheena (Odd)	Dr. Aneela (Even)	Dr. Isma (Odd)					
27-09-2023 Wednesday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS**		RESEARCH CLUB ACTIVITY					**SGD/DISSETION**	
		Aldosterone and Cortisol	Regulation of blood Glucose & Diabetes mellitus	Poster Presentation Supervised by Dr. Sdira Hamid					Submandibular region	SDL Physiology Insulin and Glucagon
		Dr. Sheena (Even)	Dr.Fareed (Odd)	Dr. Imran (Odd)		Dr. Abdul Qadoos (Even)				
28-09-2023 Thursday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS**		BIOMEDICAL ETHICS		**SGD/DISSECTION**			**SGD/DISSECTION**	SDL Physiology Aldosterone and Cortisol
		Thyroid hormone: Production, storage and release	Abnormalities of adrenocortical hormone	History of Medical Ethics Supervised by Dr. Sdira Hamid		Root of neck (arteries, veins & nerves)			Deep structures of neck, prevertebral muscles	
		Prof. Dr.Samia Sarwar/ Dr. Iqra (Even)	Dr. Sheena (Odd)	Dr. Arsalan Even	Dr. Maria Odd					
29-09-2023 Friday	**National Holiday (12th Rabi ul Awal)**								SDL Biochemistry Synthesis & Mechanism of Action of Adrenocortical Hormones	
Saturday 30-09-2023	**Practical & CBL/SGD** Topic mentioned at the end	**PATHOLOGY**		**PHYSIOLGY (LGIS)**		**SGD/DISSECTION**		**Break**	**CBL/DISECTION**	SDL Biochemistry Type I & II Diabetes Mellitus Glucose Tolerance Test Curves
		Hypothyroidism and hyperthyroidism		Abnormalities of Adrenocortical hormone	Thyroid hormone: Production, storage and release	Soft palate			Thyriod & Parathyroid glands	
		Dr. Nida Fatima (even)	Dr. Faiza Zafar (Odd (odd)	Dr. Sheena (Even)	Prof. Dr.Samia Sarwar/ Dr. Iqra (Odd)					

Topics For Practical With Venue
• Thyroid & Parathyroid gland (Anatomy, Histology) • Practical G.T.T (Biochemistry practical) • Checking for color vision (Physiology practical) (Physiology practical)

Topics For Small Group Discussion& CBLs With Venue
• Anatomy CBL: Multi Nodular Goitre with Hypothyroidism • Physiology SGD: Thyroid Hormones • Biochemistry CBL: Addison's Disease

Schedule For Practical / Small Group Discussion

Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD
Monday	**C**	**B**	**E**	**A**	**D**
Tuesday	**D**	**C**	**A**	**B**	**E**
Wednesday	**E**	**D**	**B**	**C**	**A**
Thursday	**B**	**A**	**D**	**E**	**C**
Saturday	**A**	**E**	**C**	**D**	**B**

Venue For Second Year Batches For Anatomy Dissection / Small Group Discussion

Batches	Roll No	Anatomy Teacher	Venue
A	01-90	Dr. Maryam Sohail	New Lecture Hall Complex Lecture Theater # 04
B	91-180	Dr. Sadia Baqir	Anatomy Lecture Hall no. 3
C	181-270	Dr. Gaiti Ara	New Lecture Hall Complex Lecture Theater # 01
D	271 onwards	Dr. Sajjad Hussain	New Lecture Hall Complex Lecture Theater # 03

VENUE FOR SECOND YEAR BATCHES FOR PBL & SGD TEAM-II

Batches	Roll No	Venue	
Batch-A1	(01-35)	New Lecture Hall complex no.01	Dr. Aneela Yasmeen
Batch-A2	(36-70)	New Lecture Hall complex no.04	Dr. Shazia Nosheen
Batch-B1	(71-105)	Demo Room (Basement)	Dr. Kamil
Batch-B2	(106-140)	Demo Room (Basement)	Dr. Iqra Ayub (PGT Physiology)
Batch-C1	(141-175)	Demo Room (Basement)	Dr. Nayab (PGT Physiology)
Batch-C2	(176-210)	Demo Room (Basement)	Dr. Maryam (PGT Physiology)
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)	Dr. Ali Raza (PBL)
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)	Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)	Dr. Muhammad Usman
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology	Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)

Sr. No	Batch	Roll no	Names of Teachers	
			Biochemistry	Physiology
1.	Batch – A	01-70	Dr. Nayab Ramzan	Dr Aneela Yasmin
2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
3.	Batch – C	141-210	Dr. Romesa Naeem	Dr. Nayab / Dr. Usman
4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub
5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir

Venues for Large Group Interactive Session (LGIS) and SDL

Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 01
Even Roll Number	New Lecture Hall Complex Lecture Theater # 04

TOPIC DETAILS OF SDL BIOCHEMISTRY

- Type I & II Diabetes Mellitus
- Glucose Tolerance Test Curves

Endocrinology Module (Third Week)
(02-10-2023 To 07-10-2023)

Date / Day	8:00am-9:30am	9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm-12:20pm	12:00pm – 2:00pm	Home Assignments(2HRS)
02-10-2023 Monday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS**		**ANATOMY LGIS**		**GYNAE & OBS**		Break	**SGD/DISSECTION**	SDL Physiology Thyroid Hormones
		Physiological role of thyroid hormone	Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin)	Development of adrenal gland and pancreas	Histology of adrenal gland & pancreas	Endocrine disorders in pregnancy (diabetes mellitus,thyroid disorders)			Larynx & trachea	
		Prof. Dr.Samia Sarwar/ Dr. Iqra(Even)	Dr. Fahad (Odd)	Prof. Dr Ifra Saeed (Even)	Asst Prof Dr. MariaTasleem (Odd)	Dr. Sabeen Ashraf (Even)	Dr. Saba Yusaf (Odd)			
03-10-2023 Tuesday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS**		**BIOCHEMISTRY LGIS**		**FAMILY MEDICINE**			**SGD/DISSECTION**	SDL Biochemistry Hypoglycemia Diabetic Ketoacidosis & Hyperosmolar Hyperglycemic State
		Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin)	Physiological role of thyroid hormone	Parathyroid Hormone & Calcitonin	Insulin & Glucagon - I	Approach to Patient Diabetes mellitus			Alimentary layer Pharynx, esophagus	
		Dr. Fahad (Even)	Prof. Dr.Samia Sarwar/ Dr. Iqra (Odd)	Dr. Isma(Even)	Dr. Aneela (Odd)	Dr. Sadia Khan				
04-10-2023 Wednesday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS**		**ANATOMY LGIS**		**BIOCHEMISTRY LGIS**			**SGD/DISSECTION**	Anatomy SDL Temporal and Infra temporal region, Pterygopalatine fossa
		Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism)	Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)	Histology of adrenal gland and pancreas	Development of adrenal gland and pancreas	Adrenocortical Hormones - I	Insulin & Glucagon - II		Dissection	
		Prof. Dr.Samia Sarwar/ Dr. Iqra (Even)	Dr. Fahad (Odd)	Assist. Prof. Dr. Maria (Even)	Prof. Dr. Ifra Saeed (Odd)	Dr. Isma (Even)	Dr. Aneela (Odd)			
05-10-2023 Thursday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY (LGIS)**		**BIOCHEMISTRY LGIS**		**BIOCHEMISTRY LGIS**			**SGD/DISSECTION**	SDL Anatomy Thyroid and para thyroid gland Online clinical Evaluation
		Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)	Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism)	Insulin & Glucagon - II	Adrenocortical Hormones - I	Blood Glucose Regulation	Adrenocortical Hormones - II		Pancrease	
		Dr. Fahad (Even)	Prof. Dr.Samia Sarwar/ Dr. Iqra (Odd)	Dr. Aneela (Even)	Dr. Isma (Odd)	Dr. Uzma Zafar (Even)	Dr. Isma (Odd)			
06-10-2023 Friday	**8:00 AM – 9:00 AM**	**9:00 AM – 10:00 AM**		**10:00 – 11:00AM**		**11:00AM – 12:00PM**			SDL Physiology Abnormalities of	
	BIOCHEMISTRY LGIS	**ISLAMIAYAT**		**SGD/DISECTION**						
	Adrenocortical Hormones - II	Blood Glucose Regulation	Revission Class	Adrenal gland (revisit)						
	Dr. Isma (Even)	Dr. Uzma Zafar (Odd)	Mufti Naeem Sherazi							
Saturday 07-10-2023	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY SDL No.0I**		**SGD/DISECTION**				Break	**SGD/DISSECTION**	SDL Anatomysoft palate ,larynx
		Regulation of blood Glucose & Diabetes mellitus		Disection/ Spooting					Disection/ Spooting	
		Dr Fareed (Even)	Dr Maryam (Odd)							

Topics For Practical with Venue	Topics For Small Group Discussion& CBLs With Venue
• Endocrinology, Adrenal gland & Pancrease (Anatomy, Histology Practical) • G.T.T / Revision (Biochemistry practical) • CBL: Adrenocortical hormones (Practical batch) student's presentations Lab	• Physiology SGD: Insulin and Glucose Metabolism • Biochemistry CBL: Thyrotoxicosis

Schedule For Practical / Small Group Discussion

Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD
Monday	**C**	**B**	**E**	**A**	**D**
Tuesday	**D**	**C**	**A**	**B**	**E**
Wednesday	**E**	**D**	**B**	**C**	**A**
Thursday	**B**	**A**	**D**	**E**	**C**
Saturday	**A**	**E**	**C**	**D**	**B**

Venue For First Year Batches For Anatomy Dissection / Small Group Discussion

Batches	Roll No	Anatomy Teacher	Venue
A	01-90	Dr. Maryam	New Lecture Hall Complex Lecture Theater # 04
B	91-180	Dr. Sadia Baqir	Anatomy Lecture Hall no. 3
C	181-270	Dr. Gaiti Ara	New Lecture Hall Complex Lecture Theater # 01
D	271 onwards	Dr. Sajjad Hussain	New Lecture Hall Complex Lecture Theater # 03

VENUE FORR VENUE FOR FIRST YEAR BATCHES FOR PBL & SGD TEAM-II

Batches	Roll No	`Venue	Name
Batch-A1	(01-35)	New Lecture Hall complex no.01	Dr. Aneela Yasmeen
Batch-A2	(36-70)	New Lecture Hall complex no.04	Dr. Shazia Nosheen
Batch-B1	(71-105)	Demo Room (Basement)	Dr. Kamil
Batch-B2	(106-140)	Demo Room (Basement)	Dr. Iqra Ayub (PGT Physiology)
Batch-C1	(141-175)	Demo Room (Basement)	Dr. Nayab (PGT Physiology)
Batch-C2	(176-210)	Demo Room (Basement)	Dr. Maryam (PGT Physiology)
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)	Dr. Ali Raza (PBL)
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Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)	Dr. Muhammad Usman
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology	Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)

Sr. No	Batch	Roll no	Names of Teachers	
			Biochemistry	Physiology
1.	Batch – A	01-70	Dr. Nayab Ramzan	Dr Aneela Yasmin
2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
3.	Batch – C	141-210	Dr. Romesa Naeem	Dr. Nayab / Dr. Usman
4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub
5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir

Venues for Large Group Interactive Session (LGIS) and SDL

Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 01
Even Roll Number	New Lecture Hall Complex Lecture Theater # 04

TOPIC DETAILS OF SDL BIOCHEMISTRY

- Synthesis of Adrenocortical hormones
- Mechanism of Action of Adrenocortical Hormones

Next week will be assessment week. The detail of assessment week will be shared once finalized.

Endocrinology Module (Fourth Week)
(9-10-2023 To 14-10-2023)

Date / Days	Tentative Schedule for Endocrinology Sesnes Module Assessment	Time
09-10-2023 Monday	**Assessment week**	08:00am - 02:00pm
10-10-2023 Tuesday		08:00am - 02:00pm
11-10-2023 Wednesday		08:15am - 09:15am
12-10-2023 Thursday		08:15am - 09:15am
13-10-2023 Friday		08:15am - 09:15am
14-10-2023 Saturday		

Note: Timetable Subject to Change According to The Current Circumstances.

SECTION-VI

Table of Specification (TOS) For Endocrinology Module Examination

Sr. #	Discipline	No. of MCQs (%)	No. of MCQs according to cognitive domain			No. of SEQs (%)		No. of SEQs according to cognitive domain			Viva voce	Total Marks
			C1	C2	C3	No. of items	Marks	C1	C2	C3		
1.	Anatomy	25	15	5	5	5	25	1	2	2	60	110
2.	Physiology	30	18	9	3	4	20	1	2	1	25	75
3.	Biochemistry	7	4	3	-	2	15	0.5	1.5	-	-	24
4.	Bioethics & Professionalism	6	-	3	3	-	-	-	-	-	-	6
5.	Research & Artificial Intelligence and Innovation	10	-	5	5	-	-	-	-	-	-	10
6.	Family Medicine	2	-	1	1	-	-	-	-	-	-	5
7.	Pathology	4	-	2	2	-	-	-	-	-	-	4
8.	Obs & Gynae	4	-	2	2	-	-	-	-	-	-	4
9.	Radiology	3	-	2	1							
10.	The Holy Quran Translation	10										
Grand Total											238	

Annexure I

(Sample MCQ, SEQ & OSPE)

Rawalpindi Medical University Department of Anatomy
MCQs 2nd Year MBBS
Endocrinology Module

1. A patient presents with hoarseness of voice. On indirect laryngoscopy, he is unable to abduct the vocal cords. The muscle paralysed is
    a. posterior cricoarytenoid
    b. vocalis
    c. cricothyroid
    d. aryepiglotticus
    e. thyroepiglottic

2. During dissection of the pharynx a medical student observes a structure passing through the gap between superior and middle constrictors of pharynx. This structure is
    a. auditory tube
    b. glossopharyngeal nerve
    c. recurrent laryngeal nerve
    d. levatorveli palatini
    e. internal laryngeal nerve

3. The only muscle of the soft palatethat is supplied by the 5th cranial nerve is
    a. musculus uvulae
    b. platoglossus
    c. tensor vali palati
    d. palatopharyngeus
    e. levatorpalati

4. Muscles are important in opening the Eustachian tube for maintenance of barometric pressure. The nasopharyngeal opening of the auditory tube contains
    a. Salpingopharyngeus
    b. levator vali palatini
    c. Palato glossus
    d. Palato pharyngeus
    e. musculus uvulae

5. A dengue patient presented with epistaxis. The doctor found that it was an anterior bleed from
    a. pterygoid plexus
    b. woodruff's plexus
    c. pharyngeal plexus
    d. kiessel back's plexus
    e. palatal plexus

Rawalpindi Medical University Department of Anatomy
SEQs 2nd Year MBBS
Endocrinology Module

Q.1 A surgeon is performing total thyroidectomy for a patient of Thyroid carcinoma.

a. What is the vascular supply of thyroid and parathyroid glands? (3)
b. How can damage to right recurrent laryngeal nerve be avoided? (1)
c. What are the features of recurrent laryngeal nerve damage? (1)

Q.3 A patient has been diagnosed with pituitary adenoma.

a. Describe the development of pituitary gland. (2.5)
b. Draw the structures that are related to the pituitary gland. (1.5)
c. Which structure can be damaged because of the tumour? (1)

Rawalpindi Medical University Department of Physiology
MCQs 2nd Year MBBS
Endocrinology Module

1. Pituitary adenoma causes lesion of :
    a. Optic nerve
    b. Optic chiasm
    c. Optic tract
    d. Optic radiation
    e. Visual cortex

2. Following is true regarding Presbyopia:
    a. occurs in infants
    b. occurs because of progressive denaturation of the lens proteins
    c. the lens grows & becomes far more elastic
    d. power of accommodation increases
    e. ability of the lens to change shape increases with age

3. The sour taste is caused by:
    a. ketones
    b. alcohol
    c. amides
    d. glycols
    e. acids

4. In the utricle, tip links in hair cells are involved in:
    a. formation of perilymph
    b. depolarization of the stria vascularis
    c. movements of the basement membrane
    d. perception of sound
    e. regulation of distortion-activated ion channels

5. A young boy was diagnosed with congenital anosmia, a rare disorder in which an individual is born without the ability to smell. Odorant receptors are:
    a. located in the olfactory bulb
    b. located on dendrites of tufted cells
    c. located on neurons that project directly to the olfactory cortex
    d. located on neurons in the olfactory epithelium
    e. located on sustentacular cells

Rawalpindi Medical University Department of Physiology
SEQs 2nd Year MBBS
Endocrinology Module

Q.1 Give a brief account of formation and functions of aqueous humor. What is glaucoma? (2,2,1)

Q.3 Enlist factors affecting Anti-Diuretic Hormone secretion? What do you know about Diabetes insipidus? (3,2)

Q.2 Name the hormones produced by adrenal gland. Enlist the physiological actions of epinephrine. (2,3)

Rawalpindi Medical University Department of Biochemistry
MCQs 2nd Year MBBS
Endocrinology Module

1. Progesterone is a precursor in the formation of which one of the following:
    a. Mineralocorticoids
    b. Insulin
    c. Angiotensin II
    d. Follicle – stimulating hormone (FSH)
    e. Luteinizing hormone

2. Adrenal steroid hormone:
    a. Is synthesized in adrenal medulla
    b. Precursor is tyrosine
    c. Synthesis is not regulated
    d. Synthesis is stimulated by ACTH
    e. Are not synthesized from pregnenolone

3. Parathyroid hormone leads to:
    a. Low calcium in urine
    b. Low phosphate in urine
    c. Increase calcium in urine
    d. Both calcium and phosphate are increased in urine
    e. Both calcium and phosphate are decreased in plasma

4. Blood glucose level is decreased by the following hormone:
    a. Glucagon
    b. Insulin
    c. Thyroxin
    d. Cortisol
    e. Growth hormone

SEQ

Q. Describe role of insulin and glucagon in blood glucose regulation. 05

Rawalpindi Medical University Department of Bioethics
MCQs 2nd Year MBBS
Endocrinology Module

1. ----Includes rules of conduct that may be used to regulate our activities concerning the biological world.
   a. Bio-piracy
   b. Biosafety
   c. Bioethics
   d. Bio-patents
   e. Bio-logistic

2. The right of patients having self-decision is called.
   a. Justice
   b. Autonomy
   c. Beneficence
   d. Veracity
   e. Fidelity

3. Following is not code of ethics.
   a. Integrity
   b. Objectivity
   c. Confidentiality
   d. Behaviour
   e. Autonomy

4. -------in the context of medical ethics, if it's fair and balanced
   a. Justice
   b. Autonomy
   c. Beneficence
   d. Veracity
   e. Fidelity

5. ------Principle requiring that physicians provide, positive benefits
   a. Justice
   b. Autonomy
   c. Beneficence
   d. Veracity
   e. Fidelity

Rawalpindi Medical University Department of Anatomy
OSPE 2nd Year MBBS
Endocrinology Module

Station No. 1 Time Allowed: 1 Min 30secs

Histology sketch copy will be assessed for

a. Complete index (1)
b. Complete and signed diagrams (1)
c. 2 ID points mentioned with each diagram (1)

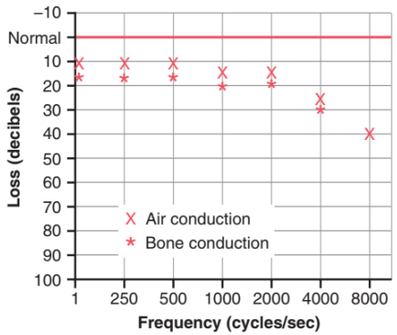
Station No. 2 Time Allowed: 1 Min 30 secs

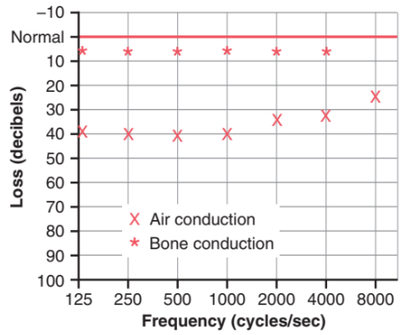
a. Identify red and give its nerve supply. (1)
b. Identify green and write down its action. (1)
c. Identify yellow and write down the name of the structure opening here (1)

Rawalpindi Medical University Department of Physiology
OSPE 2nd Year MBBS
Endocrinology Module

Station No. 1 Time Allowed: 3 Minutes

1. A man consulted his doctor for difficulty in hearing, his doctor decided to perform Tuning Fork test. Which tuning fork will he select ; (1)
2. Match the audio grams for given scenarios (2)

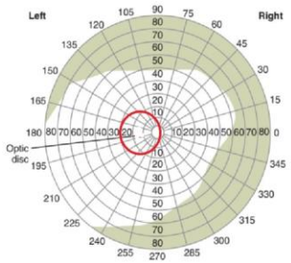




Scenario- 1: Rinnes negative in right ear
Scenario- 2: Weber Lateralized in right ear

Station No. 2 Time Allowed: 3 Minutes

1. Identify the apparatus & give its use. (0.5)
2. Give two precautions for this test. (0.5)
3. This tracing was obtained after examining a patient with visual disturbances, Interpret the graph provided. (2)



Rawalpindi Medical University Department of Biochemistry
OSPE 2nd Year MBBS
Endocrinology Module

Station No. 1 Time Allowed: 2 Mins

	Patient value	Reference range
T3	1.4 nmol/L	1.2-2.8nmol/L
T4	95 nmol/L	77-155 nmol/L
TSH	10 mU/L	0.4-4 mU/L

1. Interpret the above laboratory report. 01
2. Give any two causes. 02

Station No. 1 Time Allowed: 2 Mins

1. What are indications of Oral Glucose Tolerance Test? 03