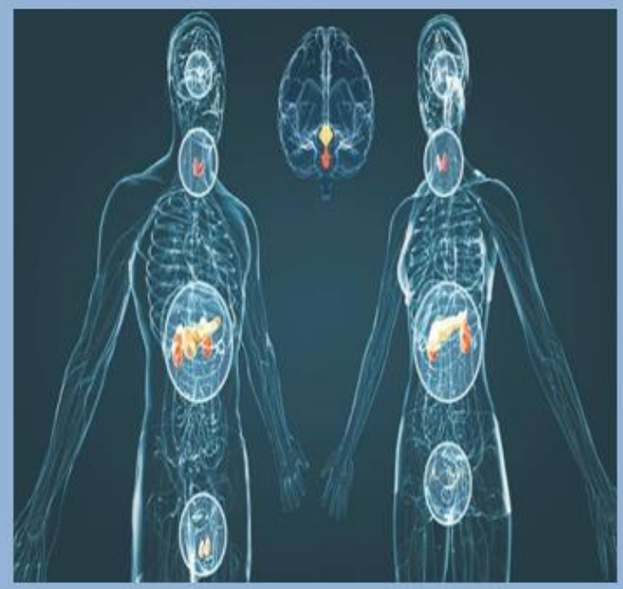
Endocrinology Module



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Prepared By	Reviewed By	Approved By
Director Medical Education, Asst. Director Medical Education,	Curriculum Committee	Vice Chancellor

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Dr Tehzeeb, Dr Samia Sarwar, , Dr Ifra Saeed, Dr Ayesha Yousaf , Dr Tehmina Qamar, Dr Sidra Hamid	2021-2022	3rd	Developed for Second Year MBBS. Horizontally and vertically integrated Learning objectives updated, Research curriculum incorporated
Dr Tehzeeb, Dr Samia Sarwar, Dr Ifra Saeed, Dr Ayesha Yousaf, Dr Tehmina Qamar, Dr Sidra Hamid	2022-2023	4th	Developed for Second Year MBBS. Horizontally and vertically integrated Learning objectives updated, Research, Bioethics, Family Medicine curriculum incorporated along with Professionalism
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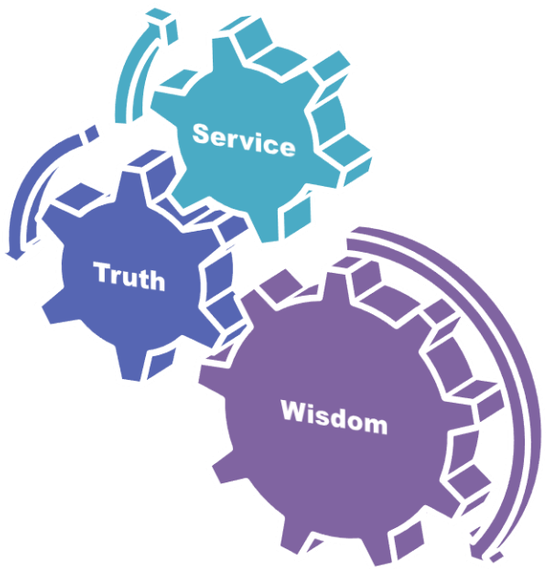
University Moto, Vision, Values & Goals

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:

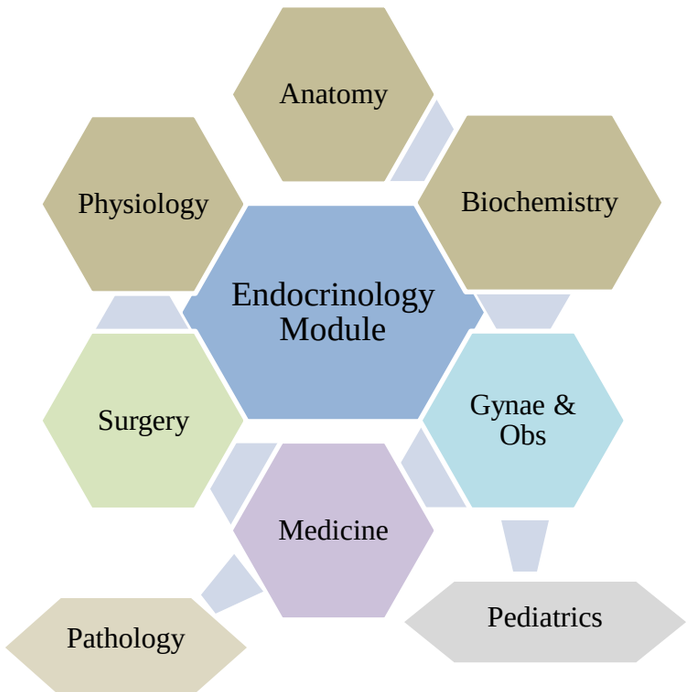
- Provide thorough grounding in the basic theoretical concepts underpinning the practice of medicine.
- Develop and polish the skills required for providing medical services at all levels of the health care delivery system.
- Help you attain and maintain the highest possible levels of ethical and professional 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 2024

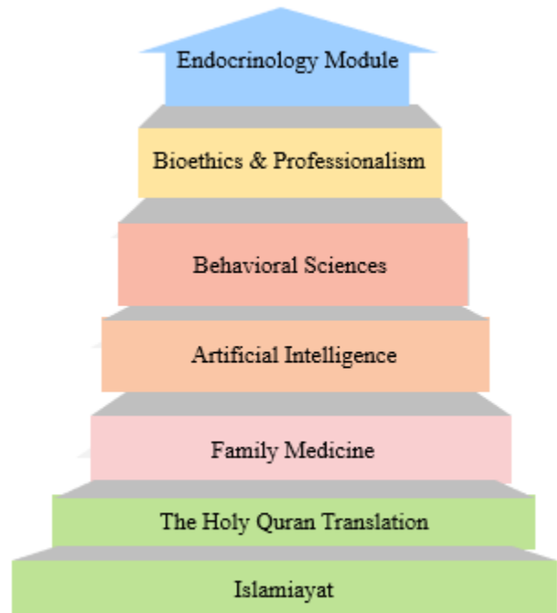
Study Guide

Endocrinology Module

Integration of Disciplines in Endocrinology Module



Spiral / General Education Cluster Courses



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					
	Spiral Courses						
	• The Holy Quran Translation	•					
	• Islamiayat	•					
	• Biomedical Ethics	• History of Medical Ethics					
	• Behavioral Sciences	• Professionalism In Healthcare					
	• Radiology & Artificial Intelligence	• Basics of Radiology					

	• Family Medicine	• Approach to patient diabetes mellitus
	Vertical components	
	• Peads	• Growth problems due to Endocrine causes
	• Surgery	• Thyroid Disorders
	• Pathology	• Hypothyroidism and hyperthyroidism
	• Medicine	• Diabetes Mellitus
	• Obs & Gynae	• Endocrine Disorders in Pregnancy (Diabetes Mellitus, Thyroid Disorders)
	Early Clinical Exposure (ECE)	
	• Medicine	• Thyroid disorders • Hyperthyroidism • Hypothyroidism • Cushing Syndrome
	• Surgery	• Thyroid Nodule • Multi nodular Goiter • CA Thyroid • Graves Diseases
	• Eye	• Blindness • Visual field defect • Cataract
	• Otolaryngology	• Deafness • Hearing tests • Nasal Obstruction

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Endocrinology Module Team

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

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

Module Task Force Team		
1.	Coordinator	Dr. Sidra Hamid (Assistant Professesor of Physiology)
2.	DME Focal Person	Dr. Farzana Fatima
3.	Co-coordinator	Dr. Sadia Baqir (Senior Demonstrator of Anatomy)
4.	Co-Coordinator	Dr. (Demonstrator of Biochemistry)
5.	Co-coordinator	Dr. Aneela Yasmeen (Senior Demonstrator of Physiology)

DME Implementation Team		
1.	Director DME	Prof. Dr. Ifra Saeed
2.	Assistant Director DME	Dr Farzana Fatima
3.	DME Implementation Team	Prof. Dr. Ifra Saeed Dr. Farzana Fatima Dr. Saira Aijaz
4.	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

- Domains of Learning
- Teaching and Learning Methodologies/Strategies
    - Large Group Interactive Session (LGIS)
    - Small Group Discussion (SGD)
    - Self-Directed Learning (SDL)
    - Case Based Learning (CBL)
    - Problem- Based Learning (PBL)
    - Skill Labs/Practicals (SKL)

Tables & Figures

- Table1. Domains of learning according to Blooms Taxonomy
- Figure 1. Prof Umar's Model of Integrated Lecture
- Table2. Standardization of teaching content in Small Group Discussions
- Table 3. Steps of taking Small Group Discussions
- Figure 2. PBL 7 Jumps Model

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 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.

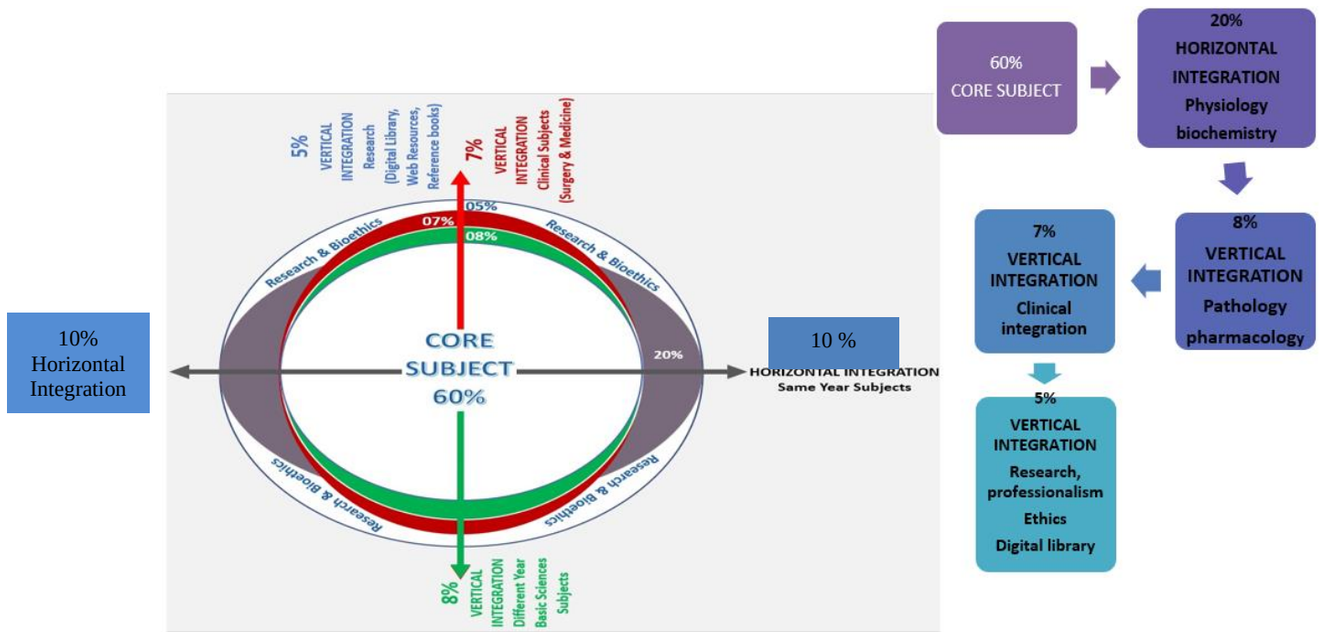


Figure 1. Prof Umar's Model of Integrated Lecture

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	Session - II
Step 6	Collect Information from outside	
Step 5	Generate learning Issues	Session - I
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 Model

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 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**
- **PBLs**
- **Vertical Integration LGIS**

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

List of Endocrinology Module Vertical Courses Lectures

SECTION – IV

Spiral Courses

Content

- **Longitudinal Themes**
    - **The Holy Quran Translation**
    - **Pak Studies/Islamiyat**
    - **Behavioral Sciences**
    - **Biomedical Ethics**
    - **Early Clinical Exposure (ECE)**

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

Introduction to Spiral Courses

The Holy Quran Translation

A course of Islamic Studies provides students with a comprehensive overview of the fundamental aspects of Islam, its history, beliefs, practices, and influence on society and familiarize students with a solid foundation in understanding the religion of Islam from an academic and cultural perspective. Ethics, in integrated form will shape the core of the course to foster among students the universal ethical values promoted by Islam.

Bioethics

Biomedical ethics, also known as bioethics, is a field of study that addresses the ethical, social, and legal issues arising from medicine and the life sciences. It applies moral principles and decision-making frameworks to the practice of clinical medicine, biomedical research, and health policy. Biomedical ethics seeks to navigate the complex ethical dilemmas posed by advances in medical technology, research methodologies, and healthcare practices. Key areas of focus include patient rights and autonomy, confidentiality, informed consent, end-of-life care, resource allocation, and the ethics of genetic engineering, among others.

Biomedical ethics within medical universities plays a pivotal role in shaping the moral framework through which future healthcare professionals navigate the complex and often challenging decisions they will face in their careers. This critical discipline integrates ethical theories and principles with clinical practice, research, and healthcare policy, fostering a deep understanding of the ethical dimensions of medicine. By embedding biomedical ethics into the curriculum, Rawalpindi medical university equips students with the tools to critically analyze and address ethical dilemmas, ranging from patient confidentiality and informed consent to end-of-life care and the equitable distribution of healthcare resources.

This education goes beyond theoretical knowledge, encouraging students to apply ethical reasoning in practical scenarios, thus preparing them for the moral complexities of the medical field. Biomedical ethics also promotes a culture of empathy, respect, and integrity, ensuring that future medical practitioners not only excel in their technical skills but also uphold the highest ethical standards in patient care and research. Through seminars, case studies, and interdisciplinary collaborations, students are encouraged to engage in ethical discourse, reflecting on the societal impact of medical advancements and the responsibility of medical professionals to society. This foundational aspect of medical education cultivates a generation of healthcare professionals committed to ethical excellence, patient advocacy, and the pursuit of equitable healthcare for all.

Professionalism

Professionalism in medicine refers to the set of values, behaviors, and relationships that underpin the trust the public has in doctors and other healthcare professionals. It encompasses a commitment to competence, integrity, ethical conduct, accountability, and putting the interests of patients above one's own. Professionalism involves adhering to high standards of practice, including maintaining patient confidentiality, communicating effectively and respectfully with patients and colleagues, and continually engaging in self-improvement and professional development. It also includes a responsibility to improve access to high-quality healthcare and to contribute to the welfare of the community and the betterment of public health. In essence, professionalism in medicine is foundational to the quality of care provided to patients and is critical for maintaining the trust that is essential for the doctor-patient relationship.

Rawalpindi Medical University emphasizes the importance of professionalism in medicine, integrating it throughout its curriculum to ensure that students embody the core values of respect, accountability, and compassion in their interactions with patients, colleagues, and the community. This focus on professionalism is designed to prepare students for the complexities of the healthcare environment, instilling in them a deep sense of responsibility to their patients, adherence to ethical principles, and a commitment to continuous learning and improvement. Through a combination of theoretical learning, practical training, and mentorship, RMU encourages its students to exemplify professionalism in every aspect of their medical practice. Workshops, seminars, and clinical rotations further reinforce these values, providing students with real-world experiences that highlight the importance of maintaining professional conduct in challenging situations. RMU's approach to professionalism not only shapes competent and ethical medical professionals but also contributes to the broader mission of improving healthcare standards and patient outcomes. By prioritizing professionalism, Rawalpindi Medical University plays a crucial role in advancing the medical profession and ensuring that its graduates are well-equipped to meet the demands of a rapidly evolving healthcare landscape with honor and integrity.

Communication Skills

Communication skill for health professionals involves the ability to effectively convey and receive information, thoughts, and feelings with patients, their families, and other healthcare professionals. It encompasses a range of competencies including active listening, clear and compassionate verbal and non-verbal expression, empathy, the ability to explain medical conditions and treatments in an understandable way, and the skill to negotiate and resolve conflicts. Effective communication is essential for establishing trust, ensuring patient understanding and compliance with treatment plans, making informed decisions, and providing holistic care. It directly impacts patient satisfaction, health outcomes, and the overall efficiency of healthcare delivery

At Rawalpindi Medical University (RMU), the development of communication skills is regarded as a fundamental aspect of medical education, recognizing its critical importance in enhancing patient care, teamwork, and interdisciplinary collaboration. RMU is dedicated to equipping its students with exceptional communication abilities, enabling them to effectively interact with patients, their families, and healthcare colleagues. The curriculum is thoughtfully designed to incorporate various interactive and experiential learning opportunities, such as role-playing, patient interviews, and group discussions, which allow students to practice and refine their communication skills in a supportive environment.

By integrating communication skills training throughout its programs, RMU not only enhances the interpersonal competencies of its future healthcare professionals but also contributes to improving the overall quality of healthcare delivery. Graduates from RMU are distinguished not just by their clinical expertise but also by their ability to connect with patients and colleagues, making them highly effective and compassionate practitioners.

Behavioral Sceinces

Behavioral sciences in medicine focus on understanding and addressing the psychological and social aspects of health and illness. This interdisciplinary field combines insights from psychology, sociology, anthropology, and other disciplines to enhance medical care and patient outcomes. It explores how behavior, emotions, and social factors influence health, disease, and medical treatment. By incorporating behavioral science principles into medical practice, healthcare professionals can better understand patients' perspectives, improve communication, and promote positive health behaviors, ultimately contributing to more comprehensive and effective patient care.

Family Medicine

Family medicine is a medical specialty dedicated to providing comprehensive health care for people of all ages and genders. It is characterized by a long-term, patient-centered approach, building sustained relationships with patients and offering continuous care across all stages of life. It focuses on treating the whole person within the context of the family and the community, emphasizing preventive care, disease management, and health promotion.

The Family Medicine Curriculum at Rawalpindi Medical University (RMU) marks a significant stride towards holistic healthcare education, aiming to prepare medical graduates for the comprehensive and evolving needs of family practice. This curriculum is designed to offer a broad perspective on healthcare, focusing on preventive care, chronic disease management, community health, and the treatment of acute conditions across all ages, genders, and diseases. Emphasizing a patient-centered approach, the curriculum ensures that students develop a deep understanding of the importance of continuity of care, patient advocacy, and the ability to work within diverse community settings.

RMU's Family Medicine Curriculum integrates theoretical knowledge with practical experience. Students are exposed to a variety of learning environments, including community health centers, outpatient clinics, and inpatient settings, providing them with a well-rounded understanding of the different facets of family medicine. This hands-on approach is complemented by interactive sessions, workshops, and seminars that cover a wide range of topics from behavioral health to geriatric care, ensuring students are well-equipped to address the comprehensive health needs of individuals and families.

Artificial Intelligence

To realize the dreams and impact of AI requires autonomous systems that learn to make good decisions. Reinforcement learning is one powerful paradigm for doing so, and it is relevant to an enormous range of tasks, including robotics, game playing, consumer modeling and healthcare. This class will provide a solid introduction to the field of reinforcement learning and students will learn about the core challenges and approaches, including generalization and exploration. Through a combination of lectures, and written and coding assignments, students will become well versed in key ideas and techniques for RL. Assignments will include the basics of reinforcement learning as well as deep reinforcement learning — an extremely promising new area that combines deep learning techniques with reinforcement learning. In addition, students will advance their understanding and the field of RL through a final project.

Integrated Undergraduate Research Curriculum

The integrated undergraduate research curriculum (IUGRC) of RMU occupies a definite space in schedule of each of the five years in rational and incremental way. It has horizontal harmonization as well as multidisciplinary research work potentials. In the first-year teachings are more introductory & inspirational rather than instructional. The teachings explain what & why of research and what capacities are minimally required to comprehend research & undertake research. Some research dignitaries' lecture are specifically arranged for sharing their experiences and inspiring the students. Students are specifically assessed through their individual compulsory written feedback (reflection) after the scheduled teachings end.

Entrepreneurship

Entrepreneurship is the process of designing, launching, and running a new business, which typically starts as a small enterprise offering a product, process, or service for sale or hire. It involves identifying a market opportunity, gathering resources, developing a business plan, and managing the business's operations, growth, and development.

Entrepreneurship in medical universities represents a burgeoning field where the innovative spirit intersects with healthcare to forge advancements that can transform patient care, medical education, and healthcare delivery. This unique amalgamation of medical expertise and entrepreneurial acumen empowers students, faculty, and alumni to develop groundbreaking medical technologies, healthcare solutions, and startups that address critical challenges in the health sector. By integrating entrepreneurship into the curriculum, Rawalpindi Medical university is not only expanding the traditional scope of medical education but also fostering a culture of innovation and problem-solving. This enables future healthcare professionals to not only excel in clinical skills but also in business strategies, leadership, and innovation management.

Such initiatives often lead to the creation of medical devices, digital health platforms, and therapeutic solutions that can significantly improve patient outcomes and make healthcare more accessible and efficient. Through incubators, accelerators, and partnerships with the industry, medical universities are becoming hotbeds for healthcare innovation, driving economic growth, and contributing to the broader ecosystem of medical research and entrepreneurial success.

Digital Literacy Module

Digital literacy means having the skills one needs to live, learn, and work in a society where communication and access to information is increasingly through digital technologies like internet platforms, social media, and mobile devices.

Early Clinical Exposure (ECE)

Early clinical exposure helps students understand the relevance of their preclinical studies by providing real-world contexts. This can enhance motivation and engagement by showing students the practical application of their theoretical knowledge. Early exposure allows students to begin developing essential clinical skills from the start of their education. This includes not only technical skills but also crucial soft skills such as communication, empathy, and professionalism. Direct interaction with patients early in their education helps students appreciate the complexities of patient care, including the psychological and social aspects of illness. Early exposure to various specialties can aid students in making informed decisions about their future career paths within medicine.

Early clinical experiences contribute to the development of a professional identity, helping students see themselves as future physicians and understand the responsibilities and ethics associated with the profession. This can help reduce the anxiety associated with clinical work by familiarizing students with the clinical environment. It can build confidence in their abilities to interact with patients and healthcare professionals. Engaging with real-life clinical situations early on encourages the development of critical thinking and problem-solving skills, which are essential for medical practice. It helps bridge the gap between theoretical knowledge and practical application, leading to a more integrated and holistic approach to medical education. It allows students to observe and understand how healthcare systems operate, including the challenges and limitations faced in different settings.: Early patient interaction emphasizes the importance of patient-centered care from the outset, underscoring the importance of treating patients as individuals with unique needs and backgrounds. Practical experiences can enhance long-term retention of knowledge as students are able to connect theoretical learning with clinical experiences.: Early clinical experiences often involve working in multidisciplinary teams, which fosters a sense of collaboration and understanding of different roles within healthcare.

In summary, early clinical exposure in medical education is pivotal for the holistic development of medical students, providing them with a strong foundation of practical skills, professional attitudes, and a deep understanding of patient-centered care.

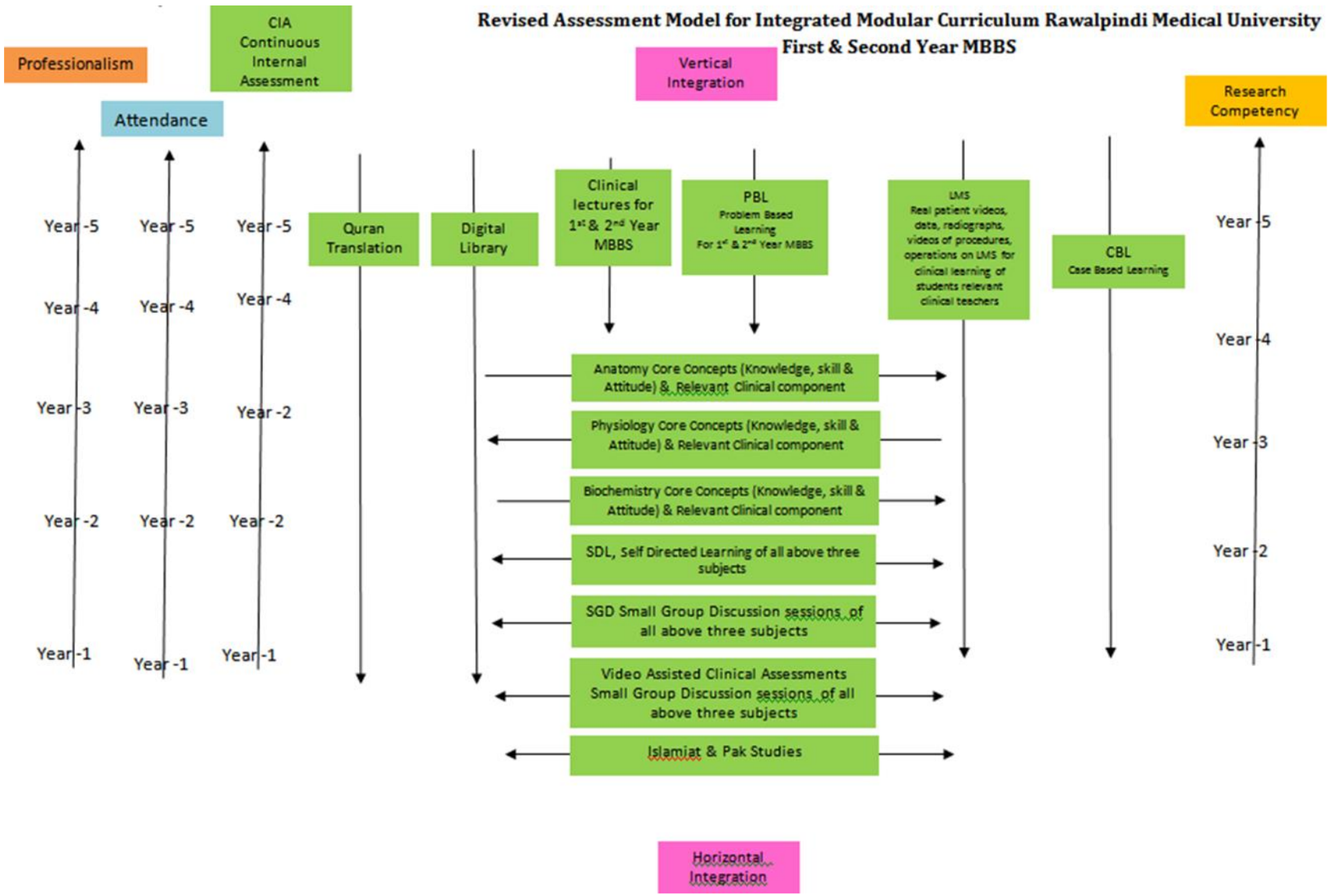
SECTION - V

Assessment Policies

Contents

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

List of Endocrinology Module Spiral Courses Lectures



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%

60% 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 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 – 1 Endocrinology Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-III	1	Weekly LMS Based Assessments (Anatomy, Physiology & Biochemistry)	Formative	2 Hours	3 Hours 45 Minutes	3 Hours	2 Formative	6 Summative
	2	End Module Examinations (SEQ, SAQ, EMQ & MCQs Based)	Summative	2 Hours				
	3	Audio Visual (AV) OSPE (10 slides) 5 minutes per slide	Summative	50 Minutes				
	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 & Spiral Curriculums	Formative	60 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 - VI

Time Table

Integrated Clinically Oriented Modular Curriculum for Second Year MBBS

Endocrinology Module Time Table

Second Year MBBS

Session 2023-2024

Batch- 50

Endocrinology Module Team

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

Module Committee		
15.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar
16.	Director DME	Prof. Dr. Ifra Saeed
17.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf
18.	Chairperson Physiology	Prof. Dr. Samia Sarwar
19.	Chairperson Biochemistry	Dr. Aneela Jamil
20.	Focal Person Anatomy Second Year MBBS	Dr. Maria Tasleem
21.	Focal Person Physiology	Dr. Sidra Hamid
22.	Focal Person Biochemistry	Dr. Aneela Jamil
23.	Focal Person Pharmacology	Dr. Zunera Hakim
24.	Focal Person Pathology	Dr. Asiya Niazi
25.	Focal Person Behavioral Sciences	Dr. Saadia Yasir
26.	Focal Person Community Medicine	Dr. Afifa Kulsoom
27.	Focal Person Quran Translation Lectures	Dr. Uzma Zafar
28.	Focal Person Family Medicine	Dr. Sadia Khan

Module Task Force Team		
6.	Coordinator	Dr. Sidra Hamid (Assistant Professesor of Physiology)
7.	DME Focal Person	Dr. Farzana Fatima
8.	Co-coordinator	Dr. Sadia Baqir (Senior Demonstrator of Anatomy)
9.	Co-Coordinator	Dr. (Demonstrator of Biochemistry)
10.	Co-coordinator	Dr. Aneela Yasmeen (Senior Demonstrator of Physiology)

DME Implementation Team		
5.	Director DME	Prof. Dr. Ifra Saeed
6.	Assistant Director DME	Dr Farzana Fatima
7.	DME Implementation Team	Prof. Dr. Ifra Saeed Dr. Farzana Fatima Dr. Saira Aijaz
8.	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					
	Spiral Courses						
	• The Holy Quran Translation	•					
	• Islamiayat	•					
	• Biomedical Ethics	• History of Medical Ethics					
	• Behavioral Sciences	• Professionalism In Healthcare					
	• Radiology & Artificial Intelligence	• Basics of Radiology					

	• Family Medicine	• Approach to patient diabetes mellitus
	Vertical components	
	• Peads	• Growth problems due to Endocrine causes
	• Surgery	• Thyroid Disorders
	• Pathology	• Hypothyroidism and hyperthyroidism
	• Medicine	• Diabetes Mellitus
	• Obs & Gynae	• Endocrine Disorders in Pregnancy (Diabetes Mellitus, Thyroid Disorders)
	Early Clinical Exposure (ECE)	
	• Medicine	• Thyroid disorders • Hyperthyroidism • Hypothyroidism • Cushing Syndrome
	• Surgery	• Thyroid Nodule • Multi nodular Goiter • CA Thyroid • Graves Diseases
	• Eye	• Blindness • Visual field defect • Cataract
	• Otolaryngology	• Deafness • Hearing tests • Nasal Obstruction

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)
(10-10-2024 To 16-10-2024)

Date / Day	8:00am-9:20am	9:20am – 10:10am	10:10am-10:30am	10:30am-11:20am	11:20am-12:10pm	12:10pm-12:30pm	12:30pm – 2:00pm	Home Assignments(2HRS)
10-10-2024 Thursday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS** Introduction to endocrinology & Signal transduction I Dr. Shmyla (Even) Hypothalamic–pituitary axis& GH Dr. Kamil (Odd)	**Break**	**ANATOMY LGIS** Development of pituitary&. pineal gland Asst Prof Dr. Maria Tasleem (Even) Histology of pituitary& pineal gland Prof. Dr Ifra Saeed (Odd)	**PAKSTUDIES** Tareek e Khatm e Naboat / Muslim Milat ke Buniyad Qari Aman Ullah	**Break**	**SGD/DISSECTION** Bones of neck Hyoid bone& Cervical Vertebrae	SDL Anatomy lateral cervical region
11-10-2024 Friday	**8:00 AM – 9:00 AM** **BEHAVIOURAL SCIENCES LGIS** Professionalism in healthcare Dr. Zarnain Umar (even) Dr. SadiaYasir (odd)	**9:00 AM – 10:00 AM** **PHYSIOLOGY LGIS** Hypothalamic–pituitary axis& GH Dr Kamil (Even) Introduction to endocrinology & Signal transduction I Dr. Shmyla (Odd)		**10:00 – 11:00AM** **ANATOMY LGIS** Histology of pituitary & pineal gland Asst Prof Dr. Maria Tasleem (Even) Development of pituitary&. pineal gland Prof. Dr Ifra Saeed (Odd)	**11:00AM – 12:00PM** **BIOCHEMISTRY LGIS** Classification & Mechanism of action of Endocrine Hormone, Dr. Isma (Even) Thyroid Hormone Dr. Almas (Odd)		SDL Biochemistry Classification of endocrine hormones	
12-10-2024 Saturday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS** Introduction to endocrinology & Signal transduction-II Dr. Shmyla (Even) Abnormalities of growth hormone secretion Dr. Kamil (Odd)	**Break**	**PAKSTUDIES** Islam Ka Mashi Nizam Qari Aman Ullah	**RADIOLOGY** Basics of Radiology Dr Fiza (even) Dr Zeenat (odd)	**Break**	**CBL/DISSECTION** Superficial structures of neck (Stnocleido mastoid region of neck, posteripor cervical region suboccipital trangle)	SDL physiology Hypothalamic–pituitary axis& GH
14-10-2024 Monday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS** Abnormalities of growth hormone secretion Dr. Kamil (Even) Abnormalities of growth hormone secretion Dr. Shmyla (Odd)		**PAKSTUDIES** 2 Qoumi Nazria / Islami Mumliqat Qiyam Qari Aman Ullah	**PBL 1 (SESSION-I)** PBL Team		**SGD/DISECTION** Lateral cervical region (Muscles)	SDL Physiology Introduction to endocrinology & Signal transduction
15-10-2024 Tuesday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY (LGIS)** Insulin and Glucagon: Structure and metabolic functions Dr. Fareed (Even) Hormones of posterior pituitary gland (Oxytocin and ADH) Dr. Kamil (Odd)		**SGD/DISECTION** Lateral cervical region (Neurovasscular Organization)			**SGD/DISECTION** Superficial and deep fascias of the neck	SDL Anatomy SCM region & superficial & deep fascia
16-10-2024 Wednesday	**Practical & CBL/SGD** Topic mentioned at the end	**PEADS** Growth problems due to Endocrine causes Dr. Hina Sattar		**ANATOMY** Development of thyroid and parathyroid gland Dr. Prof. Ifra Saeed (Even) Histology of thyroid and para thyroid gland Asst Prof Dr. Maria Tasleem (Odd)	**PBL 1 (SESSION-II)** PBL Team		**SGD/DISECTION** Anterior cervical region (Anterior Triangles of neck)	SDL Biochemistry Mechanism of Action of Hormones

Table No. 1 (Time: 12:20pm – 02:00pm)

Batch Distribution for Practical Skills (all subjects) CBL / Small Group Discussion (Biochemistry and Physiology)

Sr. No	Batch	Roll No.
1.	A	01-70
2.	B	71-140
3.	C	141-210
4.	D	211-280
5.	E	281-onwards

Topics for Skill Lab with Venue

- Pituitary gland (Anatomy, Histology Practical)
- Blood glucose estimation (Biochemistry practical)
- Examination of pupillary reaction (Physiology practical)

Topics for SGDs / CBL 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		Supervised by HOD	Physiology Practical		Physiology SGD		Supervised by HOD	Biochemistry SGD	
	Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name
Monday	C	Supervised by HOD	B	Dr. Rahat	Supervised by HOD	E	Dr. Kamil	A	Dr. Aneela	Supervised by HOD	D	Dr. Uzma
Tuesday	D		C	Dr. Nayab		A	Dr. Aneela	B	Dr. Shazia		E	Dr. Almas
Wednesday	E		D	Dr. Uzma		B	Dr. Shazia	C	Dr. Nayab		A	Dr. Romessa
Thursday	B		A	Dr. Almas		D	Dr. Iqra	E	Dr. Iqra		C	Dr. Nayab
Saturday	A		E	Dr. Romessa		C	Dr. Nayab	D	Dr. Kamil		B	Dr. Rahat

Table No. 2 Batch Distribution and Venues for Anatomy Small Group Discussion SGDs / Dissections

Batches	Roll No	Anatomy Teacher	Venue	
A	01-90	Dr. Gaiti Ara	New Lecture Hall Complex # 01	Supervised by Prof. Dr. Ayesha Yousaf
B	91-180	Dr. Minahil Haq	New Lecture Hall Complex # 04	
C	181-270	Dr. Tariq Furqan	Anatomy Lecture Hall 04	
D	271 onwards	Dr. Sadia Baqir	Anatomy Lecture Hall 03	

Table No. 3 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

Sr No.	Batches	Roll No	Venue	Teachers	Sr No.	Batches	Roll No	Venue	Teachers
1.	A1	(01-35)	Lecture Hall no.05 Physiology	Dr. Sana Latif (Demonstrator Biochemistry)	6.	C2	(176-210)	Lecture Hall no.04 (Basement)	Dr. Nayab Zonish (PGT Physiology)
2.	A2	(36-70)	Lecture Hall #.04 (1st Floor Anatomy)	Dr. Farah (Demonstrator of Physiology)	7.	D1	(210-245)	Lecture Hall no.02 (Basement)	Dr. Iqra Ayub (PGT Physiology)
3.	B1	(71-105)	Anatomy Museum (First Floor Anatomy)	Dr. Rohina Khalid (Demonstrator Biochemistry)	8.	D2	(246-280)	Conference Room (Basement)	Dr. Muhammad Usman (PGT Physiology)
4.	B2	(106-140)	Lecture Hall no.03 (First Floor)	Dr. Tariq Furrqan (Senior Demonstrator of Anatomy)	9.	E1	(281-315)	New Lecture Hall no.01	Dr. Ramsha (PGT Physiology)
5.	C1	(141-175)	Lecture Hall no.05 (Basement)	Dr. Ali Zain (PGT Physiology)	10	E2	(315 onwards)	Lecture Hall no.04	Dr. Jawad Hassan (Demonstrator Physiology)

Table No. 6 Venues for Large Group Interactive Session (LGIS)

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

Endocrinology Module (Second Week)
(17-10-2024 To 23-10-2024)

Date / Day	8:00am-9:20am	9:20am – 10:10am		10:10am-10:30am	10:30am-11:20am		11:20am-12:10pm		12:10pm-12:30pm	12:30pm – 2:00pm	Home Assignments(2HRS)
17-10-2024 Thursday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS)**		Break	**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)			
18-10-2024 Friday	**8:00 AM – 9:00 AM**	**9:00 AM – 10:00 AM**			**10:00 – 11:00AM**		**11:00AM – 12:00PM**				
	BIOMEDICAL ETHICS	**PHYSIOLOGY LGIS**			**BIOCHEMISTRY (LGIS)**		**PBL 2 (SESSION-I)**				
	History of Medical Ethics	Regulation of blood Glucose & Diabetes mellitus	Aldosterone and Cortisol		Insulin & Glucagon - I	Parathyroid Hormone & Calcitonin	PBL Team			SDL Anatomy Anterior Triangle of neck & its subdivisions	
	Dr. Arsalan Even / Dr. Maria Odd	Dr.Fareed (Even)	Dr. Sheena (Odd)		Dr. Aneela (Even)	Dr. Isma (Odd)					
19-10-2024 Saturday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS**		Break	**ISLAMIAYT**		**SGD/DISSECTION**		Break	**SGD/DISSETION**	
		Aldosterone and Cortisol	Regulation of blood Glucose & Diabetes mellitus		Rasalat		Root of neck (arteries, veins & nerves)			Submandibular region	SDL Physiology Insulin and Glucagon
		Dr. Sheena (Even)	Dr.Fareed (Odd)		Mufti Naeem Shirazi						
21-10-2024 Monday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS**			**ISLAMIAYT**		**PBL 2 (SESSION-II)**			**SGD/DISSECTION**	
		Thyroid hormone: Production, storage and release	Abnormalities of adrenocortical hormone		Itihad e Umat		PBL Team			Deep structures of neck, prevertebral muscles	SDL Physiology Aldosterone and Cortisol
		Prof. Dr.Samia Sarwar/ Dr. Iqra (Even)	Dr. Sheena (Odd)		Mufti Naeem Shirazi						
22-10-2024 Tuesday	**Practical & CBL/SGD** Topic mentioned at the end	Early Clinical Exposure (ECE)									
23-10-2024 Tuesday	**Practical & CBL/SGD** Topic mentioned at the end	**PATHOLOGY**		Break	**PHYSIOLGY (LGIS)**		**SGD/DISSECTION**		Break	**CBL/DISECTION**	SDL Biochemistry Type I & II Diabetes Mellitus Glucose Tolerance Test Curves Online clinical Evaluation
		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)					

Table No. 1 (Time: 12:20pm – 02:00pm)

Batch Distribution for Practical Skills (all subjects)
CBL / Small Group Discussion (Biochemistry and Physiology)

Sr. No	Batch	Roll No.
6.	A	01-70
7.	B	71-140
8.	C	141-210
9.	D	211-280
10.	E	281-onwards

Topics for Skill Lab with Venue

- Thyroid & Parathyroid gland (Anatomy, Histology)
- Practical G.T.T (Biochemistry practical)
- Checking for color vision (Physiology practical) (Physiology practical)

Schedule for Practical / Small Group Discussion

Day	Histology Practical		Biochemistry Practical		Supervised by HOD	Physiology Practical		Physiology SGD		Supervised by HOD	Biochemistry SGD	
	Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name
Monday	C	Supervised by HOD	B	Dr. Rahat		E	Dr. Kamil	A	Dr. Aneela		D	Dr. Uzma
Tuesday	D		C	Dr. Nayab		A	Dr. Aneela	B	Dr. Shazia		E	Dr. Almas
Wednesday	E		D	Dr. Uzma		B	Dr. Shazia	C	Dr. Nayab		A	Dr. Romessa
Thursday	B		A	Dr. Almas		D	Dr. Iqra	E	Dr. Iqra		C	Dr. Nayab
Saturday	A		E	Dr. Romessa		C	Dr. Nayab	D	Dr. Kamil		B	Dr. Rahat

Topics for SGDs / CBL with Venue

- Anatomy CBL: Multi Nodular Goitre with Hypothyroidism
- Physiology SGD: Thyroid Hormones
- Biochemistry CBL: Addison's Disease

Table No. 2 Batch Distribution and Venues for Anatomy Small Group Discussion SGDs / Dissections

Batches	**Roll No**	**Anatomy Teacher**	**Venue**
A	01-90	Dr. Gaiti Ara	New Lecture Hall Complex # 01
B	91-180	Dr. Minahil Haq	New Lecture Hall Complex # 04
C	181-270	Dr. Tariq Furqan	Anatomy Lecture Hall 04
D	271 onwards	Dr. Sadia Baqir	Anatomy Lecture Hall 03

Supervised by Prof. Dr. Ayesha Yousaf

Table No. 3 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

Sr No.	Batches	Roll No	Venue	Teachers	Sr No.	Batches	Roll No	Venue	Teachers
6.	A1	(01-35)	Lecture Hall no.05 Physiology	Dr. Sana Latif (Demonstrator Biochemistry)	6.	C2	(176-210)	Lecture Hall no.04 (Basement)	Dr. Nayab Zonish (PGT Physiology)
7.	A2	(36-70)	Lecture Hall #.04 (1st Floor Anatomy)	Dr. Farah (Demonstrator of Physiology)	7.	D1	(210-245)	Lecture Hall no.02 (Basement)	Dr. Iqra Ayub (PGT Physiology)
8.	B1	(71-105)	Anatomy Museum (First Floor Anatomy)	Dr. Rohina Khalid (Demonstrator Biochemistry)	8.	D2	(246-280)	Conference Room (Basement)	Dr. Muhammad Usman (PGT Physiology)
9.	B2	(106-140)	Lecture Hall no.03 (First Floor)	Dr. Tariq Furrqan (Senior Demonstrator of Anatomy)	9.	E1	(281-315)	New Lecture Hall no.01	Dr. Ramsha (PGT Physiology)
10.	C1	(141-175)	Lecture Hall no.05 (Basement)	Dr. Ali Zain (PGT Physiology)	10	E2	(315 onwards)	Lecture Hall no.04	Dr. Jawad Hassan (Demonstrator Physiology)

Table No. 6 Venues for Large Group Interactive Session (LGIS)

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

S

Endocrinology Module (Third Week)
(24-10-2024 To 30-10-2024)

Date / Day	8:00am-9:20am	9:20am – 10:10am		10:10am-10:30am	10:30am-11:20am		11:20am-12:10pm		12:10pm-12:30pm	12:30pm – 2:00pm	Home Assignments(2HRS)
24-10-2024 Thursday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS**		Break	**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 & pancrea s	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)			
25-10-2024 Friday	8:00 AM – 9:00 AM	9:00 AM – 10:00 AM			10:00 – 11:00AM		11:00AM – 12:00PM		SDL Biochemistry Hypoglycemia Diabetic Ketoacidosis & Hyperosmolar Hyperglycemic State		
	ISLAMIAYAT	**PHYSIOLOGY LGIS**			**BIOCHEMISTRY LGIS**		**FAMILY MEDICINE**				
	Amal Bin Maroof	Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin)	Physiological role of thyroid hormone		Parathyroid Hormone & Calcitonin	Insulin & Glucagon - I	Approach to Patient Diabetes mellitus				
	Mufti Naeem Sherazi	Dr. Fahad (Even)	Prof. Dr.Samia Sarwar/ Dr. Iqra (Odd)		Dr. Isma(Even)	Dr. Aneela (Odd)	Dr. Sadia Khan				
26-10-2024 Saturday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY LGIS**		Break	**ANATOMY LGIS**		**BIOCHEMISTRY LGIS**		Break	**SGD/DISSECTION**	Anatomy SDL Temporal and Infra temporal region, Pterygopalatine fossa Online clinical Evaluation
		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)			
28-10-2024 Monday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY (LGIS)**		Break	**BIOCHEMISTRY LGIS**		**BIOCHEMISTRY LGIS**		Break	**SGD/DISSECTION**	SDL Anatomy Thyroid and para thyroid gland
		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)			
29-10-2024 Tuesday	**Practical & CBL/SGD** Topic mentioned at the end	**BIOCHEMISTRY LGIS**			**SGD/DISECTION**					**SGD/DISSECTION**	SDL Physiology Abnormalities of
		Adrenocortical Hormones - II	Blood Glucose Regulation		Adrenal gland (revisit)					Alimentary layer Pharynx, esophagus	
		Dr. Isma (Even)	Dr. Uzma Zafar (Odd)								
30-10-2024 Wednesday	**Practical & CBL/SGD** Topic mentioned at the end	**PHYSIOLOGY SDL No.0I**			**SGD/DISECTION**					**SGD/DISSECTION**	SDL Anatomysoft palate ,larynx
		Regulation of blood Glucose & Diabetes mellitus			Disection/ Spooting					Disection/ Spooting	
		Dr Fareed (Even)	Dr Maryam (Odd)								

Table No. 1 (Time: 12:20pm – 02:00pm)

Batch Distribution for Practical Skills (all subjects)
CBL / Small Group Discussion (Biochemistry and Physiology)

Sr. No	Batch	Roll No.
11.	A	01-70
12.	B	71-140
13.	C	141-210
14.	D	211-280
15.	E	281-onwards

Topics for Skill Lab with Venue

- Endocrinology, Adrenal gland & Pancrease (Anatomy, Histology Practical)
- G.T.T / Revision (Biochemistry practical)
- CBL: Adrenocortical hormones (Practical batch) student's presentations Lab

Topics for SGDs / CBL with Venue

- 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	
	Batch	Teacher Name	Batch	Teacher Name	Batch	Teacher Name	Batch	Teacher Name	Batch	Teacher Name
Monday	C	Supervised by HOD	B	Dr. Rahat	E	Dr. Kamil	A	Dr. Aneela	D	Dr. Uzma
Tuesday	D		C	Dr. Nayab	A	Dr. Aneela	B	Dr. Shazia	E	Dr. Almas
Wednesday	E		D	Dr. Uzma	B	Dr. Shazia	C	Dr. Nayab	A	Dr. Romessa
Thursday	B		A	Dr. Almas	D	Dr. Iqra	E	Dr. Iqra	C	Dr. Nayab
Saturday	A		E	Dr. Romessa	C	Dr. Nayab	D	Dr. Kamil	B	Dr. Rahat

Supervised by HOD (Biochemistry Practical) | Supervised by HOD (Biochemistry SGD)

Table No. 2 Batch Distribution and Venues for Anatomy Small Group Discussion SGDs / Dissections

Batches	**Roll No**	**Anatomy Teacher**	**Venue**
A	01-90	Dr. Gaiti Ara	New Lecture Hall Complex # 01
B	91-180	Dr. Minahil Haq	New Lecture Hall Complex # 04
C	181-270	Dr. Tariq Furqan	Anatomy Lecture Hall 04
D	271 onwards	Dr. Sadia Baqir	Anatomy Lecture Hall 03

Supervised by Prof. Dr. Ayesha Yousaf

Table No. 3 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

Sr No.	Batches	Roll No	Venue	Teachers	Sr No.	Batches	Roll No	Venue	Teachers
11.	A1	(01-35)	Lecture Hall no.05 Physiology	Dr. Sana Latif (Demonstrator Biochemistry)	6.	C2	(176-210)	Lecture Hall no.04 (Basement)	Dr. Nayab Zonish (PGT Physiology)
12.	A2	(36-70)	Lecture Hall #.04 (1st Floor Anatomy)	Dr. Farah (Demonstrator of Physiology)	7.	D1	(210-245)	Lecture Hall no.02 (Basement)	Dr. Iqra Ayub (PGT Physiology)
13.	B1	(71-105)	Anatomy Museum (First Floor Anatomy)	Dr. Rohina Khalid (Demonstrator Biochemistry)	8.	D2	(246-280)	Conference Room (Basement)	Dr. Muhammad Usman (PGT Physiology)
14.	B2	(106-140)	Lecture Hall no.03 (First Floor)	Dr. Tariq Furrqan (Senior Demonstrator of Anatomy)	9.	E1	(281-315)	New Lecture Hall no.01	Dr. Ramsha (PGT Physiology)
15.	C1	(141-175)	Lecture Hall no.05 (Basement)	Dr. Ali Zain (PGT Physiology)	10	E2	(315 onwards)	Lecture Hall no.04	Dr. Jawad Hassan (Demonstrator Physiology)

Table No. 6 Venues for Large Group Interactive Session (LGIS)

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

Tentative Schedule for LMS Based Weekly Online Assessments for Second Year MBBS (Endocrinology Module) Batch 50

The online assessment for Endocrinology Module for Second Year MBBS will be as per following schedule:

Class	Module	Day & Date	Time of Assessment	Focal person	Department Responsible
Second Year MBBS	Endocrinology Module	Monday 14th October,2024	9:00 pm-9:30pm	Prof. Dr Ayesha Yousaf	Anatomy
		Tuesday 15th October,2024	9:00 pm-9:30pm	Prof. Dr Samia Sarwar	Physiology
		Wednesday 16th October,2024	9:00 pm-9:30pm	Dr Aneela Jamil	Biochemistry
		Monday 21st October ,2024	9:00 pm-9:30pm	Prof. Dr Ayesha Yousaf	Anatomy
		Tuesday 22nd October ,2024	9:00 pm-9:30pm	Prof. Dr Samia Sarwar	Physiology
		Wednesday 23rd October ,2024	9:00 pm-9:30pm	Dr Aneela Jamil	Biochemistry

Note: All dates are subject to date.

Endocrinology Module (Fourth Week)
(31-10-2024 To 06-11-2024)

Date / Days	Tentative Schedule for Endocrinology Sesnes Module Assessment	Time
31-10-2024 Wednesday	**Assessment week**	08:00am - 02:00pm
01-11-2024 Thursday		08:00am - 02:00pm
02-11-2024 Friday		08:15am - 09:15am
03-11-2024 Saturday		08:15am - 09:15am
05-11-2024 Monday		08:15am - 09:15am
06-11-2024 Tuesday		

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

SECTION-VII

Table of Specification (TOS) For Endocrinology Module Examination

Blue Print of Assessment for First Year & Second Year MBBS

Table of Specification

Tools of Asssessment: Cognitive: MCQ- Multiple Choice Questions, EMQs- Extended Matching Questions, SAQ- Short Answer Questions, SEQ- Short Essay Questions Psychomotor: AvOSPE- Audio Visual Assisted Objective Structured Pactical Examination, labOSPE- Laboratory Based Objective Structured Practical Examination, IOSPE- Integrated Objective Structured Practical Examination, COSPE- Clinically Oriented Objective Structed Practical Examination Affect: AED Reflective Writing- Artificial Intelligence, Entraprenureship, Digital Literacy based reflective writing, OSVE- Objective Structured Viva Assessment

Domains: C-Core Subject (70%) Levels C1-C2, HV- Horizontal & Vertical Integration (20%) Levels C2-C3, S- Spiral Integration (10%) Levels C2-C3

End of Module Assessment	Subject	Theory (Cognitive) Assessment																			Practical (Skill & Attitude) Assessment										Grand Total	Total Time of Module Assessment
		MCQs					EMQs			SAQs					SEQs				Marks	Total Marks Theory	Total Time	AV OSPE					Time	AED Reflective Writing	OSVE			Total Practical Marks		
		C	HV	S	Total	Marks	C	Total	Marks	C	HV	S	Total	Marks	C	HV	S	Total				C	HV	S	Total	Marks			Viva	Copy	Total			
First Module	Anatomy	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
	Physiology	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
	Biochemistry	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
Formative- Weekly LMS Based Assessment of 30 MCQs (10 MCQs per Subject)																																	
End of Module Assessment	Subject	Theory (Cognitive) Assessment																			Practical (Skill & Attitude) Assessment										Grand Total	Total Time of Module Assessment
		MCQs					EMQs			SAQs					SEQs				Marks	Total Marks Theory	Total Time	AV OSPE					Time	AED Reflective Writing	OSVE			Total Practical Marks		
		C	HV	S	Total	Marks	C	Total	Marks	C	HV	S	Total	Marks	C	HV	S	Total				C	HV	S	Total	Marks			Viva	Copy	Total			
Second Module	Anatomy	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
	Physiology	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
	Biochemistry	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
Formative- Weekly LMS Based Assessmen tof 30 MCQs (10 MCQs per Subject)																																	

Block	Subjects	LMS Based Assessment MCQs					OSPE						Grand Total	Total Block Time
							LabOSPE	IOSPE	COSPE	Total	Marks	Time		
		C	HV	S	Total	Time	C	HV	S					
BLOCK	Anatomy	21	6	3	30	30 min	14	4	2	20	60	6 HRS	90	6.5 HRS
	Physiology	21	6	3	30	30 min	14	4	2	20	60	6 HRS	90	6.5 HRS
	Biochemistry	21	6	3	30	30 min	14	4	2	20	60	6 HRS	90	6.5 HRS

50% Questions/OSPE Stations/Viva Stations will be from Foundation Module and 50% Questions will be from MSK-1 Module

For Each assessment student will have to individually pass Theory and Practical components

Weekly LMS Assessment			
Subjects	Anatomy	Physiology	Biochemist
No of MCQs*	30	30	30
Marks/MCQ	30	30	30
*MCQ=1 Mark each, 1 min each			

Marks per Item

MCQ=1	EMQ= 5	SAQ= 5	SEQ= 9	AVOSPE= 5		OSPE= 3

OSPE Time=1 Round of 40 Students =80 min

3 Round of 40 Students =240 min

OSVE=Time per student=5mins

Annexure I

(Sample MCQ, SAQ, SEQ Papers, AV OSPE, OSPE & Video Assisted OSPE)

Note: These sample papers aim to facilitate comprehension. However, it's important to note that the content and format of actual assessment papers may differ.

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

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
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

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

EMQs 2nd Year MBBS
Endocrinology Module

Options:

A. Graves' disease

B. Hashimoto's thyroiditis

C. Subacute thyroiditis

D. Papillary thyroid carcinoma

E. Follicular thyroid carcinoma

F. Medullary thyroid carcinoma

G. Anaplastic thyroid carcinoma

H. Thyroid storm

I. Myxedema coma

J. Toxic multinodular goiter

Questions:

1. A 30-year-old female presents with weight loss, heat intolerance, palpitations, and exophthalmos. Her thyroid-stimulating hormone (TSH) levels are low, and her free T4 levels are high.

   What is the most likely diagnosis?

2. A 45-year-old male presents with a painless, rapidly enlarging neck mass. Fine-needle aspiration biopsy reveals malignant cells, and histopathology shows the presence of amyloid stroma.

   What is the most likely diagnosis?

3. A 50-year-old female with a history of long-standing hypothyroidism presents with lethargy, hypothermia, bradycardia, and generalized edema.

   What is the most likely diagnosis?

4. A 35-year-old female presents with a tender, swollen thyroid gland and symptoms of fever, malaise, and neck pain radiating to the jaw. Laboratory findings show elevated erythrocyte sedimentation rate (ESR) and low TSH levels.

   What is the most likely diagnosis?

5. A 60-year-old female presents with symptoms of hyperthyroidism. She has a nodular thyroid gland on examination. Ultrasound reveals multiple autonomously functioning thyroid nodules.

   What is the most likely diagnosis?

Answers:

1. **A. Graves' disease**
2. **F. Medullary thyroid carcinoma**
3. **I. Myxedema coma**
4. **C. Subacute thyroiditis**
5. **J. Toxic multinodular goiter**

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)

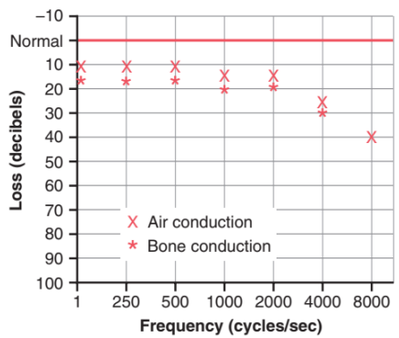
Station No. 2 Time Allowed: 1 Min 30 secs

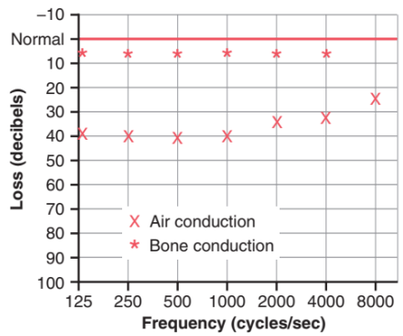
a. Identify red and give its nerve supply. (1)
b. Identify green and write down its action. (1)
c. Identify yellow and write down the name of the structure opening here (1)

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)

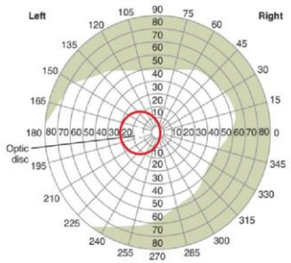




Scenario- 1: Rinnes negative in right ear
Scenario- 2: Weber Lateralized in right ear

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)



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

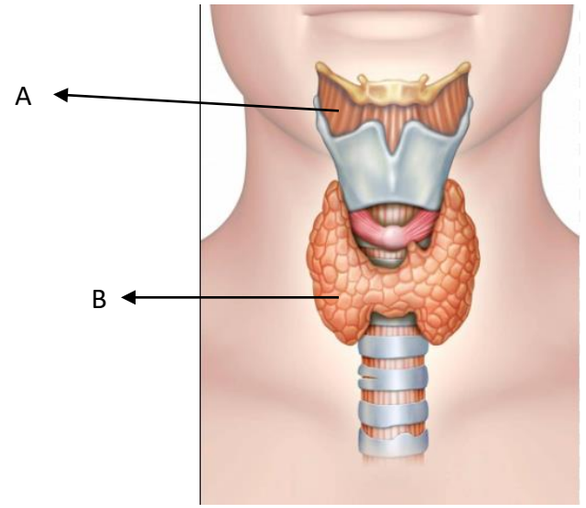
AV OSPE
Department of Anatomy

Q.No.1 Identify

1) A

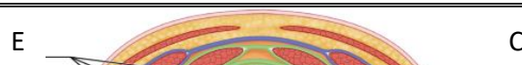
2) B

Q.No.2 Give Blood Supply of stucture B?



AV OSPE
Department of Anatomy

Cross Sectional



Q.No.1 Identify

1) A
2) B
3) C
4) D
5) E