

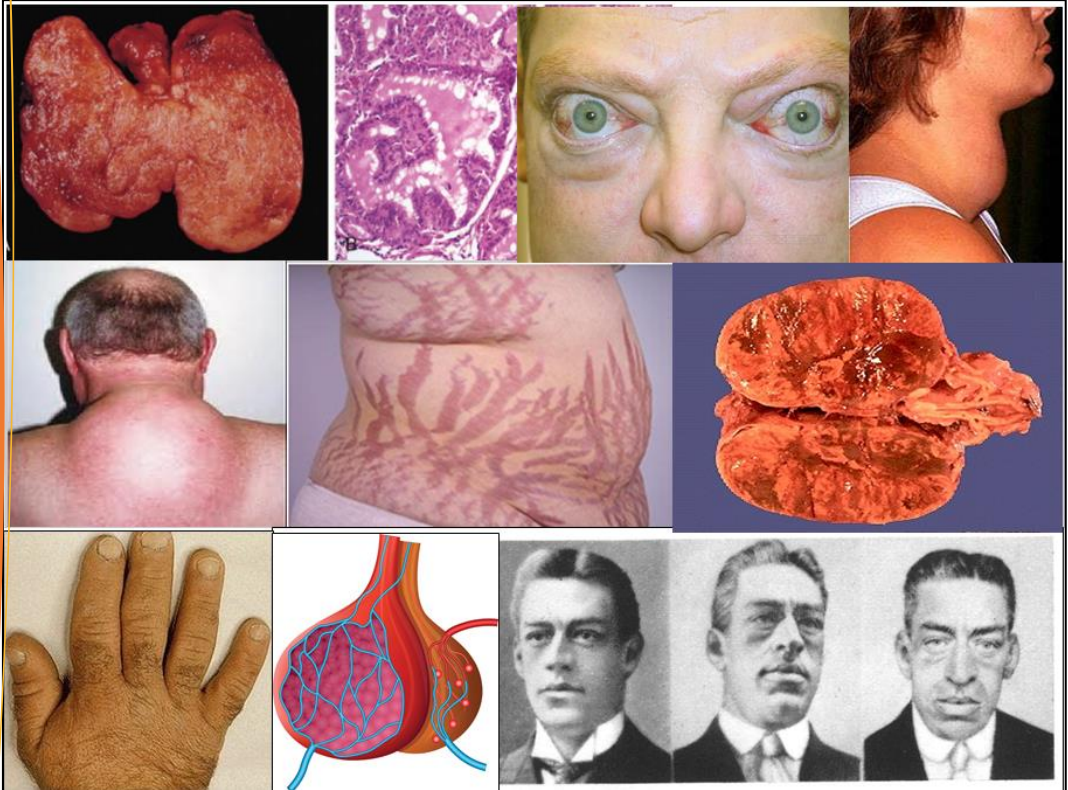
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**UNISZA**

UNIVERSITI SULTAN ZAINAL ABIDIN



# **Module 10 Endocrine System and Metabolism**

**BMM 20116 (ORGAN SYSTEM II)**

**ONLINE TEACHING**

**FACULTY OF MEDICINE**

**MBBS PROGRAMME**

**YEAR 2 SEMESTER 1 SESSION 2020/2021**

**29<sup>th</sup> November – 31<sup>st</sup> December 2020**



**Provided by:**

.....  
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# FACULTY OF MEDICINE

## VISION

Faculty of Medicine aspires to be an excellent institution in producing high quality health professionals, research and community services.

## MISSION

Faculty of Medicine shall provide dynamic curricula guided by excellent educators in conducive environment, nurture sustainable research culture and inculcate community-focused activities.

## **TEACHING AND LEARNING METHODS**

L : Lecture  
CAL : Computer Assisted Learning  
PRC : Practical  
ECE : Early Clinical Exposure  
PPD : Personal and Professional Development  
PBL : Problem Based Learning  
TUT : Tutorial

## **ASSESSMENT:**

Continuous Assessment (CONASS)  
End of Module Assessment (EOM)  
End of Semester Examination (EOS)

## **LOCATION**

MKK 1 : Makmal Kemahiran Klinikal 1  
MKK 2 : Makmal Kemahiran Klinikal 2  
MKK 3 : Makmal Kemahiran Klinikal 3  
MKK : Makmal Kemahiran Komunikasi  
MDA : Makmal Diseksi Anatomi  
DKA : Dewan Kuliah A  
DKB : Dewan Kuliah B  
CL1 : Makmal Komputer 1  
CL3 : Makmal Komputer 3  
MBiokim : Makmal Biokimia  
MMikro : Makmal Mikrobiologi  
MHisto : Makmal Histologi  
BT1 : Bilik Tutorial 1  
BT2 : Bilik Tutorial 2  
BT3 : Bilik Tutorial 3  
BT4 : Bilik Tutorial 4  
BT5 : Bilik Tutorial 5  
BT6 : Bilik Tutorial 6  
BT7 : Bilik Tutorial 7  
BT8 : Bilik Tutorial 8  
BT9 : Bilik Tutorial 9  
BT10 : Bilik Tutorial 10  
BT11 : Bilik Tutorial 11  
BT12 : Bilik Tutorial 12  
BT13 : Bilik Tutorial 13

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# MODULE 10: ENDOCRINE SYSTEM AND METABOLISM

Module coordinator: Assoc. Prof. Dr. Rochman Naim (017 956 4340)

## CONTENT SYNOPSIS

This module provides the student integrated approaches of learning endocrine system and metabolism. It covers normal anatomy, histology, physiology and biochemistry of the endocrine system and metabolism (ESM). The aetiopathogenesis, pathology, and clinical manifestations of endocrine diseases, PPD, together with radiology, history taking and clinical examination, and pharmacological treatment make up the whole integrated module.

In each lecture, the scope of learning is outlined in the guidebook. Students are expected to further acquire their knowledge through reading of the suggested textbooks and recommended websites.

## OBJECTIVES/INTENDED LEARNING OUTCOMES

By the end of this module, the students should be able to:

1. Explain normal anatomy and physiology related to endocrine and metabolic system.
2. Define medical terminology of biochemistry, pathophysiology and clinical syndrome commonly encountered in patient presented with endocrine and metabolic disorders.
3. Describe the clinical syndromes and pathology of endocrine and metabolic system.
4. Contrast the normal and abnormal value of body hormone.
5. Apply certain clinical skills related to endocrine and metabolism system.
6. Demonstrate communication skills, teamwork, attitude and lifelong learning.

## LEARNING ACTIVITIES

1. Lectures
2. Tutorials
3. Practical
4. Forum/panel discussion
5. Problem based learning
6. Self-Study
7. Seminars
8. Computer Assisted Learning

## ASSESSMENT METHODS

1. Continuous Assessment – Assignments, CAL, Seminar, PBL
2. End of Module Assessment (EOM) – MCQ, SEQ
3. End of Semester Examination (EOS) – MCQ, SEQ, PBQ, OSPE
4. Professional 1 Examination (PRO1) – MCQ, SEQ, PBQ, OSPE

## OUTLINE OF COURSE CONTENT (Lecture)

Discipline	Lecturer	Title	Learning Outcome
Anatomy 1	AH	Pituitary Gland	<ul style="list-style-type: none"> <li>Describe the gross anatomy of the pituitary gland</li> <li>Explain its blood supply (Hypothalamo-hypophyseal portal system)</li> <li>Describe the histology of the pituitary gland</li> <li>Describe its development</li> <li>Discuss the clinical application</li> </ul>
Anatomy 2	NM	Thyroid and Parathyroid glands	<ul style="list-style-type: none"> <li>Describe the gross anatomy of thyroid and parathyroid glands</li> <li>Describe the blood supply of thyroid and parathyroid glands</li> <li>Describe the histology of the of thyroid and parathyroid glands</li> <li>Describe the development of thyroid and parathyroid glands</li> <li>Discuss the clinical application</li> </ul>
Anatomy 3	NFCL	Adrenal Glands	<ul style="list-style-type: none"> <li>Describe gross anatomy of the adrenal gland</li> <li>Explain its blood supply</li> <li>Describe the histology of the adrenal gland</li> <li>Describe its development</li> <li>Discuss the clinical application</li> </ul>
Physiology 1 & 2	NAS	Hypothalamus and Pituitary gland 1 & 2	<ul style="list-style-type: none"> <li>Explain the functional structures of the endocrine hypothalamus and the pituitary gland.</li> <li>Describe the functions of the pituitary hormones</li> <li>Describe the regulation of the secretion of these hormones.</li> <li>Discuss the clinical conditions associated with their abnormal functions</li> </ul>
Physiology 3	MNMN	Thyroid Gland	<ul style="list-style-type: none"> <li>Explain the functional structures of the thyroid gland and their secretions.</li> <li>Explain the actions of thyroid hormones.</li> <li>Describe the regulation of thyroid hormones secretion.</li> <li>Describe the consequences of abnormal thyroid functions</li> </ul>
Physiology 4	MNMN	Parathyroid gland	<ul style="list-style-type: none"> <li>Explain the functional structures of the parathyroid gland and their secretions.</li> <li>Explain the role and actions of parathyroid hormones in calcium metabolism.</li> <li>Describe the regulation of parathyroid hormones secretion.</li> <li>Describe the clinical implication of abnormal secretions of the parathyroid hormones.</li> </ul>

Discipline	Lecturer	Title	Learning Outcome
Physiology 5 & 6	MMT	Adrenal Glands 1 & 2	<ul style="list-style-type: none"> <li>Explain the functional structures associated with the adrenal gland and their hormones.</li> <li>Describe the functions of these hormones.</li> <li>Describe the regulation of the hormone secretions.</li> <li>Explain the clinical implications of adrenal hormones secretion abnormality.</li> </ul>
Physiology 7	NAAB	Endocrine Pancreas	<ul style="list-style-type: none"> <li>State the functional structures of the endocrine pancreas gland and their secretions.</li> <li>Describe the synthesis, storage, release and transport of endocrine pancreatic hormones.</li> <li>Explain the actions of endocrine pancreatic hormones.</li> <li>Describe the regulation of endocrine pancreatic hormones secretion.</li> <li>Explain the clinical implication of endocrine pancreatic hormones secretion abnormality.</li> </ul>
Biochemistry 1	SS	Introduction to Hormone	<ul style="list-style-type: none"> <li>Classify hormones and their characteristics</li> <li>Explain the general mechanisms of action of different types of hormones.</li> <li>Describe the hierarchy of hormone regulation.</li> </ul>
Biochemistry 2	USMR	Fatty acid synthesis	<ul style="list-style-type: none"> <li>Describe the precursors for fatty acids synthesis.</li> <li>Describe the enzymes, steps and regulation involved in palmitate synthesis.</li> <li>List the sources of reducing equivalents (NADPH) for fatty acids synthesis.</li> <li>Briefly explain elongation and desaturation of fatty acids.</li> </ul>
Biochemistry 3	AAB	Metabolism of triacylglycerols	<ul style="list-style-type: none"> <li>Explain the synthesis of triacylglycerols (TAG).</li> <li>Explain the catabolism of TAG.</li> <li>Explain its regulation.</li> <li></li> </ul>
Pathology 1	TZ	Pituitary Dysfunction	<ul style="list-style-type: none"> <li>Outline on the hypopituitarism.</li> <li>Describe the morphologic, pathogenesis, and clinical features of pituitary adenomas.</li> <li>Discuss the endocrine manifestations of pituitary adenomas, especially those related to the production of growth hormone, ACTH, prolactin.</li> <li>Outline the causes and manifestations of the following posterior pituitary syndromes: syndrome of inappropriate ADH secretion (SIADH), diabetes insipidus</li> </ul>

Discipline	Lecturer	Title	Learning Outcome
Pathology 2	GS	Thyroid Disorders	<ul style="list-style-type: none"> <li>Describe the type, pathogenesis, pathology and clinical features of goiter.</li> <li>Describe the pathogenesis, pathology and clinical features of hypothyroidism.</li> <li>Describe the pathogenesis, pathology and clinical features of hyperthyroidism.</li> <li>Describe the pathogenesis, pathology and clinical features of thyroiditis.</li> </ul>
Pathology 3	GS	Thyroid Tumours	<ul style="list-style-type: none"> <li>Describe the pathogenesis, pathology and clinical features of thyroid adenoma.</li> <li>List the major subtypes of thyroid carcinoma.</li> <li>Describe the aetiopathogenesis, pathology and clinical features of thyroid carcinoma.</li> </ul>
e-learning	NHAB	Parathyroid Disorders	<ul style="list-style-type: none"> <li>Describe on the hypoparathyroidism.</li> <li>Describe on the primary hyperparathyroidism, including aetiology, pathology and major clinical features.</li> <li>Outline on the secondary hyperparathyroidism.</li> <li></li> </ul>
Pathology 4	RN	Adrenal hyperplasia, insufficiency and hyperfunction	<ul style="list-style-type: none"> <li>Describe the aetiology, pathology and clinical features of congenital adrenal hyperplasia.</li> <li>Describe the aetiopathogenesis, pathology, and clinical features of adrenal cortical insufficiency.</li> <li>Describe the aetiopathogenesis, pathology, and clinical features of adrenal hyperfunction (Cushing and Conn syndromes)</li> </ul>
Pathology 5	RN	Pheochromocytoma and MEN syndrome	<ul style="list-style-type: none"> <li>Describe the pathogenesis, pathology, and clinical features of pheochromocytoma.</li> <li>Outline the components of the multiple endocrine neoplasia (MEN) syndromes type 1, 2A, and 2B.</li> <li>Outline the molecular pathogenesis of MEN2 syndrome.</li> </ul>
Pathology 6	TZ	Complications of Diabetes Mellitus	<ul style="list-style-type: none"> <li>List the acute and chronic complications of diabetes mellitus (DM).</li> <li>Describe the mechanisms of DM complications.</li> <li>List the major organs involved by microvascular and macrovascular diseases.</li> <li>Describe the morphological changes in various organs, particularly pancreas, small and large blood vessels, kidneys and retina.</li> </ul>

Discipline	Lecturer	Title	Learning Outcome
<b>Clinical</b>	<b>Razin</b>	<b>Diabetes Mellitus</b>	<ul style="list-style-type: none"> <li>List the aetiologic classification of diabetes mellitus (DM)</li> <li>Describe the predisposing factors and pathogenesis of DM.</li> <li>Outline the criteria for diagnosis of DM</li> <li>Outline the clinical features of DM.</li> <li>Differentiate between type 1 and type 2 DM</li> </ul>
<b>Pharmacology 1</b>	<b>SYNJ</b>	<b>Thyroxine and Antithyroid Agents</b>	<ul style="list-style-type: none"> <li>Describe the pharmacology of thyroxine.</li> <li>Classify antithyroid agents.</li> <li>Explain the mechanism of action of antithyroid agents.</li> <li>Describe pharmacokinetics, uses and side effects of antithyroid agents</li> </ul>
<b>Pharmacology 2</b>	<b>SDA</b>	<b>Corticosteroid</b>	<ul style="list-style-type: none"> <li>Classify the corticosteroids.</li> <li>Explain the mechanism of action of corticosteroids.</li> <li>Describe pharmacokinetics, uses and side effects of corticosteroids.</li> </ul>
<b>Pharmacology 3</b>	<b>SYNJ</b>	<b>Insulin</b>	<ul style="list-style-type: none"> <li>Classify the insulin.</li> <li>Explain the mechanism of action of insulin.</li> <li>Describe the methods of delivery, uses and side-effects of insulin.</li> </ul>
<b>Pharmacology 4</b>	<b>MSAA</b>	<b>Oral Hypoglycaemic Agents</b>	<ul style="list-style-type: none"> <li>Classify the oral hypoglycaemic agents (OHA).</li> <li>Explain the mechanism of action of OHA.</li> <li>Describe pharmacokinetics, uses and side effects of OHA.</li> </ul>
<b>e-learning</b>	<b>MSAA</b>	<b>Drugs affecting pituitary and hypothalamus</b>	<ul style="list-style-type: none"> <li>Indications of synthetic analogues for the diagnosis and treatment of anterior pituitary disorders</li> <li>Indications of synthetic analogues of posterior pituitary hormones: Oxytocin and ADH.</li> <li>Mechanisms of actions and side effects of these synthetic analogues</li> <li></li> <li></li> </ul>
<b>Radiology 1</b>	<b>Norhasiza</b>	<b>Radiological anatomy of endocrine system</b>	<p>Identify normal radiological anatomy of:</p> <ul style="list-style-type: none"> <li>Hypothalamus on magnetic resonance imaging (MRI)</li> <li>Pituitary gland on computed tomography (CT) scan and MRI</li> <li>Pineal gland on MRI</li> <li>Thyroid gland on ultrasound and CT scans.</li> <li>Parathyroid gland on ultrasound scan.</li> <li>Pancreas on CT scan.</li> <li>Adrenal glands on CT and MRI scans.</li> </ul>

## OUTLINE OF COURSE CONTENT (Practical/CAL/ECE/PPD/PBL/Seminar)

Type & Discipline	Lecturer	Title	Learning Outcome
Practical Anatomy	NM, AH	Endocrine organs	<ul style="list-style-type: none"> <li>Identify the gross anatomical features of the thyroid, parathyroid, adrenal gland, and pancreas.</li> </ul>
Practical Histology	NFCL	Histology of endocrine glands	<ul style="list-style-type: none"> <li>Identify the characteristic histological features of the pituitary and adrenal glands</li> <li>Identify the characteristic histological features of the thyroid and parathyroid glands</li> </ul>
Practical Pathology	TZ, GS	Pathology of Pituitary, Thyroid and Adrenal Glands	<ul style="list-style-type: none"> <li>Describe the gross and microscopic morphology of :                             <ul style="list-style-type: none"> <li>Pituitary adenoma</li> <li>Multinodular goitre / Graves' disease</li> <li>Thyroiditis</li> <li>Thyroid adenoma</li> <li>Thyroid carcinoma (follicular, papillary, medullary and anaplastic)</li> <li>Adrenal neoplasms.</li> </ul> </li> </ul>
Practical Biochemistry	MH, USMR	Biochemical investigations in the diagnosis & management of Diabetes mellitus	<ul style="list-style-type: none"> <li>State the types, signs and symptoms of Diabetes mellitus (DM).</li> <li>State the criteria for the diagnosis of DM.</li> <li>State the tests used for the diagnosis and management of DM: plasma sugar (FBS, PPBS, RBS), GTT, HbA1c and explain their interpretations.</li> <li>Perform blood sugar estimation using glucometer (hands on).</li> </ul>
CAL Biochemistry	MH, AAB	Metabolic Syndrome	<ul style="list-style-type: none"> <li>Define and explain the component of metabolic syndrome (MS).</li> <li>State three disease consequences from MS.</li> <li>Briefly describe the role of inflammatory cytokines, insulin resistance, visceral adiposity and adipokines in MS.</li> <li>Briefly describe the affected hormones in diabetes mellitus and hypertension.</li> <li>Explain hyperlipidaemia which can leads to the development of MS.</li> <li>Describe the incidence and prevalence of MS in Malaysia.</li> <li>Briefly discuss the prevention in development of MS or its component.</li> </ul>

Type & Discipline	Lecturer	Title	Learning Outcome
ECE	Salman	Recognizing the signs of endocrine disorders	<p>Recognize the signs of:</p> <ol style="list-style-type: none"> <li>Acromegaly: <ul style="list-style-type: none"> <li>Enlarged hands and feet</li> <li>Enlarged facial features</li> <li>Enlarged tongue</li> <li>Prognathism</li> </ul> </li> <li>Cushing syndrome: <ul style="list-style-type: none"> <li>Moon face</li> <li>Buffalo hump</li> <li>Thin skin</li> <li>Purple striae</li> </ul> </li> <li>Hyperthyroidism: <ul style="list-style-type: none"> <li>Goitre</li> <li>Thyroid eye sign</li> <li>Tremor</li> </ul> </li> </ol>
PPD 2	Razin	Medical ethics: Hippocratic, medical & Islamic oath	<ul style="list-style-type: none"> <li>Explain the difference between Hippocratic, medical and Islamic Oaths.</li> <li>Identify the importance of medical oath.</li> <li>Apply the medical ethics in medical profession.</li> <li>Describe a few known cases of medical ethics noncompliance.</li> </ul>
PPD 3	NJBA	Basic communication skills	<ul style="list-style-type: none"> <li>Explain the elements of basic communication and recognise communication breakdown.</li> <li>Identify the importance of being a good listener and distinguish the barrier of good listening and its examples.</li> <li>Practice various skills on good listening techniques.</li> </ul>
PBL SESSION 1 AND 2	MA, UYH, GS, NAS, MSAA, MH	Why are you staring at me?	

## **References:**

### **Anatomy**

1. Moore, K.L., Dalley, Arthur F., Agur, Anne M.R. Clinically Oriented Anatomy, 6<sup>th</sup> edition (2009), Williams & Wilkins, Philadelphia
2. Ross, M.H., Kaye, G.I. & Pawlina, W. Histology – Text and Atlas, 6<sup>th</sup> edition (2010), Lippincott Williams & Wilkins, Philadelphia
3. Sadler, T W. Langman's Medical Embryology, 12<sup>th</sup> edition (2011), Lippincott Williams & Wilkins, Philadelphia
4. Snell, Richard S. Clinical Neuroanatomy for Medical Students, 7<sup>th</sup> edition (2010), Lippincott Williams & Wilkins, Philadelphia
5. Netter, F. H., Atlas of Human Anatomy, 6<sup>th</sup> edition (2014), Elsevier.

### **Physiology**

1. Hall, J. E & Guyton, A. C. (2016). Guyton and Hall Textbook of Medical Physiology. 13<sup>th</sup> Edition. 1 – 1046. Elsevier.
2. Barrett, K. E, Barman, S.M, Boitano, S. B & Brooks, H. L. (2016). Ganong's Review of Medical Physiology. 25<sup>th</sup> edition. 1-763. McGraw Hill Education. Lange.

### **Biochemistry**

1. Harvey RA & Ferrier D. (2014). Biochemistry: Lippincott's Illustrated Reviews. 6<sup>th</sup> edition. Lippincott Williams & Wilkins international edition.
2. Lieberman, M. & Marks, A. (2013). Marks' Basic Medical Biochemistry: A Clinical Approach. 4<sup>th</sup> edition. Lippincott Williams & Wilkins international edition.

### **Pathology**

1. Kumar V, Abbas AK, Fausto N, Aster JC. 2010. Robbins and Cotran Pathologic Basis of Disease. 8<sup>th</sup> Edition. Saunders Elsevier.
2. Rubin E, Reisner HM. 2009. Essentials of Rubin's Pathology. 5<sup>th</sup> Edition. Lippincott Williams and Wilkins.
3. Rubin R, Strayer DS, Rubin E. 2012. Rubin's Pathology: Clinicopathologic foundations of medicine. Lippincott Williams & Wilkins.

### **Pharmacology**

1. Katzung B, Trevor A. (2015). Basic and Clinical Pharmacology. 13<sup>th</sup> edition. McGraw-Hill Education.
2. Rang HP, Ritter JM, Flower RJ, Henderson G. (2016). Rang & Dale's Pharmacology, 8<sup>th</sup> edition. Elsevier Churchill-Livingstone.
3. Whalen, K. (2014). Lippincott Illustrated Reviews: Pharmacology. 6<sup>th</sup> edition. Wolter Kluwer Lippincott Williams Wilkins.



## PPD

1. *Mohamed Hatta Shaharom et al. (2008) Etika Perubatan Islam dan Isu-Isu Psikiatri*, 1<sup>st</sup> ed. Dewan Bahasa dan Pustaka.
2. Ellen E. Pastorino, Susann M. Doyle-Portillo (2009), *What is Psychology?* 2nd Edition, Thomson learning, Inc.
3. Kosslyn & Robin (2007), *Fundamentals of Psychology in Context*, 3<sup>rd</sup> ed., Pearson Education.

## Radiology

1. Jamie Weir, Peter H. Abrahams, Jonathan D. Spratt & Lonie R Salkowski. 2010. *Imaging Atlas of Human Anatomy*. 4th edition. Elsevier –Mosby.
2. Andrea Rockall, Andrew Hatrick, Peter Armstrong & Martin Wastie. 2013. *Diagnostic Imaging*. 7th edition. Wiley-Blackwell.

## ECE

1. *Hutchinson Clinical Examination: A systematic guide to physical diagnosis*, (2010), 6<sup>th</sup> edition Churchill Livingstone.
2. Talley, N.J. & Simon O'Connor, S. (2013). *Clinical Examination: A Systematic Guide to Physical Diagnosis*, 7<sup>th</sup> edition. Churchill Livingstone. Elsevier.
3. *Macleod's Clinical Examination* (2013), 13<sup>th</sup> edition, (eds. Douglas, G., Nicol, F., Robertson, C.). Churchill Livingstone.

## Clinical

1. Kumar, P, & Clark, M.L., (2012). *Kumar and Clark's Clinical Medicine*, 8<sup>th</sup> Edition. Saunders Elsevier.
2. *Davidson's Principles & Practice of Medicine*, (2014), (eds. Walker, B.L. Colledge, N.R., Ralston, S.H. Penman, I., 22<sup>nd</sup> Edition. Churchill Livingstone

**BACHELOR OF MEDICINE & BACHELOR OF SURGERY (MBBS) PROGRAMME**  
**Phase 1 (Semester 1, Year 2)**  
**Academic Session 2020/2021**

<b>WEEK 1</b>		<b>MODULE 10: ENDOCRINE SYSTEM &amp; METABOLISM</b>						Module Coordinator: AP Dr. Rochman Naim	
DAY/ TIME	8.30 – 9.30	9.30 – 10.00	10.00 – 11.00	11.00 – 11.30	11.30 - 12.30	12.30 – 14.00	14.00 – 15.00	15.00 – 16.00	16.00 - 17.00
<b>SUNDAY</b> 29/11/2020	Pituitary Gland AH		Hypothalamus & Pituitary Gland 1 NAS		Hypothalamus & Pituitary Gland 2 NAS		Falsafah dan Isu Semasa (MPU31062)  Mr. K		
<b>MONDAY</b> 30/11/2020	Introduction to Hormone SS		Thyroid & Parathyroid Glands NM		Pituitary Dysfunction TZ		Drugs affecting pituitary and hypothalamus e-learning MSAA		
<b>TUESDAY</b> 01/12/2020	Thyroid Gland MNMN		Adrenal Glands NFCL		Parathyroid Gland MNMN		Asas Pembudayaan Keusahawanan (MPU32092)  Norhildi		
<b>WEDNESDAY</b> 02/12/2020	<b>Practical Anatomy</b> Endocrine Organs 8.30-10.30  NM, AH				Thyroid Disorders GS		Extracurricular activities SISKOR		
<b>THURSDAY</b> 03/12/2020	Thyroid Tumours GS		<b>Practical Histology</b> Histology of Endocrine Glands (Makmal Mikrobiologi & Histologi) 10.00-12.00 AH, NM, NFCL						

All lectures for the Year 2 will be conducted in Dewan Kuliah (DK) A.  
 All tutorials and PBL will be conducted in Bilik Tutorial (BT) 1 – 6 in Bangunan Baru Makmal.

**BACHELOR OF MEDICINE & BACHELOR OF SURGERY (MBBS) PROGRAMME**  
**Phase 1 (Semester 1, Year 2)**  
**Academic Session 2018/2019**

<b>WEEK 2</b>		<b>MODULE 10: ENDOCRINE SYSTEM &amp; METABOLISM</b>						<b>Module Coordinator: AP Dr. Rochman Naim</b>	
<b>DAY/ TIME</b>	<b>8.30 – 9.30</b>	<b>9.30 – 10.00</b>	<b>10.00 – 11.00</b>	<b>11.00 – 11.30</b>	<b>11.30 – 12.30</b>	<b>12.30 – 14.30</b>	<b>14.30 – 15.30</b>	<b>15.30 – 16.30</b>	<b>16.30 - 17.00</b>
<b>SUNDAY 06/12/2020</b>	Adrenal Glands 1 MMT		Adrenal Glands 2 MMT		Thyroxine & Antithyroid Agents  SYNJ		<b>Falsafah dan Isu Semasa</b> (MPU31062)  <b>Mr. K</b>		
<b>MONDAY 07/12/2020</b>	Fatty Acid Synthesis USMR		Parathyroid Disorders <b>e-learning</b> NHAB		Corticosteroid  SDA				
<b>TUESDAY 08/12/2020</b>	Endocrine Pancreas  NAAB		Diabetes Mellitus  Razin		Insulin  SYNJ		<b>Asas Pembudayaan Keusahawanan</b> (MPU32092)  <b>Norhilm i</b>		
<b>WEDNESDAY 09/12/2020</b>	Biochemical investigations in the diagnosis & management of Diabetes mellitus 8.30-10.30  MH, USMR			<b>PBL Session 1</b> <b>11.00-13.00</b> <b>MA, UYH, GS, NAS, MSAA, MH</b>			Extracurricular activities SISKOR		
<b>THURSDAY 10/12/2020</b>	Complications of Diabetes Mellitus  TZ		Adrenal hyperplasia, insufficiency and hyperfunction  RN						

All lectures for the Year 2 will be conducted in Dewan Kuliah (DK) A.  
 All tutorials and PBL will be conducted in Bilik Tutorial (BT) 1 – 6 in Bangunan Baru Makmal.

**BACHELOR OF MEDICINE & BACHELOR OF SURGERY (MBBS) PROGRAMME**  
**Phase 1 (Semester 1, Year 2)**  
**Academic Session 2018/2019**

<b>WEEK 3</b>		<b>MODULE 10: ENDOCRINE SYSTEM &amp; METABOLISM</b>						<b>Module Coordinator: AP. Dr. Rochman Naim</b>	
<b>DAY/ TIME</b>	<b>8.30 – 9.30</b>	<b>9.30 – 10.00</b>	<b>10.00 – 11.00</b>	<b>11.00 – 11.30</b>	<b>11.30 – 12.30</b>	<b>12.30 – 14.30</b>	<b>14.30 – 15.30</b>	<b>15.30 – 16.30</b>	<b>16.30 - 17.00</b>
<b>SUNDAY 13/12/2020</b>	Medical Ethics: Hippocratic, Medical, & Islamic Oaths  Razin		Pheochromocytom a and MEN syndrome  RN				Falsafah dan Isu Semasa (MPU31062)  Mr. K		
<b>MONDAY 14/12/2020</b>		Practical Pathology Pathology of Pituitary, Thyroid, and Adrenal Glands 09.00-11.00  TZ, GS					PBL discussion by the students		
<b>TUESDAY 15/12/2020</b>	Oral Hypoglycaemic Agent  MSAA		Radiological Anatomy of Endocrine System  Norhasiza				Asas Pembudayaan Keusahawanan (MPU32092)  Norhildi		
<b>WEDNESDAY 16/12/2020</b>	Metabolic Syndrome  MH, AAB		PBL Session 2 MA, UYH, GS, NAS, MSAA, MH 10.30-12.30				Extracurricular activities SISKOR		
<b>THURSDAY 17/12/2020</b>									

All lectures for the Year 2 will be conducted in Dewan Kuliah (DK) A.  
 All tutorials and PBL will be conducted in Bilik Tutorial (BT) 1 – 6 in Bangunan Baru Makmal.

**BACHELOR OF MEDICINE & BACHELOR OF SURGERY (MBBS) PROGRAMME  
 PHASE 1 (SEMESTER 1, YEAR 2)  
 Academic Session 2018/2019**

<b>MODULE 10: ENDOCRINE SYSTEM &amp; METABOLISM</b>								Module Coordinator: AP. Dr. Rochman Naim	
DAY/ TIME	8.30 – 9.30	9.30 – 10.30	11.00 – 12.00	12.00 - 13.00	14.30 – 15.00	15.00 – 16.00	16.00 - 17.00		
SUNDAY 20/12/2020	<h1>Mid Semester Break</h1>								
MONDAY 21/12/2020									
TUESDAY 22/12/2020									
WEDNESDAY 23/12/2020									
THURSDAY 24/12/2020									

**BACHELOR OF MEDICINE & BACHELOR OF SURGERY (MBBS) PROGRAMME**  
**Phase 1 (Semester 1, Year 2)**  
**Academic Session 2018/2019**

<b>WEEK 4</b>		<b>MODULE 10: ENDOCRINE SYSTEM &amp; METABOLISM</b>						<b>Module Coordinator:</b> AP. Dr. Rochman Naim	
<b>DAY/ TIME</b>	<b>8.30 – 9.30</b>	<b>9.30 – 10.30</b>	<b>10.30 – 11.00</b>	<b>11.00 – 12.00</b>	<b>12.00 - 13.00</b>	<b>13.00 – 14.30</b>	<b>14.30 – 15.30</b>	<b>15.30 – 16.30</b>	<b>16.30 - 17.00</b>
<b>SUNDAY</b> 27/12/2020	Metabolism of Triacylglycerols AAB						Falsafah dan Isu Semasa (MPU31062) Mr. K		
<b>MONDAY</b> 28/12/2020	Basic Communication Skill NJBA						ECE Recognizing the signs of endocrine disorders Salman		
<b>TUESDAY</b> 29/12/2020							Asas Pembudayaan Keusahawanan (MPU32092) Norhildi		
<b>WEDNESDAY</b> 30/12/2022							Extracurricular activities SISKOR		
<b>THURSDAY</b> 31/12/2020	EoM 10 Exam								

All lectures for the Year 2 will be conducted in Dewan Kuliah (DK) A.  
 All tutorials and PBL will be conducted in Bilik Tutorial (BT) 1 – 6 in Bangunan Baru Makmal.

**Notes:**







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