Maternal child Health Program

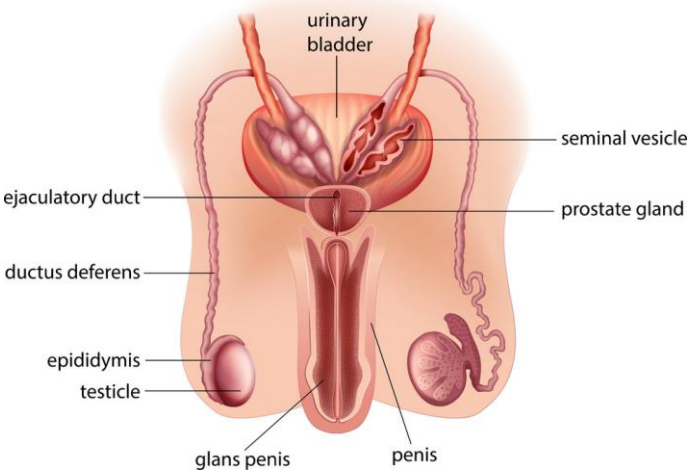
STUDY GUIDE

REPRODUCTIVE SYSTEM
MODULE-I

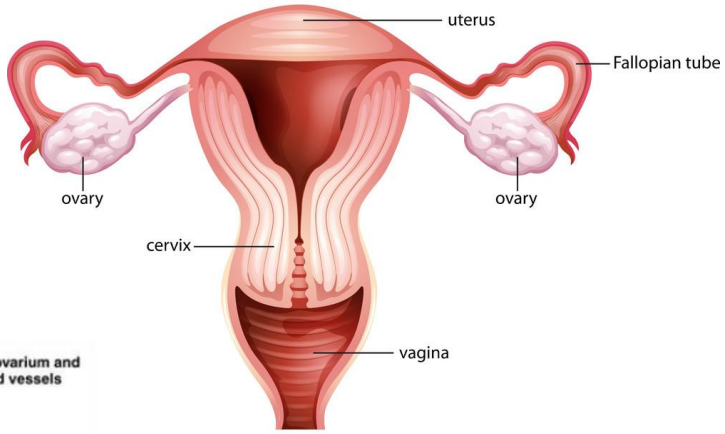
SECOND YEAR MBBS

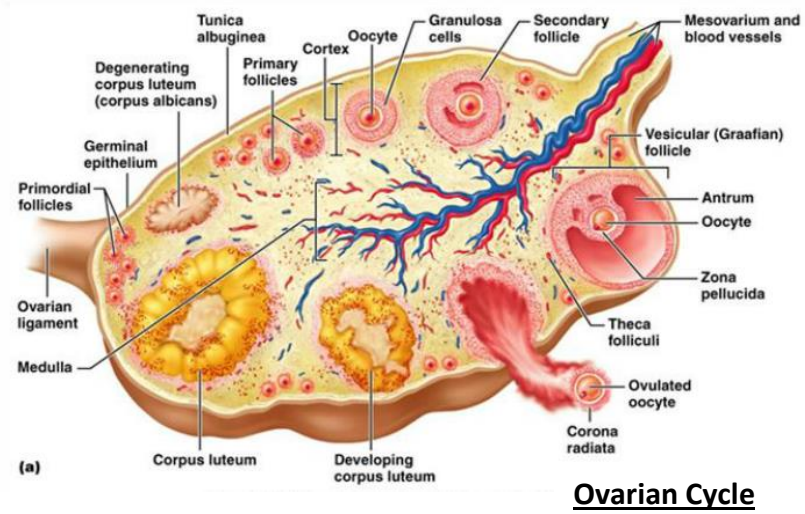
15th June – 10th July 2020

Male Reproductive System

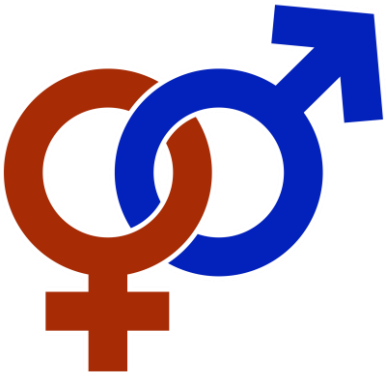


Female Reproductive System





Ovarian Cycle



LIAQUAT NATIONAL HOSPITAL AND MEDICAL COLLEGE

Institute for Postgraduate Medical Studies & Health Science

STUDY GUIDE FOR REPRODUCTIVE SYSTEM MODULE-I

Module name: **Reproductive System-I** *Year:* ***Two*** *Duration:* ***3 weeks (June - July 2020)***

Timetable hours: **Interactive Lectures, Case-Based Learning (CBL), Self-Study, Practicals, Skills, Demonstrations, Visit to Wards and Laboratory**

MODULE INTEGRATED COMMITTEE

MODULE COORDINATOR:	• Dr. Ahsan Ashfaq (Physiology)
CO-COORDINATORS:	• Dr. Lubna Faisal (Anatomy)

DEPARTMENTS' and RESOURCE PERSONS' FACILITATING LEARNING

BASIC HEALTH SCIENCES	
ANATOMY • Professor Zia-ul-Islam	
BIOCHEMISTRY • Dr. Kashif Nisar	
PHYSIOLOGY • Professor Syed Hafeezul Hassan	
DEPARTMENT of HEALTH PROFESSION EDUCATION • Professor Nighat Huda • Dr. Sobia Ali • Dr. Afifa Tabassum • Dr. M. Suleman Sadiq Hashmi • Dr. Mehnaz Umair	
LNH&MC MANAGEMENT • Professor Karimullah Makki, Principal LNH&MC • Dr. Shaheena Akbani, Director A.A and R.T LNH&MC	
STUDY GUIDE COMPILED BY:	***Department of Health Professions Education***

INTRODUCTION

WHAT IS A STUDY GUIDE?

It is an aid to:

- Inform students how student learning program of the semester-wise module has been organized
- Help students organize and manage their studies throughout the module
- Guide students on assessment methods, rules and regulations

THE STUDY GUIDE:

- Communicates information on organization and management of the module.
  This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the module.
- Identifies the learning strategies such as Interactive Lectures, small group teachings, clinical skills, demonstration, tutorial and case based learning that will be implemented to achieve the module objectives.
- Provides a list of learning resources such as books, computer assisted learning programs, web- links, journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous and semester examinations on the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's achievement of objectives.
- Focuses on information pertaining to examination policy, rules and regulations.

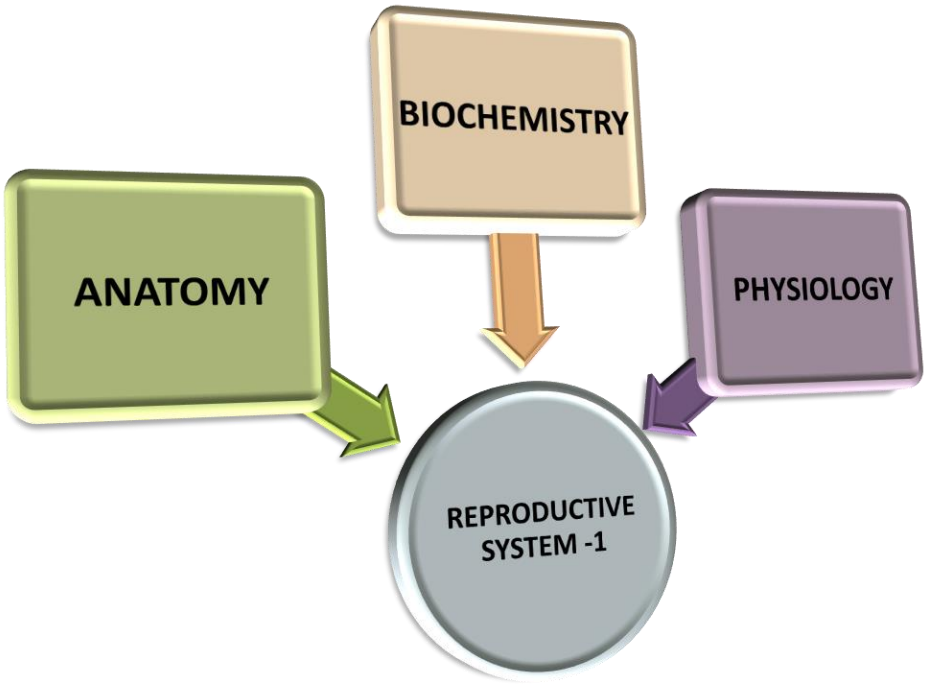
CURRICULUM FRAMEWORK

Students will experience *integrated curriculum* in the modules at LNMC in accordance with the JSMU guidelines and most recent developments that have an impact on individual health.

INTEGRATED CURRICULUM comprises of system-based modules such as GIT and Liver-I, Renal and Excretory System-I and Reproductive System-I which links basic science knowledge to clinical problems. Integrated teaching means that subjects are presented as a meaningful whole. Students will be able to have better understanding of basic sciences when they repeatedly learn in relation to clinical examples.

Case-based discussions, computer-based assignments, early exposure to clinics, wards, and skills acquisition in skills lab and physiotherapy department are characteristics of integrated teaching program.

INTEGRATING DISCIPLINES OF REPRODUCTIVE SYSTEM-I MODULE



LEARNING METHODOLOGIES

The following teaching / learning methods are used to promote better understanding:

- Interactive Lectures
- Hospital / Clinic visits
- Small Group Discussion
- Case- Based Learning
- Practicals
- Skills session
- E-Learning
- Self-Directed Learning
- TBL

INTERACTIVE LECTURES

In large group, the Interactive Lecturer introduces a topic or common clinical conditions and explains the underlying phenomena through questions, pictures, videos of patients' interviews, exercises, etc. Students are actively involved in the learning process.

HOSPITAL VISITS: In small groups, students observe patients with signs and symptoms in hospital or clinical settings. This helps students to relate knowledge of basic and clinical sciences of the relevant module.

SMALL GROUP DISCUSSION (SGD): This format helps students to clarify concepts acquire skills or attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics. Students exchange opinions and apply knowledge gained from Interactive Lectures, tutorials and self study. The facilitator role is to ask probing questions, summarize, or rephrase to help clarify concepts.

CASE- BASED LEARNING: A small group discussion format where learning is focused around a series of questions based on a clinical scenario. Students' discuss and answer the questions applying relevant knowledge gained in clinical and basic health sciences during the module.

PRACTICAL: Basic science practicals related to anatomy, biochemistry, pathology, pharmacology and physiology are scheduled for student learning.

SKILLS SESSION: Skills relevant to respective module are observed and practiced where applicable in skills laboratory or Department of Physiotherapy.

SELF DIRECTED LEARNING: Students' assume responsibilities of their own learning through individual study, sharing and discussing with peers, seeking information from Learning Resource Center, teachers and resource persons within and outside the college. Students can utilize the time within the college scheduled hours of self-study.

TEAM BASED LEARNING: Team-based learning (TBL) is a structured form of small-group learning that emphasizes student preparation out of class and application of knowledge in class. Students are organized strategically into diverse teams of 5-7 students that work together throughout the class. Before each session/class, students prepare by reading prior to class. In class students are given different tasks or test where they work as team.

Apart from attending daily scheduled sessions, students too should engage in self-study to ensure that all the objectives are covered.

MODULE: REPRODUCTIVE SYSTEM-I

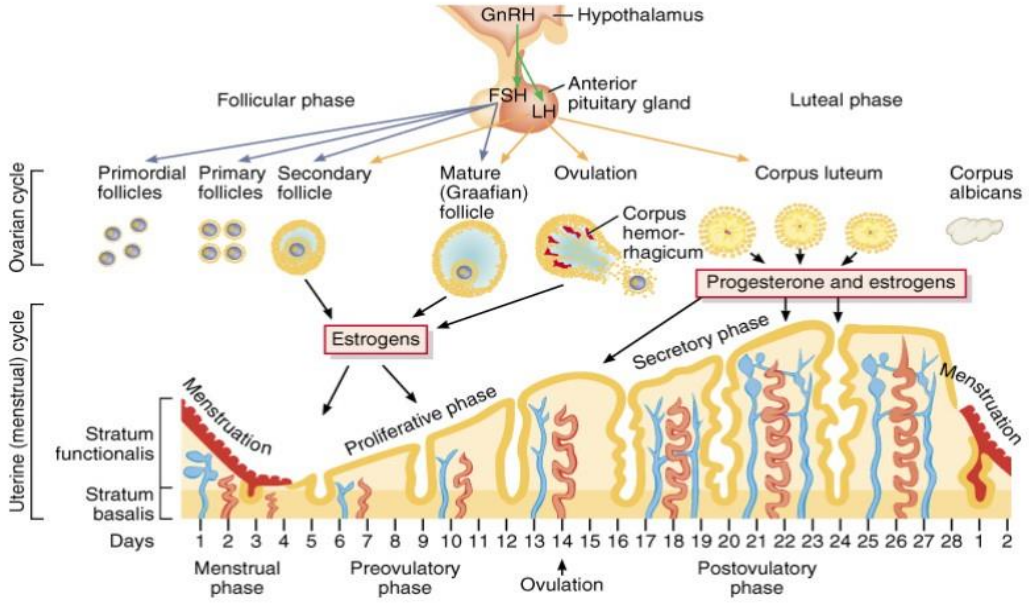
IMPORTANCE:

The module focuses on integrating basic health sciences to clinical medicine. It will be taught in a combination of lectures, tutorials, small group learning sessions, practical and skills classes and possibly visits to clinics / wards. The module will explore the normal as well as the abnormal physiology of the male and female reproductive system. Students will be introduced to a variety of pathologies to facilitate a better understanding of how the reproductive system is impacted by diseases. It will give the broad overview of the system. The module will also address reproductive hormonal changes associated with different stages of life correlating pathophysiology with clinical presentation. This will extend students' integrative abilities. Video and hands – on sessions on basic examination skills will enhance students' understanding of the subject/topic.

AIMS OF THIS MODULE

The module aims to provide:

- Knowledge and understanding of the structures and functions of the reproductive system and how it responds to changing metabolic needs of the body, organs and tissues, revealing the relevance of such knowledge to clinical practice
- Knowledge and understanding of the origin and associated risk factors of common diseases of the reproductive system
- Knowledge and prevention of common hormonal disorders associated with the reproductive system
- Practice of basic skills used in testing the function of this system in a simulated clinical setting
- Knowledge of drugs used to treat reproductive system diseases



COURSE TOPICS, OBJECTIVES AND STRATEGIES

AT the end of the module the students will be able to:

ANATOMY

TOPICS and OBJECTIVES	*LEARNING STRATEGY*
Pelvis and its types (Sacrum + Joints of Pelvis)- Demonstration	
1. Discuss the features of bony pelvis	Interactive Lecture
2. Describe the boundaries of inlet and outlet	
3. Differentiate between male and female pelvis	
4. Discuss the important points of pelvimetry	
5. Explain type, articulations, ligaments and relation of joints of pelvis	
6. List factors providing stability to the joints of pelvis	
7. Describe the movements of joints of pelvis	
Pelvic Boundaries- Demonstration	
8. Describe the anatomy of the pelvic walls	Interactive Lecture
9. List the muscles of pelvic floor/pelvic diaphragm	
10. Discuss the attachment & actions of muscles of pelvic floor/pelvic diaphragm	
11. Discuss the blood supply, nerve supply& lymphatic drainage of pelvic floor muscles	
12. Describe the attachment and significance of pelvic fascia	
13. Discuss the clinical conditions associated with the pelvic floor & fascia	
14. Discuss the role of pelvic floor in urinary and fecal continence	
Osteology of Sacrum- Demonstration	
15. Discuss the osteology of sacrum	Interactive Lecture
16. Identify muscles and ligaments attached to sacrum	
Pelvic Malformations	
17. Discuss pelvic malformations in males and females	Interactive Lecture
Blood supply, venous and lymphatic drainage of pelvis	
18. Describe the blood supply, nerve supply & lymphatic drainage of pelvis	Interactive Lecture
Testis, Epididymis, Scrotum	
19. Describe the anatomy of the testes	Interactive Lecture
20. Describe the anatomy of Ductus Deferens, Epididymus & Ejaculatory duct	
Pelvic peritoneal refection in male & female	
21. Describe pelvic reflections in males and females	Interactive Lecture
Perineum: division, spaces and urogential region - Demonstration	
22. Describe the gross anatomical features of perineum	Interactive Lecture
23. List the boundaries of perineum	

24. Discuss the blood supply, nerve supply and lymphatic drainage of the perineum	Interactive Lecture
25. Describe male urogenital triangle and its contents	
26. Describe the gross anatomy of male urethra	
27. Describe the blood supply, nerve supply and lymphatic drainage of male urethra	
28. Discuss the clinical conditions associated with penis & male urethra	
29. Describe female urogenital triangle and its contents	
Perineum—Anal triangle, anal canal and Ischiorectal Fossa- Demonstration	
30. Describe the division of perineum into; anal and urogenital triangles	Interactive Lecture
31. Discuss the boundaries and features of anal triangle	
32. Discuss the importance of pectinate line with respect to the vasculature and lymphatic drainage of the rectum and anal canal	
Nerves of pelvis, perineum and sacral plexus- Demonstration	
33. Enumerate the nerves innervating pelvis	Interactive Lecture
34. Describe Sacral plexus and explain its formation	
35. Describe the branches and divisions of sacral plexus	
36. Identify coccygeal plexus	
37. Describe hypogastric plexus, its location, formation and its branches	
38. Discuss the injuries associated with the nerves of pelvis, perineum and sacral plexus	
Prostate, Seminal vesicles & Bulbourethral glands- Demonstration	
39. Describe the gross features of following male internal organs:	Interactive Lecture
i. Prostate gland	
ii. Seminal Vesicles	
iii. Ductus deference	
iv. Bulbourethral glands	
40. Discuss their location, relations, blood supply, nerve supply & lymphatic drainage	
41. Discuss the clinical conditions associated with prostate gland, seminal vesicles & bulbourethral glands	
Histology of Prostate, Seminal vesicles & Bulbourethral glands	
42. Describe the histological features of:	Interactive Lecture
i. Prostate gland	
ii. Seminal Vesicle	
iii. Bulbourethral glands	
43. List the components of secretion of prostate gland, seminal vesicles & Bulbourethral glands	

44. Discuss the composition of Semen	Interactive Lecture
Histology of Testis & Epididymis	
45. Describe the histological features of Testis and Epididymis	Interactive Lecture
Spermatogenesis	
46. Describe the process of spermatogenesis	Interactive Lecture
Development of male reproductive system	
47. List the time line in which the development of male reproductive system starts and ends	Interactive Lecture
48. Describe the process of development of parts of male reproductive system	
49. Discuss the development of male external genitalia	
50. Discuss the congenital anomalies resulting due to malformation of male genital system	
i. Cryptorchidism (un-descended testes)	
ii. Hypospadiasis and other malformation of urethra	
Gross anatomy of female genital tract, ovary, fallopian tube	
51. Name the location of ovary & fallopian tube	Interactive Lecture
52. Describe the parts & functions of fallopian tube	
53. Explain the ligaments of ovary & fallopian tube	
54. Describe the Blood supply, nerve supply & lymphatic drainage of ovary & fallopian tube	
55. Discuss the clinical correlates of ovary & fallopian tube	
Histology of ovary & fallopian tube	
56. Describe the histological features of following;	Interactive Lecture
i. Ovaries & ovarian follicles	
ii. Epithelium of fallopian tube	
iii. Walls of fallopian tube	
Gross anatomy of Uterus, cervix and vagina	
57. List the parts of uterus, cervix & vagina	Interactive Lecture
58. Describe the location & relations of uterus, cervix and vagina with surrounding structures	
59. Describe the ligaments of uterus	
60. Discuss the blood supply, nerve supply& lymphatic drainage of uterus, cervix and vagina	
61. Discuss the clinical conditions associated with uterus, cervix and vagina	
Histology of Uterus, Cervix and Vagina	
62. Describe the histological features of:	Interactive Lecture
i. Uterus	

ii. Walls of the uterus; perimetrium, myometrium, endometrium	Interactive Lecture
iii. Lining epithelium of uterus	
iv. Cells found in the uterine endometrium	
v. Briefly discuss the phases of menstrual cycle	
63. Describe the histological features and parts of cervix and vagina	
Gross anatomy and development of placenta	
64. Describe the structure and development of placenta	Interactive Lecture
Histology of Mammary gland	
65. Describe the histological changes in mammary glands during puberty, pregnancy and menopause	Interactive Lecture
Development of Female reproductive system	
66. Discuss the primordial germ cells, their precursors and migration	Interactive Lecture
67. Describe the location and division of genital ridges	
68. Describe the development of female genital ducts	
69. Discuss the development and differentiation of Paramesonephric ducts with development of uterus and vagina	
70. Discuss the congenital anomalies associated with the malformation of female reproductive system	
HISTOLOGY	
Histology of testes and duct system	
71. List the male reproductive organs	Practicals
72. Describe the histological features of testes and male genital duct system	
73. Describe the histology of seminiferous tubules, sertoli cells, spermatozoa, leydig cells, rete testis and epididymis	
74. Identify the histological features of testis and duct system	
Histology of Prostate, Seminal vesicles & Bulbourethral glands	
75. Identify the histological features under light microscope of the following;	Practicals
i. Prostate gland	
ii. Seminal Vesicle	
iii. Bulbourethral glands	
Histology of ovary & fallopian tube	
76. Identify the histological features of ovary (follicles in different stages)	Practicals
77. Identify layers of fallopian tubes in different parts)	
Histology of Uterus, Cervix and vagina	
78. Identify the histological features of:	Practicals
i. Walls of the uterus, perimetrium, myometrium, endometrium	
ii. Lining epithelium of uterus	
79. Identify the histological features and parts of cervix and vagina	

BIOCHEMISTRY

TOPICS and OBJECTIVES	*LEARNING STRATEGY*
Male Sex Hormone	
1. Describe the synthesis, regulation and functions of male sex hormones and abnormalities	Interactive Lecture
Female sex hormone	
2. Explain the synthesis, regulation and functions of female sex hormones and related abnormalities	Interactive Lecture
Pituitary Hormone and Menstrual Cycle	
3. Explain the synthesis, regulation and functions of Pituitary hormones related to Menstrual Cycle	Interactive Lecture
4. Explain the hormonal changes at menarche and their relationship to the menstrual cycle	
Biochemical changes during menopause	
5. Describe the biochemical changes and complications during menopause	Interactive Lecture
Biochemical role of Placenta	
6. Explain the biochemical role of placenta and its hormonal secretions (AFP & β-HCG)	Interactive Lecture
Amniotic fluid Analysis	
7. Discuss the normal constituents of amniotic fluid and the Biochemical markers of fetal development	Interactive Lecture
Pregnancy test	
8. Perform urine pregnancy test by using dip stick (β-HCG levels)	Practical
PCR	
9. Describe PCR and its applications	Practical

PHYSIOLOGY

TOPICS and OBJECTIVES	*LEARNING STRATEGY*
Spermatogenesis, Semen, Capacitation of Sperms	
1. Explain the stages of spermatogenesis	Interactive Lecture
2. Describe the hormonal control of spermatogenesis	
Male Sex Hormone: Testosterone & its Function	
3. Describe the synthesis, function and regulation of male sex hormones	Interactive Lecture
Abnormalities of Male Sexual Function	
4. Discuss the abnormalities of male sexual function (hypo and hypergonadism)	Interactive Lecture
Functions of Ovary	
5. Discuss oogenesis and stages of follicle development through ovulation and formation of corpus rectum	Interactive Lecture
Puberty, Menstrual Cycle, Menarche & Menopause	
6. Describe the synthesis function and regulation of hormones of female reproductive system	Interactive Lecture
7. Describe the hormonal changes that occur during puberty, the mechanism that control the overall of puberty	
8. Explain the secondary sexual characteristics that develop during puberty in males and females	
9. Explain now the secretion of FSH and LH is controlled through negative and positive feedback during menstrual cycle	
10. Describe the cyclical changes that occur in endometrium and hormonal mechanism that changes	
Pregnancy, Function of Placenta, & Maternal Changes During Pregnancy and parturition	
11. List hormones secreted by placenta and their actions	Interactive Lecture
12. Interpret endocrine assays during the course of pregnancy	
13. Describe the physiological changes during pregnancy with respect to all organ and system	
14. Brief describe process of parturition especially stages, mechanism and hormones	
Mammary Gland & Lactation	
15. Describe the hormonal requirements for development of memory gland during pregnancy and milk ejection reflexes	Interactive Lecture

LEARNING RESOURCES

SUBJECT	*RESOURCES*
ANATOMY	**A. GROSS ANATOMY** 1. K.L. Moore, Clinically Oriented Anatomy 2. Neuro Anatomy by Richard Snell **B. HISTOLOGY** 1. B. Young J. W. Health Wheather's Functional Histology **C. EMBRYOLOGY** 1. Keith L. Moore. The Developing Human 2. Langman's Medical Embryology
BIOCHEMISTRY	**TEXTBOOKS** 1. Harper's Illustrated Biochemistry 2. Lehninger Principle of Biochemistry 3. Biochemistry by Devlin
PHYSIOLOGY	**A. TEXTBOOKS** 1. Textbook Of Medical Physiology by Guyton And Hall 2. Ganong ' S Review of Medical Physiology 3. Human Physiology by Lauralee Sherwood 4. Berne and Levy Physiology 5. Best and Taylor Physiological Basis of Medical Practice **B. REFERENCE BOOKS** 1. Guyton and Hall Physiological Review 2. Essentials Of Medical Physiology by Jaypee 3. Textbook Of Medical Physiology by InduKhurana 4. Short Textbook Of Physiology by Mrthur 5. NMS Physiology

OTHER LEARNING RESOURCES

Hands-on Activities/ Practical	Students will be involved in Practical sessions and hands-on activities that link with the reproductive system module to enhance the learning.
Labs	• Utilize the lab to relate the knowledge to the specimens and models available.
Skill Lab	• A skills lab provides the simulators to learn the basic skills and procedures. This helps build the confidence to approach the patients.
Videos	Video familiarize the student with the procedures and protocols to assist patients.
Computer Lab/CDs/DVDs/Internet Resources:	To increase the knowledge students should utilize the available internet resources and CDs/DVDs. This will be an additional advantage to increase learning.
Self Learning	Self Learning is scheduled to search for information to solve cases, read through different resources and discuss among the peers and with the faculty to clarify the concepts.

ASSESSMENT METHODS:

- **Best Choice Questions(BCQs)** also known as MCQs (Multiple Choice Questions)
- **Objective Structured Practical/Clinical Examination (OSPE or OSCE)**

BCQs:

- A BCQ has a statement or clinical scenario of four options (likely answers).
- **Correct answer carries one mark, and incorrect 'zero mark'. There is NO negative marking.**
- Students mark their responses on specified computer-based sheet designed for LNHMC.

OSCE:

- All students rotate through the same series of stations in the same allocated time.
- At each station, a brief written statement includes the task. Student completes the given task at one given station in a specified time.
- Stations are observed, unobserved, interactive or rest stations.
- In unobserved stations, flowcharts, models, slide identification, lab reports, case scenarios may be used to cover knowledge component of the content.
- Observed station: Performance of skills /procedures is observed by assessor
- Interactive: Examiner/s ask questions related to the task within the time allocated.
- In Rest station, students in the given time not given any specific task but wait to move to the following station.

Internal Evaluation

- Students will be assessed comprehensively through multiple methods.
- 20% marks of internal evaluation will be added to JSMU final exam. That 20% may include class tests, assignment, practicals and the internal exam which will all have specific marks allocation.

Formative Assessment

Individual department may hold quiz or short answer questions to help students assess their own learning. The marks obtained are not included in the internal evaluation

For JSMU Examination Policy, please consult JSMU website!

	More than 75% attendance is needed to sit for the internal and final examinations	

LNH&MC EXAMINATION RULES & REGULATIONS

- Student must report to examination hall/venue, 30 minutes before the exam.
- **Exam will begin sharp at the given time.**
- No student will be allowed to enter the examination hall after 15 minutes of scheduled examination time.
- Students must sit according to their roll numbers mentioned on the seats.
- **Cell phones are strictly not allowed in examination hall.**
- If any student is found with cell phone in any mode (silent, switched off or on) he/she will be not be allowed to continue their exam.
- No students will be allowed to sit in exam without University Admit Card, LNMC College ID Card and Lab Coat
- Student must bring the following stationary items for the exam: Pen, Pencil, Eraser, and Sharpener.
- Indiscipline in the exam hall/venue is not acceptable. Students must not possess any written material or communicate with their fellow students.

SCHEDULE:

WEEKS	2nd YEAR	DATES
WEEK 1	HEAD & NECK MODULE	30th Dec 2019
WEEK 2		
WEEK 3		
WEEK 4		
WEEK 5		31st Jan 2020
WEEK 1	NEUROSCIENCES MODULE	3rd Feb 2020
WEEK 2		
WEEK 3		
WEEK 4		
WEEK 5		
WEEK 6		28th March 2020
WEEK 1	SPECIAL SENSES - I MODULE	30th March 2020
WEEK 2		
WEEK 3		9th May 2020
WEEK 1	ENDOCRINE-I MODULE	12th May 2020
WEEK 2		
WEEK 3		
WEEK 4		13th June 2020
WEEK 1	REPRODUCTIVE SYSTEM –I MODULE	16th June 2020
WEEK 2		
WEEK 3		July 2020*

*Final dates will be announced later.