FCOG(SA) Primary Syllabus

THE STUDENT SHOULD BE ABLE TO:

Correlate specific structural features of human cells, tissues, organs and systems of the human body with their normal functions, and identify the changes that occur during human development, ageing and disease.

Anatomy

1. Cell biology
    a. Explain the molecular structure of a cell membrane.
    b. Describe the structure and function of cellular organelles.
    c. Explain the significance and process of protein synthesis
    d. Understand the relationship between a cell's structure and its function
2. Describe and annotate the surface anatomy of the female abdomen and pelvis, with relevance to the clinical O&G patient
3. Describe and annotate the anatomy of the pelvis (bony and viscera), its support structures, innervation, and blood and lymph supply, with relevance to the clinical O&G patient
4. Describe and annotate the anatomy of the urinary tract, and its nerve, blood and lymph supply, with relevance to the clinical O&G patient
5. Describe and annotate the anatomy of the lower GIT and anal canal and sphincter, and its nerve, blood and lymph supply, with relevance to the clinical patient
6. Describe and annotate the anatomy and histology of the female genital tract (vulva, vagina, cervix, uterus, Fallopian tubes, ovaries), its innervation, and blood and lymph supply, with relevance to the clinical O&G patient, including surgical anatomy
7. Describe and annotate the anatomy of female perineum, and its nerve, blood and lymph supply, with relevance to the clinical patient
8. Describe and annotate the anatomy of the female sexually important organs, its innervation, and blood and lymph supply, with relevance to the clinical O&G patient
9. Describe and annotate the anatomy and histology of the pregnant uterus, including blood vessels, nerves and relations in each trimester of pregnancy
10. Describe, annotate and compare (to the adult) the anatomy of the female child's genital tract, including the embryology and structural development.
11. Describe and annotate the anatomy and histology of the female breast, in both the pregnant and non-pregnant woman
12. Describe the anatomy of the endocrine organs (hypothalamic-pituitary axis, thyroid, ovary, adrenal, pancreas, parathyroid), nervous system (spinal innervation)

Embryology

1. Cell biology
    a. Know the basic structure of the DNA molecule, including the nitrogen base pairs and how they pair up in the DNA molecule.

b. Define the stages of the cell cycle.
c. Explain the significance of mitosis in the survival of the cell and growth in the human body.
d. Understand the significance of meiosis as a reduction of the genetic material and for the formation of the sex cells.

2. Describe the key events in early and systematic embryological development
   a. Fertilization
   b. Early development of twin pregnancy
   c. Development, structure and function of the placenta, fetal membranes, including homeostasis and functions of the amniotic fluid
   d. The general pattern and timing of organogenesis in the embryo, with focus on neural tube, cardiovascular system, lungs and diaphragm, GIT and urogenital tract
   e. The factors concerned in the determination of sexual differentiation and gender, embryology and development of the male and female genital tract
3. Describe the development, structure, and function of the fetal membranes, amniotic fluid, placenta, and umbilical cord
4. Describe the annotate the anatomy of the fetus
5. Apply developmental theory to abnormalities of development (including teratogenesis) and clinical presentations in O&G, with focus on Mullerian tube anomalies and gonadal anomalies
6. Describe fetal physiological processes with special reference to fetal growth and maturation, fetal immunology, fetal acid-base balance, fetal response to hypoxia, fetal circulation, fetal respiratory system
7. Describe the fetal adaptation to extra-uterine life, with focus on changes in the circulation, pulmonary system, thermoregulation, GIT

Physiology, biochemistry, immunology

1. General:
   a. Understand the basis of pH and its effect on cells
   b. Describe the mechanism of enzyme activity
   c. Describe the basics of protein synthesis
   d. Describe how the body maintains temperature (thermoregulation)
   e. Understand fluid and electrolyte homeostasis
   f. Describe the immune response
2. Endocrine:
   a. Define hormone and describe various classes of hormone
   b. List the principal endocrine glands (hypothalamus/pituitary, thyroid, parathyroid, adrenal, pancreas, ovary), with their secretion and regulation
   c. Describe steroid synthesis
3. Bone
   a. Describe the processes of bone formation, and the processes of bone replacement and repair
   b. Explain the homeostasis of body calcium
4. Reproductive tract
   a. Describe the process of spermatogenesis.
   b. Define semen and what glands contribute to its composition.
   c. Describe the development of a follicle, before and after ovulation.
   d. Describe the process of oogenesis.
   e. Describe the phases and hormonal control of the menstrual cycle.
   f. Describe lactation and the function of the mammary glands.
   g. Discuss the physiology of puberty, and aging
   h. Describe the physiology of the female sexual response
   i. Describe the physiology of normal vaginal discharge
5. Pregnancy:

a. Describe the production and effects of hormones (oestrogen, progesterone, oxytocin) and prostaglandins
b. Explain BhCG physiology and pathophysiology
c. Know the theories of onset of parturition, physiology of uterine contractions, the normal course of labour including the descent and rotations of the fetus , mechanism of uterine contraction to prevent PPH
d. Discuss the role of the cervix in pregnancy and labour
e. Describe the patterns of labour pain
f. Describe the changes of the normal puerperium
g. Describe the physiological adaptations of pregnancy (acid-base, fluid/elect, CVS, CNS, respiratory, endocrine, haematological/clotting, renal, GIT)
h. Discuss the role of nutrition in pregnancy, including minerals, micronutrients and vitamins

6. Blood:
   a. Describe the composition and functions of blood
   b. Describe haem metabolism
   c. Explain the process of erythropoiesis and enlist various factors that regulate erythropoiesis.
   d. Explain the principles of haemostasis, including the pathways that initiate blood clotting.
   e. Explain different types of blood groups and
      i. its importance during blood transfusion
      ii. relevance in pregnancy
   f. Classify types of blood cells and explain their function
7. Urinary Tract and GIT:
   a. Explain how urine flows down the ureters.
   b. Describe micturition and the role of stretch receptors in the bladder.
   c. Describe in detail the process of urine formation and name the normal constituents of urine
   d. Describe the process of defaecation

Microbiology and Virology

1. Describe the normal flora and common pathogens found in the vagina and skin and ways that the normal microbiota (or probiotics) are beneficial to a human host.
2. Understand the process of ascending infection
3. Discuss the pathogens and diagnostic tests for organisms causing common STIs (discharge and ulcers), including HPV, syphilis, TORCH
4. Describe the microbiology of yeast infections
5. Explain microbiology of HIV and TB, with special reference to their effect on the genital tract and pregnancy
6. Describe the significant micro-organisms causing diseases in pregnancy (incl. Group-B streptococcus) and puerperium
7. Discuss micro-organisms that are more likely to affect the genital tract of a child.
8. Explain how public health policies (e.g., quarantine and vaccination) can alter epidemic/pandemic progression.
9. Define the following: antibacterial spectrum, bacteriostatic, bactericidal, antibiotic synergism, and antibiotic antagonism.
10. Compare sterilization with pasteurization in terms of outcomes.
11. Compare ionizing radiation with UV radiation in terms of how they kill cells.
12. Explain how a vaccine can be used to elicit a long-term protective immune response
13. Compare and contrast commensal, symbiotic, and pathogenic relationships.
14. Describe how the human microbiome influences the host human organism
15. Consider developments and concerns on vaccine use, with special consideration for pregnancy
16. Identify emerging infections that affect pregnancy
17. Apply principles of aseptic technique, sterilisation, infection control etc

Basic Pathology

1. Demonstrate an understanding of essential basic pathological processes including cell death and injury, inflammation, infection, sepsis, wound healing, thrombosis, cyst formation and neoplasia
    a. Acquire the ability to relate these essential basic pathological processes to the pathogenesis of common and important diseases.
2. Demonstrate an understanding of the predisposing factors, causes (including iatrogenic), pathogenesis, morphology and potential complications of such diseases.
3. Correlate clinical features with the causes and mechanisms of disease.
4. Demonstrate an understanding of how knowledge of pathological processes can be utilised in the investigation, management and prevention of disease in O&G.
5. Describe the pathology of various types of shock and correlate with clinical features
6. Describe the pathology of transfusion reactions and correlate with clinical presentations.
7. Express the pathological effects of massive blood transfusion

Pharmacology

1. Recognize the fundamental principles of pharmacodynamics (i.e. drug-receptor interactions) and pharmacokinetics (i.e. absorption, distribution, metabolism, and elimination of drugs).
2. Identify how drugs alter cellular function through the study of pharmacodynamics.
3. Determine how the body handles drugs through pharmacokinetic processes such as absorption, distribution, metabolism, elimination, dose-response relationships, half-life, steady-state concentrations and volume of distribution
4. Summarise the effects on and of pregnancy and breastfeeding on the pharmacodynamics and pharmacokinetic processes
5. Describe the clinical applications, side effects and toxicities of drugs used in O&G.
    a. Analgesics/anaesthetic agents
    b. Anti-emetics
    c. Basic chemotherapeutic agents
    d. Topical dermatologicals
    e. Steroids
    f. HRT (including merits and demerits)
    g. Contraceptive (including merits and demerits)
    h. Progestogens
    i. Antimicrobials (Imiquamod, antivirals, antifungals, anti-helminths, HAART, Antibiotics)
    j. Misoprostol
    k. Mifepristone
    l. Tocolytic agents
    m. Oxytocin
6. Identify human practices (in medicine and agriculture) that have led to the increase of antibiotic resistance
7. Apply principles of antibiotic stewardship
8. Explain the mechanisms of action and pathology of ethanol, smoking and drugs of abuse, including effects of pregnancy
9. Translate pharmacological principles into clinical decision-making
10. Demonstrate knowledge of special requirements when prescribing for patients with special requirements:
    a. Elderly patients
    b. Impaired liver function
    c. Impaired renal function

d. Pregnant women and women of childbearing potential, incl. WHO classification of medication used in pregnancy
e. Lactation
f. Children

11. Demonstrate knowledge of indigenous medicines and their relevance to O&G

Technical gynae

1. Describe the physics of ultrasound and Doppler
2. Demonstrate knowledge of basic pre-op care, post-op care

Statistics

1. Demonstrate an understanding of the classical "scientific method"
2. Demonstrate an understanding of appropriate study design
3. Describe principles and methods of sampling in clinical research
4. Demonstrate an understanding of frequency distributions and measures of central tendency and dispersion
5. Demonstrate an understanding of the basic principles of hypothesis testing, statistical errors and principles of sample size calculation
6. Demonstrate an understanding of statistical methods commonly employed in biomedical sciences (e.g., ANOVA, multiple regression, survival analysis)
7. Appraise (with reference to statistical testing) basic screening tests used in O&G (evaluation of diagnostic tests: sensitivity, specificity, positive and negative predictive values, likelihood ratios, and receiver operator characteristic curves)
8. Interpret commonly used statistical tests, parametric and nonparametric, and interpretation of p values
9. Describe the principles and techniques used in evidence-based medicine, with special reference to randomised controlled trials, meta-analyses and systematic reviews

Ethics and Medico-legal

1. Apply the basic principles of ethics as described by Beauchamp and Childress

Public Health

1. Demonstrate knowledge and understanding of the wider determinants of Women's health and ill-health
2. Demonstrate knowledge and understanding of the roles of people and agencies who undertake work in the promotion of Women's health
3. Demonstrate an awareness of the debates and dilemmas that may arise from the promotion of Women's health, e.g. Gender-based violence, Vulnerable populations, sexual and reproductive rights, Adolescent perspective on risk behaviour