1. Textbook pages that you can skip
   Asexual reproduction: pp. 732-734
   pp.736-739
   human sexual behavior: 745-750

2. Roadmap of the lecture

   * Gametogenesis
     - Review of mitosis & meiosis
     - Spermatogenesis and oogenesis: definition of terms, number of chromosomes
   * Timelines of spermatogenesis and oogenesis
   * Anatomy of male reproductive tract
     - Role of seminiferous tubules, epididymis, seminal gland and prostate; composition of semen
     - Spermatogenesis in the tissue
   * Hormonal control of spermatogenesis
   * Anatomy of female reproductive tract
     - Oogenesis in the tissue
   * Hormonal control of oogenesis
   * Fertilization: capacitation, acrosomal reaction, membrane fusion, egg activation
   * Human chorionic gonadotropin

3. Study guide

After studying for this lecture, you should be able to:
   - name the different cell types that appear during spermatogenesis and oogenesis, and know whether they are diploid or haploid
   - know the different organs of the male and female reproductive tracts, and what their respective roles are
   - be able to describe the various steps of spermatogenesis and oogenesis in the context of their respective tissues
   - know the starts and stops of mitosis and meiosis involved in spermatogenesis and oogenesis during the life of an individual (hand-out)
   - describe the hormonal events that trigger and maintain sperm production at puberty
   - describe the ovarian cycle in terms of:
     - cellular changes in the ovary
     - changes in the ovarian hormones
     - changes in the gonadotropic hormones
     - changes in the uterus lining
(for this it is important to distinguish between 4 time periods: early part of the cycle, 1-2 days before ovulation, right at ovulation, after ovulation)

• know the positive and negative feedbacks exerted by estrogen and progesterone onto the hypothalamus and pituitary, and when they occur
• describe the events that takes place during capacitation, acrosomal reaction, membrane fusion, egg activation
• explain why menstruations are stopped during pregnancy
• be able to answer the following questions:
  • What are the different constituents of semen? What role do they have?
  • What are the roles of Leydig cells and Sertoli cells?
  • Which hormones (ovarian and pituitary) are at their highest level at ovulation?
  • What is the corpus luteum? Where is it located? What does it do?
  • What is the role of estrogens during the first part of the cycle?
  • What is the role of progesterone during the second part of the cycle?
  • Where is seminal fluid produced?
  • Which hormones can be detected in an early pregnancy test?