

# MCBA - CELL BIOL & ANATOMY (MCBA)

---

## MCBA 700 - Principles of Electron Microscopy (4 Credits)

The overall objectives of this course are to demonstrate to students (1) the use of electron microscopy and related histochemical techniques in studying the disease process at the cellular level and (2) the use of electron microscopy as ancillary instrumentation in interdisciplinary medical research. Lectures (two hours per week) would cover current methods of sample preparations and examinations of tissue by transmission electron microscopy, scanning electron microscopy, electron diffraction, and freeze-fracture. Laboratory (6 hours per week) would involve individual sessions with the course director in relation to the individual's specific research problem.

## MCBA 701 - Human Embryology and Gross Anatomy (8 Credits)

Gross morphology of the human body; names, relationships, and basic functions of body structures through original cadaver dissection observation supplemented by the use of texts, lectures, clinical correlations, radiographs, and informal discussion in groups.

## MCBA 702 - Human Microscopic Anatomy (5 Credits)

Lecture and laboratory devoted to light microscopic and ultrastructural features of human cells, tissues, and organs. The correlations between structure and function are emphasized as well as the intimate relation of microscopic anatomy to biochemistry, physiology, and pathology.

## MCBA 710 - Special Topics in Gross Anatomy (3 Credits)

Advanced study of one region of the body with special emphasis on detailed anatomy, normal variation, surgical procedures, original research, embryology, and teaching methods. Content varies by title and may be repeated a maximum of two times.

**Prerequisites:** ANAT 701.

## MCBA 715 - Cardiovascular Embryology (1-3 Credits)

Advanced study of the essential features of human development, clarifying the gross anatomical features and giving emphasis to recent advances in human embryology. The clinical importance of embryology and the etiology of congenital defects are noted.

**Prerequisites:** ANAT 701.

## MCBA 720 - Special Topics in Microscopic Anatomy (1-3 Credits)

Advanced study of selected topics in microscopic anatomy. Content varies by title and may be repeated a maximum of two times.

## MCBA 740 - Biological Microscopic Imaging (3 Credits)

Sample preparation and equipment use for electron, light and confocal, and live-cell microscopy. Cell sorting and image analysis will be covered.

## MCBA 741 - Molecular Imaging Methods of Biomedical Research (3 Credits)

Imaging technologies used in the analysis of cells, tissues, organs, and animals through a variety of molecular biology techniques.

## MCBA 742 - Biological Micro Imaging II (3 Credits)

Advanced scanning and transmission electron microscopy techniques, electron tomography, digital imaging, 2 dimensional and 3 dimensional image analysis, 3 dimensional ultrastructure data set reconstruction. Enrollment restricted to 15 students.

## MCBA 743 - Molecular Imaging Methods in Biomedical Research II (3 Credits)

Cell culture techniques, RNA and DNA isolation, PCR reactions, Gene Sequencing, Micro-array Technology. Enrollment restricted to 15 students.

## MCBA 750 - Mammalian Reproductive Biology (4 Credits)

Mammalian reproductive systems at organismic, cellular, and molecular levels. Emphases on the structural, functional, and developmental aspects of the hypothalamus, pituitary gland, testis, and ovaries.

**Prerequisites:** BIOL 717, BMSC 702.

## MCBA 761 - Advanced Reproductive Neuroendocrinology (3 Credits)

An intensive consideration of topics of current interest in the neuroendocrine control of reproduction. Student presentation and small group discussion formats.

**Prerequisites:** MCBA 750.

## MCBA 762 - Advanced Male Reproductive Biology (3 Credits)

An intensive consideration of topics of current interest in male reproduction. Student presentation and small group discussion formats.

**Prerequisites:** MCBA 750.

## MCBA 763 - Advanced Female Reproductive Biology (3 Credits)

An intensive consideration of topics of current interest in female reproduction. Student presentation and small group discussion formats.

**Prerequisites:** MCBA 750.

## MCBA 764 - Research in Reproductive Biology (1-12 Credits)

Mentored independent laboratory research.

## MCBA 780 - Research in Anatomy (1-10 Credits)

## MCBA 899 - Dissertation Preparation (1-12 Credits)