

# HISTOTECHNOLOGY (HTL)

## HTL 300 Biochemistry for Histotechnicians

**3 Units** (Degree Applicable)

Lecture: 54

**Prerequisite:** CHEM 10 or CHEM 40 and Admission to the BS in Histotechnology

Designed for students in the BS in histotechnology program. Structure of proteins, carbohydrates, and lipids; ligand binding, enzyme catalysis and inhibition, principles of metabolism, including glycolysis, citric acid cycle, and oxidative phosphorylation, and anabolic pathways and thermodynamics.

## HTL 301 Applied Immunology

**3 Units** (Degree Applicable)

Lecture: 54

**Prerequisite:** HT 25 and Admission to the BS in Histotechnology

This upper division course is designed to provide students in the Bachelor's of Science in Histotechnology Program with an in-depth understanding of immunological principles and techniques relevant to their field. The course will explore the immune systems structure, function, and response to pathogens, as well as the applications of immunology in research, diagnostics, and immune therapy.

## HTL 302 Pathological Basis of Clinical Medicine

**3 Units** (Degree Applicable)

Lecture: 54

**Prerequisite:** HT 25 and HTL 301 and admission to the BS in Histotechnology

This course provides an in-depth exploration of pathophysiology, focusing on the understanding of disease processes at the cellular and tissue level, with a special emphasis on histopathologic changes in cells and tissues. Students will learn the underlying mechanisms of various diseases and gain practical skills in histological analysis to identify histopathological changes associated with different diseases and disease states.

## HTL 308 Essentials of Hematology

**3 Units** (Degree Applicable)

Lecture: 54

**Prerequisite:** HT 25 and admission to the BS in Histotechnology

This course provides a histological, biochemical, and clinical diagnostic study of blood, blood cell formation, iron metabolism, blood pathology, and practical laboratory technology used in hematologic evaluation.

## HTL 312 Ethics and Professional Standards in the Laboratory

**3 Units** (Degree Applicable)

Lecture: 54

**Prerequisite:** Admission to the BS in Histotechnology

This course explores ethical and professional standards in a histotechnology laboratory setting, covers a variety of ethical theories, and focuses on issues such as patient confidentiality, integrity, honesty, and professional conduct.

## HTL 320 Anatomical Pathology 1

**3 Units** (Degree Applicable)

Lecture: 36 Lab: 54

**Prerequisite:** HTL 302 and Admission to the BS in Histotechnology

Part 1 of a two-part course providing fundamental knowledge and practical experience of human histology and pathology, including biospecimen processing and management at the organ, tissue, cellular, and molecular levels by utilizing human anatomical specimens in applied hands-on laboratory sessions that include dissection, preservation, processing, and sectioning of tissue.

## HTL 322 Anatomical Pathology 2

**3 Units** (Degree Applicable)

Lecture: 36 Lab: 54

**Prerequisite:** HTL 320 and Admission to the BS in Histotechnology

This is a continuation of HTL 320. In this class, the student will correlate the information from HTL320 with the anatomy and physiology of the organ systems and clinical behavior by observation, evaluation, and demonstration of how the pathology presents in anatomical specimens, the effects of disease on the anatomy and gross appearance of organ specific pathology, and in demonstration of various surgical techniques used in extracting pathological specimens for histologic assessment.

## HTL 330 Forensic Histopathology

**3 Units** (Degree Applicable)

Lecture: 54

**Prerequisite:** HTL 302 and Admission to the BS in Histotechnology

**Advisory:** HTL 320

This course introduces the specialty of forensic histopathology, in which discipline specific techniques are used to aid in the determination of the cause, manner, and mechanism of unusual and unconventional deaths. Medical and legal implications are covered, in addition to basic forensic principles, such as chain of evidence, appropriate reporting of findings, and privacy.

## HTL 390 Symposia in Histotechnology

**1 Unit** (Degree Applicable)

(May be taken for Pass/No Pass only)

Lecture: 18

**Prerequisite:** Admission to the BS in Histotechnology

This course offers symposia of varying lengths in order to present current information and new techniques and methods to students in the BS HTL program. Material covered varies each year and is dependent on current trends and the availability of speakers and presenters on the topics of interest.

## HTL 404 Cytology

**2 Units** (Degree Applicable)

Lecture: 36

**Prerequisite:** HTL 302 and Admission to the BS in Histotechnology

This course will explore laboratory techniques, procedures, and preparations used in the cytology lab, including sample preparation, lab safety, quality assurance, and laboratory accreditation requirements. Normal cell structure and function will be reviewed, and approaches to identification and evaluation of pathologic conditions in cells will be described.

**HTL 406 Pathology of Cancer and Angiogenesis****3 Units** (Degree Applicable)

Lecture: 54

**Prerequisite:** *HTL 302 and Admission to the BS in Histotechnology***Advisory:** *HTL 404*

This course covers the morphological and biologic basis of human cancer development with emphasis on resulting histologic and cytologic changes, including the metastatic processes, molecular carcinogenesis, mechanism that initiate and promote angiogenesis and laboratory techniques employed in diagnosis and treatment. Histotechnologic techniques in cancer diagnosis, such as microvascular density, are also included.

**HTL 410 Laboratory Management****3 Units** (Degree Applicable)

Lecture: 54

**Prerequisite:** *Admission to the BS in Histotechnology*

This course prepares histotechnologists for leadership positions in the laboratory by developing knowledge and abilities to run a laboratory efficiently. Leadership skills, time management, personnel management, team building, motivation, quality assurance, and strategic thinking and planning prepare students for management opportunities.

**HTL 432 Research in Histotechnology****3 Units** (Degree Applicable)

Lecture: 54

**Prerequisite:** *HTL 312 and Admission to the BS in Histotechnology*

This course introduces the creation, maintenance, and use of human tissues and the derivatives as tools in translational research. Included are the logistics and legal aspects of creating and maintaining bio-banks, federal, state, and institutional regulatory and funding mechanisms.

**HTL 440 Advanced Microscopy****3 Units** (Degree Applicable)

Lecture: 54

**Prerequisite:** *Admission to the BS in Histotechnology*

This course introduces the theory and practice of modern microscopy. Lectures cover basic physical properties of microscopy, including optics, principles of image formation, light microscopy, fluorescence microscopy, digital imaging, confocal microscopy, and electron microscopy. Required field trips to advanced microscopy laboratories are part of this course and provide hands-on opportunities for students to observe a variety of types of microscopes, explore their features, determine the best applications, and prepare slides using specialized techniques such as heavy metal and fluorescence staining.