Cleveland Clinic
School of Health Professions
Cytology Program

# Course Descriptions

***CYTO501 - Introduction to Cytopathology*** ***Clock Hours: 10***

Overview of the history and significance of cytodiagnosis and its place in the modern medical laboratory. The code of ethics for the cytologist and laboratory regulations affecting Cytopathology are presented and discussed. The basics of microscopy and the care of the microscope are included using cells from squamous epithelium.

Upon completion of the lectures, exams and exercises, the student will be able to describe the history and timeline of cytology's beginnings. The student will be able to apply the knowledge to utilize and troubleshoot a microscope.

***CYTO505 - Cytopreparation*** ***Clock Hours: 118***

Laboratory hands-on experience in the accessioning, preparation and staining of all types of cytologic samples. Students learn the basics and troubleshooting of the various stains utilized in the cytology laboratory using manual and automated methods and prepare slides using state of the art equipment.

Upon completion of the lectures, exams and laboratory exercises, the student will be able to demonstrate competency of accessioning, preparation, staining and coverslipping of various cytology specimens.

***CYTO510 - Gynecologic Cytopathology*** ***Clock Hours: 338***

Study of the Pap test including normal cells, inflammatory reactions, neoplasia (epithelial and non-epithelial), therapy changes and miscellaneous entities. The anatomy and histology of the female reproductive system are studied as they pertain to the cytologic sample and normal versus abnormal cytologic and histologic appearances compared. The cytologic criteria of malignancy are studied in depth. Areas of study include the uterine cervix, endometrium, fallopian tubes, ovaries, vagina and vulva. Nomenclature used in Pap test reporting and the triage and treatment of patients with gynecologic neoplasia are also included.

Upon completion of lectures, exams and exercises, the student will be able to describe and differentiate non-neoplastic and neoplastic gynecologic entities. Students will be able to interpret and diagnose gynecologic specimens.

***CYTO515 - Gynecologic Cytology Practicum*** ***Clock Hours: 138***

Instruction and supervised practice in the screening of Pap tests using conventional and liquid based slide preparations. Emphasis is placed first on accuracy and then on the building of speed in the screening process so that slides can be completed in a reasonable time with correct diagnoses. Detector and diagnostic skill building is at the core of this course.

Upon completion of daily screening exercises and meeting minimum requirement checkpoints, students will be able to demonstrate competency of gynecologic screening.

***CYTO520 - Respiratory Cytopathology*** ***Clock Hours: 46***

The anatomy, histology and cytologic appearance of benign, inflammatory and neoplastic conditions of the respiratory tract are presented. Didactic and practical instruction in the appearance of various types of specimens is included. Hands-on experience is gained in the preparation and review of bronchoscopy specimens for adequacy interpretation.

Upon completion of lectures, exams, and exercises, students will be able to describe and differentiate non-neoplastic and neoplastic entities of the respiratory system. Upon completion of clinical experiences, students will demonstrate competency of rapid on-site evaluation during procedures.

***CYTO530 - Effusion Fluid Cytopathology*** ***Clock Hours: 42***

The anatomy, histology and cytologic appearance of benign, inflammatory and neoplastic conditions of the body cavities are presented. In addition to the pleural and peritoneal cavities, pericardial, synovial and cerebrospinal fluids are studied. Primary and metastatic tumors and the ways to differentiate them morphologically and with the use of various stains are emphasized.

Upon completion of lectures, exams and exercises, students will be able to describe and differentiate non-neoplastic and neoplastic entities of effusion fluids. Students will be able to classify stains for various tumor types.

***CYTO540 - Gastrointestinal Cytopathology*** ***Clock Hours: 33***

The anatomy, histology and cytologic appearance of benign, inflammatory and neoplastic conditions of the gastrointestinal tract are presented. Didactic and practical experience in the diagnosis of various disease processes is included. Fine needle aspiration of the liver and pancreas are included as a portion of this course.

Upon completion of lectures, exams and exercises, students will be able to describe and differentiate non-neoplastic and neoplastic entities of gastrointestinal system including pancreas and liver.

Upon completion of clinical experiences, students will demonstrate competency of rapid on-site evaluation during procedures.

***CYTO550 - Genitourinary Cytopathology*** ***Clock Hours: 32***

The anatomy, histology and cytologic appearance of benign, inflammatory and neoplastic conditions of the genitourinary tract are presented. Students also learn fluorescence in-situ hybridization techniques used to follow patients for recurrent bladder cancer.

Upon completion of lectures, exams and exercises, students will be able to describe and differentiate non-neoplastic and neoplastic entities of the genitourinary system.

Upon completion of clinical experiences, students will be able to describe FISH urovysion techniques.

***CYTO560 - Fine Needle Aspiration Cytopathology*** ***Clock Hours: 100***

Didactic and hands on experience in fine needle aspiration cytology as it pertains to all the body sites that are the source of cytologic material. Part of the didactic portion of this course is integrated with other courses in this curriculum in order to present the cytology of each system as a whole. Students have hands-on experience with simulated fine needle aspiration techniques and are able to view actual needle aspiration procedures as well as process specimens for immediate interpretation using several types of stains.

Upon completion of lectures, exams, and exercises, students will be able to describe and differentiate non-neoplastic and neoplastic entities of the breast, thyroid, salivary glands, lymph nodes, bone and soft tissue.

Upon completion of clinical experiences, students will demonstrate competency of rapid on-site evaluation during fine needle aspiration procedures.

***CYTO570 - The Future of Cytopathology*** ***Clock Hours: 65***

Overview of the roles of companion technologies including immunohistochemistry, flow cytometry and molecular pathology and how they relate in today's cytopathology laboratory and the implications of these technologies in the future of cytology. In addition, the role of the cytologist during endoscopy ultrasound procedures for diagnosis and staging of lesions during procedures is explored with hands on experience for the student. Exposure to small biopsy techniques and processes will allow students to expand their role as a cytologist.

Upon completion of lectures and laboratory exercises, students will be able to discuss the indications and clinical significance of companion technologies. Students will be able to demonstrate competency of small biopsy grossing.

***CYTO580 - Non-Gyn Cytology Practicum*** ***Clock Hours: 80***

Instruction and supervised practice in the screening of non-gynecologic specimens including fine needle aspirations. Actual cases that are in the working cytology laboratory are made available for prescreening by the students and are reviewed with faculty. Practice sets and unknown boxes provide individual study. Emphasis is placed on accuracy followed by speed.

Upon completion of daily screening exercises, students will be able to demonstrate competency of non-gynecologic screening.

***CYTO600 - Laboratory Operations*** ***Clock Hours: 28***

Overview of laboratory management and cytology laboratory operation in particular. Included are a review of regulations that affect the laboratory and those individuals working there as well as the process of laboratory inspection with special emphasis on inspection by the College of American Pathologists (CAP). In addition, participation in a group project assigned by the program that demonstrates the students understanding of laboratory design and operations is required to complete this course.

Upon completion of lectures and exercises, students will be to discuss and interpret regulations and laboratory operations to support a high-quality cytology laboratory.

***CYTO601 - Independent Study*** ***Clock Hours: 280***

Journal club will be once a month based on the topic that is discussed in lectures. Each student will select an article, post it to the learning management system and will ask a question about another student's article and answer a question on their own article. Independent review lessons will be distributed weekly, based on the topic covered in lecture. Each lesson will be completed individually and reviewed weekly by the Program Director. Problem based learning topics are discussed throughout and participation during the meetings but also group work during the research to determine appropriate information to support the topic discussed. Case presentation, in 3 formats, written template, poster and oral, of an interesting cytology case from the lab or a case provided to the school. The written presentation will involve research and topic review in journals and texts. The oral presentation will be presented formally to the faculty and the cytology laboratory. Written research of a cytologic topic of choice involving additional study of literature or original research on a project in the lab.

Upon completion of the exercises and research, students will be able to apply and integrate their knowledge to create multiple projects that will demonstrate research techniques and presenting skills.