



Course Number and Title: HTT 221 Histochemistry II

Campus Location:

Wilmington

Effective Date:

2050-51

Prerequisite:

HTT 220

Co-Requisites:

None

Course Credits and Hours:

3.00 credits

2.00 lecture hours/week

4.00 lab hours/week

Course Description:

This course is a continuation of Histochemistry I with instruction in advanced histologic technology procedures and theories.

Required Text(s):

Obtain current textbook information by viewing the [campus bookstore - https://www.dtcc.edu/bookstores](https://www.dtcc.edu/bookstores) online or visit a campus bookstore. Check your course schedule for the course number and section.

Additional Materials:

Histotechnician Program Manual

Allied Health/Science Department Student Policy Manual

Schedule Type:

Classroom Course

Disclaimer:

None

Core Course Performance Objectives (CCPOs):

1. Demonstrate, differentiate, and evaluate the purpose, mechanisms, methods, and techniques of staining in accordance with written procedures for special stains, special tissues, and microwave staining. (CCC 1, 2, 3, 5, 6; PGC 2, 4, 5, 6, 7, 8, 10)
2. Discuss the role of molecular biology in the anatomic pathology lab.(CCC 3; PGC 2, 4, 9, 10)
3. Demonstrate professional ethics. (CCC 1, 2, 3, 4; PGC 9, 10)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

Measurable Performance Objectives (MPOs):

Upon completion of this course, the student will:

1. Demonstrate, differentiate, and evaluate the purpose, mechanisms, methods, and techniques of staining in accordance with written procedures for special stains, special tissues, and microwave staining.
 1. Demonstrate and explain the preparation of various carbohydrate staining solutions.
 2. Identify and give examples of various carbohydrates.
 3. Define and explain carbohydrate staining terminology.
 4. Describe and discuss mechanisms of carbohydrate staining.
 5. Discuss the diagnostic importance and use of carbohydrate staining.
 6. Locate and identify types of connective tissue.
 7. Describe staining characteristics of connective tissue components.
 8. Identify and explain the major steps of connective tissue staining techniques.
 9. Explain the mechanisms of various connective tissue stains.
 10. Discuss diagnostic applications of connective tissue staining techniques.
 11. Identify and classify nerve tissue.
 12. Compare and contrast central and peripheral nervous systems.
 13. Explain staining mechanisms of various nerve tissue techniques.
 14. Discuss diagnostic applications of nerve tissue staining techniques.
 15. Describe and discuss physiologic implications of the presence of various human cellular and inter-cellular pigments.

16. Identify and describe pigment staining techniques.
 17. Explain the staining mechanisms of pigment techniques.
 18. Identify various pigments.
 19. Demonstrate principles of safety in accordance with staining procedures.
 20. Calculate concentrations, and prepare solutions for staining.
 21. Prepare and explain individual steps of staining techniques.
 22. Evaluate staining techniques using microscopic examination of stained slides.
 23. Describe and list hematoxylin and eosin (H & E) staining results.
 24. Explain the use of special stains by pathologists.
 25. Describe the procedure for submission of special stain requests by pathologists.
 26. Discuss the general rules for identifying sources of error in special staining techniques and methods of trouble-shooting.
 27. Discuss the importance of special stain quality control.
 28. Demonstrate proper use and maintenance of laboratory special staining equipment.
 29. Prepare a reagent inventory, and prepare solutions as needed.
 30. Demonstrate proper use of personal protective equipment, and comply with safety guidelines for all special staining techniques.
 31. Demonstrate use of control slides for all special stains performed.
 32. Apply special staining techniques in accordance with written procedures.
 33. Interpret results of staining, and identify courses of action for trouble-shooting as necessary.
 34. Describe and list special stain results.
 35. Prepare and create stained slides, and discuss results with instructor.
 36. Identify and give examples of polysaccharides.
 37. Classify polysaccharide staining techniques relative to the substance demonstrated.
 38. Outline and discuss polysaccharide staining techniques.
 39. Describe and discuss methods of amyloid staining.
 40. Identify and give examples of connective tissue and muscle.
 41. Classify connective tissue and muscle stains relative to the fibers and/or cells stained.
 42. Outline and discuss connective tissue staining techniques.
 43. Define and discuss various types of nerve tissue.
 44. Classify nerve tissue stains relative to the entity stained.
 45. Outline and discuss nerve tissue staining techniques.
 46. Define and give examples of various microorganisms.
 47. Classify microorganism staining techniques relative to the organism stained.
 48. Outline and discuss microorganism staining techniques.
 49. Discuss and give examples of human pigments.
 50. Classify pigment staining techniques relative to the entity stained.
 51. Outline and discuss pigment staining techniques.
 52. Describe and discuss sources of artifactual pigments, methods of prevention before staining, and methods of removal after staining.
 53. List advantages and disadvantages of microwave staining.
 54. Describe the mechanisms of microwave staining techniques.
 55. Demonstrate proper use and care of the microwave oven used in histology.
 56. Demonstrate safety procedures and use of personal protective equipment when performing microwave staining.
 57. Prepare solutions and demonstrate proper microwave staining technique.
 58. Compare microwave and conventional staining of selected tissues.
2. Discuss the role of molecular biology in the anatomic pathology lab.
 1. Define basic *molecular biology*, and discuss molecular biology techniques used in histopathology.
 2. Discuss deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) structures.
 3. Discuss means and use of DNA and RNA preparations.
 3. Demonstrate professional ethics.
 1. Demonstrate professional ethics.
 2. Demonstrate punctuality and attendance.

Evaluation Criteria/Policies:

Students must demonstrate proficiency on all CCPOs at a minimal 75 percent level to successfully complete the course. The grade will be determined using the Delaware Tech grading system:

92	-	100	=	A
83	-	91	=	B
75	-	82	=	C
0	-	74	=	F

Students should refer to the [Student Handbook - https://www.dtcc.edu/handbook](https://www.dtcc.edu/handbook) for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

Final Course Grade:

Calculated using the following weighted average

Evaluation Measure	Percentage of final grade
Lecture Exams: 4 exams are weighted at 10% each (summative)	40%
Final Exam: 1 exam weighted at 40% (summative)	40%
Histology Procedure/Task Laboratory Competency (summative)	10%
Generic Abilities-Affective Objectives Assessment (summative)	10%
TOTAL	100%

Core Curriculum Competencies (CCCs are the competencies every graduate will develop):

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):

1. Receive and accession tissue specimens accurately.
2. Prepare tissue specimens for microscopic examinations, including all routine procedures.
3. Assist with frozen section procedures in histopathology.
4. Identify tissue structures and their staining characteristics.
5. Perform preventive and corrective maintenance of equipment and instruments or refer to appropriate sources for repairs.
6. Explain factors that affect procedures and results, and take appropriate action within predetermined limits when corrections are indicated.
7. Perform and monitor quality control within predetermined limits.
8. Apply principles of safety to all clinical laboratory procedures.
9. Demonstrate professional conduct and interpersonal communications skills with patients, the public, laboratory and other health care personnel.
10. Describe the responsibilities of other laboratory and health care personnel and interact with them with respect for their jobs and patient care.
11. Explain and act upon individual needs for continuing education as a function of growth and maintenance of professional competence.
12. Exercise principles of management, safety and supervision within the clinical laboratory environment.

Disabilities Support Statement:

The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the [disabilities services - https://www.dtcc.edu/disabilitysupport](https://www.dtcc.edu/disabilitysupport) web page or visit the campus Advising Center.