

# Common Course Outline

## HSTO 206

### Special Staining II

2 Credits

## Community College of Baltimore County

### Description

**HSTO 206 – Special Staining II** explores the use of a variety of advanced special stains, dyes and techniques to highlight individual tissue components once an Hematoxylin and Eosin (H&E) stain is evaluated. The student demonstrates the purpose, principles, reagents, controls, troubleshooting, and results of each special stain. Learning the theory and techniques employed in the histology laboratory prepares the students to successfully integrate greater skills to enter the field of Histotechnology.

### 2 Credits

**Prerequisite:** HSTO 106

### Overall Course Objectives

Upon completion of this course students will be able to:

1. identify the cognitive theories of staining microorganisms, tissue pigments, minerals, neural tissue and specialized techniques such as immunohistochemistry;
2. identify tissue structures and their staining characteristics;
3. define and give examples of bacteria, cocci, bacilli, spirochetes, mycobacteria, fungi, hyphae, mycelia, and protozoans;
4. name the stains used in the detection of acid-fast mycobacteria in tissue sections;
5. identify the types of organisms stained by: Auramine-rhodamine, Giemsa, Gram stain, Periodic Acid-Schiff (PAS), Grindly, Grocott's methenamine silver (GMS), Mucicarmine, Dieterle, Warthin-Starry, and Steiner and Steiner;
6. define and give examples of endogenous and exogenous pigments;
7. describe what substance is demonstrated by: Prussian blue, Turnbull blue, Schmorl, Fontana-Mason, Grimelius, GMS, Hall, von Kossa, alizarin red S and rhodanine;
8. state the method for bleaching melanin pigment;
9. compare and contrast argentaffin and argyophil reactions;
10. state the importance of chemically cleaned glassware;
11. describe the neuron and its various structural components;
12. identify what is demonstrated in the following techniques: cresyl echt violet, Bodian, Holmes, Beilschowsky, Sevier-Munger, Weil, and Luxol Fast Blue;
13. define the following terms: antigen, antibody, epitome, fluorochrome, and substrate;
14. state the difference between a primary and secondary antibody;
15. list common enzymes used as markers in identifying the presence of antibodies;
16. describe the preferred method of specimen preparation for Immunofluorescence;

17. list the 5 classes of antibodies;
18. identify the use of multilink antibodies; and
19. outline each stain on the above categories including the desired fixative, microtomy thickness, primary reagents and dyes and their purposes, staining results, appropriate control, sources of error and appropriate corrective actions, and any special techniques.

### **Major Topics**

- I. Microorganisms
  - a. Kinyoun acid-fast stain
  - b. Ziehl-Neelson acid-fast stain
  - c. Fite acid-fast stain
  - d. Auramine-Rhodamine fluorescence technique
  - e. Brown-Hopps
  - f. Giemsa
  - g. Gridley
  - h. Grocott methenamine-silver nitrate (GMS)
  - i. Warthin-Starry
  - j. Dieterle
  - k. Steiner and Steiner
- II. Pigments & Minerals
  - a. Prussian blue
  - b. Turnbull blue
  - c. Schmorl
  - d. Fontana-Masson
  - e. Grimelius
  - f. Churukian-Schenk
  - g. Gomori methenamine-silver
  - h. Halls's bile stain
  - i. Von kossa
  - j. Alizarian red S
  - k. Rhodanine
- III. Nerve tissue
  - a. Cresyl echt violet
  - b. Bodian
  - c. Holmes silver nitrate
  - d. Bielschowsky-PAS
  - e. Sevier-Munger
  - f. Thioflavin S
  - g. Mallory phosphotungstic acid hematoxylin (PTAH)
  - h. Holzer
  - i. Cajal
  - j. Weil
  - k. Luxol fast blue

## **Course Requirements**

Grading procedures will be determined by the individual faculty member but will include the following:

### **Grading/exams**

- Weekly quizzes and assignments
- A minimum of three (3) exams
- A cumulative final examination

Written Assignments: Students are required to use appropriate academic resources.

### **Other Course Information**

This course is a Histology program core course.

This course is part of a program sequence, which requires admission to the program.

This course is offered in the Spring only.

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