Hagerstown Community College
OFFICIAL COURSE GUIDELINES DOCUMENT

BTC-111 Special Topics in Biotechnology: Microscopy

Summer 2014

Instructor:	Mrs. Terrie Biddinger
E-mail:	tmbiddinger@hagerstowncc.edu
Office:	STEM 423, phone 240-500-2465

Office Hours:	Tues, Wed or Thursdays at 11:45 or by appointment
Class Hours:	10:30 AM – 11:45 AM, STEM 201 June 16-26; STEM 302 June 23-Aug 7
Lecture Text:	Lab Manual: purchase a 3-ring binder; copies provided; ear phones/ear buds

Course Description

This is a one semester 3-credit Special Topics in Biotechnology course with the main emphasis in microscopy. The course will emphasize hands-on learning of 6 different microscopes: brightfield, phase-contrast, dissecting, fluorescence, polarized and scanning electron microscopes. Students will learn techniques in temporary and permanent specimen preparation, as well as explore microscopy techniques and careers in various disciplines including, but not limited to: biotechnology, forensics, entomology, ecology, cell biology, microbiology, geology and biomedical science.

Student Success

- Attending class
- Taking good notes while in class
- Asking relevant questions
- Doing homework and assignments
- Mastering the material is covered

Attendance

Students are expected to attend every class and are responsible for all the material in class and in online assignments. Attendance will be taken at each class period. Lecture activities and labs cannot me missed or made up unless the absence is deemed excused by the Instructor (ex. Illness with a doctor note, death in the family, etc.)

Expected Student Learning Outcomes

1. Relate a basic core of scientific principles to an open-ended framework.
2. Demonstrate observational and analytical skills in a structured situation.
3. Formulate conclusions based on observations and information.
4. Use technology to access scientific information, generate and analyze empirical data, and solve problems.

Content Objectives

1. To demonstrate how to prepare both temporary and permanent specimen preps.
2. To understand the nature and applications of brightfield, phase-contrast, dissecting, fluorescence, polarized and scanning electron microscopes in research, education and industrial settings.
3. To learn, know and demonstrate the correct operation of brightfield, phase-contrast, dissecting, and fluorescence, polarized and scanning electron microscopes.
4. Compare and contrast types of specimens viewed with brightfield, phase-contrast, dissecting, and fluorescence, polarized and scanning electron microscopes.
5. To observe and understand the nature and structure of cells, organisms and various specimens studied under the microscopes.
6. To learn and demonstrate techniques in digital imaging in microscopy.
7. To explore careers in microscopy and biotechnology.

Total Hours of Coursework

In order to meet the minimum requirements for a 3 credit class each student should commit 150 hours per semester, or 10 hours per week for a 15 week class. Remember that this is the minimum number of hours needed, certain courses, or certain students may require more than this minimum number to be successful.

Minimum Clock Hours Required for this Course

Component of Course	**Hours In Class/Lab**	**Hours/Item Outside of Class**	**Total Hours/Semester Outside of Class**
Lecture	**37.5 hours**		
Online reading/coursework		2 hours/lecture	**64 hours/semester**
Poster		7.5 hours/poster	**7.5 hours/semester**
Lab Practical		15 hours/exam	**15 hours/semester**
Labs		1 hours/lab	**11 hours/semester**
Online Quizzes		1 hours/quiz	**15 hours/semester**
Total	**37.5 hours**		**112.5 hours**

Class Schedule (next page)