Below is a list of many of the courses offered at UMBC that utilize graduate teaching assistants. The course instructors have provided brief descriptions of the course as well as the duties of the teaching assistants. These are by no means exhaustive descriptions; you should contact the course instructor if you have any questions or desire further information prior to submitting your course preferences.

BIOL 109 ­ Life, An Introduction to Modern Biology

Life is a lab course for non­STEM majors that covers hereditary, central dogma, mutations, disease, and various topics of interest. Students meet for a 75 minute lead­off lecture and a two hour lab each week. TAs are expected to teach one section where they will give a procedural lecture and assist in another section, attend lead­off, and attend a weekly TA meeting. TA’s will have to write quizzes and grade quizzes and lab reports. TA input on course content is encouraged.

BIOL 141 ­ Foundations of Biology: Cells, Energy and Organisms

BIOL 141 is the first biology course undergraduate biology majors take. The course meets in a large lecture hall, with a combination of short lectures and team-based active learning activities. During active learning activities, TAs circulate around the room, answering questions and initiating discussion with students. Graduate TAs assist during both lectures (Tues and Thurs 2:30-3:45) and attend a weekly TA meeting (Fri at noon). Graduate TAs are also responsible for grading homework and in-class assignments, entering grades on Blackboard, and supervising undergraduate TAs. Other responsibilities include, but are not limited to, proctoring exams, developing course materials, photocopying course materials, and leading discussion sections as needed.

BIOL 142 ­ Foundations of Biology: Ecology and Evolution

TAs in 142 run the active learning sessions in the CASTLE (90 students), usually two 75 minute sections per week (often one as primary, one as secondary). These are mostly computer exercises about natural selection, phylogeny and ecology. TAs also grade the turned in assignments, keep track of CASTLE grades, implement pre and post­exams, and supervise undergraduate TAs. There are other responsibilities including but not limited to proctoring exams, preparing materials for the active learning sections, etc. Different instructors in different semesters will also have different needs and expectations.

BIOL 251L ­ Human Anatomy and Physiology Lab I

Fleischmann Version: TAs in A&P labs are assigned to 2 lab sections ( 3 hrs. each) each week.  During lab students are working with models of the human body and/or dissecting cats.  We help guide them through this material.  In addition, TAs help write and grade quizzes, help set up and grade practicals and give intro. lectures in the lab.

Hughes addendum: The workload is heavy in this lab as it requires the TA knowing about ~700 anatomical terms including bone names, bone markings, muscle names, muscle origin, insertion, action and nervous system structures. TAs are required to be present at every lab section that is running in a semester. TA’s will also be expected to run at least 2 hours of open lab per week in addition to regularly scheduled lab. Also on weeks that there are lab practicals, TA’s are expected to be present to help with lab practical set up which takes about 1 hour per section. TA’s also help write and grade weekly lab quizzes and lab practicals.

BIOL 252L ­ Human Anatomy and Physiology Lab II

Topics include the endocrine, respiratory, digestive, urinary, cardiovascular, and reproductive systems. Lab times and some specific TA  responsibilities will differ based on the instructor of this course. Hughes version: Lab meets twice a week (two sections) for three hours, Monday and Wednesday afternoon. The TA co-teaches both sessions, mainly circling around the lab to help students. The workload is heavy in this lab as it requires the TA knowing about ~500 anatomical structures. TA’s will also be expected to run at least 2 hours of open lab per week in addition to regularly scheduled lab. Also on weeks that there are lab practicals, TA’s are expected to be present to help with lab practical set up which takes about 1 hour per section. There is some weekly grading (heaviest after each lab exam, but never too onerous). Instructor strongly prefers students with some understanding of the topics to be covered and a genuine interest in helping students learn.

BIOL 275L ­ Microbiology Lab

Microbiology lab is an elective taken predominantly by Biology majors pursuing a career in a healthcare­related field. We teach students with a wide range of experiences, with two lab sections composed predominantly of freshman pre­nursing students and the other two lab sections predominantly junior and senior biology majors. Lab exercises primarily focus on the fundamentals of working with bacteria: microscopy and staining, aseptic technique, culturing and quantitation, and isolation and biochemical identification of bacterial species. Students attend a 1 hour lead­off lecture on Fridays, plus one 3 hour lab section per week. TAs teach one lab section (in which they will give a short introduction/demonstration of that day’s exercise), assist in one other lab section, attend weekly TA meetings, and oversee one open lab each week. TAs also build and grade quizzes, check notebooks, and help grade the lab practical and unknown lab report. We work as a teaching team in this course and TA input is highly encouraged and valued.

BIOL 300L ­ Experimental Biology Lab

Techniques include: micropipetting, pipetting, spectroscopy analysis, weighing samples, dilutions, sterile technique, microscopy, and graphical representation of data using Microsoft Excel. Experiments include (and will vary between instructors): making a solution of a particular Molarity (and then diluting to appropriate Molarity), Bradford assay, Enzymatic Reactions and Kinetics, Bacterial Conjugation and Chromosome Mapping, Agrobacterium infection of sunflower plants, and Microscopy. TA Responsibilities: TA works twice a week (once as a lead TA and once as an assistant TA), builds/grades weekly in­class quizzes, grades weekly lab notebooks, posts all grades on Blackboard Grade Center weekly, and proctors/grades exams.

BIOL 302 ­ Molecular and General Genetics

Genetics is taken primarily by sophomore Biology majors, by some Engineering majors, and by Psychology B.S. majors (usually juniors and seniors). The course provides fundamental information on the structure of genes, their organization, and their expression as deduced from analysis of prokaryotic and eukaryotic systems, and the application of fundamental genetic principles to problems of human heredity. In the fall semester, BIOL 302 is taught in the team­based learning (TBL) format. Students do assigned text readings in advance of class, then work in teams of 5 to solve problems in the “lecture” part of class. There will be two grad TAs and about 16 undergrad TAs. The undergraduate TAs will teach the 12 discussion sections (~30 students each) that are associated with the two “lecture” sections (~180 students each). Both undergrad and grad TAs will circulate around the room during the twice­per­week, 75­minute “lecture” sections (1 grad TA and ~8 undergrad TAs per section) to help guide student discussion and problem solving. Grad TAs will also be responsible for running the weekly TA meetings, helping to grade the short­answer questions on midterm and final exams and short­answer homeworks (and enter these grades), and 3­5 data analysis problems that students will complete outside of class. Grad TAs must do all of the chapter readings and be familiar with class activities in advance of class so they are prepared to help instruct students in class; they may be called upon to sub for undergraduate TAs who cannot teach their section due to illness or travel. Grad TAs are also welcome to develop new problems and other materials for the lecture and/or discussion sections but are not required to do so. The expectation is that Grad TAs will spend an average of 12­15 hours per week on

this course throughout the semester, including preparation time and grading.

BIOL 302L ­ Molecular and General Genetics Lab

Genetics lab is an elective lab taken predominantly by Junior and Senior Biology majors. Genetics lab is taught in two versions; a traditional version in the Spring and a newer Phage Hunters version in the Fall with some significant differences. The traditional lab’s experiments range from simulated fly crosses and simple population genetics from collected class data to prokaryotic gene regulation and identifying mutations by sequencing. In the Fall, Phage Hunters version, students complete a single experiment isolating and characterizing a bacteriophage from the environment. In both, students meet for a 75 minute lead­off lecture and a three hour lab each week. TAs are expected to teach one section in which they will give a short procedural lecture, assist in another section, and attend the lead­off lecture and a weekly TA meeting. Fall TAs will have to hold a weekly open lab; Spring TAs will need to hold open lab only a couple times during the semester. TA’s will have to write quizzes, and grade quizzes and either papers (Fall) or lab reports (Spring), proctor exams, and grade exams (typically Fall). TA input on course content is encouraged.

BIOL 303 ­ Cell Biology

Cell Biology is a 4 credit core course for Biology­related majors, usually taken in their late sophomore or junior year. The course explores different types of cells, subcellular components and their roles, how chemical make­up and genetic factors influence cell function, how subcellular trafficking is regulated, cellular energetics, and cell­cell and cell­environment interactions. We also begin to explore primary literature and how science is informed through experimentation. There are two 75 minute lectures by the instructors and one 50 minute discussion sections led by TAs each week. Graduate TAs are responsible for overseeing undergraduate TAs, leading discussion sections as needed, providing content for problem sets and some discussions (including quizzes), recording and posting lectures, holding weekly office hours, reviewing for exams, proctoring exams, and helping with grades for discussions.

BIOL 303L ­ Cell Biology Lab

This is going to be an upper level lab elective, taken by Junior and Senior Biology majors. Drs. Whitworth and Wagner are redesigning it and each will teach 2 sections. This laboratory course is designed to introduce students to the principles of experimental design and the analysis and interpretation of data in modern cell biology. During the course of the semester students will be using the techniques of white light and fluorescence microscopy, electrophoresis, protein purification, and tissue culture and other cell based assays. TAs will be expected to attend one weekly TA meeting, two lab sections (time are M, Tu, W, Th 1­5), assist students during lab, and prepare and grade quizzes. TAs will need to be familiar with the topics covered in the labs.

BIOL 305L ­ Animal Physiology Lab

Labs will cover various organ systems, with a variety of labs on humans (ECG, urinalysis), vertebrates (frog sciatic nerve, frog gastrocnemius muscle, fish metabolism), and invertebrates (worm hearts and stuff). Some labs we are pretty sure will work, and this being the first year for other labs as well as for the instructor­­ well, they will be an adventure! Lab meets three times a week (three sections) for three hours, Tuesday, Wednesday and Thursday afternoon. The TA co­teaches two of the sessions, mainly circling around the lab to help students. There is weekly grading of pre­labs and lab reports, and you’ll also help with grading the lab exams. Unsurprisingly, the instructor strongly prefers TAs with some understanding of the topics to be covered and a genuine interest in helping students learn.

BIOL 306L ­ Projects in Molecular Biology

BIOL 316L ­ Phage Hunters Genome Analysis

Phage Genomic Analysis is an elective lab taken predominantly by Junior and Senior Biology majors. Students annotate phage genomic sequences produced by 302L­Phage Hunters the previous semester, then use various bioinformatic tools to analyze and compare the phage genome(s) to previously annotated phages. Students attend two 2­hour classes a week. TAs are expected to attend class, assist the instructors and students, help prepare quizzes, lab reports, and exams; and grade quizzes and lab reports. TAs will need to familiarize themselves with the software used in the course prior to the beginning of the class.

BIOL 340L ­ Developmental Biology Laboratory