PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

CONCEPTS OF BIOLOGY
BIOL 1310

Class Hours: 2.0  Credit Hours: 3.0
Laboratory Hours: 3.0  Revised: Fall 2013

Catalog Course Description:

A survey of biology concepts and content as applicable to the Tennessee K-8 curriculum standards and the National Science Foundation Standards. Instructional topics include scientific method, cell structure and function, food production and energy for life, heredity and reproduction, diversity and adaptation among living things, interactions between living things and their environment, and biological change. Students will design, develop, and implement hands-on science activities for K-8 students; create and develop a course portfolio; and collect and evaluate biologically related resources. Course includes two hours of lecture and three hours of laboratory applications each week. A course designed for students seeking the Associate of Science in Teaching degree; course focuses on the elementary education science concepts via the Next Generation of Science Standards.

Entry Level Standards:

Students must be eligible for enrollment in English 1010 and have completed DSP Math.

Prerequisites:

None

Textbook(s) and Other Course Materials:

Hoefnagels, Marielle. (2013) Biology: The Essentials. New York: The McGraw-Hill Companies, Inc. This is a custom publication only available from the PSCC Bookstore.

The textbooks are required, and the student should take the texts to each lecture and laboratory session. You will need the laboratory manual for most lab exercises. You will be required to record data in the manual and submit pages from the manual to your instructor for grading.

An important part of this class involves use of the internet. Webmail (your Pellissippi email address), and other on-line course resources. Home access is recommended, but Internet, Webmail and other on-line resources can be accessed on campus at any of the library computers as well as those in the computer labs.

NOTE: Experience has shown that purchasing the course textbooks from the PSCC Bookstore prevents delays in obtaining the lecture materials and laboratory manual. Photocopies of the laboratory exercises are not acceptable for grading.

I. Week/Unit/Topic Basis:

Week  Topic
1  Standards-Based Teaching
2 Science as Inquiry
Reading: Koch, Ch 3
Exam: February 13
Learning Activities: Cookbook Labs to Inquiry-based Labs
Project(s): N/A

3 Lecture: Modern Taxonomy
Reading (handouts) Hoefnagels, Ch 14 and 15
Exam: February 13
Learning Activities: Pasta lab
Project(s)

4 Test I Lecture: The Cell
Reading: Koch, Ch. 7; Hoefnagels, Ch 3
Exam: March 6
Learning Activities: Teacher’s Discretion
Project(s): TBA

5 Cells-Animal
Reading: Koch, Ch. 7; Hoefnagels, Ch. 4, 5.1, 5.2, 5.7 and part of Ch. 6.
Exam: March 6
Learning Activities: Cell Art
Project(s): Model of a Cell Membrane

6 The Energy for Life
Reading: Koch, Ch.7; Hoefnagels, Ch.4, 5.1, 5.2, 5.7 and part of Ch 6.
Exam: March 6
Learning Activities: Plant Cells

7 Test II Lecture: The Molecular Basis of Heredity
Reading : Hoefnagels, Ch 7-8
Exam: April 3
Learning Activities: N/A
Project(s):
8 **The Molecular Basis of Heredity/DNA**
Reading : Hoefnagels, Ch,9
Exam : April 3
Learning Activities: Karyotypes
Project(s): N/A
9 **Patterns of Inheritance/Mendel**
Reading: Hoefnagels, Ch 10
Exam : April 3
Learning Activities: Punnet Squares
Project(s): Genetics Problems/pedigrees
10 **Test III Lecture: Forces of Evolutionary Change**
Reading : Hoefnagels, Chs. 12-13
Exam : April 24
Learning Activities: Paper on Evolution
Project(s): N/A
11 **Lecture: Evolution and Diversity of Life**
Reading : Hoefnagels, Ch.18
Exam : April 24
Learning Activities: N/A
Project(s):
12 **Lecture: Communities and Ecosystems**
Reading : Hoefnagels, Ch.18
Exam : April 24
Learning Activities: N/A
Project(s): TBA
II. Course Goals*:

The course will

Natural Sciences: Issues in today’s world require scientific information and a scientific approach to informed decision making. Therefore, the goal of the National Science requirement is to guide students to becoming scientifically literate. This scientific understanding gained in these courses enhances students’ ability to define and solve problems, reason with an open mind, think critically and creatively, suspend judgment and make decisions that may have local or global significance. To achieve this outcome, students will:

A. Conduct an experiment, collect and analyze data, and interpret results in a laboratory setting.

B. Analyze, evaluate, and test a scientific hypothesis.

C. Use basic scientific language and processes, and be able to distinguish between scientific and nonscientific explanations.

D. Identify unifying principles and repeatable patterns in nature, the values of natural diversity, and apply them to problems or issues of a scientific nature.

E. Analyze and discuss the impact of scientific discovery on human thought and development.

III. Expected Student Learning Outcomes*:

Students will be able to:

1. Read and critique scientific writings, including those from the text. Biological journals, books and the Internet. (B,E)*

2. Listen to and discuss biological information presented by the instructor, educational videos, guest speakers, and peers. (D,E)*

3. Work in teams to collect data, generate graphs and tables, and summarize the data and draw
conclusions using process skills such as: observing, measuring, classifying, communicating and inferring. (A,B,C)*

4. Write a formal paper based on a course topic and write a formal laboratory report based on one of the laboratory exercises completed. The laboratory report will include an introduction, materials and methods, results, conclusion and reference section. (A,B,E)*

5. Develop a scientific vocabulary that allows them to communicate scientific literacy more effectively with teachers, students and the community. (C, F)*

6. Locate and evaluate related scientific information in the Educational Resource Center(ERC) and on the Internet. (A, C)*

7. Interpret related biological information and evaluate its validity. (C, D)*

8. Exhibit enhanced critical thinking skills. (D, E)*

9. Transfer data files to/from one storage device to another and use the printing facilities available on the system. (A)*

10. Write Essays. (A)*

* Capital letters after Expected Student Learning Outcomes reference the course goals listed above.

IV. Evaluation:

A. Testing Procedures:

Exams -500 points
Each chapter is evaluated using one or more exams. The exams will be noncumulative. However, students are expected to retain basic information acquired in previous chapters. Exams may consist of a possible combination of Formats: matching, multiple choice, short answer, and True/False. The exams will emphasize lecture material and assigned readings, cover hands-on activities and labs, and may include in-and out-of-class assignments.

There are NO makeup exams. The lecture exams cannot be taken before the scheduled day and/or class time. There is final exam for the course.

The final exam is mandatory.

B. Laboratory Expectations:

300 points
Learning activities: Students will conduct a variety of assignments, including labs and hands-on activities as determined by the instructor.

C. Field Work:

N/A

D. Other Evaluation Methods:

Projects-100 points
Students may be required to complete projects. Projects may include out-of-class, off-campus field work in the great outdoors and/or an in-class fieldtrip. Projects should revolve around the way to teach biological concepts to children. You will be required to present your project(s) to
the class for feedback.

Formal Lab Report-100 points
Details will be discussed in class

Quizzes-50 points.
There will be quizzes most every week during the first 5 minutes the of the lecture class. Late arrivals will not be able to take the quizzes. At the end of the semester the best 5 scores will be counted toward the semester grade.

E. Grading Scale:

The grading scale is out of 1000 possible points
900-100% (900-1000 points) = A
87-89% (870-899 points) = B+
80-86% (800-869 points) = B
77-79% (770-779 points) = C+
70-76% (700-769 points) = C
60-69% (600-699 points) = D
0-59% (0-599 points) = F

V. Policies:

A. Attendance Policy:

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

B. Academic Dishonesty:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:
• Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
• Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
• Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one’s own work.
• Taking an exam for another student.
• Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
• Any of the above occurring within the Web or distance learning environment.

Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.
C. Accommodations for disabilities:

Students that need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by sending email to disabilityservices@pstcc.edu, or visiting Goins 127, 132, 134, 135, 131. More information is available at http://www.pstcc.edu/sswd/.

D. Other Policies:

Electronic devices: Use of electronic devices in the classroom is inconsiderate and disruptive. If cell phones must be brought into the classroom, they need to be turned off or on silent mode and stored out of sight in backpacks or bags. Violators may have cell phones confiscated for the class period.

During class, unrelated activities such as text messaging, reading e-mail, doing work for other courses, or playing computer games, are not permitted. Students should receive prior approval from the instructor before using a class or personal computer.

Laboratory Safety: Students must come to the laboratory prepared. This means wearing appropriate footwear and remembering to leave food and drink outside the lab! Preparation also includes, but is not limited to: 1) reading exercises in advance, 2) turning in completed assignments, and 3) bringing the lab manual to class.

No food, drink, shorts or open-toed/open-heeled shoes are allowed in lab. Flip flops will not be allowed in the lab at any time! Persons not appropriately dressed will not be allowed to participate in the lab and will receive a zero for the day’s assignment.

Report spills or injuries to the instructor, and when unsure of what to do, ask your instructor.

Missed work: Missed course work cannot be made up. Exams and projects are due by the scheduled submission deadline. If a student arrives late for class or leaves class before dismissal, then credit including partial points will not be earned for the day’s course work. There are NO make-up Labs.

Participation: PSCC expects students to attend all scheduled instructional activities and to be on time. Students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. If a student is absent from class, it is the student's responsibility to follow the syllabus for subsequent assignments in the course.

Students are expected to continue learning even in the absence of class meetings, and should continue studying course materials in accordance with the course schedule as if they were attending class.

Online access: All lecture material is available on D2L. An important part of this class involves use of the Internet, Webmail, and online course resources. Home access is recommended, but these resources can be accessed on campus at any of the library computers as well as computer labs.

Students are responsible for communications and course content posted online.
Professionalism: The professional attributes that will be evaluated include, but are not limited to:

1. The student adheres to the attendance policies established by the College and the timetable, including arrival and departure at the official course times.
2. The student is consistently well prepared and submits all assignments according to the deadlines set by the instructor, and the course syllabus and schedule.
3. The student demonstrates a respectful attitude and professional demeanor with faculty and peers.
4. The student demonstrates flexibility with changes to the course schedule.
5. The student demonstrates the ability to follow verbal and written instructions.
6. The student complies with all safety regulations.
7. The student is cooperative in class and laboratory and not disruptive of his/her peers.
8. The student checks his or her work for accuracy including spelling and grammar and factual correctness.
9. The student checks the web mail and D2L Email frequently, and consistently checks for updates on the course online site.
10. The student is attentive and participates in class.

Syllabus Changes: The course schedule is subject to change without notice at the discretion of the instructor or as opportunities for field trips, outreach programs, and guest speakers become available. Also, the instructor may make changes based on the timeline of the class, feedback from learners and/or logistical issues and will inform you as a change is made. Changes to the syllabus and class schedule may include modifying reading assignments and learning activities.