

PIKEVILLE COLLEGE
COURSE REQUIREMENT FORM
SPRING TERM 2009

BIO 152: PRINCIPLES OF BIOLOGY

Credit Hours: 4

Official Course Description: A survey course of Earth's biodiversity, including the prokaryotic and eukaryotic domains, intended for students to gain an understanding and appreciation of organismal diversity. Taxonomy, phylogeny, and life histories of various taxonomic groups will also be discussed in order to address evolutionary relationships and morphological and physiological differences among groups. *Prerequisite: A grade of "C" or better in BIO 151.*

Instructor: Joe Whittaker

Office: ARM 105

email: jwhittak@pc.edu



MWF 11:00 – 11:50

Lecture Room: ARM 213

Lab A: M 3:00 – 5:50

Lab B: W 3:00 – 5:50

Lab Room: ARM 103/113

Office Phone: 218 - 5467

Home Phone: 478-3999

(please use only for emergencies)

Division Phone: 218 - 5460

Office Hours: See attached schedule or by appointment

Pre-or Corequisite: BIO 151 (must have passed with a C or better)

Required Textbook: Campbell, N. A., and J. B. Reese. 2008. *Biology*. 8th Edition. Benjamin/Cummings. Menlo Park, CA.

Morgan, J. G., and M. E. B. Carter. 2008. *Investigating Biology*. 6th Edition. Benjamin/Cummings. New York.

Taylor, M. R. 2008. *Student Study Guide for Biology*. 7th Edition. Benjamin/Cummings. Menlo Park, CA.

Van De Graaff, K. M., and J. L. Crawley. 2005. *A Photographic Atlas for the Biology Laboratory*. 5th Edition. Morton Publishing Co, Englewood, CO.

Goals and Objectives: The primary goal of this course is for you to learn to distinguish major groups of bacteria, protists, fungi, plants, and animals, as well as, to develop an understanding of each group of organisms' life requirements and developmental stages. This will enable you to make objective observations of living and preserved organisms and to formulate and test hypotheses about the evolutionary history, morphology, behavior, and development of organisms. Interactions of organisms with one another and their environments, both locally and globally, will be introduced in order to enable you to critically read, converse, and make responsible decisions about personal and societal issues. You will continue to develop skills in the use of laboratory techniques such as microscopy and dissection. Laboratories are designed to provide you with hands-on study of morphology and natural history of

major groups of organisms. Laboratory provides important skills you will need for further biology coursework. Writing assignments will expose you to current literature and help you learn to think critically.

Specific **learning outcomes** for this course include:

(1) Access, critically evaluate, and use scientific literature; (2) describe how populations evolve and the mechanisms by which speciation occurs; (3) discuss the role of evolution in the origin of diversity, distribution, and adaptation of organisms; (4) discuss basic physiology and ecological principles.

The material we will discuss in this course is **cumulative** by its very nature. It is therefore critical for you to have a good understanding of the material early in the semester to provide a basis for you to comprehend the later material.

Attendance Policy: Attendance in lectures is not required. However, if absences become what I determine to be excessive (without valid college recognized excuses) points will be deducted from your final percentage, or in extreme cases a grade of Q, or F (after 20%, or 9, unexcused absences) will be assigned. I strongly recommend you attend class. There is a **strong positive correlation** between lecture attendance and final course grade. While attendance will not formally count for points in the course, students who attend class regularly will be given extra consideration in the case of a borderline final grade. If you miss a lecture you are responsible for getting the material you missed. If you know ahead of time (athletic activities, etc.) that you will be missing an assignment, you must contact the instructor at least **24 hours** in advance concerning your absence in order to make arrangements to make up any missed assignments. You must make up any missed assignments either before your absence or before the next class meeting. Any work missed because of a **valid, college-recognized emergency absence** (must be accompanied by a written excuse, (e.g., physician's note, etc.)) must be made up as soon as possible after your return.

Laboratory attendance will count for ~10% of your final laboratory grade. Unexcused laboratory absences will result in loss of points. Missing **four** or more labs, without a valid, college recognized excuse, will **result in a grade of F in the course**. You **must attend your assigned lab period**. If you must miss a lab we may make **prior** arrangements to attend the other section. Students will not be permitted to just show up to the alternate section. This will be **strictly enforced during laboratory exam weeks**.

In the event you must miss a lecture or lab exam you must contact me BEFORE the exam. If you miss a test or other assignment due to an emergency (illness, etc.), you must have a valid, written excuse (physician's note, etc.). Please note: a regular doctor's appointment is **not** an emergency. Any exam missed without specifically notifying me and making arrangements **ahead** of time or without a **valid, college-recognized emergency excuse will be assigned a grade of "0" on the exam**. A word of warning: make-up exams will not be identical in content or format to original exams (often in essay format and therefore may seem more difficult than the original examination). Typically make-up exams are given during finals week. Missed lab exams **CAN NOT** be made up.

Grading Policy and Scale:

Grades will be based on the following:

1. Three lecture exams (~135 points each)
2. Cumulative lecture final exam (~230 points)
3. Two laboratory exams (~150 points each)
4. Lab notebook (including diagrams) (20 points)
5. Laboratory Quizzes (10 points each)
6. Lab attendance (25 points)
7. Writing assignments (30 points total)
8. Additional class assignments and/or projects

Your grade will be based on your percentage* of the total points as follows:

<u>Percentage</u>	<u>Grade</u>
≥ 90	A
80-89	B
70-79	C
60-69	D
≤ 59	F

* Your percentage = Your total points / Total number of points possible

Lecture exams will be of variable format. This may include a combination of, but is not limited to, multiple choice, true/false, matching, short answer, and brief essays. The final lecture exam will be cumulative. Lab exams will typically be composed of both objective and written questions.

The laboratory notebook will be turned in and graded following each lab exam. I will be grading notebooks on organization, clarity, and effectiveness as a study aid. I expect you to make diagrams and notes on organisms observed in lab. I will not be grading you based on artistic ability.

** You **MUST** pass the lab (based on the points earned of the total points available in the laboratory) with at least a 60% in order to pass the entire course. A laboratory grade lower than 60% will result in an overall failing grade for the entire course!

You will be asked to turn in 6 article reviews. All should pertain to current biological issues and should come from **primary** literature (scientific, peer-reviewed journals). You may need to get these through interlibrary loans so plan ahead. You may get copies of the article from the internet databases but websites themselves are **not** appropriate sources. Each article review should consist of one or two paragraphs describing what the article is about and a concluding paragraph explaining the significance and relevance of the article. Your article reviews must be accompanied by a copy of the article. I will require **two copies** of your written review. Reviews must be **typed** and **stapled** to the article for you to be eligible for full credit. All articles must have been published **after 1 December 2008**.

Assignments are due at the beginning of the class period unless otherwise specified. Late assignments will be penalized 10% per day (starting with – 10% after the assignments are collected in class).

If you withdraw from this course after the last day to receive a “W”, I will have to assign a grade of “WP” (withdraw passing) or “WF” (withdraw failing). Do not expect to automatically get a grade of “WP.” I will look at your percentage of the available points **at the time you drop** the course and make a determination of whether you are passing or failing the course. **All** assignments and exams prior to your dropping the course will be included in this calculation.

Academic Dishonesty: Pikeville College views academic dishonesty as cheating, plagiarism, fabricating, or facilitating academic dishonesty. **I will not tolerate any instance of academic dishonesty.** Science depends on the integrity of those contributing to it. As such, instances of plagiarism or academic dishonesty will result in either: the student receiving a failing grade for the activity or receiving a failing grade for the course, according to the perceived intent and extent of the instance(s) of academic dishonesty. This policy will be **rigidly** enforced. Copying portions of your article reviews word-for-word from the source article or copying from a friend or the internet is plagiarism. Please see the Pikeville College Course Catalog or ask me if you have questions about academic dishonesty. It is your responsibility to understand what constitutes academic dishonesty.

Vandalism, intentional destruction and theft of Pikeville College property (including specimens, models, slides, or facilities) and/or endangering other people through negligent or irresponsible behavior will result in your immediate dismissal with a grade of "F" for this course and may result in legal action by Pikeville College. Unethical treatment of specimens will result in loss of points at my discretion.

Tentative Schedule for BIO 152

DATE	TOPIC	CHAPTER
7 January	Introduction & Genetics Review	14 – 17
9	Genetics Review – Protein Synthesis	17
12	Organization and Control of Eukaryotic Genomes	18
14	DNA Technology	20
16	Viruses	19
19	MARTIN LUTHER KING, JR. DAY	
21	Darwinian Evolution	22
23	Evolution of Populations	(article 1 due) 23
26	Origin of Species	24

28	Phylogeny & Classification	25
30	Origin of Life	26
2 February	Prokaryotes	27
4	Protists	28
6	Plant Diversity & Evolution (article 2 due)	29
9	EXAM I	
11	Plant Diversity & Evolution	30
13	Plant Structure and Growth	35
16	Transport in Plants	36
18	Plant Nutrition	37
20	Plant Reproduction & Development	38
23	Plant Reproduction & Development (article 3 due)	38
25	Control Systems in Plants	39
27	Fungi	31
2 March	Fungi	31
4	Introduction to Animal Evolution	32
6	Form & Function	40
9 - 13	SPRING BREAK	
16	EXAM II (article 4 due)	
18	Animal Nutrition	41
20	Circulation & Gas Exchange	42
23	Controlling the Internal Environment	44
25	Chemical Signals	45
27	Reproduction & Development	46 & 47
30	Reproduction & Development	46 & 47
1 April	Nervous System	48 & 49
3	Sensory & Motor Systems (article 5 due)	50
6	EXAM III	
8	Ecology	52
10	GOOD FRIDAY (EASTER BREAK)	
13	Ecology	52
15	Behavioral Ecology	51
17	Population Ecology	53
20	Community Ecology	54
22	Ecosystems	55
24	Conservation Biology (article 6 due)	56
27	Catch up/Review	
4 May	FINAL EXAM: MONDAY 11:00AM	



Tentative Lab Schedule for BIO 152. Section A on Mondays. Section B on Wednesdays.

WEEK OF	TOPIC	Lab #
4 January	NO LABS	
12	Bacteriology (portions of lab); Mendelian Genetics: Fast Plants; Protists	13, 8, 14
18	NO LABS	
25	Protists & Fungi	14
1 February	Plant Diversity I: Bryophytes and Seedless Vascular Plants	15
8	Plant Diversity II: Seed Plants	16
15	Plant Anatomy	20
22	LAB PRACTICAL I (MIDTERM)	
1 March	Animal Diversity I: Porifera, Cnidaria, Platyhelminthes, Nematoda, & Annelida	18
8	SPRING BREAK	
15	Animal Diversity II: Mollusca, Arthropoda, Echinodermata, & Chordata	19
22	Vertebrate Anatomy I: Skin, Tissues, & Digestive	22
29	Vertebrate Anatomy II: Circulatory, & Respiratory Systems	23
5 April	Vertebrate Anatomy III: Excretory, Reproductive, & Nervous Systems	24
12	Animal Development	25
19	LAB PRACTICAL II (FINAL)	

Disclaimer: The schedules and policies associated with this course may be subject to revision or change as a consequence of changing circumstances or events. Reasonable notification will be provided to students prior to any major changes in course policies or procedure.



American Disabilities Act (ADA) Policy:

Pikeville College works to ensure that students with disabilities receive appropriate accommodations in accordance with the requirements of the American Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973. Students with disabilities requiring accommodations should contact the Disabilities Resources Office located in the Student Services Counselor's Office. Accommodations are made on an individual basis according to documented need. Additional information can be found in the College Catalog and the Student Handbook.

Contact Information:

Kathy Petot
 Disabilities Resource Office/Student Counselor's Office
 kpetot@pc.edu
 Administrative Building (Lower Level)
 (606) 218-5232

Individuals who have any disability, either permanent or temporary, which might affect their ability to perform in this class are encouraged to inform me (the instructor) at the start of the semester. Methods, materials, or testing may be modified as required to provide for equitable participation of students with documented needs.

Course Requirement Sheet Acknowledgment Form

I _____ have received a copy of the Requirement Sheet for **BIO 152**,
(Printed Name)
Principles of Biology II, and understand all the policies and procedures outlined therein.

(Signature)

(Date)

Please fill out the optional information requested below:

Major: _____

Contact Phone Number: _____

E-mail. Address: _____

Medical information that the instructor should be aware of:

Hometown:

Career interests or goals:

Reasons for taking this course:

Previous biology background (high school and college):

USE OF PHOTOGRAPHIC LIKENESS RELEASE

For good and valuable consideration, I authorize Dr. Joseph Whittaker to record photographs of me and use, reproduce, modify, distribute, and exhibit such photographs, in whole or in part, without restrictions or limitation for marketing and instructional purposes.

I release Dr. Whittaker, Pikeville College, its successors and assigns, agents, and all persons for whom it is acting from any liability by virtue of any blurring, distortion, alteration, optical illusion, or use in composite form, whether intentional or otherwise, that may occur or be produced in the photographic process and waive any right that I may have to inspect or approve the finished recordings.

Printed Name

Signature

Date