

Colonnade Program Course Proposal: Explorations Category

1. What course does the department plan to offer in Explorations? Which subcategory are you proposing for this course? (Natural and Physical Sciences)

Biology 123 Biological Concepts: Evolution Diversity and Ecology Lab

Note: This laboratory fulfills the foundational requirement of a laboratory experience in the sciences.

2. How will this course meet the specific learning objectives of the appropriate subcategory. Please address **all** of the learning outcomes listed for the appropriate subcategory.

1. Demonstrate an understanding of the methods of science inquiry.

Through laboratory exercises, quizzes, homework assignments, in class and/or online exercises and examinations understanding on the methods and approaches to science is assessed.

2. Explain basic concepts and principles in one or more of the sciences.

This is accomplished through laboratory material, electronic modules that include comprehension assessment and discussions in the laboratory.

3. Apply scientific principles to interpret and make predictions in one or more of the sciences.

Through online modules and in lab problems often based on case studies, students work singly and in groups to create and examine scientific hypotheses and predictions.

4. Explain how scientific principles relate to issues of personal and/or public importance.

The ability to acquire and evaluate information, think critically and assess the source of information are all important skills for global citizens. The principle topics in this course include the scientific method, critical thinking, evolution, phylogeny, anatomy and physiology (structure and function), ecology and biodiversity. These areas provide foundational information for human and environmental health issues that affect people across the planet. This is a required course for biology majors and thus the principles are illustrated by and apply to all life forms on Earth.

3. Syllabus statement of learning outcomes for course. NOTE: In multi-section courses, the same statement of learning outcomes must appear on every section's syllabus.

This course fulfills the Natural Science Explorations Category of Colonnade. Students will gain the ability to:

1. Demonstrate and understand the methods of scientific inquiry in biology
2. Explain basic concepts and principals in biology
3. Apply scientific principles to interpret and make predictions in biology
4. Explain how scientific principles relate to issues of personal and/or public importance

4. Brief description of how the department will assess the course for these learning objectives.

We will create a summative assessment with questions that target each of the four learning objectives listed above. There will be ten questions for each objective with a satisfactory score of 70%. This assessment will be executed via Blackboard at the end of the course for all sections. The laboratory course BIOL 123 is a co-requisite for BIOL 122. Some of the question categories below overlap with the course but others are specific to the laboratory experience.

Objective	Assessment Question Categories
the methods of scientific inquiry	<ul style="list-style-type: none">• Steps in the scientific method and their order• Composition of each step• Relationship of scientific method to hypothesis formulation and writing in biology• Inductive and Deductive reasoning – identification and role of each and the related concept of falsification• Evaluating the scientific validity of information gathering including related topics of beliefs, biases and models• Measurements in biology – micro and macro scale
basic concepts and principals	<ul style="list-style-type: none">• Critical Thinking & Scientific Method• Metabolism• Evolution• Taxonomy, Systematics & Phylogeny• Structure and Function (largely Eukarya)• Ecology and Biodiversity• Animal Behavior
scientific principles: interpret / make predictions	<ul style="list-style-type: none">• Aligning principles, hypotheses and predictions• Experimental design• Variables, data presentations and data interpretation• Evaluation of hypotheses and theories• Formulating of hypotheses and predictions
relate to everyday life	Based on the major concepts/principles shown above, applications to: <ul style="list-style-type: none">• conservation• human and environmental health• problem-solving• sustainability• technology

5. How many sections of this course will your department offer each semester?

We offer approximately 13 sections on Main Campus and at the WKU-Glasgow campus.

6. Please attach sample syllabus for the course.

Please send your proposal to: robert.dietle@wku.edu

As of September 2013 to: molly.dunkum@wku.edu

Explanation for why the Department of Biology is requesting this course should be listed in the Natural Science Explorations Category of Colonnade along with other courses offered by the Department of Biology:

While our Biology 114/114C is the standard, broad-based, introductory biology laboratory course that covers basic biological concepts and processes, our BIOL 123 laboratory course focuses on evolution, diversity and ecology at a greater depth than is covered in general biology lab course. As part of this lab course, we cover the methods of scientific inquiry, relevant concepts and principals, the application of the scientific method to this area of biology and we explain how this material relates to topics of personal importance. This course is open to any WKU student also enrolled in BIOL 122.

WKU Generalized Syllabus for BIOL 123- Biological Concepts: Evolution Diversity and Ecology Lab

Lab Manual: Laboratory manuals (*Biology: Evolution, Diversity & Ecology*) can be purchased at the WKU Store or University Text Book and Supply the week before classes begin.

Course Description: Biology 123 is an introductory laboratory that emphasizes the experimental aspects of macroevolution, biodiversity (systematics, phylogeny, form and function), and ecology. Since lab investigations illustrate, complement, and supplement material presented in Biology 122 lecture, this lab course should be taken concurrently with the lecture. Emphasis in this lab course is on learning-by-doing.

Natural Science Explorations Category of Colonnade

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Activities by Which You Will Learn Objectives

- Attending and actively participating in the laboratory each week.
- Completing all pre-lab exercises and reading/reviewing laboratory instructions detailed in your laboratory manual.
- Completing all laboratory experiments and assignments.

Preparation for lab:

You must read the lab manual before coming to class each week. Reading the lab beforehand will allow you to spend your time in lab focusing on the results of the experiments instead of trying to figure out how to do the experiments. Reading the manual before lab will also be necessary for the weekly quiz (see below). Your lab instructor will demonstrate how to access and complete any pre-laboratory assignments during the first lab period of the semester.

GRADING & SCHEDULE

There will be a 5-point quiz administered at the start of each lab session (starting with the second lab meeting). The questions will be taken from the lab you will be performing THAT DAY. If anyone has handed in the quiz before you arrive to lab you WILL NOT be allowed to take the quiz and you will receive a score of 0. Your 8 highest quiz scores (out of 9) will be counted toward your final grade.

Grades: Grades are based on your performance on Homework, Laboratory Quizzes, Mid-Term Exam, Final Exam, Scientific Paper, and your overall Participation in lab.

Points:

Lab 1 Homework	25 points
Lab 2 Homework	25 points
Lab Quizzes (nine 5-point quizzes with your lowest quiz score dropped)	40 points
Mid-Term	100 points
Scientific Paper	25 points
Final Exam	100 points
Participation	60 points
Total	375 points

Grading Scale: 100 - 90% A; 89 - 80% B; 79 - 70% C; 69 - 60% D; 59% – or lower F

LABORATORY SCHEDULE 2013

Topics:

Macro-Measures & Microscopy P.1-14
Scientific Method P.15-20
Taxonomy & Building A Dichotomous Key P.21-24
Systematics & Phylogenies P.25-30
Protists P.31-42

MID-TERM EXAMINATION

Animal Behavior P.75-82
Evolution P.63-74
Fungi P.53-62
Ecology P.83-86
Terrestrial Plants P.43-52

FINAL EXAMINATION

POLICIES

Attendance: Attendance at laboratories is **MANDATORY**. If a student misses or knows that they will miss their regularly scheduled lab, they may get permission to attend another lab section from their original instructor. This will only be allowed for University-accepted excusals (such as athletic events, sickness with Dr.'s note, family member death, etc.). The lab materials are only available for the week of that laboratory, so labs can only be made up during the week of the missed lab.

Academic Integrity: It is expected that each student will do his/her own work at all times. Therefore, cheating/academic dishonesty in any form (plagiarism, altering exams, crib sheets, etc.) will result in and a **minimum** penalty of zero for the exam or assignment and possible dismissal from the course with a grade of 'F'; this policy will be strongly enforced.

Classroom Civility: Students are expected to assist in maintaining a classroom environment that is conducive to learning and respectful of the instructor and fellow students. The time spent in the classroom is to be a time of intellectual gain, thus students are prohibited from using cellular phones, laptop computers (if they are not being used to type notes), and beepers, making offensive remarks, reading newspapers, or engaging in any form of distraction. Inappropriate behavior shall result in, minimally, a request to leave class.

Family Educational Rights and Privacy Act (FERPA): Due to the FERPA Act, if you are 18 years old or older, the instructor cannot discuss your grades, etc. with your parents.

The Learning Center: The Learning Center (DUC A330) provides free supplemental education programs for all currently enrolled WKU students. TLC offers CRLA Certified, one-on-one tutoring in over 100 general education subjects by appointment or walk in and hosts a branch of the English Department's Writing Center. TLC is also a quiet study area, with side rooms designated for peer to peer tutoring, and offers a thirty two machine computer lab. Additionally, TLC has two satellite locations, one each in Douglas Keen Hall and in Pearce Ford Tower that provide computer and print service, tutoring, and quiet study areas. For more information, or to schedule a tutoring appointment, please call TLC at (270) 745 - 6254 or log on to the website at (<http://www.wku.edu/tlc>)

SACS Accreditation: This course fulfills the D.1. (Science/Mathematics) general education requirement. It will help you attain this general education goal and its corresponding objectives: An understanding of the scientific method and knowledge of natural science and its relevance in our lives, including 1) how scientific knowledge is created, developed, and changed through experimentation and reasoning, 2) demonstration of knowledge in one or more of the sciences, including theories, concepts, and principles that explain observations and make predictions, 3) how to locate and evaluate reliable resources to acquire information about scientific developments, and 4) the outlining of the reciprocal relationship between humans and the rest of the ecosystem.

Student Conduct: Student behavior or speech that disrupts the instructional setting or is clearly disrespectful to the instructor or fellow students will not be tolerated in the Biology 123 laboratory. Disruptive conduct may include, but is not limited to:

1. Rude or disrespectful behavior
2. Unwarranted interruptions
3. Failure to adhere to instructor's directions
4. Vulgar or obscene language, slurs, or other forms of intimidation
5. Physically or verbally abusive behavior
6. Inappropriate questions or advances toward your TA

Please note - any continuation of such conduct or actions will result in disciplinary action as specified in the WKU Code of Conduct.

Students with Disabilities: In compliance with university policy, students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) for this course must contact the Office for Student Disability Services in DUC A-200 of the Student Success Center in Downing University Center. Please **DO NOT** request accommodations directly from the professor or instructor without a letter of accommodation from the Office for Student Disability Services.

Withdrawals and Audits: If you wish to audit or withdraw from the course, you should do so by the dates mandated by WKU. Be sure you are aware of these dates because credit for the course will not be changed to an audit after the university designated time. You also cannot drop the class or change to Audit or Withdraw after the designated time. Be aware that **IT IS YOUR RESPONSIBILITY TO DROP THE CLASS**. Do not assume that the instructor will do this for you. University policy states, "Students who, without previous arrangement with the instructor or department, fail to attend the first two class meetings of a course meeting multiple times per week or the first meeting of a class that meets one time per week **MAY** be dropped from the course; however, students are responsible for officially dropping any course for which they have enrolled." **Ceasing to attend class does not activate the drop, withdrawal, or incomplete grade processes. You must submit the appropriate forms for each by the published deadlines to end your enrollment in this class. Failure to complete the appropriate forms may result in a failing grade for this course.**