**BSC 121, Principles of Biology**

**SPRING 2018**

COURSE DESCRIPTION: A continuation of the study of basic biological principles common to all organisms. Evolution, diversity of life, structure, function, and ecology. Intended for science majors and pre-professional students. 3 hours lecture—2 hours laboratory; 4 credit hours (PR: BSC 120; Grade of C or better in BSC 120).

Professor:

**Dr. David Mallory, Office xxx**

**E-mail: mallory@marshall.edu**

**Dr. Amrita Mallick, Office xxx**

**E-mail: mallickam@marshall.edu**

Please emailDr. Amrita Mallick directly at her marshall email and DO NOT send communications through the Blackboard (MUOnline) site. Please use your Marshall.edu email to communicate.

To best ensure a timely response to your email, please include the following in your email:

1) BSC 121 in the subject line

2) Your full name

3) A professionally written message is highly encouraged.

**Office Hours\*: M 2-4 pm, or by appointment**

\*I make every effort to keep scheduled office hours. Please be aware that sometimes there are conflicts with required meetings, and I cannot be present. When possible, I will make announcements on muOnline if I am unable to make scheduled office hours.

LECTURE: MWF 8.00-8.50 am, S 376

REQUIRED MATERIALS FOR LECTURE

1. Brooker, R.J., Widmaier, E.P., Graham, L.E., and Stiling, P.D. 2008. **Biology, 4th Edition**.

\*\*Textbook also available for 2 hour periods at Drinko Library through the textbook loan program.

<http://www.marshall.edu/uc/textbook-loan-program/>

COURSE OBJECTIVES: The purpose of this course is to familiarize students with the study of living organisms. Students will be exposed to various aspects of the body of biological knowledge through an overview of all major taxonomic groups, from bacteria to mammals, including the relationships between organism form and function. At the conclusion of this course you should have concrete knowledge of the biological sciences; understand the process of science through experimentation and hypothesis testing; and hopefully gain an appreciation and a sense of wonder inspired by the complexity of living organisms.

EXPECTED LEARNING OUTCOMES:

* Students will synthesize information, think critically, and solve critical thinking problems.
* Students will be able to distinguish between the terms adaptation, fitness, natural selection and evolution.
* Students will identify the relationships between form and function at the levels of biological organization.
* Students will demonstrate an understanding of the methods of science used in scientific investigation by conducting scientific investigation, analyzing and interpreting data, and preparing a scientific paper.
* Students will apply principles of scientific inquiry, differentiate a theory from a hypothesis, and differentiate fact from opinion in regard to biological sciences.
* Students will practice working collaboratively through laboratory studies and experiments.

**Grading policy:**

**Quiz 5%**

**Exams (3) 45%**

**Final Exam (cumulative) 25%**

**Lab 25%**

I use this scale to determine final grades: 100 - 90 = A; 89 - 80 = B; 79 - 70 = C; 69 - 60 = D; <59 = F.

**Lecture exams**: There will be three lectures exams, plus a final. The final exam will include 25% content from previous exams. Material on examinations can include information from lectures and assigned readings/videos. Please notify me in advance if you know you will miss an exam (see Attendance Policy below). In case of university closure on an exam day, the exam will be rescheduled for the next lecture session.

**Quiz**: Quizzes will be given every other week. Any unexcused absence on the day of a quiz will result in a score of zero.

**Labs:** Your laboratory performance will account for 25% of your total course grade. This will be determined from laboratory data analyses, lab hand-ins, written lab reports and pre-lab quizzes. All lab reports, unless otherwise noted, must be handed to your TA and be on time. Lab reports will only be accepted at the start of labs and late reports will not be accepted. You must be present in lab in order to hand in any type of lab report for credit. Lab quizzes may or may not be announced and cannot be made up.

ATTENDANCE POLICY: Students are expected to be on time for lectures, labs, and exams. Attendance in lectures is strongly encouraged.

Attendance in laboratory is **mandatory**. You are expected to arrive on time for lab and stay until all assigned work is completed.

You are responsible for any material missed by being absent. Students are responsible for all activities and announcements that occur during class and are responsible for any material missed. Missed information should be obtained from classmates NOT from your instructor.

Missed exams due to illness, death in the family, or institutional activities will be excused **only with an official university excuse**. Make-up exams will be administered for excused absences only (see University Policies section below). ANY UNEXCUSED ABSENCE FROM AN EXAM WILL RESULT IN A GRADE OF ZERO FOR THAT EXAM.

If you arrive for an exam after the first person has handed in their exam, you will not being allowed to take the exam.

COMPUTER LITERACY: I use MUOnline (<http://www.marshall.edu/muonline>) to distribute slides from my lectures, course announcements, supplementary material, and study aids as and when needed.

ELECTRONIC DEVICES: No electronic devices, EVER, during tests. Cell phones are to be **turned off** during lecture. Please inform the instructor should there be a need to have a cell phone on. All electronic devices (laptops, handheld computers, instant messaging devices, PDAs, cell phones, pagers, Ipads, etc.) must be turned off during class. Failure to do so may result in your dismissal from that lecture period. Audio or video recording of lectures is not permitted without prior consent of Dr. Mallick.

UNIVERSITY POLICIES

By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy be going to [www.marshall.edu/academic-affairs](http://www.marshall.edu/academic-affairs) and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to <http://www.marshall.edu/academic-affairs/?page_id=802>

Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment

**ACADEMIC DISHONESTY IN ANY FORM WILL NOT BE TOLERATED.** All written assignments, laboratories reports, quizzes, and exams are to be independent efforts of each student. (see University Policies above).

You are responsible for knowing the University's policies, which can be found in the student handbook or at these web addresses:

<http://www.marshall.edu/academic-affairs/Student%20Resources/Academic%20Dishonesty%20Policy.pdf>

<http://www.marshall.edu/library-biz/plagiarism/plagiarism.htm>

Ignorance of the policies is not an excuse. No electronic devices, EVER, during tests.

STUDENTS WITH DISABILITIES: Students are entitled to receive accommodations for documented physical, learning and psychological disabilities (see University Policies above). No accommodation can be allowed until documentation is received, and it must be received several days in advance of the exams to allow me time to arrange the conditions required. For more information, please visit <http://www.marshall.edu/disabled> or contact Disabled Student Services Office at Prichard Hall 117, phone 304-696-2271.

WITHDRAWAL: If you are not happy with your academic performance in this class, please come see me. The last date for withdrawal from the course is March 16, 2018. Students should keep the Withdrawal date for this semester clearly in mind. Do not just stop attending as this will result in an F on your transcripts. The Biology department does have graduate students available for tutoring.

INCLEMENT WEATHER: In the case that Marshall University is closed for inclement weather, class will not meet. In case of university closure on an exam day, the exam will be rescheduled to the next lecture session.

RECORDS: Students are encouraged to mark both the exam and answer sheet and return both at the end of the exam period. Should a question arise concerning grading, the answer sheet will be the official response. Exams and answer sheets will be returned to you after grading.

Grades will not be given or discussed over the phone or email. You must be present during lecture or lab to collect graded exams, quizzes, and lab reports. Students should keep all returned exams score sheets, quizzes, and lab reports so that their relative standing in the course can be known at any time. All grades appeals must be done formally in writing and within 10 days of the student’s receipt of the graded item. Until final grades have been submitted you are expected to keep copies of all submitted and graded work (quizzes, papers, etc.).

TIPS FOR SUCCESS

**A general rule of thumb for college classes is that you should expect to study about 2 to 3 hours per week outside class for each unit of credit.** This includes time for reading the text, completing homework assignments, and weekly reviewing and test preparation. Let’s say the lab accounts for 1 credit of this course. That leaves 3 credit hours for lecture. Using this study time formula, plan for 6-9 hours per week outside of class for your lecture material. That’s 50-77 minutes a day.

Approximately 60-70% of required lecture material will be written on the Powerpoint slides; the remaining 30-40% of required lecture material will be spoken, but will not be written on the slides. Therefore, you should be writing almost constantly during lecture. The lectures would be organized around material presented in the textbook, the exams would be based on assigned readings and lecture material. EVERYTHING presented in lectures is examinable. Therefore, you are encouraged to take notes! Simply reviewing the handouts from Blackboard are not sufficient to achieve a passing grade in this course.

You will learn a great deal of material in this course, and the exams will be comprehensive both in the scope of material covered and in the ways in which you will be asked to demonstrate how well you have learned the material. Many of you may find this somewhat difficult, as cramming and memorizing from lecture handouts just before an exam does not typically result in a high grade. You would be encouraged to develop good study habits. Among these are coming to class prepared and taking good notes. Study often; it is best to review material at least weekly, and to rewrite your notes. Ask questions in class. Use the textbook to help fill in gaps in your understanding.

Tentative Course Schedule (subject to change)

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| **Date** | **Topics** | **Text Chapter** | |
| 1/8 | Introduction |  | |
| 1/10 | Evolution | Chpt. 23 (23.1) | |
| 1/12 | Natural Selection and Speciation | Chpt. 54; Chpt. 25 (25.1-25.2) | |
| 1/15 | *No Lecture – MLK Day* |  | |
| 1/17 | Natural Selection and Antibiotic resistance | Chpt. 23 (23.2) | |
| 1/19 | Ecology Introduction & Biomes |  | |
| 1/22 | Population Ecology | Chpt. 56 (56.1, 56.4) | |
| 1/24 | Species Interactions | Chpt. 57 | |
| 1/26 | Species Interactions | Chpt. 57 | |
| 1/29 | Biomagnification & Climate Change | Chpt. 59.1 | |
| 2/31 | Bacteria and Archaea | Chpt. 24 (24.2-24.3); Chpt. 27 | |
| 2/2 | **Exam 1** |  | |
| 2/5 | Protists,Fungi | Chpt. 28 | |
| 2/7 | Protists,Fungi | Chpt. 28 | |
| 2/9 | Plant & Conquest of Land | Chpt. 29 | |
| 2/12 | Evoln of Modern Plants | Chpt. 30 | |
| 2/14 | Plant Form, Function, Transport | Chpt. 33, 38 | |
| 2/16 | Plant Form, Function, Transport | Chpt. 33, 38 | |
| 2/19 | Plant Transport and Nutrients | Chpt. 37 and 38 | |
| 2/21 | Animal Diversity | Chpt. 32 | |
| 2/23 | Invertebrates | Chpt. 33 | |
| 2/26 | Invertebrates | Chpt. 33 | |
| 2/28 | Invertebrates | Chpt. 34 (34.1-34.4) | |
| 3/2 | **Exam 2** |  | |
| 3/5 | Verts: Amniotes | Chpt. 34 | |
| 3/7 | Verts: Amniotes | Chpt. 34 | |
| 3/9 | Homeostasis | Chpt. 40 | |
| 3/12 | Cells of Nervous System | Chpt. 41 | |
| 3/14 | Cells of Nervous System | Chpt. 41 | |
| 3/16 | Cells of Nervous System  **Last Day to drop courses** | Chpt. 41 | |
| 3/19-24 | **Spring Break** |  | |
| 3/26 | Muscular Skeletal System | Chpt. 44 | |
| 3/28 | Digestion and Nutrition | Chpt. 45 | |
| 3/30 | Digestion and Nutrition | Chpt. 45 | |
| 4/2 | Circulation | Chap 47 | |
| 4/4 | Metabolism &Temp | Chpt. 46 | |
| 4/6 | **Exam 3** |  | |
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| 4/9 | Metabolism &Temp | Chpt. 46 | |
| 4/11 | Respiration | Chpt. 48 | |
| 4/13 | Respiration | Chpt. 48 | |
| 4/16 | Excretion | Chpt. 49 | |
| 4/18 | Excretion | Chpt. 49 | |
| 4/20 | Endocrine System | Chpt. 50 | |
| 4/23 | Immune System | Chpt. 53 | |
| 4/25 | Immune System | Chpt. 53 | |
| 4/27 | No Class |  | |
| 4/30 | **Final Exam, 10am -12 noon.** |  |
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