**47614 Biol 106: Spring 2020, General information and Syllabus,**

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Dr. Baker’s office hours will be from 1:30-3:30 Mondays and 10-12 Thursdays, Science Building D-324. Other times can be arranged by appointment via email.

Dr. Arnott’s office hours will be from 1:30-3:30 Mondays and 10-12 Thursdays, Science Building D-324. Other times can be arranged by appointment via email.

**Biology 106** is the second semester of the year-long introductory course in general biology for **biology majors, science majors, pre-health professionals** and those specializing in related areas. **DO NOT take this course to simply fulfill a science lab requirement, take Biology 11 instead.** A prerequisite is passing Bio 105 with a C- or better, though when 105 is full students can enroll in 106. If this is your situation, make sure to read/review Chapter 11 (cell cycle) well. Any changes of lab sections must be done formally through the Registrar.

**Course overview:** Biology 106 explores the subjects of ecology, evolution, and biodiversity. We begin with an introduction to evolutionary history and process, including Mendelian genetics. The survey of biodiversity will occupy just over a third of the course’s lectures. Analysis of biodiversity is followed by an introduction to behavior and ecology (biomes, populations and communities). The laboratory component of the course is coordinated with the lectures and involves the examination of preserved and living specimens along with dissections designed to develop your observational skills and to recognize the diverse ways that similar problems are solved in different taxa. A self-scheduled visit to the American Museum of Natural history is part of a second laboratory assignment.

**Goals:** What is it that we hope you will achieve by taking this course?

1. To appreciate biodiversity and the ecological relationships among different organisms.

2. To understand the cellular basis of biodiversity.

3. To understand the ecological and evolutionary forces acting on living organisms,

especially in the face of our changing climate.

4. To develop an understanding of how scientists work and how discoveries are made.

5. To develop laboratory skills in systematic and critical observation.

6. To attain a level of competence in biology that permits you to be successful in

whatever path you follow.

**Scheduling:** Biology 106 meets for 3 lecture hours and 3 laboratory hours per week.

* **Lectures:** Lectures are presented in Kiely 170, Tuesdays and Thursdays, 12:15-1:30 PM. ***You are expected to be seated before the start of the lecture and please, turn off phones and electronics.***
* **Laboratory:** The 3-hour laboratory session meets in Science Building B-241 at the time slot for which you have registered. See the last page of this syllabus for a complete schedule of sections. Remember that being prepared and reporting to the lab on time are important and do count in preparing your course grade.

Lab attendance is required and no absences are permitted. Missed lab sessions are to be made-up by attending another lab section, **but you must check the attached calendar to see which options are available. Only one session may be made-up without special permission.** Should you miss a second lab session, you must get written permission from Dr. Baker before attempting any make-up. If you know in advance that you are going to be absent, inform your instructor by email if possible, and indicate the lab section in which you will be making-up the missed lab. Have the make-up instructor indicate that you were in attendance on the first page of that week’s chapter of the lab manual. Any resulting quiz grades will be emailed among instructors.

**Textbook:**  We use the same text as Bio 105.

Sadava, David, H. David M. Hillis, Sally D. Hacker, H. Craig Heller. 2016. *Life: the Science of Biology*, 11th Ed. Sinauer Associates and W.H. Freeman and Company, 1268 pp. plus appendices.

**Dissecting Kit:** The bookstore is stocking the required kit if you don’t already have one from Bio 105 or even high school.

**All materials can be purchased through Akademos:**

http://qc.textbookx.com/institutional/index.php?action=browse#books/1945254/

**An important note on reading assignments and exam materials:**  In the following, syllabus reading assignments are shown by text chapter numbers, specific pages and sometimes sub-headings. More specific information is presented in the laboratory manual. **Textbook chapters typically contain more material than that covered in lecture and you will not be examined on material not presented in lecture or the lab manual.** Concentrate your studies on only those subject materials covered in lecture and focused upon in the lab manual. Lecture presentations are posted on Blackboard. If you expect to do well in this course, lecture attendance and good note taking are essential. Studying the lecture slides without attending lecture is not enough, because we may write on them as well as explain them in lecture.

The subject material of lectures and laboratory sessions are coordinated as far as possible and it is expected that you will have read the associated materials before each lecture or laboratory class. Current lecture information is necessary to perform in, and understand, the laboratory exercises. Recitations by your laboratory instructor will focus on the lab exercises and synthesize lecture materials.

**Grading policies:** Your final course grade is based on lecture exam and laboratory performance:

* Lecture exams: Sixty percent of your course grade is based on lecture exams. These will consist of two “mid-term” lecture examinations and a final examination (15% for the first exam, and 20% for the second and final exams). This semester I will also have several (almost every week) in-class quizzes that will count for 5% of your grade. These are going to be pretty easy, they mostly will let me know if you were able to understand what I just lectured about. If you take them they will most likely help your grade. The midterms and final are non-cumulative exams of 60 multiple-choice questions. See the lecture schedule for the subjects covered on each exam.
* Laboratory work accounts for 40% of your final grade.

a) Five written and two oral instructor-generated quizzes account for 10% of your total grade.

b) 5% of your grade will be based on your instructor’s evaluation of your laboratory manual); 5% of your grade is based on your promptness, performance, cooperation and contribution to the laboratory sessions. (A missed and unfulfilled lab will cost a minimum of 1% of your participation/course grade.)

d) 10% is based on the two assignments described in separate handouts.

e) The final practical exam will be given the last week of lab (Thursday sections will have to take the practical on an earlier day in week 14, there will be a signup posted later in the semester) and will count for 10%

* The final letter grade is adjusted for balance among the laboratory sections. The final letter grade is determined using the guidelines described in the Queens College Bulletin.

**Questions concerning your course status and non-letter grades:**

* The P/NC and unevaluated withdrawal period begins on Feb 17th and ends on April 1st. After that date, requests for evaluated withdrawals must be made to the Undergraduate Scholastics Standard Committee (201 Frese Hall).
* Students should not simply stop attending class and taking exams without officially withdrawing because a grade of WU will be assigned.
* Students who have completed all course work but are missing only the final exam will be assigned a grade of INC. The final will be made-up at a later date upon consultation with the course head. Incompletes automatically convert to ‘F’ if not made up by the end of the following term.
* Students may request an INC only if they have a reasonable chance of passing (based on their record to date) and then complete a written contract with the course head detailing the manner by which the all missing materials will be completed.
* Any question of the grade received or grading policies must be made in writing.

**Exams, make-up examination and due dates of assignments:**

* Bring #2 pencils (with a good eraser) because you will answer on machine graded (Scantron) answer sheets. Use pencil only, **NO INK**, as the scanner cannot read ink.
* Make-up examinations are not normally given and missed examinations will be counted as a zero. Under special circumstances, where there is verifiable note or special prior arrangement, make-ups for Exam I, II and the Final will be offered on a date to be determined between the student and course head. If prior arrangements for the finals are not made, they will be taken at the scheduled final exam period the following semester.
* The due-dates of lab assignments are given in the laboratory syllabus. Work submitted after the “due date laboratory session” will be decreased by one letter grade, and for each subsequent week that the work is tardy, an additional letter grade is subtracted.

### Plagiarism and cheating: It’s simple; don’t turn in someone else’s work as your own, on assignments or exams.

Plagiarism and cheating is a serious academic violation that will result in a failing grade for the assignment and perhaps the course as well. Cases of plagiarism may escalate to hearings with the Dean of Students, resulting in a notation on your transcript and potential dismissal from the institution.

Please go to the Queens College Writing website for excellent commentary and help in writing and preventing plagiarism.

"What is Plagiarism" <http://writingatqueens.org/for-students/what-is-plagiarism/>

**A guide to using outside sources has been posted to the blackboard page for this course**

**Blackboard and on-line materials:** We will be using the CUNY BLACKBOARD for which you are automatically registered when enrolling in this course. Online materials include: a lecture and lab syllabus; lecture images and outlines; laboratory assignments; announcements of exam review sessions; examination information such as room assignments and scheduling; sample examinations; and links to information associated with the lectures. You will also be enrolled in the Queens College Google drive for this course. This is different than your regular shared Google Drive. To access the google drive for this course, you need to access (maybe log out of google first) gdrive.qc.cuny.edu , and log in with your CAMS ID and password. I will not respond to requests to share the google drive, because you access it using your CAMS ID and password, not your regular gmail account.

During appropriate lab sessions, your instructor will demonstrate the use of Bb for submitting specific assignments. You will be using “Safe Assignment,” which is a utility program on Blackboard for submitting all written assignments. Upon submission, assignments are automatically screened for instances of plagiarism and, if that is the case, the sites of origin are indicated. Remember, plagiarism, even a single sentence, results in a grade of zero for that assignment, and depending upon the violation, may be turned over to the Dean of Students.

**Biol. 106: Spring 2020, Lecture schedule, readings and exam schedule.**

***Remember, and this is important:*** When the text goes beyond the lecture you only need the lecture material except as noted in study questions provided before each exam*.*

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**Jan 28, MB, Lecture 1.** **Introduction to Biology 106: What is Life, Science? and Meiosis?**

**Note:** Concerning understanding of basic chemistry: **Readings: Life:** Chap. 1 and carefully read Chap. 2 (What properties of water make it so important in Biology?), Chapter 11

**Jan 30, MB, Lecture 2: Inheritance, Genes, and Chromosomes**

**Readings:** **Life 11:** Chap. 12

**Feb 4, MB, Lecture 3: Processes of Evolution & Phylogenies; how**

**are they constructed and what are they good for?.**

**Readings: Life 11:** Chap. 20. 21

**Feb 6, MB, Lecture 4: Species and Speciation & Evolution of Genes and Genomes**

**Readings: Life 11:** Chaps. 22, 23

**Feb 11, MB, Lecture 5: History of Life on Earth,**

**Readings: Life 11:** Chap. 24

**Feb 13, MB, Lecture 6: Bacteria, Archaea, and Viruses**

**Readings: Life 11:** Chap. 25

**Feb 18; SA, Lecture 7: Origin and Diversification of Eukaryotes**

**Readings: Life 11:** Chap. 26

**Feb 20; SA, Lecture 8: Plants without Seeds: From Water to Land**

**Readings: Life 11:** Chap. 27

**Feb 25; SA, Lecture 9: The Evolution of Seed Plants**

**Readings: Life 11:** Chap. 28

**Feb 27, MB, SA, Midterm Exam 1 – covering lectures 1-8**

**Mar 3, MB, Lecture 10: The Evolution and Diversity of Fungi**

**Readings: Life 10:** Chap. 29

**Mar 5, MB, Lecture 11: Plant Physiology and Plant Reproduction**

**Readings: Life 11:** Chaps. 33, 37

**Mar 10, MB, Lecture 12: Plant Responses to Stress and Climate Change**

**Readings: Life 11:** Chap. 38

**Mar 12, MB, Lecture 13: Animal Origins and the Evolution of Body Plans**

**Readings: Life 11, 9:** Chap. 30

**Mar 17, MB, Lecture 14: Protostomes I; Lophotrochozoans**

**Readings: Life 11:** Chap. 31

**Mar 19, MB, Lecture 15: : Protostomes II; Ecdysozoans**

**Readings: Life 11:** Chap. 31

**Mar 24; SA, Lecture 16: Dueterostomes I; Echinoderms and Hemichordates**

**Readings: Life 11:** Chap. 32

**Mar 26 MB, SA, Midterm Exam II - covering lectures 9-16**

**Apr 2; SA, Lecture 17: Dueterostomes II; The Chordates**

**Readings: Life 11:** Chap. 32

**April 7, Wed Sched, 8-16 No class**

**Apr 21; SA, Lecture 18: Animal Development**

**Readings: Life 11:** Chap. 43

**Apr 23; SA, Lecture 20: Animal Behavior**

**Readings: Life 11:** Chap. 52

**Apr 28; SA, Lecture 21: Ecology I; The Physical Environment and the Biogeography of Life**

**Readings: Life 11:** Chap. 53

**Apr 30; SA, Lecture 22: Ecology II; Populations**

**Readings: Life 11:** Chap. 54

**May 5; SA, Lecture 23: Ecology III; Species Interactions**

**Readings: Life 11:** Chap. 55

**May 7; SA, Lecture 24: Ecology IV; Communities**

**Readings: Life 11:** Chap. 56

**May 12; SA, Lecture 25: Ecology V; Ecosystems**

**Readings: Life 11:** Chap. 57

**May 14; SA, Lecture 26: Ecology 6; A Changing Biosphere**

**Readings: Life 11:** Chap. 58

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**The final lecture exam (Lectures 17–26): (fill in the blanks with the date and times as they become available)**

A final lecture exam are scheduled for \_\_\_\_\_\_\_\_\_\_\_ at \_\_\_\_\_\_ sharp. The final exam will include material from Lectures 17-24. The format will be the same as the mid-term exams. The exam will end after 75 minutes.

**Bio 106, Spring 2020, Laboratory calendar**

**Note: The 106 laboratory meets in New Science Building B241 and consists of 13 laboratory sessions plus an individual visit to the American Museum of Natural History. A review session is scheduled for the final week.**

**Regarding absences: Should you miss your scheduled lab session, you must make-up that absence by attending another lab section - if the schedule permits. Only one absence, as long as it is made-up, is permitted per semester. Should a second absence become necessary, please contact Dr. Baker immediately. When a lab session is made-up, have the lab instructor sign and date your lab handout in the first page of that week’s session to indicate that you fully completed that week’s lab.**

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| --- | --- | --- | --- | --- | --- |
| **DAY of the week ⇒** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **Morning ⇒**  **Afternoon ⇒**  **Evening ⇒** | **106-1A ()**  **106-1B ()**  **106-1I ()** | **106-1C ()**  **106-1D ()** | **106-1E ()**  **106-1F ()**  **106-1J ()** | **106-1G ()**  **106-1H ()** | **No Labs Scheduled** |
| **LAB**  **WEEK No.** | **Dates that your lab session will meet**  **↓ ↓ ↓ ↓ ⊗** | | | | |
| **1** | **1/27** | **1/28** | **1/29** | **1/30** |  |
| **2** | **2/03** | **2/04** | **2/05** | **2/06** |  |
| **3** | **2/10** | **2/11** | **2/19** | **2/13** |  |
| **4** | **2/24** | **2/25** | **2/26** | **2/27** |  |
| **5** | **3/02** | **3/03** | **3/04** | **3/05** |  |
| **6** | **3/9** | **3/11** | **3/11** | **3/12** |  |
| **7** | **3/16** | **3/17** | **3/18** | **3/19** |  |
| **8** | **3/23** | **3/24** | **3/25** | **3/26** |  |
| **9** | **3/30** | **3/31** | **4/01** | **4/02** | **No lab 4/8-16** |
| **10** | **4/20** | **4/21** | **4/22** | **4/23** |  |
| **11** | **4/27** | **4/28** | **4/29** | **4/30** |  |
| **12** | **05/04** | **05/05** | **5/06** | **5/07** |  |
| **13** | **04/06** | **04/07** | **2/12** | **2/20** |  |
| **14 (Practical)** | **05/11** | **05/12** | **05/14** | **05/14** |  |

**Morning sessions - 9:10 AM - 12:00 PM**

**Afternoon sessions - 1:40 - 4:30 PM**

**Evening Sessions - 6:30 - 9:20 PM**

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| **1** | **EVOLUTION: Foraging behavior and crypsis, ecomorphs in island anoles. Lizards in an Evolutionary Tree Virtual Lab Module 1** | **8** | **PORIFERA, CNIDARIA, PLATYHELMINTHES** |
| **2** | **Evolution – Genetic drift exercise, Lizards in an Evolutionary Tree Virtual Lab Module 2 (anoles)** | **9** | **LOPHOTROCHOZOANS, MOLLUSKS, ANNELIDS** |
| **3** | **DATA ANALYSIS AND STATISTICAL HYPOTHESIS TESTING** | **10** | **NEMATODES, ARTHROPODS, ROTIFERA** |
| **4** | **MONERANS: BACTERIA, BLUE-GREEN ALGAE AND PROTISTS**  (NO TERMITES) | **11** | **DEUTEROSTOMES 1**  **(DISSECTION: STARFISH)** |
| **5** | **BRYOPHYTES, FERNS, ANGIO AND GYMNOSPERMS** | **12** | **DEUTEROSTOMES 2**  **(DISSECTION: BULLFROG/PERCH)** |
| **6** | **MORPHOLOGY AND DISPERSAL OF WINGED SEEDS** | **13** | **COMPUTER LAB – Our place in the world** |
| **7** | **ANATOMY AND MORPHOLOGY OF HIGHER PLANTS AND FUNGI** | **14** | **PRACTICAL** |

* **Not all lab sections have a scheduled week 14. The Lab practical will take one hour, additional practical slots will be available in earlier lab sections and a signup will be distributed to the later-week labs.**