

Bio181L Syllabus F11 (Click triangles to expand)

I> Course description and goals

- A] Biology 181L is the laboratory companion course to the Bio 181R lecture course. The credit and grade for 181L is separate from the lecture. You are not *required* to take the two courses simultaneously, although it is highly beneficial to do so.
- B] This course is designed to deepen your acquaintance with the scientific approach and experimentation, as well as a range of fundamental biological concepts. Your level of involvement will dictate the benefit you receive from the course. Activities will include both 'wet' experiments and computer simulations, depending upon which format best engages the big ideas in an area of inquiry.
- C] Specific topics include the scientific approach; the nature of the molecular world and the structure and function of key macromolecules; detection of macromolecules and their state; capture, storage and release of energy; experimental investigation into the communication and development of a simple organism

D] Learning goals (matches Lab Manual, p. ix)

If our time together this semester is successful, by the end of it, you will... [understand = "Be able to explain to a non-scientist in a meaningful way"]

- 1] Distinguish between understanding a process or concept and merely knowing the labels associated with it
 - 2] Understand and be proficient in the rhythm method of science: hypothesis-model-test-refine-repeat
 - 3] Be conversant in the Tao of molecules (the four feels: greasy, positive, negative, hydrogen-positive; the nature of the molecular world) and see how all of biology arises from molecular properties
 - 4] Understand how molecules manifest in the macro world (color, odor, feel)
 - 5] Understand how and why each class of macromolecules occupies its niche (DNA is info storage; protein is workhorse; lipids are compartment barriers; carbs are energy storage...)
 - 6] Understand how genetic information is stored, accessed, and distributed
 - 7] Understand a protein in depth (how amino acids drive its structure and properties, how its properties generate its function, how its function allows life/health, and how changes in structure cause changes in health). Examples: hemoglobin, opsin
 - 8] Understand the nature, flow and storage of energy within and between molecules
 - 9] Become proficient in experimental design (defining an answerable question, designing an approach, identifying the adjuncts [controls] required to answer it)
- E] **Implicit Contract** (matches Lab Manual, p. xi)
- 1] Biology is a science of WHY and BECAUSE. While it accumulates its mountains of facts and jargon as other fields do, the modern focus is on understanding rather than describing. For this reason, 181L focuses on engaging your mind more than your hands; on experimental design more than protocol-following and on using facts and concepts rather than regurgitating them.

For these reasons, this course is designed and implemented on the following implicit contract

YOU

are a scientist for this semester, regardless of your career goals
are here to learn and understand
understand that our goals include helping you identify, test, and discard or accept hypotheses
know how to use a spell-checker
have an active role & responsibility in your education equal to ours
can schedule in order to meet learning goals rather than targeting the last minute as a scheduling strategy

WE will

focus on helping you develop broad problem solving skills and varied approaches
limit jargon to a minimum core necessary for us to communicate efficiently with each other

not waste your time on accumulation of factoids
not needlessly engage you in activities you could complete equally well if your brain fell out
not spoon-feed you anything we believe you are capable of figuring out for yourself
give you assignments that are not mechanical 'plug and chug' or 'recite what I said'
make assignments addressing familiarity with facts be open-book, open-web
to the extent possible, generate assignments with 'a-ha potential': tasks where application of your
knowledge, insight, and thought will lead you to fresh realizations achieved under your own
power

F] Basic mathematics and chemistry knowledge is assumed.

II> Lab Administration (People)



A] Bruce Patterson

Lab Director

patterso@u.arizona.edu

B] Kevin Baker

Ass't Lab Director



kbaker2@email.arizona.edu

C] Asya Roberts 181 Administrator
introbio@email.arizona.edu

BSE109

621-9267



Hours: Mon, Tue, Thu 10-12:00; Wed. 2-4:00 Fri by appt.



D] George Ferguson

Lab Prep Coordinator

georgef@u.arizona.edu

III> Required Resources

A] Biology 181 Lab Manual, 2011.

B] access to a current introductory biology textbook (Biological Science, 4th edition by Scott Freeman will be the one we reference)

C] Course website: <http://blc.arizona.edu/courses/181Lab>

1] You can find your individual instructor and details of their contact information as well as specific assignment information for your section at this site. Access to some materials will require you to know your UAnetID (the part of your email address before the @) as well as your section number.

- D]** Essential software will be available from the course website for download and use on most modern, internet-connected Mac or Windows systems. You can access this material on computers in the BLC and in most cases, the Science Library and Main Library.

IV> Weekly Preparation

- A]** It is essential to arrive at each class having read through and considered the background material for that session. In addition, always ask yourself, "Why am I doing this particular step in this procedure? What prediction am I testing? What will I ultimately learn when I am finished?" Many of these issues will be discussed prior to the start of the lab, but you and your group may be asked to present them or to lead the discussion--or they could be represented on a quiz--so come prepared.

V> Absences and late work

A] Laboratory attendance is required.

- 1]** Arrival more than 10 minutes late without a formal excuse constitutes missing the lab; individual instructors may have additional policies
- 2]** Late arrivals are not entitled to take in-lab quizzes
- 3]** Leaving early unexcused constitutes missing the lab
- 4]** Missing Bio181L lab to attend a make-up of a another lab is not a legitimate excuse
- 5]** If you miss a quiz because it starts on time and you don't, you receive a zero.
- 6]** All holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion

- B] Absences** will be excused for exceptional and verifiable reasons, but arrangements need to be made well in advance. When feasible, excused absences are made-up by attending your instructor's other section, or another instructor's section, and require an approval form from the lab administrator in BSE 109. Failure to make up the lab will result in zero points for all assignments associated with the lab.

- 1]** Where possible, we will arrange for you to attend a lab for which you have an unexcused absence in order for you to keep up and master the material
- 2]** If your illness or excused absence does not cover a full week, Assessors and other homework will still be due at their usual time

C] Assignments handed in late (except due to an excused absence)

- 1]** Your instructor may not accept late assignments at all, i.e. zero credit for assignments not handed in on time
- 2]** If accepted, are subject to a 50% credit deduction; this penalty is assessed prior to grading. It is your responsibility to ensure that your instructor receives any work that is not handed in during class.
- 3]** Assignments will not be accepted for credit after those of your classmates have been returned to them

- D]** If you miss and fail to attend make ups for more than two labs, (excused or not) you will be dropped from the course or given a failing grade

VI> Assignments and Grades (see also cheating; absences and late work)

- A]** Ignorance of the existence of an assignment is no excuse. Even with an excused absence, it is your responsibility to be caught up as soon as possible. This may require you to make contact with your instructor instead of waiting until your next lab section.

B] Assignment point values:

Online Assessments 10%

In-class Quizzes: 15%

Lab associated assignments (LABAs): 50% (all equally weighted)

Fermentation Bulleted report: 4%

Photosynthetic wavelengths report: 7%

Slime mold proposal: 4%

Slime mold report: 10% (outline is 10% of that)

C] Assessments & quizzes

- 1]** Quizzes may be given at the beginning or end of the lab period; assessments are online between lab periods. They will cover previous and upcoming labs
- 2]** Your instructor may choose to have your group present the week's lab and assign a grade on the basis of your group's presentation

- 3] On-line homeworks should be done **by yourself**. Unless your instructor indicates otherwise, on-line work is open book and open-web. Prior to doing an assignment, principles or basic understandings may be freely discussed, but any work for which you receive an individual score should be executed on your own unless explicitly indicated otherwise.

D] Lab-associated assignments

- 1] Homework assignments will generally be due the week after they are assigned; some may be completed in class. These will be graded on completeness, clarity, succinctness, and comprehension of the material. Details about each will be provided by your instructor and an online rubric.

E] Bonus exercises

- 1] At the discretion of your instructor, there may be in-class opportunities to accumulate bonus points for participation and achievement in a selected exercise. If you accumulate sufficient points, your bonus score will be used to replace one quiz score

F] Grade cutoffs will be: A \geq 90.0% B \geq 80%; C \geq 70%; D \geq 60%

G] Re-grade Policy

You may return assignments for a re-grade within **one week** of having them returned to you. Re-grade requests must be accompanied by a typed clarification of what was overlooked or in error the first time. Your instructor will re-examine the entire work, not just the area in question. The purpose of re-grades is to correct errors in your instructor's understanding or scoring of your work, not to debate scoring policies. Note that a regrade constitutes new work on your part; an egregious misunderstanding demonstrated in your regrade request may cost you points.

- H]** We reserve the right to adjust your scores upward based on exceptional participation and/or mastery of the course material as judged by your instructor.

VII> Academic Integrity

A] General: Integrity is expected of every student in all academic work. The guiding principle of academic integrity is that a student's submitted work must be the student's own. This principle is furthered by the Student Code of Conduct and disciplinary procedures established by ABOR Policies 5-308 - 5-403, all provisions of which apply to all University of Arizona students. For further information, please see: <http://deanofstudents.arizona.edu/codeofacademicintegrity>.

- 1] See the contract on page vii of your lab manual for some guidance.

B] Cheating/Plagiarism is an extremely serious matter and will be treated as such. Please note that possible responses to even a first instance of plagiarism include an 'E' for the course or expulsion from the university.

C] Reports that are highly similar or that lack proper credit for sources of information will be considered as cases of cheating and/or plagiarism. See the University's Code of Academic Integrity and Code of Student Conduct (<http://deanofstudents.arizona.edu/codeofacademicintegrity>). Any case of cheating or plagiarism will, at the very least, receive zero points for that assignment. If you have any questions regarding how to properly cite a source or what constitutes plagiarism, resolve them with your instructor *before* you hand the assignment in.

D] Software homework should be done by you and you alone. Most assignments offer a practice mode whereby you can learn by working together.

E] Turnitin.com

- 1] If you decide to take and continue in this course, you are agreeing to submit your papers online, when so instructed, to a plagiarism-prevention program called TurnItIn.com. This will be done automatically for work submitted through D2L. When you set up your individual account with TurnItIn.com for this class, make sure you understand and consent to all the terms that the program provides you at that point. You should note that TurnItIn.com – always without your name and any personal information – will retain your paper as part of their database so that students who plagiarize your work can be detected. Because of this program, you will not have to compete with students who commit undetected plagiarism. Anyone who has questions or problems with TurnItIn.com may talk privately about these with the instructor.

VIII> Lab Rules

A] **Read the introductory sections of the Lab Manual** and adhere to those rules. No food or drink is allowed in the lab. We cannot risk contaminating the lab materials, or worse yet, contaminating you! Points may be taken off the week's quiz or homework for failure to observe reasonable clean-up behavior. Do your share in keeping the common areas of the lab clean as well.

B] Lab Safety

These labs have been developed to minimize dangers posed to students. However, we occasionally use equipment or reagents that can cause injury, and accidents sometimes happen. Report any injury to the prep-room staff or your instructor immediately! Showers, eyewashes, fire extinguishers, and first-aid kits are present in case of an emergency. Closely follow your instructor's instructions in the use of dangerous equipment, and in the disposal of all reagents and supplies.

C] Decorum/Disruptive behavior

Your lab instructor is the authority in the room. Simple courtesy is expected of everyone in the room--there's never cause to yell or interrupt anyone. Phones, mp3 players, etc. should be turned off throughout the lab. During your lab instructor's (and peer's) presentations, you're expected to listen attentively unless called on or participating in discussion. Computers are present in the labs for specific exercises which don't include checking e-mail, downloading the study guide for another course, or viewing human anatomy.

Disruptive behavior is anything that interferes with the teaching/learning environment. Examples from the <http://deanofstudents.arizona.edu/examplesofdisruptivebehavior> include:

- Being persistently tardy or leaves early
- Talking incessantly during a presentation
- Loudly and frequently interrupting the flow of class with (inappropriate) questions or interjections
- Belligerence when confronted regarding inappropriate behavior in class
- Cell phones ringing in a classroom, text messaging, chatting online
- Persistent and unreasonable demands for time and attention in or out of the classroom

Additionally, lying about times electronic work was initiated or completed will be considered here

- 1] While you're in the lab, texting, e-mailing and phoning are not appropriate. If something of overriding consequence comes up, excuse yourself and move to the hallway
- 2] Engaging in non-lab related activities (social or academically related to other courses) may result in partial or complete loss of credit for the ongoing lab activity and you may be administratively dropped from the course.

D] If you have serious a problem with the lab or your instructor, make an appointment discuss it **with your instructor** first. In the exceptional circumstance where an understanding cannot be reached, you may petition the Assistant Lab Director for a resolution.

E] Policy Regarding Threatening Behavior

<http://policy.web.arizona.edu/~policy/threaten.shtml>.

IX> Special Accommodations/Students with disabilities

A] If you anticipate barriers related to the format or requirements of this course, please meet with me so that we can discuss ways to ensure your full participation in the course. If you determine that disability-related accommodations are necessary, please register with Disability Resources (621-3268; drc.arizona.edu) and notify me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations.

X> Challenging topics

A] This course will deal with the topic of biological evolution. This underlying principle is the foundation for an understanding of biology. It is critical for biologists, health care workers and an informed citizenry to understand what evolutionary biology does and does not say about the current and historical life on earth, and such content will be included in this course. 'Belief' in evolution will not be assessed, but the theory's explanatory power and supporting evidence may be.