

BIOLOGY 2: HUMAN BIOLOGY

DARTMOUTH COLLEGE, FALL, 2022



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OSCAR HOWE, 1954

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TEACHING ASSISTANTS
SUKANYA BHATTACHARYA '24
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Biology 2 Human Biology Fall 2022 Weekly Schedule 11

Lectures: Mon, Wed, Fri (11:30 AM-12:35 PM)

X-Hours: Tues (12:15 PM-1:05 PM)

Text: None required

Course Web Site: <http://canvas.dartmouth.edu/>

Faculty: Professor Lee A. Witters

Teaching Assistants: Sukanya Bhattacharya '24 and Anahita Kodali '23

<u>Day/Date</u>	<u>Class Type</u>	<u>Topic</u>
Mon/Sept 12	Lecture 1	Human Biology: Varying Portraits of a Human Life Define Our Agenda
Tues/Sept 13	X-hour	Bio2: How You Can Learn & What You Want To Learn Practice Quiz posted 1 PM; due Wed, Sept 14, 10 AM
Wed/Sept 14	Lecture 2	Chemistry of Life I: Was Aristotle Right About Our “Vital Spirit”?
Fri/Sept 16	Lecture 3	Chemistry of Life II: Life Requires 3 Dimensions!
Sat/Sept 17	Quiz #1 (Lectures 1-3) posted 11 AM; due Mon, Sept 19, 11 AM	
Mon/Sept 19	Lecture 4	Structure & Function of Cells: I have 37 Trillion! Why So Many Kinds?
Wed/Sept 21	Lecture 5	Cell Metabolism/Energy I: Filling Up My “Gasoline Tank”
Fri/Sept 23	Lecture 6	Cell Metabolism/Energy II: Peeping Frogs & the Irish Republican Army
Sat/ Sept 24	Quiz #2 (Lectures 4-6) posted 11 AM; due Mon, Sept 26, 11 AM	
Mon/Sept 26	Lecture 7	The Nucleic Acids: DNA & RNA: Life From a 2 Meter Long Molecule
Wed/Sept 28	Lecture 8	Chromosomes/ Cellular Reproduction: Dividing Right or Wrong?
Fri/Sept 30	Lecture 9	Human Genetics I: Woody Guthrie, Fava Beans & Milk Drinkers
Sat/ Oct 1	Quiz #3 (Lectures 7-9) posted 11 AM; due Mon, Oct 3, 11 AM	
Mon/Oct 3	Lecture 10	Human Genetics II: Cystic Lungs, Sickled Cells & Queen Victoria
Wed/Oct 5	Lecture 11	The Human Genome: What Can Be Learned or Be Changed?
Fri/Oct 7	Lecture 12	Cancer: A Genetic Disease Requiring Personalized Medicine?
Sat/ Oct 8	Quiz #4 (Lectures 10-12) posted 11 AM; due Mon, Oct 10, 11 AM	
Mon/Oct 10	Lecture 13	Sex, Gender and Reproduction I: A Male eXactly?
Wed/Oct 12	Lecture 14	Sex, Gender and Reproduction II: Complexities for the Female?

Fri/Oct 14	Lecture 15	Human Development, Birth & Aging: How Did I Become Me?
Sat/ Oct 15	Quiz #5 (Lectures 13-15) posted 11 AM; due Mon, Oct 17, 11 AM	
Mon/Oct 17	Lecture 16	The Endocrine Glands: Creating Love, Goiters & Giants
Tues/Oct 18	X-hour (Lecture 17)	Insulin @100 & Diabetes Mellitus: “The Pissing Evil” & Its Challenges
Wed/Oct 19	Lecture 18	Muscles, Bones & Joints: How Do I Get Stronger & Faster?
Fri/Oct 21	Lecture 19	Urinary System: 2 Kidneys & 1 Bladder: Why Do I Need Them?
Sat/ Oct 22	Quiz #6 (Lectures 16-19) posted 11 AM; due Mon, Oct 24, 11 AM	
Mon/Oct 24	Lecture 20	The Digestive System: Our 2 nd “Outside” the Size of a Tennis Court!
Tues/Oct 25	X -Hour (Lecture 21)	Why Do We Eat & What Should I Eat?: Why Am I Hungry or “Full”?
Wed/Oct 26	Lecture 22	Malnutrition, Obesity & Anorexia Nervosa: Bodies at the Extremes
Fri/Oct 28	Lecture 23	Neurologic System & Disease: Life’s Controller in Six Orders of Magnitude
Sat/ Oct 29	Quiz #7 (Lectures 20-23) posted 11 AM; due Mon, Oct 31, 11 AM	
Mon/Oct 31	Lecture 24	Human Microbiome/ Infectious Diseases: Good & Bad Bugs
Wed/Nov 2	Lecture 25	The Immune System: How Do I Know I’m Either Me or Something Else?
Fri/Nov 4	Lecture 26	Two Pandemics: HIV (pre-recorded) & COVID-19: What Now?
Sat/ Nov 5	Quiz #8 (Lectures 24-26) posted 11 AM; due Mon, Nov 7, 11 AM	
Mon/Nov 7	Lecture 27	The Lung: Respiratory Physiology/Diseases: Breathing For A Living
Wed/Nov 9	Lecture 28	Blood & the Cardiovascular System: Hema & Kardia at Life’s Center
Fri/Nov 11	Lecture 29	Hypertension and Atherosclerosis: Too Much Pressure & Cholesterol?
Mon/Nov 14	Quiz #9 (Lectures 27-29) posted 11 AM; due Wed, Nov 16, 11 AM	

Course Structure, Format, Expectations and Help

MUST READING!!

(along with “Tips for Success in Biology 2” and “Study Strategies for Success”)

1. This fall '22 term offering of Biology 2, Human Biology, will be taught “in person” in the classroom (not offered remotely unless there is a change in College policies or personal circumstance). Each of these class sessions will be recorded (Panopto) and posted shortly after the session on the Canvas site. There will be weekly group office hours conducted via Zoom each Saturday (9-10 AM); individual “in-person” office hours (Mon-Fri) can be scheduled via Calendly with Professor Witters. In addition, the course TAs, Sukanya Bhattacharya '24 and Anahita Kodali '23, will hold weekly review sessions Friday evenings (times/location TBA) “in person” and will be available for 1-on-1 tutoring.
2. It **absolutely essential** that **EVERYONE** in the class adhere to all College policies regarding COVID (and keep updated on any changes) both in and out of our classroom. While you are not required to mask in class, I ask that you consider masking both for my health and that of your classmates. **DO NOT COME TO CLASS IF YOU HAVE ANY SYMPTOMS OF ILLNESS UNTIL YOU HAVE A NEGATIVE RAPID ANTIGEN TEST.** A classroom exposure puts me (an older faculty member) at risk, as well as another vulnerable family member, my near-by grandchildren, others in the classroom & potentially those in other areas in the LSC. **Such exposure may mean isolation for all of us**, including me, making my office in the LSC inaccessible for class preparation and/or remote teaching (which would occur with mandatory isolation) & for any office hours. **All lectures are being recorded and all course assessments are all on-line this term. I do ask that you mask on coming to my in-person office hours in the LSC; if possible, I may offer some of these “unmasked” outside the LSC. I also ask that you consider testing (rapid antigen) weekly, even if asymptomatic, for the protection of us all.**
3. **Consult the course schedule for the dates of class sessions and their content.** Note that we will be using some of the X-hours for course lectures in order to accommodate all of the material. **Our first X-hour on Tuesday, September 13** will be for two purposes: (1) To review the features/resources of the course and (2) To present a primer as to how to approach this course and your learning over the term. Two other X-hours will be used for lectures (17 & 21). This initial X-hour will be followed by an on-line practice quiz (doesn't count toward grade) to familiarize you with the formats we will use.
4. Your **numerical course grade will be determined by on-line weekly quizzes administered in the open book/notes mode.** They will be made available through the Canvas site posted every Saturday at 11 AM. You will have 48 hours to complete them (i.e. due Monday, 11 AM). Material for the quizzes will be drawn entirely from the prior week's lectures (3-4 lectures per quiz); “Quick Review” PP slides will indicate the topics to be covered. The quizzes will consist of 15 multiple choice, multiple answer, matching questions or true/false questions (each worth 1 point; 135 course points for all 9 quizzes). You will be allowed 1 attempt (45 min) and will see your incorrect answers at the end of your attempt. **Note: the quiz will disappear at the submission deadline even if you are in middle of taking it, so plan ahead in terms of its completion.** The correct answers & explanations will be revealed right after the submission deadline. **Requests for review of grading must occur within ONE WEEK after the due day of each quiz; after that, results are final.**

STUDY IN ADVANCE OF YOUR ATTEMPT IS HIGHLY ENCOURAGED AND NECESSARY FOR SUCCESS. While the open book/notes mode applies to these quizzes, you **MAY NOT** consult anyone else, whether a fellow student or any other person either verbally or in writing. You will be allowed to **DROP YOUR LOWEST QUIZ GRADE, BUT YOU MUST COMPLETE ALL 9 QUIZZES** to pass the course, irrespective of your score on each. If there are circumstances that you feel make you unable to complete/submit the quiz in the time frame indicated, you **MUST** make me aware **IN ADVANCE** of the posting of the quiz, so we can discuss. **There are no midterms or final exam in this course.**

In addition to these quantitative assessments, each student will have a chance to potentially influence her/his **actual letter grade** by what I term **“course engagement”**. By this, I mean, **is the student a visible, active & curious participant** in the course **throughout the term** (not just towards the end of the course) in the classroom, in group/individual office hours, in working with the TAs 1-on-1 and/or in their weekly review sessions, or in helping us all by asking questions/comments on-line on our web site (Slack)? **I particularly pay attention to how your individual efforts contribute to the learning of your fellow classmates.** Such an assessment will not, in general, cause a major adjustment in a letter grade (and only serve to raise a grade, not lower one), but could well influence “borderline” letter grade assignments, though “engagement”, in my experience, invariably results in better performance on course assessments, as well.

In accordance with the general guidelines of the Biology Department, a **passing performance** in this course demands **both** satisfactory **completion of all quizzes and** the achievement of **greater than or equal to 50%** of total course points (effectively, 60 of 120 points, as everyone gets to drop one quiz). **In the past two offerings of this course, the course median grade has been B+.** There are no pre-determined “cut-offs”, save that everyone who earns at least 90% of possible points (effectively 108) will receive “some kind of A” (A or A-). **In the taking of quizzes, adherence to the Academic Honor Principle, as detailed in the Student Handbook and at <https://student-affairs.dartmouth.edu/policy/academic-honor-principle> is expected.** **Violations of the Honor Principle will be promptly reported to the appropriate Deans.** See #9 below for more details.

4. I will hold **daily individual office hours**. I am planning to hold them in my office, 122 LSC, though remote via Zoom might be necessary on occasions. These hours will be held Monday to Friday; weekly times/mode TBA; 20 min appointments; schedule with Calendly). I am also willing to meet with **individual students (by appointment at other times)** which can be arranged by e-mailing me. **Also I will hold weekly group office hours on Sat AM (9-10) via Zoom (use our “all-purpose URL” on the Canvas syllabus page; you can drop-in any time during this interval).** In addition to helping with your course material, I am happy to discuss “non-course business” (e.g. your academic interests, off-term/career plans, art, music, sports or simply to get to know you better during individual hours.) My goal is to have everyone succeed in this course AND at Dartmouth and I am anxious to get to know you and to help you in any way I can.

5. Our **course TAs**, Sukanya Bhattacharya '24 & Anahita Kodali '23 will be helping in class organizing questions submitted via Slack during the lecture and will monitor Slack on the web site. They will lead **class review sessions every Friday evening** (times/locations TBA) and will be available for one-on-one tutoring. They will be attending every class (meet & greet them!) helping with fielding questions during the lecture and will be available by e-mail.

6. Our **course web site** uses **Canvas** as the learning management tool (<http://canvas.dartmouth.edu>). On Day One of the course, please set up your profile/e-mail contact information, as I will be using this mode to communicate with you during the course (click on ‘Account’ in sidebar; then both ‘Profile’ and “Settings”).

On Day One, also take a tour of the Canvas site to see how it is organized. The site is organized with a ‘Syllabus’ page (which has several links to general course information/ course aids, including a link to Calendly and Zoom addresses for individual (Calendly) & Saturday group office hours (Zoom)), a ‘Calendar’, four sections devoted to course topics (each of which, in turn, contains lecture notes, PP slides, ‘Scratch quizzes’ for topic review (TBD), links to some movies & animations, a menu link to all “Panopto” lecture recordings, a menu link to ‘Slack’ which we will use for Q&A/discussions (more on that later), a ‘Quizzes’ section (where each weekend’s quiz will be posted), a “Course Aids & Help Documents” section that has valuable tips about learning in STEM courses & ‘Quick Review’ summary slides of each lecture and a ‘Grades’ section.

I STRONGLY encourage the viewing of the Powerpoint files posted on this site on your computer in the 'Presentation' mode (the animation and color can be very helpful); some also like to print these out. They are all up-loaded already to our Canvas site, along with notes for each lecture (as .pdfs); both could be subject to revision prior to each week to update any new information.

7. Poll Everywhere Audience Response System

This term we will also be using, on occasion, a learning element, Poll Everywhere. This platform is an interactive program that allows extended faculty-student engagement, providing, among other things, platforms for asking/answering questions. You will be able to use it with your laptop, pad or phone. We will have a demo to show you how this works and how we will use it during our first scheduled X-hour. You can answer questions either through your phone, laptop or the [PollEverywhere app](#)

8. **Students desiring individual help should see me first,** rather than go to the Academic Skills Center. In the past, when the course TAs were overburdened, I have been able to identify students who are helpful. **I encourage everyone to first work with the course TAs;** both are extremely knowledgeable and will be attending every lecture this year (so they are up-to-date on course content). **I also encourage all to reach out to the Teaching Science Fellows** who can help you “learn how to learn science” aside from Bio2 course-specific information. E-mail them to set up an appointment (addresses on their web site (<https://sites.dartmouth.edu/teachingsciencefellows/>)).

9. Dartmouth Academic Honor Principle

The Dartmouth College Student Handbook states: "Fundamental to the principle of independent learning are the requirements of honesty and integrity in the performance of academic assignments, both in the classroom and outside. Dartmouth operates on the principle of academic honor, without proctoring of examinations. Any student who submits work which is not his or her own, or who commits other acts of academic dishonesty, violates the purposes of the College and is subject to disciplinary actions, up to and including suspension or separation.

There are a number of situations in which a student in Biology 2 might find her/himself tempted to violate the Academic Honor Principle. Review that Principle at: <https://students.dartmouth.edu/judicial-affairs/policy/academic-honor-principle>

These situations include (but are not limited to) the following:

- a) Quizzes can be completed in the 'open book/open notes' mode (accessing any source of written information), **but MUST be completed without ANY communication with ANYONE else either verbally or in writing either during or after the completion of the quiz.** The answers that you provide must be entirely your own work.
- b) Any form of submission or presentation of work, in any form, that is not the student's own without acknowledgement of the source, violates the Academic Honor Principle (<https://students.dartmouth.edu/judicial-affairs/policy/academic-honor-principle>). Students are responsible for the information found in the Sources: Their Use and Acknowledgement, at <https://writing-speech.dartmouth.edu/learning/materials/sources-and-citations-dartmouth>

Honesty is the foundation of the academic pursuit of knowledge. **In recognition of this, I will not overlook any violations of the Academic Honor Principle.** Indeed, the Faculty Handbook of Dartmouth College states explicitly that College Faculty is obligated to report potential violations of the Academic Honor Principle to the Dartmouth College Committee on Standards.

10. **Religious Observances** Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with me early to discuss appropriate accommodations.

11. Commitments Toward Your Success in This Course

As course designer and instructor, I am committed to your successful achievement of your goals in this course. I also understand that you may encounter challenges during the term. Resources are available to help you. These may include:

- **Accessibility support.** Students requesting disability-related accommodations and services for Bio2 are encouraged to schedule a meeting with me as early in the term as possible. This conversation will help to establish how your accommodations will be implemented in this course and what role Student Accessibility Services (SAS) or its [Testing Center](#) may play in assisting. In order for accommodations to be authorized, students are required to register with SAS ([Getting Started with SAS webpage](#); student.accessibility.services@dartmouth.edu; 603-646-9900) and to request an accommodation email be sent to me in advance of the need for an accommodation. If students have questions about whether they are eligible for accommodations, they should contact the SAS office. All inquiries and discussions will remain confidential. It is **very important that we then continue to communicate** over the term to assure that your needs are being met. Receiving accommodations **does NOT** relieve you of the responsibility of communicating with me about any deviations from course requirements **BEFORE the fact**.
- **Mental health and wellbeing support.** The academic environment (and this pandemic environment) at Dartmouth is challenging, our terms are intensive, and classes are not the only demanding part of your life. There are a number of resources available to you on campus to support your wellness, including: your undergraduate dean (<http://www.dartmouth.edu/~upperde/>), the Counseling Center (<http://www.dartmouth.edu/~chd/>), and the Student Wellness Center (<http://www.dartmouth.edu/~healthed/>). The student-led [Dartmouth Mental Health Union](#) and their Peer Support Program in Collis (and other programs) may additionally be helpful to you.
- **Financial support.** Some courses may require purchases of course materials, though this is likely not the case for Bio 2. If help needed, consult with your dean, review [Financial Aid Policies and Resources](#), and keep me informed.
- **Support around issues of sex or gender-based harassment, sexual assault, and their after-effects.** The Sexual Respect Website (sexual-respect.dartmouth.edu) provides information on your rights and obligations with regard to sexual respect and resources that are available to all in our community. Please keep in mind that if you report prohibited conduct as detailed in the Sex and Gender-based Misconduct policy, I am obliged to share your concern with the Title IX Coordinator.

Please make me aware of anything that will hinder your success in this course.

I will help and I will put you in touch with others who can help even more.

The earlier I am aware of issues, the more I can do to assist you.

12. No textbook is required for this course. In my experience, many Human Biology texts are outlandishly expensive, not up-to-date and lacking in many of the things we will cover in this course. The materials I am supplying you (lecture notes, lecture PP slides, ‘Scratch Quizzes’, summary slides (“Quick Review”), lecture recordings, study tips) are adequate for your success in the course.