

INTRODUCTORY BIOLOGY 1 (BIOLOGY 101): LECTURE (041N) AND LAB (0G2N) SYLLABUS

Instructor: Dr. Tupper

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Office hours: Mon 10a-12:30p; Tue 10a-1p; Wed 11a-12:30p; Thurs 10a-1p.*



Course description: Focuses on foundations in cellular structure, metabolism, and genetics in an evolutionary context. Explores the core concepts of evolution; structure and function; information storage and exchange; pathways and transformations of energy and matter; and systems biology. Emphasizes process of science, interdisciplinary approaches, and relevance of biology to society. Part I of a two-course sequence. Lecture: 3 hours. Recitation and laboratory: 3 hours. Total: 6 hours per week. Our class meets Tuesday and Thursday at 1:00 pm. Lab is Tuesday at 3pm.

General course purpose: This course provides students with an opportunity to acquire fundamental knowledge of the principles of living systems and their applications to everyday life. The course is designed for both science and non-science majors. It may serve as a prerequisite for advanced biology courses, a laboratory science graduation requirement, or as transfer credit for a four-year institution.

Course prerequisites/corequisites: [Pre/corequisites](#) are: Competency in Math Essentials Units MTT 1-3 as demonstrated through placement and diagnostic tests, or by completion through unit 3 in an MTT course. Competency in Math Essentials Units MTT 1-5 or equivalent is desirable. A student who provides official evidence of a minimum mathematics score of 520 on the SAT or a minimum score of 22 on the ACT taken within the last two years.

Textbooks: You need the General Biology 1 (bio-101) lab manual called “Investigating Life” by Ilya Temkin. This is digital, the code for which can be purchased at [the NVCC Annandale Campus bookstore](#). “Biology in Focus” is the official textbook for lecture.

Evaluation: The lecture component of this course (totaling 75% of your final grade) will be based on 5 in-class exams. Exams consist of multiple choice and short answer questions. Your lecture grade = points received/points possible x 100. Your lab grade = points received/points possible x 100. Your overall course grade = (0.75 x Lecture %) + (0.25 x Lab %). Your lab grade is based in part on timely submission of completed eMind assignments. There are no unexcused make-up exams, the final exam is cumulative, and your lowest exam grade is dropped. Exams are taken on campus with canvas. You will need to download [respondus lockdown](#).

Student needs: Students who may require accommodations are encouraged to contact the [college center for accommodations and accessibility services](#). If you have an accommodation, please present that to me via email (or a hard copy). We can then discuss how I can best help you. [NOVA can help with food, bills, rent, childcare, and mental health needs](#). If you need other financial advice, please click [here](#). If you need a Sign Language interpreter or CART Captioning, contact Interpreter Services at: interpreters@nvcc.edu. If you need academic assistance or need college services but cannot make it to campus, please review NOVA’s [remote student support services](#) to receive virtual assistance. Click on the following hyperlink if you are in the [military or are a veteran](#) and need assistance. If international students have specific questions, [click here](#). Complaints of sex-based discrimination, sexual violence, domestic violence, dating violence, and sexual or gender-based harassment can be [reported here](#). The campus police information is [here](#).

Academic honesty and conduct: At Northern Virginia Community College, we expect the highest standards of academic honesty. Academic dishonesty is prohibited in accordance with the Student Conduct, Rights and Responsibilities described in the [student handbook](#). NVCC’s [policy](#) prohibits cheating on examinations, unauthorized access to examinations or course materials, plagiarism, and other proscribed activities. Students that violate plagiarism and academic honesty codes will be [reported](#). If a student behaves in a hostile or disruptive manner or presents any indication that they are a harm to themselves or others, a formal request for assistance to the [office of wellness and mental health](#) will be submitted, and the police may be contacted. Please note that **n-95 masks are required for lecture and lab** to protect yourself and others

from covid. [NOVA parking services](#) will provide you with masks if you don't already have one. Masks must cover your nose and mouth for the entire class session. Please do not eat, drink, or take medications in the class. Quietly step outside of the class if you must consume food, water, or medicine. Since you will be in a relatively small room with 28 other students and me, **it would be best for everyone if you were vaccinated, especially for those that are immunocompromised**. NOVA will put 250\$ on your flex account if you show proof of vaccination and NOVA will add an additional 75\$ if you show proof that you have received a booster. One last note about wearing masks: I will be removing my mask while lecturing so that students can hear me. I will, however, remain socially distanced. If you are uncomfortable with this, please note that I am vaccinated against both covid and influenza. I have also received a covid booster. [Click here for covid-19 updates](#).

Cancellation dates: In the event of class [cancellation](#), we will resume where we left off during the next meeting. For example, if we were to have an exam scheduled on September 1st, and there was a nationwide internet blackout, the exam would take place on our next scheduled meeting on September 7th. Since the college is not requiring covid vaccines for students, there is a chance we would have to transition to remote learning—at least temporarily. It would be best if you were ready to transition to that format beforehand. I will proctor all remote exams, so you will need access to a computer with a webcam, and you will need to download [respondus lockdown](#). [Please click here for emergency alerts](#).

Important dates, audit policy and incompletes: For critical dates regarding refunds, withdraw, holidays, etc., click [here](#). Auditing this course requires instructor permission. Incompletes are only granted if the student's circumstances are dire (e.g., health issues, family issues, documented work conflict) and if [certain criteria](#) are met. Incompletes must be approved by the division dean and provost. Health claims must be documented by medical professionals. Final exam times are different than your normal class meeting time. They are posted below.

Comments on submitting written work: I will not be assigning research papers this semester. Much of the lab work, however, is written. You can ask the [writing center staff](#) for help with written lab assignments and for other classes.

Email policy and canvas discussions: Please use proper English when composing emails and posting discussions. Please keep writing somewhat formal, free of slang, and as grammatically correct as possible. Please address me in the emails as Dr. or Professor Tupper, not as 'hey.'" It is fine to call me by my first name if you are no longer taking courses with me. I will reply to your emails within 24-48 business hours from its sent time. There are times when I miss an email, or it gets sent to my junkbox. If you do not hear from me within 48 business hours, please just email me again. That said, I may not reply to your emails unless you ask me a specific question. Here are some course email guidelines:

1. Email me if you have questions about the course content or if you want to set up a time to meet and discuss some of the course content. I am more than happy to help you learn the material.
2. Email me if there are serious circumstances that are beyond your control that may need my attention (i.e., health or job-related issues or conflicts that may result in a prolonged absence from class). Smaller and less serious questions can be answered by emailing a classmate, or by using canvas discussions.
3. You don't have to email me if you are going to be late to class.
4. You don't have to email me if you are going to miss a class, or if you have missed class.
5. Please first ask your classmates or use canvas discussions to find out about any logistics/instructions that I have explained in a previous class that you did not attend. Then email me if there still is a concern.
6. Please do not email me asking for extensions on labs and other assignments.
7. Please do not email me asking for extra credit.
8. Please only use your official vccs email account

General comments on success in this course, and miscellaneous rules: Doing well in this course requires a substantial commitment. This course covers evolutionary biology, DNA structure and function, and cell biology and genetics. By nature, these topics are challenging. You need to set aside time for reviewing lecture notes, reading, and studying after and before every lecture (probably an additional 9 hours per week). Please make use of canvas discussions and become friendly with other students in the class. Peer support is very helpful. Please be on time to class. Lectures are not recorded. Recording devices will only be permitted for students with accommodations. Please note that I like interactive courses. I ask students a lot of questions. I do this because when a student explains a concept to other students (rather than just me), it can be quite helpful for learning. There's no penalty for getting a question wrong, and once you get used to my

lecture style, you will see that I create a judgement free zone where everyone is welcome to participate. That said, if you have serious social anxiety and would prefer not to be called on, just let me know. I understand.

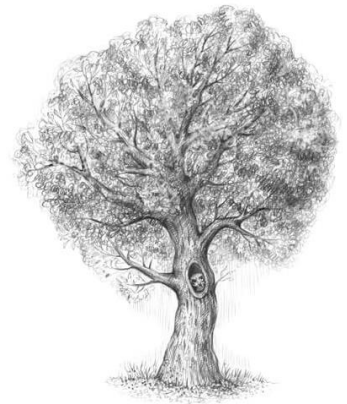
Tentative Lecture Schedule: Please note that the lecture and exam dates are not fixed (except the final). Sometimes we take longer to get through the material than other times. The exam dates may change, but the material covered on each exam will not. I will let you know well in advance of each exam. Please note that the final exam meeting time is different from your normal class session. The final exam schedule is hyperlinked below.

Unit 1 Topics

- Introduction to Biology, Science, and the Scientific Method—2/1, 2/3
- Characteristics and Organization of Life—2/8, 2/10 (eMind Classification)
- Life's Origins and Diversity—2/15, 2/17
- Chemical Highlights—2/22, 2/24 (eMind Biomolecules and Metabolic Processes)
- **Exam 1—3/1 (100 points)**
(for exam 1 you will have a review sheet)

Unit 2 Topics

- Intro to Cells, and Transport, Diffusion, and Osmosis—3/3, 3/15 (eMind Membranes and Transport)
- Cellular Respiration—3/17, 3/22
- Photosynthesis—3/24
- Additional Cell Structure and Function—3/29 (eMind Cells and Organelles)
- Additional Cell Structure and Function—3/31
- **Exam 2—4/5 (100 points)**
(for exam 2 you will have a review session only; time permitting)



Unit 3 Topics

- Somatic Cell Division—4/7 (eMind Chromosomes and Mitosis)
- Gamete Formation—4/1 (eMind Meiosis)
- DNA Structure and Replication—4/12 (eMind DNA Basics)
- Genes, Transcription, Translation and Mutation—4/14 (eMind DNA Technology)
- Intro to Mendelian Genetics—4/19 (eMind Genetics and Patterns of Inheritance)
- **Exam 3—4/21 (100 points)**
(for exam 3 we will have a review only; time permitting)

Unit 4 Topics

- History of Evolutionary Ideas and Selected Evidence of Evolution—4/26 (eMind Evolution)
- Evolution and Gene Frequencies, and Mechanisms of Speciation—4/28 ([PBS All in the Family](#) and [PBS Evolution Lab](#))
- **Exam 4—5/3 (100 points)**
- **Final Exam—5/5 (100 points)**
(for exam 4 we will have a review session only; time permitting)

*I prefer that office hours remain virtual this semester to reduce transmission of covid. You can email me during these times (or ahead of time), and I will send you a zoom link. Of course, if you are already on campus, you may certainly stop by my office. We could perhaps meet outside or in a larger space.

LAB SCHEDULE AND POLICIES (TUESDAYS AT 3PM)**

LAB	DATES	TOPIC	Pages in Lab Manual
1	Feb 1	Introduction to Lab Safety (0 points, but attendance is mandatory. If you do not attend this lab, you cannot proceed). eMind and Tophat Intro; Syllabus Quiz Due (10) Scientific Skills ¹ (10)	P. 1 Laboratory tour and canvas quiz
2	Feb 8	Macromolecules ¹ (10)	P. 15
3	Feb 15	Enzymes ¹ (10)	P. 33
4	Feb 22	Microscopy (10)	p. 51
5	March 1	Osmosis ¹ (10)	p. 71
6	March 8	SPRING BREAK	
7	March 15	Respiration ¹ (10)	p. 81
8	March 22	Photosynthesis ¹ (10)	p. 93
9	March 29	Principles of Heredity (10)	p. 107
10	April 5	Natural Selection (10)	p. 125
11	April 12	Phylogenetics (eMind and PBS assignments—10)	

¹ YOU MUST BRING YOUR SAFETY GOGGLES AND WEAR THEM FOR LAB

BIO 101 LABORATORY GRADING AND POLICIES FALL 2021

Books and Materials: the general biology 1 lab manual is required for every lab. It's called "investigating life" and it's written by Ilya Temkin. The manual is digital; the code for which can be purchased at the bookstore. You must provide your own extra notebook paper, graph paper, pencils, eraser, calculator, and safety goggles that are both **chemical splash resistant and impact resistant**. All of these are available for purchase at the Annandale Campus Bookstore. A student will **NOT** be permitted to perform the labs indicated by * on the schedule without proper goggles. **N-95 masks are required in this lab (and lecture) to protect yourself and other students from covid. There are 28 other people in this lab, please get vaccinated. It will especially benefit those that are immunocompromised. Additionally, if your instructor gets sick, it will negatively impact the course in numerous ways.**

Attendance: You are expected to attend your scheduled lab section every week on time. If you are more than 10 minutes late, you will not be permitted to attend lab that day, and it will count as an absence. Your instructor will take attendance each week, and if you were not present to do the lab work, written assignments about that work will not be accepted.

Grading: Your lab grade counts for 25% of your final grade in Biology 101. To be eligible to pass BIO 101, you may miss no more than three labs during the semester. Your work for each lab will be evaluated based on written work submitted; this may be a quiz, a lab report, or other written work as directed by your instructor. All point values are given in parentheses in the schedule above (and in the eMind assignments in the lecture schedule). All written work must be legible and use proper English. Grammar and spelling count. Late assignments will not be accepted. A grade of 0 will be given for each missed lab. If you do not attend lab, you will not be eligible to submit the associated work or take lab quizzes.

eMind and PBS assignments: To receive credit each assignment must be fully completed. Your attempts are recorded by eMind. To receive credit for the quizzes you must upload a screenshot of the eMind quiz with your worksheet. You can retake the quizzes up to nine times. Credit will be given for quiz scores of 100% only. To register for eMind, follow the steps below. To receive credit from the PBS assignments you must sign in, complete the assignment, screen capture, and upload to canvas. Although these assignments are listed in the lecture portion of the syllabus, the points are part of your overall lab grade. Each eMind assignment is due by the start of the class that follows the date when it was assigned.

Class Name: Bio 101 041N 13wk

Site ID: 2001

Reference Code: 5548416435908

Make-up Labs: There will be no make-up labs offered. There are no exceptions to this policy.

Cleaning Up: All working areas, equipment, and supplies in the lab must be kept clean, neat, and in good condition. You are expected to clean up after each lab and to treat all equipment and supplies with care. Your instructor will check the lab after each session, and if it is not cleaned appropriately, 10% will be deducted from the grade of every student in the class for that lab. Please use the lab lockers to store your coats and any books not used during class; these are not to be placed on the lab bench tops.

Cheating: Cheating includes giving or receiving assistance when you are expected to work on your own, plagiarism, and presenting data or information as your own when they are not. The same policies on cheating described in lecture also apply here.

You will be required to leave the lab if:

- (1) You are more than 10 minutes late to class
- (2) You are wearing open-toed (or other inappropriate) shoes
- (3) You are not wearing goggles or protective covering (when required)
- (4) You are breaking any safety rules, are endangering others, or are disruptive.
- (5) You have food or drink in the lab
- (6) You are not wearing an appropriate N-95 mask in lab.

THERE WILL BE NO EXCEPTIONS TO THESE REGULATIONS!

If you are asked to leave the lab, it will count as an absence

YOU WILL BE QUIZZED ON THIS SYLLABUS (LECTURE AND LAB PORTIONS). THAT GRADE WILL COUNT TOWARD YOUR OVERALL LAB GRADE.

***Instructor reserves the right to alter this document at his/her discretion during the semester. We may use some eMind assignments in lieu of on campus labs should the need arise.*