

## INTRODUCTORY BIOLOGY 1 (BIOLOGY 101): COURSE SYLLABUS (003N; 41875)

Instructor: Dr. Tupper

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Office Hours: Tuesday 4:30-6:30, Wednesday 11-3, Thursday 1-6



**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 Monday and Wednesday at 9:35am. Lab is Monday at 11:10 am.

**General course purpose:** This course provides students with an opportunity to acquire fundamental knowledge of the principles and 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:** 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:** Officially, we are using *the Campbell Biology in Focus 3<sup>rd</sup> edition* as the reference textbook for lecture. However, I will not assign any readings from this text. It is for reference only. For lab, you need the *General Biology 1 (bio 101) lab manual* called "Investigating Life" by Ilya Temkin. This can be purchased at [the NVCC Annandale Campus bookstore](#).

**Evaluation:** The lecture component of this course (totaling 75% of your final grade) will be based on 4 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 %). There are no unexcused make-up exams, and no exam grades are dropped.

**Students with special needs:** Students with physical disabilities who may require accommodations are encouraged to contact the college center for students with disabilities. Students with learning disabilities should contact [disability services](#). I cannot make accommodations unless I'm presented with the appropriate accommodations form. If you do have an accommodation, please see me and we can discuss how I can best help you. For those of you who have online courses and need assistance obtaining a computer due to a financial hardship click [here](#) (search for Remote Student Support Services/Student FAQ). Besides monetary grants, students can request to borrow a laptop; the contact person for student laptop loans is Derrick Doctor, at ddoctor@nvcc.edu.

**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 policies 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 receive a failing grade and will be expelled from this course. 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 **masks are required for lecture and lab** to protect yourself and others from covid. 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 27 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 get vaccinated against covid. 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.

**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 1, and there was a nationwide internet blackout, the exam would take place on our next scheduled meeting on September 7<sup>th</sup>. Since the college is not requiring covid vaccines for students, it is likely that someone will contract the virus and become sick. In such an event, the campus may close. We would then 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](#). (I will proctor on-campus exams too, but they will be on paper)

**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. You can, however, ask the [writing center staff](#) for help with written assignments in 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 missed exam or 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.

**Introductory letter, general comments on success in this course, and miscellaneous rules:** Please write a brief statement and include something semi-personal about yourself, (e.g., a couple of hobbies/sports/major/favorite shows). Also, if you feel up for it let us know where (if) you work and how many hours you work per week. I am sure your classmates (myself as well) are interested to know a little about you. Also include your name, and what you preferred to be called. Post this in canvas discussions during the first week of the class. It's worth extra credit points but must be at least 100 words.

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 quite a bit of time for reviewing lecture notes, reading, and studying after and before every lecture (probably around 9 hours per week in addition to class). A few last comments: please make use of canvas discussions and become friendly with other students in the class. It helps calm anxieties about the course if you have some peer support. Please be on time to class. Lectures are not recorded. Recording devices will only be permitted for students with accommodations.

Lastly, I like interactive courses. I tend to 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 we are in 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. We will only have review sessions if time permits. 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—8/23, 8/25
- Characteristics and Organization of Life—8/30, 9/1
- Life's Origins and Diversity—9/8
- Chemical Highlights—9/13
- Catch Up—9/15
- Review Session—9/18
- **Exam –9/20 (100 points)**

#### Unit 2 Topics

- History of Evolutionary Ideas—9/22
- Selected Evidence of Evolution—9/27
- Evolution and Gene Frequencies—9/29
- Mechanisms of Speciation—10/4
- Catch Up—10/6
- Review 10/11
- **Exam 2—10/13 (100 points)**

#### Unit 3 Topics

- Intro to Cells, and Transport, Diffusion, and Osmosis—10/18
- Cellular Respiration—10/20
- Photosynthesis—10/22
- Additional Cell Structure and Function—10/27
- Catch Up—11/1
- Review—11/3
- **Exam 3—11/8 (100 points)**

#### Unit 4 Topics

- Somatic Cell Division—11/10
- Gamete Formation—11/15
- DNA Structure and Replication—11/17
- Genes, Transcription, and Translation—11/22
- Thanksgiving break—11/24
- Mutations and Their Impact —11/29
- Intro to Mendelian Genetics—12/1
- Catch Up—12/6
- Review—12/8
- [Exam 4](#)—**Monday December 13<sup>th</sup> at 8:00 am (100 points)**

