

# BIOL 102: Introductory Biology

Bowie State University, Fall 2020

## Contact Information

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**Instructor:** Dr. Mary Glover

**Email:** [mglover@bowiestate.edu](mailto:mglover@bowiestate.edu)

**Slack:** We will also utilize the Slack software for communication (see technological tools).

**Virtual office hours:** Thursdays, 9:30 - 10:30 AM on slack

Email or slack are both good ways to get in contact with me. I will do my best to respond in a timely manner, generally within 24 hours, although it may be longer on weekends and holidays.



## Course description

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This course is an Introduction to Biology intended to serve Biology and STEM majors. For those continuing in Biology, this is just the beginning. For others, this might be your one and only biology course. **This course should provide students with the basic understanding of concepts and the language of the molecular and cellular basis of life.** At the end of the course students can expect to have a working knowledge of such concepts as the biochemical components of cells, the structural features of the cell, cell division, and information transfer within and among cells as well as the principals of inheritance. This course has no prerequisite (ENG 101 and MATH 121/125/141 may be co-requisites) and it satisfies the Science course with a lab in the General Education Requirements.

## COVID-19 statement

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I understand that the global pandemic caused by COVID-19 may be making your lives uncertain, difficult, and stressful. Your health, safety, and well-being are my priority. Please do not hesitate to reach out to me with concerns throughout the semester. I will do my best to provide students with the resources they need.

- CDC guidelines for how to protect yourself and others: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>
- If you are in need of a computer or wi-fi access, email [covid19academics@bowiestate.edu](mailto:covid19academics@bowiestate.edu)
- Bowie State coronavirus updates can be found here: <https://www.bowiestate.edu/campus-life/health-and-wellness/henry-wise-wellness-center/corona-virus-information/>
- For mental health resources, visit the wellness center:
  - <https://www.bowiestate.edu/campus-life/health-and-wellness/henry-wise-wellness-center/corona-virus-information/coronavirus-counseling-faq.php>
  - email [counselingservices@bowiestate.edu](mailto:counselingservices@bowiestate.edu)
  - call 301-860-4164 from 8 a.m. to 5 p.m. Monday through Friday.

# Technological tools

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To best facilitate an engaging and effective online learning environment, we will utilize various software. In order to be successful in this class, students should have access to a ***personal computer with internet access***. If you do not, please contact Dr. Glover ASAP.

## Blackboard

Blackboard is the BSU course management system. Students use your BSU account to login to the course from the Blackboard login page, <http://bsuonline.blackboard.com>. ***Blackboard is the main informational hub for the course.*** Students should expect to log into Blackboard multiple times each week.

Through Blackboard, students access:

- All course material including lecture videos, reading assignments, lab assignments.
- Assignments, exams, quizzes
- Grades and instructor feedback on assignments
- Links to all other technology used in the course

## Zoom

Zoom is free, video conferencing software which will be used for all scheduled class meetings. All zoom class sessions can be accessed through the app in Blackboard. Students can join class sessions through their internet browser or by downloading the zoom app to their desktop computer or phone. For more information about joining zoom meetings, see [here](#).

## Microsoft office

Virtual labs will be organized in Microsoft Office Online, using Microsoft Word, Powerpoint, and Excel. All Bowie State students have access to Microsoft Office 365 for Education through their BSU account. Information about accessing your Microsoft Office account can be found through [DIT](#). Each student will have their own OneDrive folder where they will submit assignments and which is shared with instructors. The student lab folder contains materials needed to complete weekly lab tasks. Students will receive access to this folder at the beginning of the semester.

## Slack

Slack is a communication platform which can be accessed through an internet browser, desktop client, or mobile app. In this course, we will use slack for:

- general communication between instructors and students
- discussion assignments
- virtual office hours

Students are encouraged to ask questions in slack channels. Students can get a quicker response to questions in slack because both instructors and students can answer questions. Students are encouraged to engage with one another on slack, but all major announcements will be made through email. To learn more about slack or download the desktop app, go to [slack.com](https://slack.com). You will receive an invitation to our class channel at the beginning of the semester.

IMPORTANT NOTE: Confidential or sensitive information should **not** be discussed through slack, as slack is not FERPA compliant. Please discuss sensitive information, such as grades via email.

## Class structure

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BIOL 102 will be delivered entirely online. Class sessions will be on Zoom by Dr. Glover during the normal scheduled class times.

Each week, students will receive course content through Blackboard, including readings, assignments, lecture videos, and discussion questions. Instead of having students watch a lesson virtually during regular class times, Dr. Glover will record the lectures and students are will be expected to watch the lecture videos before the class. During class sessions, we will engage with the material for the week—clarifying key points, practicing test questions, and applying the knowledge to broader concepts.

**Lab assignments are due on Mondays at 5:00 PM. Lecture assignments are due on Thursdays at 5:30PM.**

Day	Time	Class session
Monday	5:00 PM - 6:50 PM	Laboratory
Tuesday	5:30 PM - 6:45	Office hours
Wednesday	5:30 - 6:45	Lecture discussion

### Laboratory

Dr. Glover will briefly review the lab assignment for the week and students will have an opportunity to ask questions about the lab assignemnt. The remaining class time, Dr. Glover will be on zoom to assist as students work through the lab on their own.

### Office hours

Dr. Glover will be available on zoom for office hours during the regularly scheduled class time on Tuesdays. This is a time for students to answer questions as they work on the material for the week.

### Discussion

Discussion sessions are reserved for applying the student's knowledge of the weekly course material. We will work on review higher level, critical thinking questions and sample exam problems during this time. The discussion time will be an *interactive* class session, where students are expected to actively participate.

## Course materials

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The required textbook is a modified version of **Principles in Biology, 2nd ed. by Robert Brooker** , ISBN-10 : 978-1-307-04842-1 .

Student can get the book in a few different places. If you are not sure about the version that you find, please contact Dr. Glover. - The bookstore carries a version of this textbook which only includes the chapters we will cover at a reduced price. - You can rent the textbook from amazon for around \$40 (as of June 2020). [linked here](#) - You can also find used copies online from a variety of sources of the full book, which would be fine for the class.

Important Note: You will **not** need a subscription to CONNECT. Some versions come with a subscription, which is a more expensive version of the book and we will not be using this platform in class.

# Accessibility

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Students with disabilities who wish to receive ADA accommodations should report to the Disability Support Services, located in the Thurgood Marshall Library, Room 079, or contact Dr. Michael Hughes, (301.860. 4067 or mhughes@bowiestate.edu).

If you do have documentation from Dr. Hughes, please be sure to provide it to your instructor as early in the semester as possible so that accommodations can be made. Students who suspect that they have a disability but do not have documentation are encouraged to contact DSS for advice on how to obtain appropriate evaluation.

## Course learning goals

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By the end of the course, students can expect to be able to:

1. Demonstrate mastery of core biological principles

- Describe the characteristics of life and use them to determine the presence of life
- Illustrate the basic chemistry of life and interactions between atoms
- Describe the components and functions of the four macromolecules
- Explain basic cell functions and structures including contrasting features between eukaryotic and prokaryotic cells
- Summarize various cell transport models and cell communication methods
- Compare and contrast how animals and plants obtain and transform energy and matter
- Distinguish between the various steps within the cellular respiration and photosynthesis pathways
- Describe in detail the forms of energy and how enzymes function
- Differentiate between mitosis and meiosis
- Identify the principles of inheritance and solve classical genetic problems
- Explain the flow of genetic information

2. Communicate biological principles accurately and effectively

- Respond to open ended assessment questions
- Structure a scientific argument with supporting evidence
- Construct a scientific research report
- Effectively present own work in written and spoken format.

3. Engage in biological inquiry

- Explain the scientific method and demonstrate scientific reasoning
- Generate questions, hypotheses and predictions
- Design an effective experiment to test a specific hypothesis, including replication, randomization and controls.
- Maintain an accurate and complete lab notebook.
- Find valid and reliable sources of scientific information

4. Connect biological principles to broader, societal issues

- Recognize connections between major biological concepts
- Identify connections between biological principles learned in class and real-world issues
- Relate biological principles to own lives and interests

5. Prepare for future biology courses

- Take careful and accurate notes
- Participate fully in class and develop confidence
- Demonstrate enthusiasm for biology

# Course components

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## Grade breakdown

Your grade will be calculated by using a percentage system. All of your grades will be recorded in Blackboard including your current course grade. Exam re-grading must be in written form through email. Please email Dr. Glover with justification for your exam re-grade. Grading disputes must be addressed it within 5 days of getting your exam/assignment back.

Component	Percentage of grade
Assignments	15%
Concept checks	5%
Discussion	10%
Scientific Literacy Assignments	10%
Exams	40%
Laboratory	20%

**Grading scale:** A: 90 - 100%, B: 80 - 90%, C: 70 - 80%, D: 60 - 70%, F: < 50%

## Assignments (15%)

Before each class, students will be assigned reading from the textbook and/or other readings. In addition to the reading, there will be a set of questions based on the readings (for example, definitions, outlines, etc.) to be completed on Blackboard. These questions are to ensure that students are prepared for class and have engaged with the reading assignments. The problems will be used in the Thursday discussion session, therefore these assignments are not accepted late. However, the lowest two scores will be dropped at the end of the semester.

Additionally, there will be periodic assignments to aid in student learning of the content, including but not limited to data analysis, infographics, and problem sets.

## Concept checks (5%)

Concept checks will be given every once every module to assess student progress on class topics. Concept checks are designed to allow students to practice for exams and for instructor to assess competency in topics. Students are expected to complete the concept checks closed book and independently. This is to allow both the student and the instructor to identify what topics need improvement. **Answers on concept checks that are not completed independently and in your own words will receive a grade of zero.**

## Discussion (10%)

Students will be given discussion questions to answer in slack channels every two weeks. Students will have one week to answer the discussion questions independently and post their initial response. Students will then have one week to engage with and reply to other students' responses. Students are expected to make at least 2 replies to discussion question.

## Scientific literacy (10%)

In this assignment, students explore the impact of science in society by focusing on the racial injustice in science or scientific misconceptions. Students will write a research paper (approximately 800-1,000 words) and present

a 5 minute presentation on the topic. More details and grading rubrics will be available on blackboard. **The final paper is due on November 6 at 11:59PM and the presentations will take place on Zoom during class times on Tuesday, November 3 and Thursday, November 5.** There will be multiple checkpoints in the semester for feedback on the assignment. Students may not work on the same topic and the specific topic must be approved by Dr. Glover.

Students have the option of two assignments:

### **Option 1: Racial injustice in science**

In light of recent spotlights on social and racial injustice, this project will relate to identifying, understanding, and addressing racial inequalities as it relates to science. Several topics related to various scientists who have been associated with presenting science as a way to defend racism/racist beliefs and several scientific studies dehumanizing black individuals have been identified. In this project, students will research these topics/individuals and reflect on how to overcome challenges associated with their wrong doings.

### **Option 2: Scientific misconception**

There are many misconceptions about science concepts that are persistent in society (i.e. vaccinations cause autism). This misinformation associated with scientific topics can decrease scientific literacy. In this paper, students will research the scientific consensus on a specific topic and reflect on the impact scientific misconceptions have in society.

## **Exams (40%)**

There will be 4 unit exams given during the semester, each worth 10% of the total course grade. Format will be true/false, multiple choice, matching, short answer, data analysis, and essay. To reflect the nature of biology and the interrelatedness of concepts, **all exams will be cumulative.**

If you know that you will miss an exam for an excused absence, let the instructor know ASAP to arrange for a make-up exam. A student must notify the instructor and be approved for a make-up exam **prior** to the exam date to be eligible for a make-up exam. Make-up exams must be completed within one week of the original date of the exam.

All exams are individual assessments. All answers on this test must be written **in a student's own words**. All submitted answers must not be the same wording as what is found online, in the text book, or in the online notes. This is considered plagiarism. Also, if you are working with other students and you have the same answers, this is considered cheating. Any evidence of these will be shared with department and university administration and anyone caught cheating/plagiarizing will be disciplined.

## **Laboratory**

In the laboratory component of the course, students will work on an “authentic” research question. Students will perform on a semester long project, where they will work on a single research question from beginning to end. Students will run an introductory experiment to learn how to use specific experimental methods and then will work on a research project that they design utilizing DNA barcoding. To learn more about DNA barcoding, visit the barcode of life website.

The lab grade of the course will consist of the following components:

### **Lab assignments and lab notebook**

Each week, students will receive a virtual lab task to complete. The lab assignment will include:

- Background reading material
- Virtual lab assignment and questions
- Lab notebook

Each student is expected to keep an ongoing document as a lab notebook throughout the semester in their Microsoft OneDrive lab folder. A lab notebook entry is required for each lab class. Lab notebook entries must be done in a timely manner as this is important to ensure accurate record keeping of experiments.

Lab assignments build on each other; therefore students must complete the lab assignments in order. Students may not do a lab assignment until they have completed all previous assignments.

### **Lab poster (10%)**

Students will create a lab poster summarizing the class project. The poster should provide an accurate and complete overview of the experiment done in class including background information, methods, results figures, and a discussion of what the results mean. Students should be prepared to present the poster in front of instructors and/or other students. Students will begin working on the poster in the middle of the semester to receive feedback from the instructor on drafts. The final poster will be due at the end of the semester.

## **Course policies**

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### **Class participation and attendance**

Students are expected to attend all class sessions on Mondays and Thursdays and to **actively participate**. Class attendance is necessary to be successful in this course as there will be material that is only available by attending class. Furthermore, ***it is the student's responsibility to obtain class notes when absent***.

Please be aware that per University regulations five (5) unexcused absences may result in an automatic F as the final grade in the course. Students are considered absent if they arrive 30 minutes late to class. When possible, please contact Dr. Glover prior to a missed class, to ensure that you remain on track in the course. Written documentation of excused absence (i.e. illness, court appearance, school approved athletic event) must be submitted to the professor within 3 business days from the missed date of class.

### **Late Assignments**

Due dates for assignments are provided on Blackboard and on the course schedule. In general, lab assignments are due every Monday, and lecture assignments are due every Thursday. Instructor feedback will be given in order of submission.

Students have 5 "late passes" for the semester. This allows students to turn in an assignment late, for any reason, no questions asked. Each late pass equals 1 day late. For example, a student can use all five passes at once to turn in an assignment five days late. Or a student could use one pass on five separate assignments to turn in each a day late. After late passes are exhausted, 10% will be deducted for every day late. It is a student's responsibility to contact Dr. Glover to use a late pass. All assignments must be submitted by the last day of classes, Monday, December 14.

For extenuating circumstances (for example, hospitalization) where it is impossible for students to submit assignments, please contact Dr. Glover. Exceptions can be made at the instructor's discretion.

**Late passes do not apply to reading assignments, discussion forums, or exams which must be completed on the scheduled date.** If a student is unable to take an exam on the exam date, the instructor must be notified prior to the exam. Otherwise, the student will receive a 0 on the exam.

### **Academic dishonesty**

Academic integrity is taken very seriously in this course. A student's failure to use their own words is plagiarism. Student's working together on independent assignments is cheating. The instructor is required to report to the Department Chair and/or Dean all instances of academic misconduct, including cheating, fabrication, plagiarism, and the facilitation of such acts. The consequences of violating this policy may result in a zero for an examination or assignment, a failing grade for the course, or even dismissal from the university.

Please familiarize yourself with the university's policy (see below).

University Policy Regarding Academic Honesty from the [Undergraduate catalog](#)

Students are expected to conform to a strict standard of academic honesty. Cheating on examinations, plagiarism, unauthorized collaboration with others on assignments, submitting without authorization duplicate assignments for credit in more than one course, and improper acknowledgment of sources of material are intolerable offenses that carry serious penalties.

### **Policy on Plagiarism**

1. Plagiarism is the act of representing another's ideas, words, or information as one's own. Every student writing a paper should be aware of the following principles.
  - o All directly quoted materials must be identified as such by quotation marks. The source(s) of this material must be acknowledged.
  - o When borrowed ideas or information is not directly quoted by a student, the student should have so assimilated this material that it is indeed being expressed in his/her own words. However, just as in the case of direct quotations, the sources of such borrowed ideas or information must be acknowledged.
2. The sources of ideas or information lying well within the realm of common knowledge (i.e., material that would be known by anyone familiar with the subject under discussion) need not be acknowledged.
3. Students guilty of plagiarism are subject to severe penalties, ranging from failure for the assignment to failure in the course or, in extreme cases, dismissal from the University. The instructor, in consultation with the Departmental Chair and the School Dean, shall determine the appropriate sanction to be imposed. Students appealing the imposed sanction must present their appeal in writing to the Provost for a final resolution.

### **Procedures for Handling Cases of Alleged Infractions of Academic Honesty**

1. Faculty members are required to deal directly with any academic infractions. Actions taken must reflect the seriousness of the infractions and could range from a verbal warning, an assigned grade of "F" for the course, academic suspension, to dismissal from the University.
2. In cases where the instructor concludes that the infraction is severe, a recommendation may be made to the Dean for academic suspension or dismissal from the University.
3. The Dean may arrange a hearing with individuals (faculty members from another department and student from the Judicial Board) to evaluate the appeal. The Dean will render a final resolution.

## **Additional Resources**

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### **Tutoring Centers**

The mission of the Tutoring Program at Bowie State University is to provide students with efficient support so they can succeed academically.

PRISEM Tutoring Center is located in the Computer Science Building in Room 107. You can request a tutoring session during the center's hours of operation (Monday-Friday from 9 am to 6 pm) in two ways: walk-in and appointments. For more information, please call 301-860-3999. Online tutoring services are available. It can be accessed through Blackboard or directly: [www.smarthinking.com](http://www.smarthinking.com). For a full list of available subjects and schedules, please visit: [http://www.smarthinking.com/static/pub\\_common/hours.cfm?st=1](http://www.smarthinking.com/static/pub_common/hours.cfm?st=1)

### **Smarthinking Tutoring**

Smarthinking provides online tutoring 24 hours a day, 7 days a week. It can be accessed through Blackboard.



## **The Writing Center**

The Writing Center at Smith Vidal Literacy and Language Center helps all Bowie State University students become stronger and more confident writers. Through one-on-one sessions with writing consultants, you will be empowered to overcome challenges in any stage of the writing process. Come with your assignment, your draft, and your questions. Sessions last up to 50 minutes and must be scheduled at least one day in advance. Visit the Writing Center in Room 204 of the MLK Building, or contact them at (301) 860-3720 or [writingcenter@bowiestate.edu](mailto:writingcenter@bowiestate.edu) to make an appointment today! For more information, visit [www.bowiestate.edu/writingcenter](http://www.bowiestate.edu/writingcenter).

## **Thurgood Marshall Library**

The Thurgood Marshall Library (TML) provides vital resources and services to meet the information and research needs of the Bowie State University community. Visit the Library in-person, on the internet at [www.bowiestate.edu/academics-research/library](http://www.bowiestate.edu/academics-research/library) or contact them at (301) 860-3850. .

## **NCBI eTextbooks**

You can access free online editions of textbooks at the National Center for Biotechnology Information (NCBI) website: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Books>. Use the search bar to find relevant books.

## **Open Source Textbooks**

CK12.org offers free flexbooks and other learning resources to assist on your educational journey. The link below will access the Biology book. It provides a broad overview on topics but it is not very detailed nor comprehensive for our course. Nonetheless, you may find it valuable. It can be accessed through Blackboard or by: <http://www.ck12.org/book/CK-12-Biology/>