

BIOLOGY 103: Introductory Biology II Lecture

Survey of Cell and Molecular Biology

COURSE SYLLABUS – Summer 2025

A Note of Caution for Summer Courses:

*Summer courses are generally concentrated, intense, and fast-paced. Although it is theoretically possible to complete the course successfully while taking other courses, working, or having significant family or other outside responsibilities, it is **not** recommended.*

LECTURE INSTRUCTOR

Section C02 MTWR 10:30am-12:35pm (Innovation Hall 209) Dr. Laemmerzahl alaemmer@gmu.edu

REQUIRED TEXTS AND ACCESS CODE

Lecture Text: Shuster, Vigna, and Tontono. 2018. *Scientific American Biology for a Changing World*. 4th edition. Macmillan Learning, New York.

Online Homework on Achieve: More details below and from your instructor.

Note regarding textbook and homework access: To enhance your learning experience and provide affordable access to the right course material, this course is part of an inclusive access model called **First Day**. You can easily access the required materials for this course at a **discounted price**, and benefit from single sign-on access with **no codes required** in Canvas. Mason will bill you at the discounted price as a course charge for this course. It is NOT recommended that you Opt-Out, as these materials are required to complete the course. You can choose to Opt-Out on the first day of class, but you will be responsible for purchasing your course materials at the full retail price and access to your materials may be suspended.

For more information and FAQs go to customer care.bncollege.com.

If you are taking the optional lab, BIOL 105, the lab manual must be purchased separately from the bookstore (search by your lab section number) before the first lab meeting. See your lab syllabus for details.

REQUIRED TECHNOLOGY FOR THIS COURSE

This course uses Canvas to share course content and manage assignments. You'll need your Mason username (NetID) and password to access Canvas. Log in to canvas.gmu.edu and select the Courses tab to locate your course. Be sure to check the notification settings so that you are promptly notified when new materials are posted.

Check your Internet Connection. To complete and turn in your assignments and other online activities, you will need consistent basic wireless or cellular connection at your home or study site. Technical issues are not an accepted excuse for late assignments.

We use Achieve, an **online homework management system**, for graded assignments in this course. You will be using this tool to do homework assignments. **Access to Achieve is included with the First Day program.** If you opted out of the First Day program you will need to purchase access to the homework separately. It is possible to purchase a subscription separately; you **will need** it for the graded homework assignments. **Information and instructions for accessing homework will be provided by your instructor.**

BIOL 103 – DESCRIPTION, GOALS, AND LEARNING OBJECTIVES:

Biology 103 is an approved Mason Core Natural Science course. The Mason Core natural sciences courses engage students in scientific exploration; foster their curiosity; enhance their enthusiasm for science; and enable them to apply scientific knowledge and reasoning to personal, professional and public decision-making.

To fulfill the requirements of the Mason Core, students in BIOL 103 will

1. Understand how scientific inquiry is based on investigation of evidence from the natural world, and that scientific knowledge and understanding: a) evolves based on new evidence, and b) differs from personal and cultural beliefs.
2. Recognize the scope and limits of science.

- 3. Recognize and articulate the relationship between the natural sciences and society and the application of science to societal challenges (e.g., health, conservation, sustainability, energy, natural disasters, etc.).**
- 4. Evaluate scientific information (e.g., distinguish primary and secondary sources, assess credibility and validity of information).**

This Introductory Biology courses provide students with an understanding of, and appreciation for, the many facets of the biological world. **Biology 103 begins with an introduction to the scientific method and then proceeds to look at the fundamental building blocks of life before examining cells, energy transformations, genes and heredity. The final portion of the course examines the relationship between basic biological research and current societal challenges using relevant cases studies.**

The laboratory exercises in BIOL105 are designed to illustrate and expand on the BIOL103 lecture topics. The lab is optional, and students may enroll in lab and lecture concurrently, or take the lab in a different semester. Students taking the lab earn a grade for the lab that is separate from the lecture and does not impact the lecture grade.

Enrollment in both BIOL103 and BIOL105 fulfills (in part) the Mason Core Natural Science with Lab requirement. Enrollment in BIOL103 alone fulfills the Mason Core Natural Science (without lab) requirement. No credit will be awarded to students who are not appropriately enrolled by the official deadlines.

The [Registrar's published Summer 2025 calendar](#) lists the deadlines to drop or withdrawal from this course. Students are responsible for being sure they are properly enrolled in the course and, if a student drops the course, the student is also responsible for dealing with all the associated paperwork, and in a timely fashion. Instructors will not "automatically" drop a student who merely stops coming to class.

Course Policies

GMU e-mail: All George Mason students are issued an e-mail account. **Email communications with this class will be conducted through your GMU email account only.** Messages sent through the "Canvas Messages" system are not monitored unless otherwise stated by your lecture instructor.

GMU ID cards: All students are issued a GMU photo ID card. Please have this ready and available during exams to verify your identity. Instructors and exam proctors are not required to honor identification cards other than those issued by the University.

ATTENDANCE: Regular attendance in both laboratory and lecture is crucial to successful completion of this course. Studies have shown that students who attend each class perform far better than those whose attendance is irregular. Students are expected to attend all class sessions. Many interesting, subtle and valuable points can be presented in class, which may not be presented in the text. **Therefore, students are responsible for being aware of all information presented in person or posted online, including all announcements and instructor emails.**

Check your email and Canvas Announcements regularly & often. Your instructor will be sending you updates, announcements, and reminders. Update notifications on Canvas so you're always up to date. Be sure to write down all in-class announcements.

STUDENTS WITH DISABILITIES: Both lab and lecture instructors are happy to make arrangements with students with disabilities. These arrangements, however, must be made through the Office of Disability Services (ODS) at 993-2474. Please contact both the ODS and your instructors as soon as possible for any accommodations you might need.

CLASSROOM BEHAVIOR: If something is not clear to you, by all means, ask questions! A well-timed question can help everyone in class, even the instructor. Students are asked to be respectful and considerate of one another. If it is necessary to carry on activities that are not directly related to the material being presented in class, please leave the class and conduct these activities elsewhere.

In order to make the most effective use of both students' and instructor's time and energy, disruptive students may be asked to leave. Students are required to comply with the directions of University officials (including faculty) who are acting within their authority to uphold a University policy. Note that any behavior that interferes with the normal operation of the teaching/learning environment is a violation of the GMU [student code of conduct](#).

Use good "[Netiquette](#)" when you are emailing your instructor, learning assistants, or peers. Critique ideas and ask questions but treat people respectfully & professionally. Remember that tone and humor may be easily misinterpreted by others, especially in written text.

CANCELED CLASSES: If an exam is scheduled for a day on which classes are canceled for any reason, the exam will be given during the next scheduled class. Call (703) 993-1000 for official notification of canceled classes.

HONOR CODE: Students are required to read and adhere to the George Mason University Honor Code. Ignorance of the Honor Code is no excuse for infractions thereof. The GMU Honor Code is enforced in all Biology courses. All work done in lecture and lab (exams, data sheets, quizzes, etc.) must be the sole work of the individual student whose name appears on the assignment. Copying data, falsifying data, failing to give credit to referenced sources, cheating on exams and quizzes are among violations of the Honor Code, and will be dealt with most seriously.

Important warning regarding online study sites: Some kinds of participation in online study sites violate the Mason Honor code: these include accessing exam or quiz questions for this class; accessing exam, quiz, or assignment answers for this class; uploading of any of the instructor's materials or exams; and uploading any of your own answers or finished work. Always consult your syllabus and your professor before using these sites. **Violators will be reported to the Office of Academic Integrity.**

MIDTERM & FINAL EXAMS: To evaluate understanding of lecture material, two midterm exams will be given, each worth **100** points. In addition, there will be a cumulative final exam, worth **140** points which all students must take. Hourly exams for classes meeting multiple times per week will be given on the last meeting of the week.

Absolutely no make-up exams, including the final exam, will be given to a no-show student under any circumstances. In exceptional cases, such as with documented evidence of a serious illness, and with approval of the instructor, a missed exam may be made up on the day of the final exam. You should contact the instructor immediately if you are having medical difficulties and will miss an exam for any reason. Make up exams will be all essay questions.

The final exam schedule is set by the University. There are no make ups. Plan ahead!

HOMEWORKS: There will be about 10 online homework assignments worth a total of **120** points.

CASE STUDY QUIZZES: The final meetings of this course will focus on applications of cell and molecular biology research to real-world problems. There will be one quiz on each of the case studies presented in the class. Each quiz is worth **15** points each.

COURSE GRADE BREAKDOWN AND CALCULATION

<u>Graded Material</u>	<u>Total Points</u>	<u>Grade</u>
Midterm Exams (40%)	200	98.00 --100% = A+
Online Homework (24%)	120	90.00 --97.99% = A
Case Study Quizzes (6%)	30	87.00 – 89.99% = B+
Cumulative Final Exam (30%)	150	80.00 – 86.99% = B
	500 total	77.00 – 79.99% = C+
		70.00 – 76.99% = C
		60.00 – 69.99% = D

There are no make ups, extra credit, or special treatment!!

WHERE TO GET HELP!

Biology is a fascinating subject, but one which some students find daunting. If you find yourself having any difficulties in this course, see your instructor in their online office hours ASAP. **All instructors have posted office hours, during which appointments are not necessary.** In addition, instructors may be able to meet students outside of their posted hours in order to accommodate student schedules. It is the students' job to ask for individual help when they need it.

Much of the material in Biology 103 builds on material covered previously in the semester, therefore it is necessary to have a good understanding of one concept before moving on to the next. If you feel your understanding is inadequate; if you feel you are getting "lost," see your instructor immediately!! **We are here to help!**

Many tips for successful learning can be found here. Be proactive and take responsibility for your learning. In large or online sections, your professor may have fewer "clues" about whether or not you understand course content. Reach out to your instructor if there is something that is not clear to you, or if you are having difficulty keeping up with the course. If you are having issues with the technology, let your instructor know and then contact [Courses Support](#) for help.

Learning Services If you need assistance, please contact Learning Services at 703- 993-2380, or via email at lsstaff@gmu.edu. Learning Services offers online [academic coaching](#) and [academic workshops](#), as well as a list of Mason [tutoring](#) resources.

Counseling and Psychological Services Counseling and Psychological Services (CAPS) remains available to provide services to Mason students. Please see CAPS' website for a list of hours and resources. CAPS also offers [virtual workshops](#) focused on healthy coping skills. Contact CAPS at 703-993-2380.

Disability Services Disability Services is available to serve all students with disabilities, including those with cognitive, learning, psychological, sustained head injuries, sensory, mobility, and other physical impairments.

Many students find joining study groups with fellow classmates useful and enriching both academically and personally. Learning outside the classroom may be the most important learning of all! Make use of the many rich academic and personal resources that continue to be available at Mason!

Biology 103 Summer 2025

Lecture Schedule

Week of Semester	Lecture Topics Assignments and Learning Objectives Exams on the days as announced by the instructor	Chapter in <u>Bio for a Changing World</u>
Week 1 Jun 30-July 3	Introduction and Scientific Method	1
	The Chemical Basis of Life	2
	Introduction to Cell Structure and Function	3
Week 2 July 7-11	Macromolecules and Enzymes	4
	Energy and Photosynthesis	5
	Exam1	
Week 3 July 14-18	Cellular Respiration	6
	DNA	7
	Gene Expression	8
Week 4 July 21-25	Mitosis, Mutation, and Cancer	10
	Meiosis and Inheritance	11, 12
	Exam2	
Week 5 July 28-30	Cases Studies: Viruses	9
	Case Studies: CRISPR and genetic engineering	9
	Wrap Up & Review for Comprehensive Exam	

Final exam: We will most likely get done early, and will have our final early as well.