

McLennan

C O M M U N I T Y

COLLEGE

WACO, TEXAS

COURSE SYLLABUS AND INSTRUCTOR PLAN

General Biology

BIOL 1408.50

JEFFREY N. MINK, PH.D.

NOTE: This is a 16-week course.

COVID-19 Notice:

McLennan Community College is committed to providing you with every resource you need to reach your academic goals including your safety. We will continue to monitor the evolving situation with COVID-19 and adjust our safety guidelines to make sure we offer a safe environment for you and our faculty. Please make sure to consult your faculty and the MCC website on any changes to these guidelines.

Course Description:

Provides a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function, and reproduction. Introduces the fundamental concepts of molecular biology, cell structure and function, photosynthesis and respiration, cellular and organismal control mechanisms of plants and animals, mitosis and meiosis, plant and animal reproduction, genetics, evolution, and principles of ecology. Semester credit hours 4 (3 lecture/1 lab)

Prerequisites and/or Corequisites:

NONE

Course Notes and Instructor Recommendations:

This course will provide the non-science majors the basic information in biological principles that every educated individual must be familiar with to make decisions and think critically about news, society and life. The ultimate goal of the course is to develop scientific literacy and an appreciation of the role of organisms in the ecology of the planet.

Instructor Information:

Instructor Name: Jeffrey N. Mink, Ph.D.

MCC E-mail: jmink@mcclennan.edu

Office Phone Number: 299-8176

Office Location: SB 236

Office/Teacher Conference Hours: 30 minutes immediately after class, or by appointment

Optional Text & Materials:

[MCC Bookstore Website](#)

Biology: A Guide to the Natural World, by Krogh, D. 1st, 2nd, 3rd, 4th or 5th eds.

1st ed. ISBN: 9780023668913 to 5th ed. ISBN: 9780023668913 Publisher: Pearson

Biology: the essentials, 1st, 2nd or 3rd eds., by Hoefnagels, M. 3rd ed. ISBN: 9781259824913

1st ed. ISBN: 9780078096921 - 2nd ed. ISBN: 9780077295349 Publisher: McGraw-Hill

Student Support/Resources:

MCC provides a variety of services to support student success in the classroom and in your academic pursuits to include counseling, tutors, technology help desk, advising, financial aid, etc. A listing of these and the many other services available to our students is available at <http://www.mcclennan.edu/campus-resource-guide/>

College personnel recognize that food, housing, and transportation are essential for student success. If you are having trouble securing these resources, we encourage you to contact a success coach by calling (254) 299-8226. Students can visit the Completion Center Monday-Friday from 8:00 a.m.-5:00 p.m. to meet with a success coach and receive additional resources and support to help reach academic and personal goals. *Paulanne's Pantry* (MCC's food pantry) is open 12:00 p.m.-1:00 p.m., Monday-Friday, without an appointment. The Completion Center and pantry are located on the Second Floor of the Student Services Center (SSC).

Minimum Technical Skills:

Students should have basic computer skills, knowledge of word processing software, and a basic understanding of how to use search engines and common web browsers.

Backup Plan for Technology:

In the event MCC's technology systems are down, you will be contacted/notified through your MCC student email address. Please note that all assignments and activities will be due on the date specified in the Instructor Plan, unless otherwise noted by the instructor.

*** [Click Here for the Minimum System Requirements to Utilize MCC's D2L Brightspace](http://www.mclennan.edu/center-for-teaching-and-learning/teaching-commons/requirements)**

(www.mclennan.edu/center-for-teaching-and-learning/teaching-commons/requirements) Click on the link above for information on the minimum system requirements needed to reliably access your courses in MCC's D2L Brightspace learning management system.

Methods of Teaching and Learning: Final grades determined by these guidelines: Four (4-5) exams will be given and a comprehensive final. Additionally, lab exercises, pop quizzes, field trips or projects may be administered throughout the course of the semester.

Course Objectives and/or Competencies:

Biology 1408 is an introductory course designed to initiate various topics in the natural sciences. These include the scientific method and characteristics of life, chemical and molecular concepts, cellular basis of life, respiration and photosynthetic metabolic processes, control mechanisms, cell and organismal reproduction and developmental stages, evolution and ecology.

Students will:

- 1) Critically discuss various topics in the biological sciences and apply the scientific method.
- 2) Integrate basic chemistry and cell/molecular biology to all living organisms.
- 3) Explain and compare the concepts and mechanisms of cellular metabolism/respiration, energetics, and photosynthesis.
- 4) Investigate the mechanisms of control and transmission of hereditary materials, and the structure, function, and synthesis of nucleic acids.
- 5) Recognize the significance of natural selection on the evolutionary history and development of plants and animals.
- 6) Evaluate factors involved in ecology and impact role of other organisms (including man).

At the end of the course the student should be able to:

1. Describe the basic organization of life from the smallest unit of matter to its relationship with the environment.
2. Recognize key biological macromolecules and the role they play in cell structure and function.
3. Recognize cellular structure and function. Distinguish between prokaryotic and eukaryotic. Compare and contrast methods of cellular division (mitosis and meiosis) in both plant and animal cells. Also recognize organismal reproductive methods – sexual and asexual in both plants and animals.

4. Relate the major metabolic processes (i.e. photosynthesis and respiration) to the sustainability of life. Interpret cell physiology results involving movement across semipermeable membranes.
5. Understand homeostasis and various control mechanisms in plants and animals which, if operate properly help maintain/ regulate life processes. Distinguish several illnesses/ diseases which result if these mechanisms fail to work properly.
6. Understand the role of DNA in inheritance and regulation; be able to illustrate how genetic leads to the diversification of life. Recognize several genetic defects by karyotypes, interpret pedigrees, and compare examples of biotechnology.
7. Recognize the importance of *Natural Selection* on the evolutionary development of plants and animals, as well as all life forms. Contrast natural selection with artificial selection.
8. Evaluate the factors involved in ecology and the role of humans and their impact on the biosphere.
9. Apply scientific reasoning to investigate questions and utilize scientific tools to collect and analyze data. Communicate effectively the results of scientific investigations.

Study Hints: The successful study of biology requires time; therefore, spend adequate time on it. It is usually recommended students study 2-3 hours for every hour spent in class. Recopying and organizing your notes after each class will also help. As well as dating and organizing material covered by exams. The use of flash cards may be very good for learning terms and definitions since biology has an exceptional vocabulary. Redraw important illustrations and graphic relationships. Ask questions in class and ask me to repeat any point that is not clear to you. If you can't come up with questions during class as you study, write down your questions to ask me during the next class. *Don't wait until the last minute to start studying for an exam.*

Course Outline or Schedule:

The BIO1408 schedule for spring 2023 is to be used as a guide only. Dates are subject to change. Labs in italics and exams will be face-to-face, other material will be accessible online in Brightspace email or link activities. You will be informed of such changes exclusively through class announcements and/or on Brightspace (MCC email).

^ψ *Weather closures will move activities until next class meeting.*

<i>Week</i>	Week of:	Topic ^{\$\$} All dates are TENTATIVE	Read Before Lecture from Text
1	1/9, 1/11	Science as a Way of Learning; Biology Principles Scientific Method. <i>Graphing Lab</i>	Chap 1 Chap 12
2	1/16 MLK ; 1/18	Ecology~ <i>Trophic Level Lab</i>	Chap 18 & 19 (to 19.6)
3	1/23; 1/25	Ecology & Populations; HIV Demography Evolution~ <i>Natural Selection Lab</i> ;	Chapter 17.12 Chap. 15-17 (in part)
4	1/30; 2/1	Evolution; Biology of UV selective pressures Exam 1: Material from Week 1-4	Chap 13 & 14
5	2/6; 2/8	Biochemistry- Model, Bonds, Water, pH, <i>Macromolecules Lab</i>	Chap 2 & 3 Chap 3.1, 3.2 & 3.4
6	2/13; 2/15	Life's Home: The Cell: Theory, types, structures <i>Life's Border: The Plasma Membrane, Function & Lab</i>	Chap. 3.3 & Chap 4
7	2/20; 2/22	Exam 2: Material from Week 1-6 Vital Harvest: Deriving Energy from Food: Respiration	Chap 5 & 6: Cell Biology
8	2/27; 3/1	Photosynthesis: Energy & Its Transformation- <i>Pigment Lab</i> Gene Intro: Mitosis & Meiosis- Cancer Biology in Humans	Chap 7, 8 & 9: DNA, Cancer / Disease
9	3/6; 3/8	<i>SPRING BREAK</i>	
10	3/13; 3/15	DNA Structure and Replication. <i>DNA extraction lab</i> Exam 3: Material from Week 1-9	Chap. 9 & 11; 22
11	3/20; 3/22	Asexual & Sexual Reproduction; Plant Reproduction; Viruses <i>Monohybrid Cross Lab</i>	Chap. 10 & 13.6: Genetics
12	3/27; 3/29	The First Geneticist: Mendelian Genetics & Inheritance; Human genetics & diseases- <i>Pedigrees & Human Genetics Lab</i>	Chap. 10 (10.8) Chap. 7 (7.7 & 7.8; 11)
13	4/3; 4/5	DNA Technology; Plasmids, Cloning, GMF; Exam 4: Material from Week 1-12	Chap. 19 (19.7 only)
14	4/10; 4/12	Biogeography, Biomes & Biogeochemical Cycles Populations, Communities & Ecosystems- <i>Biodiversity Lab</i>	Chap. 16 & 17 (in part) Chap. 19 (19.4-19.7) & 20
15	4/17; 4/19	Classifications and Diversity ~ Sustainability, Plant Succession, Distributions, & Conservation Biology- <i>Bee Lab</i>	Chap. 20 Supplemental
16	4/24; 4/26	Animal Behavior I&II- <i>Raven/Ethology Lab</i>	Supplemental
17	5/1	FINAL EXAM 70 old/30 new	

Course Grading Information: Chapter exams are scheduled throughout the semester, and a comprehensive final. In addition, lab exercises, discussion articles, pop quizzes and research projects will be given during the semester.

Final grade will be determined by the following guidelines:

Chapter Exams	60%	A>89%
Final Exam	20%	B>79%
Labs	20%	C>69%
		D>59%
Possible	100%	F<59%

** Final is comprehensive and will include questions from the topics that we cover after the last exam plus questions from previous exams (in a slightly altered format). Your grade, expressed as a percentage of points possible may be replaced by the final exam grade, only if the final exam grade percentage is higher. I will compute both methods and award the higher grade. If you fail to take one or more tests, the traditional method will apply, all grades computed and your letter grade will be as stated as per above scale. I reserve the right to change (lower) the grading scale to compensate for test or grading errors.

Core Objectives:

Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.

- Students use inductive and deductive reasoning, explore problems using logical process of inquiry, analysis evaluation and synthesis. Assessed by use class discussions, laboratory exercises, writing assignments, lecture examinations.

Communication Skills: to include effective development, interpretation, and expression of ideas through written, oral and visual communication.

- Students assessed through written assignments, case studies, class discussions, and/ or poster board presentations. Student projects, either individually or as small groups, to be presented to instructor and classmates using oral, written, and visual components.

Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

- Students work on various biological problem-solving skills throughout the course. Assessed through lecture examinations, laboratory exercises, and field activities.

Teamwork: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

- Student teamwork assessed through group laboratory exercises, case studies, class discussions, and/ or poster board presentations. Students work together to contribute to small group presentations, which will be presented to instructor and classmates using oral, written, and visual components.

Late Work, Attendance, and Make Up Work Policies:

If you miss an exam, you will not be allowed to take a make-up test, that exam will count as drop for your absence on the day of the exam. This score may be replaced by the cumulative percentage of the final provided your absences are minimal. Additional “no-shows” for any exam, for any reason, will result in disqualification for course credit. It will not be possible to make-up in-class labs, pop quizzes, or bonus assignments. The individual receiving credit for the course must turn-in all work and attend required labs and class.

Student Behavioral Expectations or Conduct Policy:

Students are expected to maintain classroom decorum that includes respect for other students and the instructor, prompt and regular attendance, and an attitude that seeks to take full advantage of the education opportunity.

- 1) Student attendance is required at every class, not only to successfully learn the materials covered, but also to obtain information concerning tests, schedule changes, and any additional material for which you are responsible. **Students who leave early or arrive late will accumulate additional absences (1 absence for every 2 late arrivals/early departures).** Chronic and habitual late arrival and/or early departures will result in receipt of a "F" or involuntary withdrawal from the course.
- 2) Make-up quizzes, bonus credit, and late journal articles/notes are not accepted.
- 3) Additionally, homework may be given for work outside of class time. This homework is due at the beginning of class on the date given. A penalty of 5 points per day, including weekends and holidays, will be deducted from homework assignments turned in late.
- 4) **Turn off all cell phones OR put on silent mode, habitual violators will receive a 10pt. reduction in their final course grade. Phone usage during lab for data calculations are accepted.**
- 5) You must wear long pants and close-toed shoes (i.e. no sandals, crocs®, etc.) to participate and receive credit for labs. Food, cosmetics and other aromatic elements have no place in the lecture nor lab space, for your safety and others. Failure to follow these codes and standards can result in disciplinary sanctions as outlined in the Highlander student guidebook.
- 6) If you are ill, high temperature, or feeling ill, do not come to class to inform me, use email.

*** [Click Here for the MCC Academic Integrity Statement](http://www.mclennan.edu/academic-integrity)
(www.mclennan.edu/academic-integrity)**

The link above will provide you with information about academic integrity, dishonesty, and cheating.

Academic Integrity Statement: Cheating will result in failure for the course and referral to Center for Academic Integrity. This includes but is not limited to plagiarism; turning in someone else's work as your own, removal of testing materials, capturing digital imaging of test content, or copying intellectual decisions of a cohort.

* [Click Here for the MCC Attendance/Absences Policy](#)

(www.mclennan.edu/highlander-guide/policies)

* *You will need to access each link separately through your Web browser (for example: Mozilla Firefox, Chrome, Microsoft Edge or Safari) to print each link's information.*

Click on the link above for the college policies on attendance and absences. Your instructor may have guidelines specific to this course.

Updated 11/04/2022

McLennan
C O M M U N I T Y
COLLEGE

ACADEMIC RESOURCES/POLICIES

Accommodations/ADA Statement:

Any student who is a qualified individual with a disability may request reasonable accommodations to assist with providing equal access to educational opportunities. Students should contact the Accommodations Coordinator as soon as possible to provide documentation and make necessary arrangements. Once that process is completed, appropriate verification will be provided to the student and instructor. Please note that instructors are not required to provide classroom accommodations to students until appropriate verification has been provided by the Accommodations Coordinator. For additional information, please visit www.mclennan.edu/disability.

Students with questions or who require assistance with disabilities involving physical, classroom, or testing accommodations should contact:

disabilities@mclennan.edu 254-299-
8122
Room 319, Student Services Center

Title IX:

We care about your safety, and value an environment where students and instructors can successfully teach and learn together. If you or someone you know experiences unwelcomed behavior, we are here to help. Individuals who would like to report an incident of sexual misconduct are encouraged to immediately contact the acting Title IX Coordinator at titleix@mclennan.edu or by calling, Dr. Claudette Jackson, (Diversity, Equity & Inclusion/Title IX) at (254) 299-8465. MCC employees are mandatory reporters and must report incidents immediately to the Title IX Coordinator. Individuals may also contact the MCC Police Department at (254) 299-8911 or the MCC Student Counseling Center at (254) 299-8210. The MCC Student Counseling Center is a confidential resource for students. Any student or employee may report sexual harassment anonymously by visiting <http://www.lighthouse-services.com/mclennan/>.

Go to McLennan's Title IX webpage at www.mclennan.edu/titleix/. It contains more information about definitions, reporting, confidentiality, resources, and what to do if you or someone you know is a victim of sexual misconduct, gender-based violence or the

crimes of rape, acquaintance rape, sexual assault, sexual harassment, stalking, dating violence, or domestic violence.

Student Support/Resources:

MCC provides a variety of services to support student success in the classroom and in your academic pursuits to include counseling, tutors, technology help desk, advising, financial aid, etc. A listing of these and the many other services available to our students is available at <http://www.mclennan.edu/campus-resource-guide/>

Academic Support and Tutoring is here to help students with all their course-related needs. Specializing in one-on-one tutoring, developing study skills, and effectively writing essays. Academic Support and Tutoring can be found in the Library and main floor of the Learning Commons. This service is available to students in person or through Zoom from 7:30 am - 6:00 pm Monday through Thursday and 7:30 am - 5:00 pm on Friday. You can contact the Academic Support and Tutoring team via Zoom (<https://mclennan.zoom.us/j/2542998500>) or email (ast@mclennan.edu) during the above mentioned times.

College personnel recognize that food, housing, and transportation are essential for student success. If you are having trouble securing these resources or want to explore strategies for balancing life and school, we encourage you to contact either MCC CREW – Campus Resources Education Web by calling (254) 299-8561 or by emailing crew@mclennan.edu or a Success Coach by calling (254) 299-8226 or emailing SuccessCoach@mclennan.edu. Both are located in the Completion Center located on the second floor of the Student Services Center (SSC) which is open Monday-Friday from 8 a.m.-5 p.m.

Paulanne's Pantry (MCC's food pantry) provides free food by appointment to students, faculty and staff. To schedule an appointment, go to https://mclennan.co1.qualtrics.com/jfe/form/SV_07byXd7eB8iTqJg. Both the Completion Center and Paulanne's Pantry are located on the second floor of the Student Services Center (SSC).

MCC Foundation Emergency Grant Fund:

Unanticipated expenses, such as car repairs, medical bills, housing, or job loss can affect us all. Should an unexpected expense arise, the MCC Foundation has an emergency grant fund that may be able to assist you. Please go to <https://www.mclennan.edu/foundation/scholarships-and-resources/emergencygrant.html> to find out more about the emergency grant. The application can be found at https://www.mclennan.edu/foundation/docs/Emergency_Grant_Application.pdf.

MCC Academic Integrity Statement:

Go to www.mclennan.edu/academic-integrity for information about academic integrity, dishonesty, and cheating.

Minimum System Requirements to Utilize MCC's D2L|Brightspace:

Go to <https://www.mclennan.edu/center-for-teaching-and-learning/Faculty-andStaffCommons/requirements.html> for information on the minimum system requirements needed to reliably access your courses in MCC's D2L|Brightspace learning management system.

Minimum Technical Skills:

Students should have basic computer skills, knowledge of word processing software, and a basic understanding of how to use search engines and common web browsers.

Backup Plan for Technology:

In the event MCC's technology systems are down, you will be notified via your MCC student email address. Please note that all assignments and activities will be due on the date specified in the Instructor Plan, unless otherwise noted by the instructor.

Email Policy:

McLennan Community College would like to remind you of the policy (<http://www.mclennan.edu/employees/policy-manual/docs/E-XXXI-B.pdf>) regarding college email. All students, faculty, and staff are encouraged to use their McLennan email addresses when conducting college business.

A student's McLennan email address is the preferred email address that college employees should use for official college information or business. Students are expected to read and, if needed, respond in a timely manner to college emails. For more information about your student email account, go to www.mclennan.edu/studentemail.

Instructional Uses of Email:

Faculty members can determine classroom use of email or electronic communications. Faculty should expect and encourage students to check the college email on a regular basis. Faculty should inform students in the course syllabus if another communication method is to be used and of any special or unusual expectations for electronic communications.

If a faculty member prefers not to communicate by email with their students, it should be reflected in the course syllabus and information should be provided for the preferred form of communication.

Email on Mobile Devices:

The College recommends that you set up your mobile device to receive McLennan emails. If you need assistance with set-up, you may email Helpdesk@mclennan.edu for help.

You can find help on the McLennan website about connecting your McLennan email account to your mobile device:

- [Email Setup for iPhones and iPads](#)
- [Email Setup for Androids](#)

Forwarding Emails:

You may forward emails that come to your McLennan address to alternate email addresses; however, the College will not be held responsible for emails forwarded to an alternate address that may be lost or placed in junk or spam filters.

For more helpful information about technology at MCC, go to [MCC's Tech Support Cheat Sheet](#) or email helpdesk@mclennan.edu.

Disclaimer:

The resources and policies listed above are merely for informational purposes and are subject to change without notice or obligation. The College reserves the right to change policies and other requirements in compliance with State and Federal laws. The provisions of this document do not constitute a contract.