BIO 1406 (4:3:3)

General Biology I

Department of Biology

Division of Arts and Sciences

Levelland Campus

SOUTH PLAINS COLLEGE

Spring 2021

David R. Etheredge

Professor of Biology



  **SYLLABUS**

**GENERAL COURSE INFORMATION**

**BIOL 1406 GENERAL BIOLOGY I**

**Spring 2021**

**Instructor**: David R. Etheredge

Office: Science Building S‑184

Office Telephone: 806 716-2319

E-mail: detheredge@southplainscollege.edu

Office Hours: Monday – 1:30 – 3:30

 Tuesday – 8:00 – 10:00

 Wednesday – 1:00 – 3:00

 Thursday – No Office hours

 Friday – 9:00 - 11:00

**Course Description:** Fundamental principles of living organisms will be studied, including physical and chemical properties of life, organization, function, evolutionary adaptation, and classification. Concepts of cytology, reproduction, genetics, and scientific reasoning are included.

This is the first semester of an integrated biology course for science majors and related studies, including the medical disciplines.

**Course Implementation:**

Prerequisite: None

Credit: Four semester hours

**Recommended text:** Campbell *Biology*, 11th Ed. by Reece et.al.

**Lab Manual:** During a “normal face to face semester” you would be required to purchase the following lab book;

*Biology for Science Majors I & II Lab Manual, 3rd edition* (Available only at the Levelland SPC bookstore for $60.00)

However, due to the current situation, the published of our lab manual has agreed to sell only the lab exercises that we intend to use this semester. Since we plan to only use 7 of the exercises from the lab manual, the published is making them available online for $20.00. Please see our Blackboard page for more information on accessing the lab manual. Please download the lab exercises and bring a printed copy to lab. You must have the lab exercises to participate in the lab. The last page of this document you will find details for obtaining the Lab Manual purchased from Top Hat.

**Course Objectives:**

Upon successful completion of this course, students will be able to:

1. Describe the characteristics of life.

2. Explain the methods of inquiry used by scientists.

3. Identify the basic requirements of life and the properties of the major molecules needed for life.

4. Compare and contrast the structures, reproduction, and characteristics of viruses, prokaryotic cells, and

 eukaryotic cells.

5. Describe the structure of cell membranes and the movement of molecules across a membrane.

6. Identify the substrates, products, and important chemical pathways in metabolism.

7. Identify the principles of inheritance and solve classical genetic problems.

8. Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.

9. Describe the unity and diversity of life and the evidence for evolution through natural selection.

**Core Curriculum Objectives addressed:**

* **Communications skills**—to include effective written, oral and visual communication
* **Critical thinking skills**—to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
* **Empirical and quantitative competency skills**—to manipulate and analyze numerical data or observable facts resulting in informed conclusions

**South Plains College Class Attendance Policy:**

Students are expected to attend all classes in order to be successful in a course. The student may be administratively withdrawn from the course when absences become excessive as defined in the course syllabus.

When an unavoidable reason for class absence arises, such as illness, an official trip authorized by the college or an official activity, the instructor may permit the student to make up work missed. It is the student’s responsibility to complete work missed within a reasonable period of time as determined by the instructor.  Students are officially enrolled in all courses for which they pay tuition and fees at the time of registration. Should a student, for any reason, delay in reporting to a class after official enrollment, absences will be attributed to the student from the first class meeting.

Students who enroll in a course but have “Never Attended” by the official census date, as reported by the faculty member, will be administratively dropped by the Office of Admissions and Records.  A student who does not meet the attendance requirements of a class as stated in the course syllabus and does not officially withdraw from that course by the official census date of the semester may be administratively withdrawn from that course and receive a grade of “X” or “F” as determined by the instructor. Instructors are responsible for clearly stating their administrative drop policy in the course syllabus, and it is the student’s responsibility to be aware of that policy.

It is the student’s responsibility to verify administrative drops for excessive absences using his or her student online account. If it is determined that a student is awarded financial aid for a class or classes in which the student never attended or participated, the financial aid award will be adjusted in accordance with the classes in which the student did attend/participate and the student will owe any balance resulting from the adjustment.

**Class Attendance Policy:** The class attendance policy follows the guidelines outlined in the SPC class attendance policy above, but addresses this course specifically.

Punctual and regular class and lab attendance are required of all students, Students are responsible for all class or lab work covered during absences from class, even in cases in which they can satisfy the instructor that the absence was unavoidable. When unavoidable situations such as illness, weather, an official college trip, or a death in the family cause absences, I may permit the student to make up classwork missed. In such cases, it is the student's responsibility to complete the work missed within one week of their return to class.

**When absences become excessive and, in my opinion, the minimum course objectives cannot be met, the student will be withdrawn from the course. *Any student with 5 missed assignments and/or 3 lab absences will be withdrawn from the class.***

Students are expected to be attentive during lectures and working during lab sessions. Students studying for other classes, sleeping during class or leaving class early will be considered absent for the entire class period.

Should a student, for any reason, delay in reporting to a class after his/her official enrollment, absences will be attributed to the student from the first meeting of the class. A student who does not attend a classbythe 12th day of class will automatically be withdrawn from the class roll.

**Tardy Policy:** Excessive tardiness will not be tolerated. A consistently tardy student disturbs the class, is disrespectful and rude, and will be withdrawn (dropped) from the class. A student who has 2 or more tardies (or absences) will not be allowed to drop any quiz grades.

**Exams, Quizzes, Assignments, Lab Reports, and Virtual Lab Simulations:**

**Examinations:**  **Four** major exams will be given during the semester. The exams will be announced in advance and will be primarily questions over lecture material but will include some questions over the lab exercises covered during that particular unit. Test 1 will cover unit one material, Test 2 will cover unit two material and Test 3 will the material from unit three. Test 4 will be the final exam (given during finals week) and will cover unit four material as well as a comprehensive portion of the exam covering all the material from units one, two, and three. Each exam is worth 100 points.

The exams will all be administered on Blackboard and will be limited in time. They will be primarily multiple-choice, True or False, matching and short answer questions.

If it is known in advance that an absence will occur on an exam date, and the instructor is notified **ahead of time,** it may be possible, under special circumstances, to take the exam at an alternate time. Otherwise, the missed exam will count as zero when computing the semester average. DO NOT MISS EXAMS!! Typically the exams will be available for several days on Blackboard, so please plan accordingly.

**Quizzes**: Throughout the semester there will be quizzes over the current material we are studying. Most of the quizzes will be announced in advance and will be over material already covered in class. The quizzes will be a mixture of quiz types. There will be Blackboard quizzes that are typically short (10 questions or so) that test your comprehension of material that was covered in the recorded lectures. These quizzes will be limited in time. Some of the quizzes will be posted pages that you will need to print off and fill out by hand and turn in. I will address how these quizzes will be turned in as they are assigned them. There will also be some lab assignments that will be counted as quiz grades.

The quizzes that you will take as a Blackboard quiz, will typically be multiple choice, matching, True and False and will have a time limit. So, make sure you are prepared before you start the quiz. You will only be able to take the quiz once.

**Assignments**: May include hard copy work (concept maps, genetic problems, etc.) The assignment grades will count as quiz grades.

**Lab Report(s)**: For one or more of our labs this semester, there will be a lab report due. The report will be a “summary” of the lab exercise we completed in a standardized format. You will be provided a lab report handout and you must follow the format provided. The lab report handout will be available on Blackboard as a Microsoft word document. Download the document and complete it using a word processor. These reports need to be very organized and neatness counts! The due date will be announced in class. No late lab reports will be accepted. A detailed discussion about how to complete the report will be given during lab the day the report is assigned. Obviously, if you miss a lab you will not be allowed to turn in a lab report for that lab activity and will receive a zero. The lab report grade cannot be dropped.

These quizzes/assignments/reports are designed to make sure the students are keeping up with the classwork, which I believe is vital to the successful completion of this course. Throughout the semester there will be at least 18 quizzes/assignments and at the end of the semester, you will be able to drop some of the lowest quiz/assignment grades (usually two, maybe more if we have more than 18 quizzes). Remember the lab report grade can be dropped. There are no make-up quizzes. If you miss a quiz/assignment/report the grade will be a zero. A student who has more than 5 missed assignments and no more than 3 absences or tardies from the lab will not be allowed to drop any quiz/assignment grades.

**Virtual Lab Simulations:** Due to the current situations with COVID 19 we are limiting the number of times the students come to campus and the number of people in our lab at one time. Therefore we will be using lab simulations during the weeks that you are not in a face to face lab. These simulations will be assigned from our Blackboard page and we will be using a learning platform called Connect, supported by McGraw-Hill Education.

Connect virtual lab simulations are fully online labs that we will use to supplement the lab experience. These simulations help students learn the practical and conceptional skills needed. Each lab simulation will require careful attention. The simulations not only take you through a lab exercise they also have embedded questions to make sure that you completely understand the lab. All of the simulations will be graded and these grades will count toward your final grade average.

Access to Connect will cost $60.00 and can be purchased from McGraw-Hill while online. An access code can also be purchased from the Levelland Bookstore where the cost will be a little more, but you can use your financial aid if needed. If the bookstore has not received the codes, McGraw-Hill offers two-week free access while waiting to purchase the code. Please see our Blackboard page for detailed instructions on how to access the lab simulations.

**Summary of Grades: Four major Exams: 70% of your grade**

 **Quizzes/Assignments/Reports: 20% of your grade**

 **Virtual Lab Simulations: 10% of your grade**

**Grading Policy:** Final semester average of 90 or above = A

 Final semester average of 80‑89 = B

 Final semester average of 70‑79 = C

 Final semester average of 60‑69 = D

 Final semester average below 60 = F

**This course must be completed with a grade of C or better in order for the student to take General Biology II (Biology 1407) at South Plains College.**

**Dropping a course:** The last day to drop this course is: **April 29, 2021**

An official drop initiated by the student before the Last Day to Drop will result in a W on your transcript. Any drop initiated by the instructor for excessive absences will result in either an X or F grade on the transcript. See the school policy on drops and the limit placed on “unexcused” drops which is available in the General Catalog on the school website.

**Peer Tutors** areavailable for one‑on‑one tutoring sessions that are free of charge. Tutor information is available on Blackboard and posted in lab and lecture rooms.

**Policies, Procedures, and Rules:**

This course will be conducted according to the policies and procedures of the South Plains College Student Handbook and General Catalog.

**Academic Integrity**: It is the aim of the faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present as his own any work, which he has not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences, possibly suspension.

Plagiarism and Cheating: Students are expected to do their own work on all projects, quizzes, assignments, examinations, and papers. Failure to comply with this policy will result in an F for the assignment and can result in an F for the course if circumstances warrant.

• Plagiarism violations include, but are not limited to, the following:

 1. Turning in a paper that has been purchased, borrowed, or downloaded from another student, an online term paper site, or a mail order term paper mill.

 2. Cutting and pasting together information from books, articles, other papers, or online sites and presenting this as the students original thoughts and ideas.

 3. Using direct quotations (three or more words) from a source without showing them to be direct quotations.

• Cheating violations include, but are not limited to, the following:

 1. Obtaining an examination by stealing or collusion.

 2. Discovering the content of an examination before it is given.

 3. Using an unauthorized source of information (notes, textbook, text messaging, internet, apps) during an examination, quiz, or homework assignment in class or online.

 4. Entering an office or building to obtain unfair advantage.

 5. Taking an examination for another.

 6. Altering grade records.

 7. Copying another’s work during an examination or on a homework assignment.

 8. Taking pictures of a test, test answers, or someone else’s paper.

 9. Taking screenshots of exam questions while taking an online exam.

**Technology Misuse Policy**

With advances in technology, students are presented with a myriad of opportunities and tools at their fingertips to help reinforce concepts covered in class and lab. However, at times these technological advances also afford students many distractions from the task at hand. In my class, I encourage you to use technology in an educational and appropriate manner; however, there are few things as rude as intentionally ignoring someone that is trying to communicate with you. Should you fail to control your electronics use, you will be dismissed from the course for the day.

 **Cell Phone Policy**: All cell phones and other electronic devices should be **turned OFF** inside the classrooms (both lecture and lab). Cell phones should not be in view (including in the cubbyhole of the lab desks!) at any time. If the cell phone “rings” or “buzzes”, or is being used during class for text messaging or a student gets up from class to answer a phone call, **10 points** will be deducted from the student's next major exam grade per incident.

**Lab Safety:** Each student will be informed/trained on the “Chemical Hygiene Plant (CHP) for Laboratories at South Plains College” documentation and training during the first week of the semester.  Each student will be required to acknowledge receipt of this information and be required to follow all procedures outlined by the instructor and/or staff of South Plains College.

**Material Safety Data Sheets** **(MSDS)**: These data sheets detail any potential hazards which may be incurred while utilizing various chemicals in the laboratory. The MSDS notebook is located in room 191 of the science building. All students are encouraged to read about the chemicals used in the lab in the MSDS notebook. Please ask the instructor if you need assistance.

**Dismissal Policy**: A high standard of conduct is expected of all students. It is assumed that obedience to the law, respect for properly constituted authority, personal honor, integrity, and common sense will guide theactions of each member of this class. Any student who fails to perform to expected standards will be asked to withdraw from the class.

**Privacy**: The federal law guaranteeing student privacy is the policy of this professor as well as that of SPC. This means that I will not discuss your grade with anyone other than you (which means that I will NOT discuss your grade with your parents, guardians, friends, etc. unless the proper consent documents are complete.)

**Student Code of Conduct Policy**: Any successful learning experience requires mutual respect on the part of the student and the instructor. Neither instructor nor student should be subject to others’ behavior that is rude, disruptive, intimidating, aggressive, or demeaning**.** Student conduct that disrupts the learning process or is deemed disrespectful or threatening shall not be tolerated and may lead to disciplinary action and/or removal from class.

**Diversity Statement:** In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

**Disability Statement:** Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health & Wellness Office) 806-716-2577, Reese Center (Building 8) 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611.

**Nondiscrimination Policy:** South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX  79336. Phone number 806-716-2360.

**Title IX Pregnancy Accommodations Statement:** If you are pregnant, or have given birth within six months, Under Title IX you have a right to reasonable accommodations to help continue your education.  To [activate](http://www.southplainscollege.edu/employees/manualshandbooks/facultyhandbook/sec4.php) accommodations you must submit a Title IX pregnancy accommodations request, along with specific medical documentation, to the Director of Health and Wellness.  Once approved, notification will be sent to the student and instructors.  It is the student’s responsibility to work with the instructor to arrange accommodations.  Contact the Director of Health and Wellness at 806-716-2362 or [email](http://www.southplainscollege.edu/employees/manualshandbooks/facultyhandbook/sec4.php) cgilster@southplainscollege.edu for assistance.

**To help ensure a great semester and successful completion of this course:**

Attend class and be on time

Be an active part of the class, be attentive

Prepare before class for lectures and labs

Come to and participate in the study sessions

Use the Tutors

Take good notes

Read the assignments

Schedule some time for looking over your notes or reading the textbook every day

Find (make) time to study

Schedule your time wisely

Study as much as possible

Take the quizzes and lab reports seriously, they could really help your class average.

If you have questions, ASK ME! Please!

Please ask for help if you do not know how to study. I can help!

College is an awesome opportunity, take advantage of it.

**By the way, you are encouraged to have some fun, and enjoy learning**

**Top Hat**

We will be using **Top Hat** ([www.tophat.com](http://www.tophat.com/)) to access the digital lab book, Biology for Science Majors I & II, that we will be using in this class. This lab manual has been created by the faculty of the Biology Department at SPC. Due to COVID 19 we have been forced to do fewer face to face labs, therefore the biology instructors did not want our students having to purchase the complete lab manual when we are only planning to use seven lab exercises. We asked bluedoor, our lab manual publisher if they could make the seven labs available online in a pdf format. They agreed and Top Hat is the digital platform where the lab exercises can be found and downloaded. They will charge $20.00 for the lab exercises. The full cost would have been about $60.00 for the complete manual. If you want a full manual, they are available at the SPC bookstore on the Levelland campus.

For instructions on how to create a Top Hat account and download the lab exercises you will need to go to:

[**https://app.tophat.com/e/306015**](https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fapp.tophat.com%2Fe%2F306015&data=04%7C01%7Cdetheredge%40southplainscollege.edu%7Cffdb209630bd490f8cf908d89866c655%7C6d91b166cf6a45e99e22a02625d082a9%7C0%7C0%7C637426914476432882%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=7nnx6usv1hCh%2BUnjCLeaZRCMGsf7NakdPhbGTN5ZX%2B4%3D&reserved=0)**The code to join is: 306015**

This a link on how to get started if you need some help. <https://bit.ly/31TGMlw>

The cost of the lab book is $20.00 and will be applied at checkout when enrolling in our Top Hat course. Bear in mind the material will be made available in our course throughout the semester, so do not panic if you do not see any in the course upon entry.

Should you require assistance with Top Hat at any time please contact their Support Team directly by way of email (support@tophat.com), the in-app support button, or by calling 1-888-663-5491. Specific user information may be required by their technical support team when troubleshooting issues.

Please print off the lab exercises – You will need a hardcopy to use in the lab.

Tenetative Lecture and Lab Schedule

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Lecture** | **Lab – (Mondays)** |
| **Week** | **Dates** | **Topics** | **Chapters** | **Group A** | **Group B** |
| 1 | Jan. 19  | Intro. Syllabus, Intro. Chemistry | 1 | No Lab | No Lab |
| Jan. 22 | Chemical Context of Life | 2 |
| 2 | Jan. 25 - Lab | Water | 3 | College Success, Lab Exercises: Lab Safety, Exercise 5, Microscope, Exercise 6, Cells | Online Lab Simulations: Scientific Method, Metric Measurements |
| Jan. 29 | Carbon and Molecular Diversity | 4 |
| 3 | Feb. 1 - Lab | Macromolecules | 5 | Online Lab Simulations: Scientific Method, Metric Measurements | College Success, Lab Exercises: Lab Safety, Exercise 5, Microscope, Exercise 6, Cells. |
| Feb. 5 | Macromolecules | 5 |
| 4 | Feb. 8 - Lab | Tour of Cell | 6 | Lab Exercises: Exercise 4, Testing for Organic Molecules | Online Lab Simulations: Chemical Composition of Cells |
| Feb. 12 | Exam 1 – assigned Feb. 10, due date Feb. 14 |  |
| 5 | Feb. 15 - Lab | Membranes | 7 | Online Lab Simulations: Chemical Composition of Cells | Lab Exercises: Exercise 4, Testing for Organic Molecules |
| Feb. 19 | Intro to Metabolism | 8 |
| 6 | Feb. 22 - Lab | Cellular Respiration | 9 | Lab Exercises: Exercise 8, Enzymatic Reactions Using Amylase | Online Lab Simulations: How Enzymes Function, Osmosis, Diffusion |
| Feb. 26 | Cellular Respiration | 9 |
| 7 | March 1 - Lab | Photosynthesis | 10 | Online Lab Simulations: How Enzymes Function, Osmosis, Diffusion | Lab Exercises: Exercise 8, Enzymatic Reactions Using Amylase |
| March 5 | Photosynthesis | 10 |
| 8 | March 8 - Lab | Cell Cycle | 12 | Lab Exercises: Exercise 9 Photosynthesis and Respiration | Online Lab Simulations: Cellular Respiration, Photosynthesis |
| March 12 | Exam 2 - assigned March 10, due date March 14 |  |
| 9 | March 15 - 19 | SPRING BREAK |  | No Lab | No Lab |
| 10 | March 22- Lab | Meiosis | 13 | Online Lab Simulations: Cellular Respiration, Photosynthesis | Lab Exercises: Exercise 9 Photosynthesis and Respiration |
| March 26 | Mendel | 14 |
| 11 | March 29 – Lab | More Mendel | 14 | Lab Exercises: DNA Extraction, Exercise 14, Genetic Problems | Online Lab Simulations: Mendelian Genetics |
| April 2 | Molecular Basis of Inheritance | 16 |
| 12 | April 5 - Lab | Molecular Basis of Inheritance | 16 | Online Lab Simulations: Mendelian Genetics | Lab Exercises: DNA Extraction, Exercise 14, Genetic Problems |
| April 9 | Gene to Protein | 17 |
| 13 | April 12 - Lab | Gene to Protein | 17 | Lab Exercises: Exercise 19, PCR of the PV92 Allele, Day 1 | Online Lab Simulations: DNA Biology and Technology |
| April 16 | Mutations, Possibly Viruses | 17, 19 |
| 14 | April 19 – Lab | DNA Technology and Genomics | 20 | Online Lab Simulations: DNA Biology and Technology | Lab Exercises: Exercise 19, PCR of the PV92 Allele, Day 1 |
| April 23 | Exam 3 - assigned April 21, due date April 25 |  |
| 15 | April 26 – Lab | Descent with Modification | 22 | Lab Exercises: Exercise 19, PCR of the PV92 Allele, Day 2 | Online Lab Simulations: Evidence for Evolution |
| April 30 | Descent with Modification | 22 |
| 16 | May 3 - Lab | Evolution of Populations | 23 | Online Lab Simulations: Evidence for Evolution | Lab Exercises: Exercise 19, PCR of the PV92 Allele, Day 2 |
| May 7 | Origin of Species | 24 |
| 17 | Final Exam – assigned May 8, due May 12  |