# BIOL 1406—BIOLOGY FOR SCIENCE MAJORS FALL 2020 SYLLABUS

## CLASS INFORMATION

Course: BIOL 1406-003
Schedule: W 2:30 pm – 6:30 pm, online throughout week
Location: Science 197

### Description: This course focuses on fundamental principles of living organisms including the chemistry of life, cell and molecular biology, genetics and evolution. This is the first semester of an integrated course for majors in biological sciences and related studies, including the medical disciplines.

### Course Objectives:

* To introduce basic biological principles through an integrated approach.
* To investigate the cellular processes of living organisms with an emphasis on biological chemistry applications.
* To investigate the mechanisms of genetics and inheritance.
* To introduce the role and mechanisms of evolution in biology.

### Instructors: Whitney Hoff, MS

### Contact Info: whoff@southplainscollege.edu

 806-716-2327

Office: Science 186

Office Hours: Monday 9:30-10:30,1:30-2:30

 Tuesday No hours

Wednesday 9:30-11:30

Thursday No hours

Friday 9:30-1:30

 **I will be available in my office or via Teams during these hours.**

### Format: The “lecture” portion of this course will take place online with supplementary in person discussion after lab hours on Wednesdays. This section of BIOL 1406 will be composed of group-based learning activities with minimal supplementary lectures. Group work will be done via Microsoft Teams throughout the week. Groups of 3-4 will be assigned by the instructor and will stay the same throughout the semester. This course format puts the learning into the students’ hands, requiring them to prepare in advance by reading the textbook and participating in online discussions.

The lab portion of this class will take place in person and will follow typical lab format (with necessary adjustments to keep students safe during this time).

### **Changes in the format may be made as the semester goes on to better fit the needs of the class.**

## COURSE MATERIALS

### Text: *Campbell BIOLOGY* (11th Edition) by Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, Jane B. Reece. Available at SPC bookstore and at various online textbook vendors. Earlier editions are acceptable, though they may be missing some information. It is expected that students will read chapters 2-25 throughout this course. **AND** *Biology for Science Majors I & II Lab Manual*, 3rd edition (Available only at the SPC bookstore).

### Blackboard: additional materials will be made available to students throughout the course via blackboard. Access to canvas (via website or app) will be necessary for chapter quizzes, discussion boards, and exams.

## Microsoft Teams: you have all been invited to join the class “team” on Microsoft Teams. The schedule for Team meetings is to be determined.

## LECTURE ASSIGNMENTS

### Learning Activities: each chapter of the text will have an associated of small and group learning activities based on the key points from each chapter. It is expected that these activities will be completed with your assigned groups via Microsoft Teams. Group work has been shown to increase students’ abilities to retain the information they learn in a course well past the time the course is over. You will be graded on your engagement and participation in these group activities. Activities will be submitted through Blackboard before the end of week unless otherwise approved.

### Reading Quizzes: A quiz will be given for each reading assignment. These will be due midweek to encourage reading. The questions in these quizzes will be multiple choice and will be representative of what to expect on exams. Completing the reading assignments (and quizzes) prior to meeting with your group is *extremely* important as your ability to complete learning activities will be greatly affected by your preparation beforehand.

### Reading Q&A Discussion Boards: for each chapter assigned you will be required to post a question on canvas that you still have after completing your reading. You will then answer at least one question posted by another student. Your answer must be clear and precise. This opportunity to teach each other will help everyone to gain a greater understanding of the concepts covered in the reading. Questions may be taken from the discussion boards for unit review, exams, etc. Discussion boards will be due for 4 chapters at a time. I suggest posting questions as soon as you finish reading the chapter to allow other students time to answer them. Up to 5 extra questions can be answered for 5 extra credit points.

### Journal Club: groups of 3-4 will be assigned at the beginning of the semester. Three (3) journal clubs will be held throughout the semester. Each group member will be responsible for choosing an article for the group to discuss once throughout the course (a new group member will choose each time). Articles should be related to the topics we have been studying in class. Articles must be peer reviewed scientific articles from legitimate sources. Each article must be approved in advance. Submit via canvas. Students are expected to have read their group’s article PRIOR to meeting. A great source for finding articles is: www.ncbi.nlm.nih.gov/pubmed.

### Podcast: three times during the semester we will listen to a podcast related to a topic covered in class and use it as a backdrop by which to discuss the relevance of biology to concerns of society. Each student will be required to take notes and submit at least one question or comment they had about the podcast.

### YouTube Series: as a class we will be creating a BIOL 1406 YouTube Series to facilitate the learning of future 1406 students. Each group will prepare a 2-minute video covering their topic to be uploaded via canvas. Groups will choose their own topics. Students are encouraged to be as creative as they desire, following the style of their favorite YouTube artists. Videos will be submitted through Blackboard.

### Unit Exams: exams will consist on 50 multiple choice questions and 5 open ended questions. Exams will be given via Blackboard. They will be open book, open note, but timed.

## LABORATORY

### Attendance: come to lab and be on time. Missing the lab portion of this class will result in a zero for all assignments associated with the missed experiment unless absences are COVID 19 related and proper documentation is provided by the student.

### Assignments: written lab assignments will vary from week to week. The most important part of lab will be participating and gaining an understanding of biological concepts through hands on experiments.

### Safety: we will cover lab safety during the first lab meeting. You’ll be expected to adhere to all safety rules. There will be a safety quiz.

## GRADING

### Learning Activities: 10 points each chapter based on engagement and participation. Two lowest scores to be dropped allowing you to miss two chapters without consequence.

### Reading Quizzes: 5 points/quiz. Two lowest scores to be dropped.

### Reading Q&A Discussion Boards: 2 points per question posted, 3 points per answer -- totaling 5 points per chapter. Extra credit is available for answering additional questions—up to 5 extra answers/chapter.

### Journal Club: 25 points for finding an appropriate article and submitting it on time; and 25 points for participating in each journal club meeting.

### Podcast In-Class Discussion: 25 points for attending class, participating in the discussion, and submitting an in-class assignment.

### YouTube Video: 25 points.

### Unit Exams: 125 points each.

### Extra Credit: Extra credit will be available often throughout the semester. Because of this, please to not make requests for *extra* extra credit.

###  Grading Scale: 90-100 A

 80-89 B

 70-79 C

 60-69 D

 < 60 F

## LATE POLICY

Nothing will be accepted late unless prior arrangements have been made. Discussion boards will *never* be accepted late. Message me PRIOR to missing an assignment for exceptions.

## 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 any work as their own which he or she has not honestly performed is regarded SPC as a most serious offense and renders the offender liable to serious consequences, possibly suspension. 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 without providing proper documentation;
3. Using direct quotations (three or more words) from a source without showing them to be direct quotations and citing them; or
4. Missing in-text citations.
* 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;
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. Rewriting another student’s work in Peer Editing so that the writing is no longer the original student’s;
9. Taking pictures of a test, test answers, or someone else’s paper.

## PRIVACY

The federal law guaranteeing student privacy is the policy of this instructor as well as that of SPC. This means that I will not discuss your grade with anyone other than YOU.

## 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 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 cgilster@southplainscollege.edu for assistance.

## CAMPUS CONCEALED CARRY

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in South Plains College buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and South Plains College policy, license holders may not carry a concealed handgun in restricted locations. For a list of locations and Frequently Asked Questions, please refer to the Campus Carry page at: <http://www.southplainscollege.edu/campuscarry.php>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all South Plains College campuses. Report violations to the College Police Department at 806-716-2396 or 9-1-1.

## COURSE SCHEDULE

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| **Dates** | **Topics Covered** | **Online Assignments Due** | **Lab** | **White: At Home****Blue: In Person** |
| **Group A** | **Group B** |
| Aug 24-Aug 28 | Syllabus, Introductions, Intro to Chemistry, Water | Syllabus Quiz, Intro Video, Ch 2, Ch 3 | Lab Safety, Microscope (Ex 5), Cells (Ex 6)—Pt 1 | Scientific Method Simulation, Metric System Simulation |
| Aug 31-Sept 5 | Organic Chemistry, Macromolecules | Ch 4, Ch 5 | Scientific Method Simulation, Metric System Simulation | Lab Safety, Microscope (Ex 5), Cells (Ex 6)—Pt 1 |
| Sept 8-Sept 11 |   | Review, **Exam 1** | Testing for Organic Molecules (Ex 5) | Chemical Composition of Cells Simulation, Labelling Cells (Ex 6)—Pt 2 |
| Sept 14-Sept 18 | Organelles, Cell Membrane, Metabolics | Ch 6, Ch 7, Ch 8 | Chemical Composition of Cells Simulation, Labelling Cells (Ex 6)—Pt 2 | Testing for Organic Molecules (Ex 5) |
| Sept 21-Sept 25 | Cellular Respiration | Ch 9, Journal Club 1, Review | Enzymatic Reactions (Ex 8) | Diffusion/Osmosis Simulations, Enzyme Simulation |
| Sept 28-Oct 2 | Photosynthesis, Cellular Communication | **Exam 2**, Ch 10, Ch 11 | Diffusion/Osmosis Simulations, Enzyme Simulation | Enzymatic Reactions (Ex 8) |
| Oct 5-Oct 9 | Mitosis, Meiosis | Ch 12, Ch 13, Podcast 1 | Photosynthesis and Cellular Respiration (Ex 9) | Photosynthesis/Cellular Respiration Simulations |
| Oct 12-Oct 16 | Mendel | Review, **Exam 3**, Ch 14 | Photosynthesis/Cellular Respiration Simulations | Photosynthesis and Cellular Respiration (Ex 9) |
| Oct 19-Oct 23 | Inheritance, Gene Expression | Ch 15, Ch 16, Ch 17 | Genetics Problems (Ex 14) | Human/Mendelian Genetics Simulations |
| Oct 26-Oct 30 |  | Journal Club 2, Review, **Exam 4** | Human/Mendelian Genetics Simulations | Genetics Problems (Ex 14) |
| Nov 2-Nov 6 | Regulation of Gene Expression, Viruses, Biotechnology | Ch 18, Ch 19, Ch 20  | PCR (Ex 19)—Pt 1 | DNA Biology and Technology Simulation |
| Nov 9-Nov 13 | Genomic Evolution | Ch 21, Podcast 2, Review | DNA Biology and Technology Simulation | PCR (Ex 19)—Pt 1 |
| Nov 16-Nov 21 | Darwin, Population Genetics | **Exam 5**, Ch 22, Ch 23 | PCR (Ex 19)—Pt 2 | Evidence of Evolution Simulation |
| Nov 23-24 | Speciation | Ch 24 | No Lab |
| Nov 25-27 | Thanksgiving Holiday—No Classes |
| Nov 30-Dec 4 | History of Life on Earth | Ch 25, Journal Club 3, Review | Evidence of Evolution Simulation | PCR (Ex 19)—Pt 2 |
| Dec 7-10 | **Exam 6** |