Semester: S2024

Course Name: BIOL1306.001. Biology for science majors I (Lecture)

Meeting time: TR 1100-1215, @ S334

Office Hours: T 1200-1600, W 1000-1100, or by appointment @ S236

Instructor: Dr. Alexandra Martynova-Van Kley, Professor, Biology department

📞 936 468 2569, 📧 avankley@sfasu.edu

WELCOME: This course is designed to introduce you to the essential principles, processes and mechanisms of molecular and cell biology. Course objectives: to develop a basic understanding of the mechanisms of life on a cell level; to gain an understanding how cells and organisms interrelate. Corequisite: BIOL 1106 – Biology for Science Majors I (Lab); Lecture + Lab = 4 credit hours (an amount of student work per credit hour = one hour of class or direct faculty instruction and two hours of out-of-class student work per week). General Education Core Curriculum Objectives/Outcomes: This course is not included in the general education core curriculum.

PROGRAM LEARNING OUTCOMES (Biology Department):

#1: The student will demonstrate a good knowledge base in biological concepts and be able to integrate knowledge with critical thinking skills to become problem solvers. Knowledge base will include levels of complexity (molecular/cellular through population/communities/ecosystems); biological principles and processes.

#2: The student will be able to clearly communicate scientific information; provide clear structure and transitions; demonstrate scientific tone, language, and form.

#3: The student will be able to think scientifically; this includes critical thinking / reasoning and explaining biological principles as well as analyzing and interpreting quantitative data sets.

STUDENT LEARNING OUTCOMES (Course Competencies): Students who successfully complete Principles of Cell and Molecular Biology will demonstrate:

1. The ability, for animal cells, to recognize and identify the function(s) of the following: centrioles, chromatin, Golgi apparatus, lysosome, microfilaments, microtubules, mitochondrion, nucleus, peroxisome, plasma membrane, rough and smooth endoplasmic reticulum, and ribosomes.

2. The ability, for plant cells, to recognize and identify the function(s) of the following: cell wall, chloroplast, and central vacuole. An understanding of the ability of enzymes to facilitate chemical reactions. Explain how catalysts, including enzymes, affect and are affected by the chemical reactions in which they participate.

3. An understanding of the biochemical processes of photosynthesis, glycolysis, citric acid cycle, and oxidative phosphorylation. Define cellular respiration and identify the cellular locations of the various stages of cellular respiration. Distinguish between the light reactions and the Calvin cycle of photosynthesis.

4. An understanding of how cells grow and divide. Describe the major events of each of the stages of the cell cycle (Interphase, G1, G2, S, Mitosis, Prophase, Prometaphase, Metaphase, Anaphase, Telophase, Mitotic Phase and Cytokinesis).

5. Explain how information flows from gene to protein. Describe the major events including transcription, translation and protein sorting. Explain the function of mRNA and tRNA. Describe how gene expression can be affected at various levels: DNA packing/unpacking and chemical modification.

ATTENDANCE: You are expected to attend all lectures according to the schedule—attendance will be monitored. Sign in with your full first name and last name as listed on the class roster. Students who do not provide their full name will be marked as absent. Missing lecture classes without university approved absences will result in points subtraction from your Final grade. In contrast perfect attendance will give you extra points to your Final grade. Stay focused: turn off your cellphone and pack it away, be respectful to your classmates and the professor. Using a phone during the class without permission will be equal to an absence. Missing an exam will be permitted only by prior arrangement. If the exam was missed without prior arrangement as an after the fact make-up will be allowed only by Faculty Notification Requests. The information is located on the Dean of Student’s website: https://www.sfasu.edu/thehub/sos/notification-request
CLASS WEB-PAGE (also provided on class D2L “News”):  https://martynova-vankley.com/courses/BIOL1306-TR

To open COURSE PAGE slides & videos you need🔑: Username __________________  Password________________

MATERIALS: PowerPoint presentations for each lecture will be online along with the lecture videos, according to the provided schedule of the course, so that notes can be made and used during the exam. Please use chrome 🕵️‍♂️ to browse course page. You will be expected to study all prior material available on class page under the “Lecture & Schedule” tab before attending.

REMEMBER: draw it to know it! Bring notebook to class for drawing diagrams and taking notes during the lecture.


SI: MW 1600-1700 @ room M (AARC Steen Library), starts on the second week of classes, SI is Steven Gold, golds@jacks.sfasu.edu

SCHEDULE (tentative, updates will be on course website, announced during face-to-face class or/and D2l):

<table>
<thead>
<tr>
<th>Week</th>
<th>Activity</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In class lec, SI, study @home (9hr/week)</td>
<td>Introduction to the class. Scientific method. Elements, atoms, molecules. Water and life. Carbon and the molecular diversity of life. The structure and function of large biological molecules.</td>
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<tr>
<td>3</td>
<td>In class lec, SI, study @home (9hr)</td>
<td></td>
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<tr>
<td>4</td>
<td>In class lec, SI, study @home (8hr)</td>
<td></td>
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<tr>
<td>5</td>
<td>In class lec, SI, study @home (9hr)</td>
<td></td>
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<tr>
<td>6</td>
<td>In class lec, SI, study @home (9hr)</td>
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<tr>
<td>7</td>
<td>In class lec, SI, study @home (8hr)</td>
<td></td>
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<tr>
<td>8</td>
<td>In class lec, SI, study @home (9hr)</td>
<td>An introduction to metabolism. Enzymes. Glycolysis. Fermentation. Aerobic respiration. Photosynthesis.</td>
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<tr>
<td>9</td>
<td>In class lec, SI, study @home (8hr)</td>
<td>Exam 3 (D2L Brightspace)</td>
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<tr>
<td>10</td>
<td>In class lec, SI, study @home (9hr)</td>
<td>Cell cycle. Mitosis &amp; miosis. Mendelian genetics. DNA - cellular basis of Information. DNA replication and repair.</td>
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<tr>
<td>11</td>
<td>In class lec, SI, study @home (9hr)</td>
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<tr>
<td>12</td>
<td>In class lec, SI, study @home (7hr)</td>
<td>Exam 4 (D2L Brightspace)</td>
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<tr>
<td>13</td>
<td>Thanksgiving break!!!</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>In class lec, SI, study @home (9hr)</td>
<td>Gene expression: transcription and translation. Mutations. Regulation of gene expression. Protein processing. DNA tools and forensics. Bioinformatics. Biotechnology.</td>
</tr>
<tr>
<td>15</td>
<td>In class lec, SI, study @home (9hr)</td>
<td></td>
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<tr>
<td>16</td>
<td>R: Final Exam COMPREHENSIVE (D2L Brightspace)</td>
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</table>

150 ASYNCHRONOUS INSTRUCTIONAL MINUTES: Each student will study two lecture slides #22 provided by the professor here under lecture schedule tab. (The inclusion of asynchronous instructional minutes is required in order to comply with state and federal regulations on minimum contact hours in for-credit courses).
GRADING CRITERIA & COURSE EXPECTATIONS:

- **Examinations:** There will be 3 noncumulative multiple-choice exams (#1, #2, #4 as scheduled). Context will include any material covered during lectures and activities covered prior that particular exam. There will be two cumulative exams (Midterm – exam #3, and Final – exam #5). These five lecture exams are equally weighted and are worth 75 points all together.
- **Co-requisite Lab biol 1106:** accumulative Lab grade is worth 25 points.
- **Independent activities:** Students are expected to complete weekly activities which are posted in the “activities” column under the Lecture & Schedule tab on the appropriate week. Print and complete them, collect in a designated folder and bring it to class. It will be a time when you will be asked occasionally to pull a certain one from your folder for various in class exercises or discussions. “Activities” are supplemental and help you to self-check on the class material. It will be a tremendous help for you during the exams. The grade will NOT be assigned for the activities.
- **BONUS:** SI visits (at least ones a week) and perfect attendance will result in 2 points added to your course grade.
- **NOTE:** students with poor attendance including tardiness will lose up to 10 pts of the course grade.
- **You will be expected to study all prior material available on class web-page under the “Lecture & Schedule” tab before attending that week lectures.

COMUNICATION: over an **e-mail** avankley@sfasu.edu (please don’t email through D2L). When emailing use your OFFICIAL SFA E-MAIL ADDRESS

✉ E-mail rules:

1. Check your e-mail REGULARLY and, if you have your SFA account forwarded to some secondary account, to be certain this is not full and can receive messages.
2. Always indicate BOTH class & section # and your CID in a subject line.
3. When ATTACHING a file, filename should be “First_LastName.ext”, it must also include your name in the document itself.
4. Emails lacking any of the information listed above WILL BE IGNORED.
5. Be courteous: Begin your email with a greeting that addresses your instructor respectfully and professionally, such as "Dear Dr. Smith" or "Hi Dr. Jones."
6. E-mail should be considered a professional form of communication – you should use proper grammar and spelling.
7. CLOSE with your full name: after your message, end with a closing and signature, such as "Sincerely, Jane Doe" or "Thanks, John Doe."

8. A RESPONSE may take time: I will try to get back quickly, but don’t expect a response within a few minutes. It can take up to 24 hours for an instructor to respond. If you need a response ON THE SAME DAY, your best option is to attend the office hours.
9. **NO GRADE DISCUSSION** over an e-mail, only during one-on-one meetings. Grades cannot be discussed via e-mail at any time due to federal law. I will speak to you in person instead during my office hours. DO NOT involve a third-party who is not affiliated in an official capacity with SFASU (e.g., friend, roommate) in any matters pertaining to your enrollment in this course. Your instructor is legally prohibited from discussing most course/grade-related issues with third parties according to the Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 CFR Part 99).

CLASS DISRUPTION: Class disruptions will not be tolerated because they detract from other students’ learning. As adults, students should be able to sit through class without disturbing others. The professor does NOT necessarily give you a warning or make an announcement that you are disrupting class. Instead, points will simply be deducted in the grade book. Students are free to inquire at any time whether they have had points deducted during office hours. Tardiness to lecture will not be tolerated; it disrupts the lesson and the concentration of fellow students. Reasonable accommodations will be made in cases of emergency situations if documentation is provided. It is the student’s responsibility to provide the instructor with documentation of emergencies. Sleeping during class can be distracting to other students and the instructor. If a student is so tired that they cannot stay awake for a lecture, marching as it may be, the student should not be in class. Cell phones must be turned off during lecture and packed away. In cases of family emergency, the student must inform the instructor of the situation BEFORE class begins. There should be no texting in class. Texting may distract other students and the instructor. Leaving class is disruptive to other students who are trying to pay attention. Leaving the class for any reason will count against you. Hence, be sure to use the restroom before coming to class (a 5-minute break is given during lecture during the long summer lectures). If a student knows they will need to leave class early, notify the instructor well ahead of time. Points will not be deducted if the student has a legitimate excuse for leaving early.

Talking/Disruptive Behaviors: the professor is highly encouraging students to ask questions or make relevant comments during a lecture. However, talking to a neighbor or other disruptive behaviors will not be tolerated because, again, it disrupts the learning
environment of other students. Laptop computers are not allowed in lecture. In the past, too many students have used them for surfing the internet or working on other projects during lecture, which distracts other students.

MENTAL HEALTH: SFASU values students’ mental health and the role it plays in academic and overall student success. SFA provides a variety of resources to support students’ mental health and wellness. Many of these resources are free, and all of them are confidential.

FACULTY NOTIFICATION REQUESTS: Please read at [https://www.sfasu.edu/thehub/sos/notification-request](https://www.sfasu.edu/thehub/sos/notification-request).

ACADEMIC INTEGRITY: Please read the complete policy at [https://www.sfasu.edu/docs/policies/10.4.pdf](https://www.sfasu.edu/docs/policies/10.4.pdf).

STUDENTS WITH DISABILITIES: To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to [http://www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/).

WITHHELD GRADES SEMESTER GRADES POLICY (5.5): Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

On-campus Resources:
SFA Counseling Services [https://www.sfasu.edu/humanservices/clinics-labs/counseling-clinic](https://www.sfasu.edu/humanservices/clinics-labs/counseling-clinic)
Rusk Building, 3rd Floor 936.468.2401
SFA Human Services Counseling Clinic [www.sfasu.edu/humanservices/139.asp](http://www.sfasu.edu/humanservices/139.asp)
Human Services, Room 202 936.468.1041
Crisis Resources: Burke 24-hour crisis line: 1.800.392.8343
Suicide Prevention Lifeline: 1.800.273.TALK (8255) Crisis Text Line: Text HELLO to 741-741