Angelo State University
BIO 1406.020 - Principles of Biology II (Cellular and Molecular Biology)
Spring 2019

INSTRUCTOR CONTACT INFORMATION:
Instructor: Dr. Russell Wilke
Office: CAV 102-R (Biology Dept Office)
Email: rwilke@angelo.edu (preferred contact). Always include your full name, ASU ID, and the class you are in.
Phone: 325-486-6638 (leave a message with a call back number)
Office hours: MWF 2-3:30, T 9-10, R 9-11 and by special appointment

LEARNING OBJECTIVES AND NATURE OF THE COURSE:
This course introduces the integration between structure and function of biological organization. You will be asked to use processes of science to apply principles of evolution, biological chemistry, energetics and homeostasis, cell structure and function, gene expression, and patterns of inheritance in living systems. Observation, experimentation, and investigation are emphasized. Biology 1406 requires a conceptual understanding of the material rather than the simple memorization and regurgitation of facts. This course will challenge you to analyze and apply information, solve problems, and make connections different from the context in which they were learned. These are critical skills in biology. This course is intended for Biology majors and minors or those for which it is a degree requirement. It is not recommended for non-majors to fulfill a general education requirement for a laboratory course.

COURSE MATERIALS:
  o Options for purchasing the Book with Connect Access Card From the ASU Bookstore or online
  • NOTE: with this option, when you set up your Connect Access through BlackBoard you will be given the option of purchasing a loose leaf copy of the text book for an additional fee. This will allow you to bring only the chapter or pages from the chapter you need to class with you.
    o You may also purchase a hardback version of the textbook online: ISBN10: 007802420X | ISBN13: 9780078024207 NOTE: You will ALSO need the Connect Access card from Option 2 above if you choose to purchase the textbook.
  • TopHat Access: Information concerning purchasing this service will be provided during the first week of classes. For this REQUIRED program you will need:
    o TopHat Access $35.50 for 1 semester access from ASU Bookstore. May be purchased online directly from TopHat for 1 year unlimited (as many classes as necessary) use OR 1 semester unlimited OR Lifetime. Each of these options are priced depending on how long you will use it. There are several courses at ASU that use this same service. The online purchase will be more economical over the long run.
  • A Digital device with wireless capability (cell phone, tablet, laptop).
    o If you do not have texting capability on your phone or do not own a tablet or laptop with wireless capability, please contact Dr. Wilke (rwilke@angelo.edu) so that she can assist you. ASU provides wireless service to you for no additional charge.

NOTE: We will be using this same book and service for BIO 1406 in the Spring...so those of you taking both semesters of the course will be able to use the same book and services for both semesters.

Lab (required):
• Access to your ASU P: drive OR Flash (USB) drive
METHODS OF ASSESSING OBJECTIVES (also known as what you need to study): PLEASE READ ME!!! The student learning outcomes will be assessed by LRA’s (exams), tutorials, lecture activities, other out of class assignments and the laboratory. We will post the objectives on our lecture presentations and on Blackboard. You should use the objectives along with the notes and activities/experiments from lecture AND lab to help you study. **Grading:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Maximum Points</th>
<th>Grading Scale</th>
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<tbody>
<tr>
<td>Class participation Activities &amp; Homework</td>
<td>180*</td>
<td>A = 90 to 100% (900-1000 pts)</td>
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<td></td>
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<td>B = 80 to 89.9% (800-899 pts)</td>
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<td>C = 70 to 79.9% (700-799 pts)</td>
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<td>D = 60 to 69.9% (600-699 pts)</td>
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<td>F = &lt;60% (0-599 pts)</td>
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<tr>
<td>Exam 1</td>
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<td>Exam 2</td>
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<tr>
<td>Exam 3</td>
<td>100</td>
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<tr>
<td>Final Exam</td>
<td>170</td>
<td>You must take the final to pass the course.</td>
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<tr>
<td>Laboratory</td>
<td>350</td>
<td>More details given in lab. You must pass the lab in order to pass the course.</td>
</tr>
<tr>
<td>Total Points***</td>
<td>1000</td>
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</tbody>
</table>

*Lecture Class Participation Activities & Homework: A maximum of 180 points is allowed from lecture activities and both online and offline homework; however, there will be opportunities to earn 230-40 of these points. Lecture Activities are NOT attendance points, but you must be present to earn them—there are no make-ups. Note that this constitutes 20% of your overall grade. Participation is expected. If you do not earn points on a given assignment, you will have an opportunity to earn them on another, but are still responsible for the material covered in the assignment. Many homework assignments are on-line so that you can work on them at your convenience and get immediate feedback on your learning.*

All exams are cumulative (i.e. questions on Exam 3 will include material covered on previous exams). Questions typically require interpretation of data and application of concepts rather than rote memory. While emphasis will be placed on material specifically discussed in lectures, exams can also include questions covered in other assigned materials, readings AND LAB. Read that last sentence again just to make sure you understand. Exams will primarily be from the objectives we display in lecture and those posted on Blackboard to help you study. You will be expected to adhere to specific guidelines on exam weeks. More information will be provided at a later date.

Final Exam: The final exam is cumulative and made up of questions similar to the types used for the previous exams.

Make-Up Exams:
- **No make-up exams will be given.**
- If you miss one of the first three exams, the final exam will be used to determine a substitute grade for the missed exam. For example, if exam scores are 55, 0, 72, and 126. The missed exam score will be adjusted to “make-up” the missed exam points. To calculate this, your score on the final exam is divided by the number of points available on the final multiplied by 100. For example, 126/170 *100=74%. 74% of 100 (the # of points available on Exam 2) is 74 points which would be substituted for your score on Exam 2.
- You will only be allowed to “make-up” one exam during the semester by substituting it with a percentage from your final exam. If you miss more than one exam, for any reason, you **will not pass** this course.
- Everyone **MUST** take the final exam. You **WILL NOT** pass this course if you miss the final exam.
- If you have taken Exams 1, 2, & 3, the grade on your final exam (if higher than your lowest test score) will be used to **replace your lowest exam score as calculated above.** You may replace only one exam score. If you have missed an exam, you do not have this option.

What do you do if you miss a lecture activity, homework assignment, or group quiz assessment?
In the lecture portion of the course, 230-240 points for lecture activities and homework will be offered, although only 180 points will be used in calculating your grade. We use this as a way for students to accumulate points even if they have to miss a class for ANY reason. Use every opportunity early and throughout the semester to complete these activities to be sure that you will have 180 points by the end of the semester. **No last-minute offers of extra-credit are made in this course, so please don’t ask. It wouldn’t be fair to your classmates that have done all the work to earn their grade. Pay your premiums - use the extra-credit opportunities early in the semester!**

All grades will be calculated in the same way, regardless of extenuating circumstances or any reason not related to your actual performance in the course. However much I may sympathize with your personal circumstances, I never consider them to be a basis
for grade assignments. The activity and homework points serve as an extremely generous, built-in curve. I strongly encourage you to take advantage of them when they become available because once assigned they cannot be made up. Therefore, you should always attend class and strive to do your best, so that you may earn the grade you want. It is your responsibility to keep up with your point total. Don’t worry I will help you, if you just ask!

Laboratory: This portion of the course offers you the opportunity to explore and apply concepts to answer research questions. Success in the laboratory involves teamwork in designing and conducting experiments, performing pre-lab and lab activities and report writing. In addition, you will conduct activities designed to develop and improve critical thinking and problem-solving skills related to the topics discussed in lectures. You must earn a minimum of 60% of the lab points (210 out of 350) to pass the course!! You WILL NOT pass the class if you fail the lab!!

STUDENT RESPONSIBILITIES:
Class Preparation: Much of your learning will occur outside of the formal class meetings. This means reading the assigned chapters, taking notes in class/lab, completing Learn Smart other assignments, reviewing information on Blackboard (especially the course objectives), and of course everything related to lab. This requires you to possess a positive attitude toward learning and a serious commitment to studying outside of class everyday, especially within 24 hours of class or lab. It also means participating in activities vital to the concept being taught that day to enhance the teaching of a particular subject. In other words, don’t expect to learn anatomy just by sitting and listening in lecture. As a member of the class you are also to ask questions and seek help!

Attendance: You are expected to attend all scheduled class meetings. You are expected to arrive on time and stay for the entire period. Missed lecture activity points CANNOT be made up. Attendance will be checked at each class meeting via the Top Hat system at random. Please inform me well ahead of time if you will need to be absent for any reason including religious holidays. NOTE: You are NOT automatically dropped if you stop attending class. April 2 is the last day to drop a course.

Academic Honesty and the ASU Honor Code: Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Students are responsible for understanding the Academic Honor Code and the ASU policies on academic dishonesty, which is contained in both print and web versions of the Student Handbook. The penalty for ANY act of dishonesty in this class, including any form of cheating or plagiarism: 1) is a grade of ZERO on the assignment and, 2) disciplinary action as warranted in accordance with university guidelines. Please do NOT jeopardize your career; it’s not worth it.

Accommodations for students with disabilities: We are here to help all students learn. All students at Angelo State must have the capacity though to undertake, with reasonable assistance from the faculty and administration, the academic challenges necessary to fulfill the academic requirements for the degree for certification programs that they are pursuing. If you have a disability and need special accommodations of any nature, you should contact the Student Life Office (Garden Level, University Center, (325) 942-2191 or Student.Life@angelo.edu). I will be happy to make accommodations for you based on the recommendations from the Student Life Office. Please make your request early in the semester to allow time for appropriate arrangements.

Religious Holy Day: A student who intends to observe a religious holy day during the semester should make that intention known in writing to the instructor during the first week of the semester and one week prior to the absence. If this submission is completed, a student who is absent from classes for the observance of a religious holy day shall be allowed to take make up missed exams or assignments scheduled for that day in accordance with syllabus policy.

Blackboard (Bb) and Connect Plus: Much of your learning about biology must take place outside of the formal class meetings. You should be a frequent visitor to the course Blackboard site (http://blackboard.angelo.edu). Please check Bb regularly. All of the material you need to prepare for class is available from the Bb site: reading assignments for each unit, lecture presentations, homework assignments, in-class activity handouts, helpful handouts (for some concepts), and links to outside review materials (for some concepts). If you are a first time Bb user, your password is your ASU PIN (usually your 6-digit birth date unless you have changed it). You can change your password and update your personal information by adding your email address and a telephone number where you can be reached this semester. Many of the homework assignments are available through Bb and link directly to the online homework system Connect Plus.

Top Hat: TopHat is a web based platform that allows you to answer questions in class that are projected on your personal device (cell phone, laptop, or tablet). It allows you to check on how you are learning and helps your instructor identify when the class may be doing great or struggling a bit with a concept. We use TopHat because it lets us see how students are doing with a particular concept or idea—in real time! We use TopHat in class so that you can answer questions and see the results. If the class is doing great, we move on to the next subject for the day. If not, it lets us help you learn what you might be struggling with before we move on to the next activity or topic. We will also use it for quizzes in class.
Please register before the end of the second week of classes. You should have already received an invitation to join my TopHat class that was sent to your ASU email account. If you had a TopHat account last semester you may or may not have to pay for this semester depending on what service you purchased. If you have an access code, click on the Have a redemption code? link. Otherwise, complete the information to pay with a credit card. It is important that you sign up for your lecture instructor’s website or you will not be able to participate (and earn points) in class.

Title IX at Angelo State: Angelo State University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex discrimination of any kind. Sex discrimination, sexual misconduct, public indecency, interpersonal violence, sexual assault, sexual exploitation, sexual harassment, and stalking are not tolerated at ASU. As a faculty member, I am a Responsible Employee meaning that I will report any allegations I am notified of to the Office of Title IX Compliance in order to connect students with resources and options in addressing the allegations reported. You are encouraged to report any incidents to ASU’s Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator. You may do so by contacting: Michelle Boone, J.D. Director of Title IX Compliance/Title IX Coordinator Mayer Administration Building, Room 200, 325-942-2022, michelle.boone@angelo.edu. You may also file a report online 24/7 at www.angelo.edu/incident-form. If you are wishing to speak to someone about an incident in confidence you may contact the University Health Clinic and Counseling Center at 325-942-2173 or the ASU Crisis Helpline at 325-486-6345. The Office of Title IX Compliance also provides accommodations related to pregnancy (such as communicating with your professors regarding medically necessary absences, modifications required because of pregnancy, etc.). If you are pregnant and need assistance or accommodations, please contact the Office of Title IX Compliance utilizing the information above. For more information about Title IX in general you may visit www.angelo.edu/title-ix.

ASU email: Since class announcements will be routinely distributed via email and Blackboard, you will need to regularly check your ASU email account and our course Blackboard site (daily). All course correspondence will be through your ASU email account and Blackboard. Please see the email policy in Bb for more details. ASU provides Internet and email services to you at any of the computer labs on campus. Call 942-2911 to set this up if necessary.

Lecture: A typical class meeting will combine mini-lectures, discussions, group activities, multimedia presentations, and other demonstrations and activities to give you an opportunity to learn biological concepts in as active a manner as possible. Each segment of the course is structured around one or more conceptual units that can be interpreted or solved by applying selected biological concepts. You can accumulate up to 140 points toward your final semester grade from unannounced group or individual in-class activities (no make-ups) or homework assignments. Most of these points are earned through LearnSmart homework assignments. We will also use TopHat questions for in-class activities. As a member of the class you are also invited to:

- Ask questions, no matter how naive they seem to you. I will do my best to offer you a satisfactory answer. The only stupid question is one that isn’t asked.
- Ask for help and/or clarification. Don’t suffer in silence. I can’t help you learn if I don’t know you’re confused or if my instructions are unclear.
- Use your group members as study partners! Review exam review questions (on Bb) or notes together. Group learning can be powerful and is often beneficial in a course like biology.

Course Groups: While taking exams is an individual activity, almost all other activities will require your participation with other class members. We will form groups the first week of class and then for the remainder of the semester, many of the lecture exercises will be solved collaboratively.

COURSE IDEA OBJECTIVES:

- Gain factual knowledge (terminology, classifications, methods, trends)
- Learn fundamental principles and theories
- Learn to apply course material (to improve thinking, problem solving, and decisions)
- Acquire skills in working with others as a member of a team

A successful student in Principles of Biology should be able to achieve the following course and state core related learning outcomes:
- describe, explain, and predict natural phenomena using the scientific method= CT1, EQS1, EQS2 – Assessment = In class activities, lecture exams, embedded test questions, lab quizzes, and lab activities/reports
design an experiment and complete a written description of their design, collaboratively conduct the experiment and analyze data generated to answer some component of a given causal question and defend the reasoning for conclusions drawn in the form of a laboratory report. CS1 – Assessment = In class activities, lab quizzes, and lab activities/reports

– collect and analyze data to evaluate relevant biological/ecological scenarios/problems (i.e. apply information you have learned). EQS1 – Assessment = In class activities, lecture exams, embedded test questions, lab quizzes, and lab activities/reports

– work effectively with others to support and accomplish a shared goal = CS1, TW2 – Assessment = In class activities, lecture exams, embedded test questions, lab practical exams, and lab activities/reports

– connect what she/he is learning to her/his own field (i.e. to make biology relevant to your own academic endeavors). Assessment = In class activities, lecture exams, embedded test questions, lab practical exams, and lab activities/reports

For State, and Accreditation purposes this course will assess your ability to:

– CT1: Gather, analyze, evaluate, and synthesize information relevant to a question or issue

– CS1: Develop, interpret, and express ideas through effective written communication.

– EQS1: Manipulate and analyze numerical data and arrive at an informed conclusion.

– EQS2: Manipulate and analyze observable facts and arrive at an informed conclusion.

– TW2: Work effectively with others to support and accomplish a shared goal.

To achieve these course objectives and help maximize your learning, it is vital that you attend class, come prepared, and study the material every day (more about this under student responsibilities).
<table>
<thead>
<tr>
<th>Week/ Date (approx)</th>
<th>Unit Concepts</th>
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<tbody>
<tr>
<td>1 January 15-19</td>
<td>Unit 1, Chapter 1- What is Science How do you tell if something is alive? [NOTE: Class will not meet MONDAY 21st due to the MLK holiday]</td>
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<tr>
<td>2 January 21-25</td>
<td>Unit 1, Chapter 2 – Chemistry of life/chemical origins of life/molecular basis of life: What are the 4 types of biological molecules? Why is water essential to life? What types of molecules make up cell membranes? [NOTE: Class will not meet MONDAY 21st due to the MLK holiday]</td>
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<tr>
<td>3 January 28-February 1</td>
<td>Unit 1, Chapter 3 – Cell membranes and other cell constituents: What structures support cells? How do substances move within cells? Details of Organelle structure/function: What do the different organelles in the cell do? Introduction to cell communication.</td>
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<tr>
<td>4 February 4-8</td>
<td>Unit 1 Wrap up and Review Chapters 1-3. <strong>Exam 1</strong> Friday for MWF classes, Thursday for TR classes.</td>
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<tr>
<td>5 February 11-15</td>
<td>Unit 2, Chapter 26 – How is information transmitted along a nerve cell? How do cells communicate with each other? How do substances move between cells.</td>
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<tr>
<td>6 February 18-22</td>
<td>Unit 2, Chapter 4–Enzymes: What are enzymes? Why are they necessary to living organisms? Energy Transformations – How Cells Release Energy: Why EXACTLY do we need oxygen?</td>
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<tr>
<td>7 February 25-March 1</td>
<td>Unit 2,Chapter 5–How do Cells Harvest Energy: What is light? Why is it Necessary to make glucose?</td>
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<tr>
<td>8 March 4-8</td>
<td>Unit 2, Wrap up and review. Chapters 26, 4, 5 <strong>Exam 2</strong> Friday for MWF classes, Thursday for TR classes.</td>
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<tr>
<td>March 11-15</td>
<td><strong>SPRING BREAK</strong></td>
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<td>9 March 19-23</td>
<td>Unit 3, Chapter 6–How do cells use energy in food to make ATP (aka Cellular Respiration)?</td>
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<td>10 March 25-29</td>
<td>Unit 3, Chapter 7–DNA Structure, Gene Function: How do cells use their genetic information? How do cells know what genetic information to use?</td>
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<td>March 28th</td>
<td>Last Day to Drop a Class for the regular Spring 2019 semester.</td>
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<td>11 April 1-5</td>
<td>Unit 3, Chapter 8–DNA Replication, Cell Cycle, Mitosis: Why do cells replicate? How do they replicate?</td>
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<tr>
<td>12 April 8-11</td>
<td>Unit 3, Wrap and review. Chapters 6, 7, 8 Wrap up and review. <strong>Exam 3</strong> Friday for MWF classes, Thursday for TR classes.</td>
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<tr>
<td>13 April 15-19</td>
<td>Unit 4, Chapter 9–Sexual Reproduction, Meiosis</td>
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<td>14 April 22-26</td>
<td>Unit 4, Chapter 10–, How is genetic information passed down from one generation to the next?</td>
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<tr>
<td>15 April 29 - May 3</td>
<td>Unit 4, Chapter 11 Biotechnology: How do modern-day applications of biological concepts impact our lives? Wrap up and Review. Chapters 9-11 &amp; Final Exam</td>
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<tr>
<td>May 6-10</td>
<td>FINAL EXAMS WEEK: Final Exams will be held in the same classroom as for class on the following dates:</td>
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<td>Section 020 - Wednesday, May 8 - 8:00am-10:00am</td>
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You are required to sign and return this sheet to me by the date indicated in lecture class (must be present to win). By doing so you acknowledge that you have received, read, and understand the syllabus and what is required of you to be successful in this course.

The information contained in this syllabus is your guide to the rules of this course. If you do not understand what is expected of you or the impact of your actions (i.e. missing a class), you should come and see me ASAP (within the first week of class).

YOUR NAME (PRINT): ___________________________________________________________________
(Note: If you prefer to go by your middle name or a nickname, please indicate that in parentheses. Ex. Joseph Student (Joe))

MAJOR: _________________________________________________________________________________

Lab Section (day & time):_________________________________________________________________

Lab Instructor’s Name: _____________________________________________________________________

I acknowledge that I have received and accept the responsibility for the information in the class syllabus. I also acknowledge that I have read and will abide by the ASU Honor Code.

NAME (signature): _______________________________________________________________________

To receive full credit, answer every question in complete sentences.
1. Tell me why you are here.

2. Describe something you are passionate about and explain why it is important to you.

3. Name one thing you are proud of and explain why.

4. What would you like to learn about this semester?

5. How do you plan to be successful in this course?