

Abilene Christian University
BIOLOGY FOR ELEMENTARY TEACHERS
BIOL 203.01 (4 hours—FSB 417)
Spring 2012

TEXTS

Picture-Perfect Science Lessons by Ansberry and Morgan

Assessment by National Council of Teachers of Mathematics

reading packet

We will be creating the textbook for this class throughout the semester. It will also be a resource for student teaching. The above books are written for teachers, which will be used at appropriate times. Units have been written that require internet access. The units cover the topics listed on the next page. **It is IMPERATIVE that we work together to understand the course concepts and its continuity. Please ask me for clarification at any time.**

OVERVIEW

This class focuses on content and models pedagogy. Pedagogy will include the inquiry process, how labs should be conducted and assessed in the elementary classroom, and the integration of math and science. The major topics in the life sciences will be covered (to address the TEKS and TE^xES). For each unit, we will:

- be provided with the TEKS and TE^xES
- study the unit accompanied with experiments and objective questions
- answer the objective questions (this is your responsibility)
- review the unit (orally or with a foldable or power point)

The units will be provided as the semester progresses.

OBJECTIVES

The student will:

- understand the implementation and assessment of the inquiry process
- understand processing skills and their vertical alignment
- be able to identify the math in the biology and determine if it is grade appropriate
- be able to recognize the misalignment of the math and science TEKS
- understand the energy cycle—how photosynthesis and cellular respiration relate to each other, how the energy cycle relates to life and ecology
- identify the structures of plant and animal cells, know their functions
- know the life cycle of plants and animals
- understand DNA's role in protein synthesis and genetics
- contrast what is inherited with what is learned
- integrate adaptive characteristics with habitat and genetics
- identify the structures and know their functions for the circulatory, respiratory, muscle, skeletal, and nervous systems
- understand health habits during childhood that will affect their health later in life
- construct a learning center that integrates math and biology

TOPIC	ESTIMATED TIME
Introduction	1 day
Inquiry	1 week
Processing skills	1 week
Assessment	1 week
Integration of math and science	1 week
Energy	1 week
Cell	2 weeks
Plants	2 weeks
Ecology	2 weeks
Human body	2 weeks

GRADES

This is a content class, interspersed with appropriate hands-on exercises and inquiry investigations. There are objective questions for each topic. Please answer these thoroughly for your benefit. I will be glad to check these answers. There are three individual assignments—an inquiry summary, a plant project, and a notebook. The learning center will be constructed by two to three people. This is due the last week of class. Late assignments will not be accepted.

ASSIGNMENT	POINTS
4 exams (including final), 100 each	400
10-16 quizzes or assignments (includes lab)	200-320
inquiry summary	50
notebook	100
learning center presentation	100
plant project	100

Rubrics will be provided for most of the assignments. These are designed to convey my expectations so that you can obtain the maximum points possible. Work on these assignments in a timely manner so that you can be assisted. Late class assignments will not be accepted. We will compile the notebook as the semester progresses. Please bring a 3 inch binder and 10 tabs. The tabs are the above listed topics (will add TEKS tab). Each section should include the following in this order:

- unit outline with answers to objective questions—written legibly or typed
- labs/inquiry
- handouts

Minimum percentage needed	Grade
90%	A
80 %	B
70%	C
60%	D

ATTENDANCE AND PARTICIPATION

You are to be present and on time for each class session including lab. If you are late to class, see me **immediately after** class to delete your absence (no exceptions). Excused absences are:

- University-approved events (*e.g.*, field trips, athletic competitions, etc.). It is your responsibility to give the appropriate forms a week prior to the event.
- Illness. Show me a doctor's note as evidence.
- Death in the immediate family. Please communicate with me if someone in your family is seriously ill.

Attendance and attitude may influence your grade. Attitude includes:

- promptness to class
- attentiveness
- respect for professor and fellow students
- being a productive group member
- using technology appropriately
- not distracting your neighbors
- 0-1 absences 60 points
- 2-3 absences 51 points
- 4-5 absences 45 points
- 6-7 absences 39 points
- 8-9 absences 33 points
- I reserve the right to deduct points for inappropriate attitude or use of technology. If you are asked to leave class a second time for attitude, you may not return to class. If you are absent nine times, you will be dropped from class. If you have special academic needs, I must be notified of this in writing.

DRESS CODE AND TECHNOLOGY

You will abide by the ACU dress code in the student guide. “All students, faculty, and staff are expected to dress with Christian appropriateness. Dress should be modest.” Dress as if you are going to work—as a professional. Refer to the student handbook. For this class, we will adhere to the mid-thigh length. You will be held to the same standard as teachers—while leaning over look into a mirror—is it revealing? If you do not comply with the dress code, you will receive one warning. If there is a second infringement, you will be asked to leave class. If there is a quiz, you will receive a zero and unexcused absence. If there is an exam, you may take the exam later the same day with an 8 point deduction and two unexcused absences. If there is no exam or quiz, you will receive three unexcused absences. Technology is great when it is used appropriately. Your mind can focus on one thing at a time. Hence, be focused on class material to optimize your performance. Inappropriate use of technology may affect your grade.

CLASS FORMAT

- An overview summary sheet will be provided at the beginning of each unit
- An outline of the unit will be given, with objective questions
- Readings may be assigned from the outline, web sites (links on the outline), or the textbook/reading packet
- Answer specified objective questions—these are designed to help you process the information and are required for the final notebook
- Assessment in lecture and lab will be various forms—as indicated on the summary sheet
- The labs will incorporate the content and inquiry
- Inquiry, processing skills, and assessment are pedagogy and will be implemented in the biology content sections
- To enhance understanding, we will periodically work in groups and create summary outlines.
- This course is an enhanced lecture class—lecture with active/group learning. COOPERATION and FOCUS are imperative to achieve this—to see how the themes unite.
- During class, students will randomly be asked to answer questions or to work in groups to assess understanding. You will be assigned a group for lab.
- Energy is the theme for our biology content.
- Please share your unique insight into biology or pedagogy—especially integration of mathematics and science.

FACULTY MISSION STATEMENT

We, the faculty of Abilene Christian University, consider ourselves a community of Christian scholars dedicated to equipping our students to live integrated, Christ-centered lives of service and leadership. Through our example, our instruction, and environment we provide in classrooms and on campus, we try to motivate students to love learning and to pursue truth throughout their lives.

Our goal is to see that our students combine their Christian faith, their professional commitment, and a broad range of human knowledge into a coherent world view which recognizes the interrelatedness of all parts of God's universe.

Our goals are based on Christian values. We believe in God as Creator; Jesus, His Son, as Savior and Lord; and the Holy Spirit as Comforter indwelling the Body of Christ, His Church. We believe in the Bible as God's inspired Word, and all truth as God's truth.

We view the student as unique, made in the image of God; the family as a God-ordained institution; and the world community as the context for our professional and spiritual service.

We consider teaching a calling from God and a ministry for Christ, demanding excellence within our disciplines.

We believe that our actions should be guided by integrity, love, and respect for individual and cultural diversity. We believe in protecting individual freedom of conscience and, at the same time, in encouraging one another to meet mutual goals and responsibility.

If you have special academic needs, notify me of this in writing.

Please feel free to contact me regarding this class or anything else in which I may be able to assist you. I will do my best to share how wonderfully we are made and all of creation. Both CHEM203 and BIOL203 have created their own “textbooks” to better meet the needs of the students. (There is no elementary science biology textbook for pre-service teachers in print.)

Patricia Hernandez, Ph.D., professor of biology
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 e-mail: hernandezp@acu.edu
 office hours: TR 2:30-4:30 p.m.; W 1-3 p.m.; F 1-2 p.m.

ACADEMIC HONESTY

All forms of academic dishonesty will not be tolerated. For a full explanation of ACU's policy regarding academic integrity, please read the following web site:
http://www.acu.edu/campusoffices/campuslife/acad_integrity.html

INSTRUCTOR AND STUDENT RESPONSIBILITIES

This is what I will do:

1. Explain as clearly as possible the major biological principles covered in each chapter.
2. Try not to waste your time.
3. To make the class interesting—include pertinent facts and clinical examples.
4. To compose tests which are fair (mostly from the objective questions, some critical thinking).
5. To treat you fairly and with respect—learn your names as soon as possible, listen to you, be available during office hours or an appointment.
6. To be available and helpful for discussions about biology or anything else.
7. To help you understand how wonderfully we are made and how we are a part of each other through Christ.

Sovereign God calls us to be a community of learners--humbled, renewed, and unified before Him. As we are being transformed, we reflect His light, shaping all inquiry into a pursuit of God and His Truth. Let us encourage one another in this journey PEACEFULLY.

This is what you are expected to do:

1. Attend class regularly and attentively. Attentively means listening with your whole being. This means appropriate use of technology.
2. Bring your book to class and have it out along with the outline and answered objective questions.
3. To learn as much as you can (answer the objective questions prior to class and listen attentively). Be willing to participate in random questioning, pair share, and kinesthetic learning activities.
4. Be courteous to your classmates and not interfere with their learning (this includes being an active participant in activities).
5. Understand the syllabus regarding grades and make-up exams.
6. You must inform me at least 24 hours before missing an exam.
7. Do your best.
8. My interactions with the professor are to be honest and respectful.
9. If I am asked to leave class a second time for attitude, I will not be allowed to return to class.

lecture

inquiry processing skills assessment integration M/S	energy	cells	plants	ecology	human body
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lab

oil spill	rice is life	cell model	dissect a seed	owl pellet	noodle people
dirt finders		microscopes	leaf hunt	turtle hurdle	lung model
processing skills		DNA model	leaf print		brain/spinal cord
name that shell		genes	dissect flower		model
bones (IMS)			pollination		

plant project