



Grande Prairie Regional College

School of Business

Department: Academic Upgrading

COURSE OUTLINE – WINTER 2006

BI 0110 - Biology Grade 10 Equivalent 3 (3-0-0.5) HS

Instructor Nancy Campbell

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Office Hours M-F, 2:30 – 3:10

Prerequisite(s)/corequisite(s):

Prerequisites: SC0100 or permission of department and EN0100 or equivalent. (MA0090 or equivalent is recommended)

Co requisites: MA0100 and CH0110 are required as co requisites for students who plan to continue to BI0120.

Required Text/Resource Materials:

Krogh, Biology: A Guide to the Natural World, third edition. (This textbook is also used for BI0120 and BI0130.)

Other supplies:

Other supplies you will need include a binder, lined paper, unlined white paper, computer paper, pencil, calculator, stapler, and lab coat (optional).

Many resources for this course, including the lab manual, are accessed through Blackboard, a computer-based course management system. You may access Blackboard via any computer with an Internet link. If you do not have a personal computer, you may sign in to use the computers in A205 during daytime hours, or in the library during evening and weekend hours.

Description:

Energy from the sun, properties of water, exchange of energy and matter between living systems and their environment are investigated. Cell structure and function, diffusion, osmosis and active transport are analyzed. Diversity of life is explored.

Delivery Mode(s):

BI0110 is lecture-based. Furthermore, the course has a lab component. The course is supplemented with resource material offered on Blackboard.

Credit/Contact Hours:

BI0110 is a 3-credit course.

Session Details:

January 4 – February 17

(Note: February 1st- Last day for withdrawing with permission from, or changing registration status from audit to credit or credit to audit.)

Course Schedule:

Dates for tests, labs, and assignments will be announced in class and entered into the calendar in Blackboard.

Lecture Schedule: Monday, Tuesday, Wednesday, Thursday, and Friday: 1:00pm – 2:20pm in L123. The lab is scheduled in J130, as posted on Blackboard.

Objectives:

The BI0110 course has been designed to provide you with an introduction to the world of living organisms. It incorporates learning opportunities for you in both the biology and computer labs. There are several biological themes explored in this course including: scientific method; microscopy; cell structure and function; membrane structure and function; energy; and diversity of life.

Unit 1: Introduction to Science and Biology	Unit 4: The Cell as an Open System
Unit 2: Introduction to Microscopy	Unit 5: Energy and Living Systems
Unit 3: The Cell is the Basic Unit of Living Systems	Unit 6: The Classification of the Diversity of Life

A course syllabus, which lists all the course objectives, is attached.

Transferability:

The course content is equivalent to the biology component of Alberta Learning's Science 10.

Grading Criteria:

Evaluation:	Unit Tests.....	60%
	Labs.....	15%
	Assignments	25%

Tests: At the end of each unit is a unit test. Each test is worth 10%.

Assignments and Lab Reports:

All labs are weighted equally.

Final assignment grade is calculated using raw scores.

If you miss a lab, you will not be able to make it up, as most labs require group work. Your assignments and lab reports **must be your own work**.

That is, I do not want to see identical sentences, diagrams etc.

Statement on Plagiarism and Cheating:

The instructor reserves the right to use electronic plagiarism detection services. Although you work together in pairs in the lab, you are to write separate reports, which are your own work.

Electronic devices, other than simple calculators, are not allowed into tests or exams.

Grades will be assigned on the Letter Grading System.

**Academic Upgrading Department
Grading Conversion Chart**

Alpha Grade	4-point Equivalent	Percentage Guidelines	Designation
A ⁺	4	90 – 100	EXCELLENT
A	4	85 – 89	
A ⁻	3.7	80 – 84	FIRST CLASS STANDING
B ⁺	3.3	76 – 79	
B	3	73 – 75	GOOD
B ⁻	2.7	70 – 72	
C ⁺	2.3	67 – 69	SATISFACTORY
C	2	64 – 66	
C ⁻	1.7	60 – 63	
D ⁺	1.3	55 – 59	MINIMAL PASS
D	1	50 – 54	
F	0	0 – 49	FAIL

Classroom Department:

AUD STUDENT CLASSROOM DEPARTMENT GUIDELINES

Philosophy: This is an adult education environment; students are expected to show respect for others. Students are also learning skills to prepare them for the work environment.

Preamble: Even though the department is empathetic to the needs of our students, we have determined over the years that certain activities are not conducive to an atmosphere of learning. Therefore, we ask the cooperation of all of our students in several areas of classroom department.

The following guidelines assist all of us in maintaining an adult learning environment with “respect for the rights of other members of the College community” (from the Student Rights and Responsibilities of the College calendar).

1. Please refrain from unnecessary talking in class (“visiting”, social discussions). Please ask your instructor for information or clarification when you have a question. Other students do not necessarily have the correct information.
2. Turn off your cell phone during class time. Parents who are expecting phone calls from the day care or from schools should see Lani in the main office and complete a form. Lani will then find you in class if any calls come in.

In case of other emergencies, students can use a phone that vibrates, but does not ring. However, please leave the class before answering the phone. The loud talking in class is disruptive to other students.

3. Do not bring children to class with you. This is an adult learning environment and it is not an appropriate setting for children.
4. Eating, drinking coffee, etc are allowed only on a limited basis and if the following are observed:
 - If you must bring food or drink to class, purchase it during your break so that you are coming to class on time and staying for the duration of the class
 - Clean up all garbage, crumbs, etc. from the area where you were eating/drinking
 - Your eating or drinking should not disrupt your learning activities and progress or the learning activities and progress of others in the class
5. As per the student responsibilities section in the College Calendar, you are expected to “arrive on time and remain for the duration of scheduled classes and related activities.”

AUD EXAM/ATTENDANCE POLICIES

As per the College calendar, students are responsible to “write tests and final examinations at the times scheduled by the instructor or the Office of the Registrar”.

Attendance

If you miss more than 15% of classes per semester in any course, you may be debarred from the final exam for that course.

Late Exams

1. In order to be given the opportunity to write an exam after the due date, the student must phone the instructor on the morning of the absence and be given permission to write the test at a later date. If the instructor is unavailable, the student should leave his/her home phone number or the number where the instructor can reach the student. This requirement also applies to quizzes and assignments.
2. If permission to write a late exam is given, the late exam (or quiz or assignment) will be docked a minimum of 10 percentage points per day of lateness. (This means 10 or more points off the mark the student achieves on the test/assignment.)
3. Once the test/quiz/assignment has been handed back to the class, there is no opportunity for a late write or hand-in. The student will be assigned a grade of ‘0’ for that test/quiz/assignment.

BIOLOGY 0110

Course Syllabus 2005/2006

Unit 1: Introduction to Science and Biology (5 days)

Chapter 1: pages 3 – 17

1. Define Science.
2. Outline the steps of the scientific method.
3. Apply the scientific method approach to a scientific experiment.
4. Propose reasons why the scientific method is important.
5. Given an experiment, determine its variable(s), and whether or not it is controlled.
6. Define Biology.
7. List the general characteristics of living organisms.
8. Sketch a diagram to represent the levels of organization in living things.
9. State and briefly explain at least seven different fields of study in Biology.
10. Determine your best approach for studying biology.

Unit 2: Introduction to Microscopy (5 days)

Page 92 and further readings will be provided.

1. State the contribution of Anton van Leeuwenhoek to microscopy.
2. Define magnification and resolution.
3. Differentiate between the compound microscope and the electron microscope.
4. Distinguish between the two main types of electron microscopes and identify pictures taken with each.
5. State the functions of each of the following microscope parts, and label them on a drawing: oculars, eye width adjustment, dioptre adjustment, binocular viewing tube, revolving nose piece, objectives, arm, stage, mechanical stage, condenser and diaphragm, coarse and fine adjustment knobs, and lamp.
6. List the safety procedures one must follow to correctly use the microscope.
7. Define field of view and state what happens to the field of view as higher power of objectives are used.

8. Determine microscope magnification.
9. Calculate drawing magnification.
10. Label lab drawings using biological standards.

Unit 3: The Cell is the Basic Unit of Living Systems (5 days)

Chapter 4: pages 68 - 91

1. Summarize the contributions of Hooke, Schleiden, Schwann and Virchow to the development of the cell theory.
2. State and critique the cell theory.
3. Describe the structure and function of each of the following cellular components: organelles, cytoplasm, nucleus, smooth and rough endoplasmic reticulum, Golgi apparatus, lysosome, vacuole, vesicles, mitochondria, chloroplasts, ribosomes, cytoskeleton, cell (plasma) membrane, centrioles, flagella, cilia, and cell wall.
4. Label each of the above parts on diagrams of plant and animal cells.
5. Relate the structure of a cell to its function.
6. Compare prokaryotic and eukaryotic cells.
7. Compare plant and animal cells.

Unit 4: The Cell as an Open System (5 days)

Chapter 5: pages 98 – 113.

1. Label a diagram of the fluid-mosaic model representation of the plasma membrane.
2. Define passive transport, diffusion, concentration gradient, and dynamic equilibrium.
3. Give examples of diffusion and predict the movement of substances by diffusion.
4. Define osmosis and osmotic pressure.
5. Predict the consequences on plant and animal cells when they are placed in isotonic, hypertonic, and hypotonic solutions.
6. Define and give examples of facilitated transport.
7. Define and give examples of active transport.
8. Explain bulk transport including exocytosis, endocytosis and pinocytosis.
9. Relate membrane disorders to disease states.

10. Compare cell size and shape as they relate to the concept of surface area to volume ratio and how that ratio limits cell size.

Unit 5: Energy and Living Systems (5 days)

Chapter 6: pages 118 - 131

1. Define energy, potential energy, and kinetic energy.
2. Outline energy uses by living systems.
3. Relate the first and second laws of thermodynamics to living systems.
4. Discuss the structure and function of ATP and ADP
5. Illustrate the cycling of ATP and ADP.
6. Describe in general how light energy from the sun is trapped by the chloroplasts in chlorophyll by the process of photosynthesis.
7. Describe in general how the process of aerobic respiration releases energy.
8. Link the processes of photosynthesis and cellular respiration in the cycling of water, carbon dioxide, and oxygen.

Unit 6: The Classification of the Diversity of Life (5 days)

Readings will be provided.

1. Define classification and propose reasons why classification of living organisms is necessary.
2. Discuss the history of classification and the contributions of Aristotle and Linnaeus.
3. List the taxonomic groups from the most general to the most specific.
4. Apply the rules of scientific nomenclature to recording names of organisms.
5. List the five kingdoms of life and state the general characteristics of each of the five kingdoms.