DEPARTMENT OF SCIENCE

COURSE OUTLINE – WINTER 2016

BI1050 A3 The Organization and Diversity of Life 3 (3-0-0) UT 45 HR, 15 WEEKS

INSTRUCTOR: Rick Scott **PHONE:** 780-539-2953
OFFICE: J121 **EMAIL:** RScott@gprc.ab.ca

OFFICE HOURS: Monday, Tuesday Thursday from 10:00 – 11:00 or by appointment

CALENDAR DESCRIPTION: A study of biological concepts and mechanisms illustrated by current examples of medical and environmental problems.

PREREQUISITES: None

REQUIRED TEXT/RESOURCE MATERIALS: "Campbell Essential Biology" by Simon, Dickey Hogan and Reece, PEARSON Publishing, 6th edition, 2016 (or 5th edition, 2013).

DELIVERY MODES: Lecture plus use of Moodle and online resources.
Lecture Tuesday and Thursday 11:30 – 12:50 room J201

COURSE OBJECTIVES: To foster an appreciation for the science of biology and its applications. To make students aware of how biology impacts their lives. Students will be exposed to the scientific study of life, the nature of life and the major themes in biology: Evolution, Structure and function, Information Flow, Energy Transformations, and Interconnections within Biological Systems.

LEARNING OUTCOMES: Biology 1050 has four main units. The major learning outcomes of each unit for students successfully completing this course are to:

Unit 1 Cells

1. explain what the basic molecules of life are
2. explain the basic structure of the cell
3. describe the function of the main organelles of the cell

4. explain the nature and role of enzymes in cell processes
5. explain membrane function and the types of membrane transport
6. explain the importance of ATP and the role of photosynthesis and respiration in the energy transfers within cells

Unit 2 Genetics

1. describe the processes of mitosis and meiosis
2. explain Mendel's laws of heredity
3. explain, using Punnet squares, how genes and alleles are inherited
4. explain the chromosomal basis of inheritance
5. explain information flow from DNA to RNA to proteins
6. explain the basics of gene regulation and the role in cancer
7. explain the basics of how viruses infect cells and how vaccinations work
8. explain the basics of DNA technology and its applications to genetic engineering, forensic science and bioinformatics

Unit 3 Evolution and Diversity

1. explain and recognize the diversity of life
2. explain what a species is and how biologists categorize species
3. explain how natural selection is a mechanism for Evolution
4. distinguish between micro and macroevolution
5. explain the differences between prokaryotes and eukaryotes
6. recognize the main features of protists, fungi, plants and animals
7. recognize the major plant and animal phyla

Unit 4 Ecology

1. explain the basic features of population ecology, community ecology and ecosystem ecology
2. recognize the features of Earth's major biomes
3. explain how the environment impacts populations
4. explain population growth models
5. explain conservation strategies

TRANSFERABILITY: Students with credit in BI1050 will not receive credit in BI1070 or BI1080. Bachelor of Science students will not receive credit for this course.

*Transfer: Athabasca University, King's University College, MacEwan University, University of Alberta, University of Calgary, University of Lethbridge

***Warning:** Although we strive to make the transferability information in this document up-to-date and accurate, **the student has the final responsibility for ensuring the transferability of this course to Alberta Colleges and Universities**. Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at Alberta Transfer Guide main page http://www.transferalberta.ca or, if you do not want to navigate through a few links, see http://alis.alberta.ca/ps/tsp/ta/tbi/onlinesearch.html

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. **Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability**

EVALUATIONS:

Quizzes……..….20% (There are 2; 10% each.)
Assignments……20% (There are 2; 10% each)
Midterm……...30% (covers units 1 and 2)
Final ……..30% (covers units 3 and 4)

The Midterm covers Units 1 and 2 (Chapters 1 – 12)

The final covers Units 3 and 4 (Chapters 13 - 20)

The final Exam will be scheduled by the Registrar sometime during the period of April 15 - 26.

Note: final exams could be on Saturdays.

Assignments and take home quizzes will be handed out during class time.

GRADING CRITERIA:

GRADING CRITERIA: please note that most universities will not accept your course for transfer credit **IF** your grade is less than **C-.** This means **DO NOT GET LESS THAN "C-" IF YOU ARE PLANNING TO TRANSFER TO A UNIVERSITY.**

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	90-100		C+	2.3	67-69
A	4.0	85-89		C	2.0	63-66
A-	3.7	80-84		C-	1.7	60-62
B+	3.3	77-79		D+	1.3	55-59
B	3.0	73-76		D	1.0	50-54
B-	2.7	70-72		F	0.0	00-49

March 7, 2016 is the Last day to withdraw from courses in most programs with a grade of "W".

COURSE SCHEDULE/TENTATIVE TIMELINE: January 6 – April 13

DATES	Approximate time line and pages covered	quizzes, assignments and exam dates
Jan 7	Chapter 1 Pages 1 -16 Introduction	
Jan 12, 14	Chapter 7 pages 106 – 119 Chapters 2, 3 Pages 22 –53	
Jan 19, 21	Chapters 4, 5 pages 54 – 73 and 74 - 89	
Jan 26, 28	Chapter 5 conc. Chapter 6 pages 90 - 105	Take home **Quiz # 1 Jan 28** due Feb 2 (Chapters 1-5 ,7)
Feb 2, 4	Chapter 8, 9 pages 120 – 143 and 144 - 169	
Feb 9, 11	Chapters 10, 11 pages 170 – 195 and 196 - 215	**Assignment 1 due Feb 11**
Feb 16, 18	**No Classes this Week, Winter Break**	
Feb 23, 25	Chapter 12 pages 216 – 240	**Midterm Feb 25** Unit 1 and 2 Chapters 1 - 12
Mar 1, 3	Chapters13, 14 pages 242 – 267 and p268 - 291	
Mar 8, 10	Chapter 14 cont., Chapter 15 pages 292 - 313	
Mar 15, 17	Chapter 16, pages 314 - 335	
Mar 22, 24	Chapter 17, pages 336 -371	Take home **Quiz #2 Mar 24** Due Mar 29 (Chapters13 – 17)
Mar 29, 31	Chapter 18, pages 372 - 401	
April 5, 7	Chapter 19, 20 pages 402 – 423 and 424 - 449	**Assignment 2 due Apr 7**
April 12	Chap 20 conc.	
April 15 – 26	Final exam scheduled by Registrar	Final covers Units 3 and 4 Chapters 13 -20

STUDENT RESPONSIBILITIES:

Refer to the College Policy on Student Rights and Responsibilities at
www.gprc.ab.ca/d/STUDENTRIGHTSRESPONSIBILITIES

If you are absent from an exam, you MUST notify the instructor of your absence (by email or voice message) on the day of the missed exam, or as soon as possible after. Also you may be asked to provide a doctor's certificate or a verification that explains your absence for that particular time. Only then will an alternate time be scheduled for you to write a different exam.

Attendance:
Students are expected to attend all classes and complete all assignments and tests.
If you miss 6 or more classes you may be debarred from the final exam.
You must write the final exam to be eligible to pass the course.

Tardiness (Lateness): Come on time!

Cell Phone or tablet Use
Turn them off during class time. Do not distract others.

Assignments and take home quizzes.
These are due on the day announced in class, or as posted on Moodle. The value of the assignment or quiz goes down 10% per day late**.** (Example: an assignment submitted one day late can earn a maximum of 90% of the value of the assignment, two days late 80% etc.) **A late assignment or quiz will not be accepted once the assignments have been returned graded to other students.**

Exams
Use of any electronic communication devices during Exams is not permitted.

STATEMENT ON PLAGIARISM AND CHEATING:

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the College Admission Guide at http://www.gprc.ab.ca/programs/calendar/ or the College Policy on Student Misconduct: Plagiarism and Cheating at http://www.gprc.ab.ca/about/administration/policies/

**Note: all Academic and Administrative policies are available on the same page.