

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



Sault College

COURSE OUTLINE

COURSE TITLE: BIOLOGY FOR HEALTH SCIENCES
CODE NO: BIO1220
PROGRAM: NURSING AND PRACTICAL NURSING
AUTHOR: LESLIE UHLIG
DATE: AUGUST/02

DEAN

DATE

TOTAL CREDITS: 4
**PREREQUISITE(S): SB13U or SB13C (Biology, Grade 11, University
Preparation or College Preparation)**
HOURS/WEEK: 4 Hrs/Wk

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(705) 759-2554, Ext. 689/603

I. COURSE DESCRIPTION:

This course will prepare graduates from secondary school, who lack SB14U (Grade 12 Biology, University Preparation), for potential entry into programs in the health sciences. The course will provide theoretical and practical knowledge of concepts within the following strands: cell structure/function, metabolic processes, homeostasis, molecular genetics, and evolution. There will be an emphasis placed on mastery of the required theoretical base needed for the pursuit of further studies in the life sciences, with special attention to the health sciences.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course the student will demonstrate the ability to:

1. Understand and utilize appropriate terminology related to descriptions of the following: the structure and function of cells and their organelles, how energy is supplied by metabolic processes such as respiration and photosynthesis, the regulatory systems involved in maintenance of homeostasis, the molecular biology of the gene, and the mechanism of evolution.
2. Describe the basic metabolic styles used by cells for the generation of energy (i.e. aerobic respiration versus anaerobic respiration).
3. Recognize the significance of similar mechanisms across species boundaries with regard to processes integral to life (i.e. respiration and the molecular mechanism of inheritance).
4. Describe the basic structure and function of the macromolecules necessary for metabolic and genetic processes to take place in all living cells. Describe the importance of enzymes in biological systems.
5. Describe and explain the roles played by the endocrine and nervous systems in the maintenance of homeostasis in the human body. Understand the importance of feedback mechanisms and some of the specific physiological and biochemical mechanisms utilized by these systems in fulfilling their roles.
6. Describe the nature of genes from both a structural and functional perspective. Understand the structural and functional differences between DNA and RNA.
7. Describe in a basic way the method by which DNA replicates and the processes of transcription and translation.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

8. Understand how the scientific method has been utilized to propose and strengthen the theory of evolution. Describe the current and historical methods proposed for how evolution occurs.
9. Describe some of the landmark contributions/discoveries made in the field of evolution and evaluate their significance and the degree to which they did/do support the theory of evolution.
10. Understand and describe the following concepts: adaptation, descent with modification, and speciation.

III. TOPICS:

- 1) The Life of a Cell
- 2) Metabolic processes within cells - respiration and photosynthesis
- 3) Maintaining a stable internal environment: homeostasis
- 4) The roles of the nervous and endocrine systems in homeostasis
- 5) Molecular genetics - How DNA acts as the contractor to build all cells
- 6) Evolution - the mechanism by which the diversity of life has arisen

IV. REQUIRED TEXTS/RESOURCES/MATERIALS:

Campbell, N.A., J.B. Reece, L.G. Mitchell and M.R. Taylor. (2003). *Biology: Concepts and Connections*. (4th ed.). Toronto. Benjamin Cummings. ISBN: 0-8053-6627-X

Liebaert, R. (2003). *Student Study Guide to Accompany Campbell, Reece, Mitchell and Taylor's Biology: Concepts and Connections*. ISBN: 0-8053-6791-8

V. EVALUATION PROCESS/GRADING SYSTEM:

1. The pass mark for this course is 60%. It is composed of unit tests, mid-term exam and a final exam.

2. Evaluation Methods:

| | |
|---------------------------|-----|
| Units Tests (6 in total): | 60% |
| Mid-term Exam | 20% |
| Final Exam | 20% |

V. EVALUATION PROCESS/GRADING SYSTEM:

Mid-term exam will consist of course material from the beginning of the course until the mid-term date.

Final exam will consist of material from the mid-term exam to the end of the course.

3. Students who receive a mark of below 50% may be eligible to write a supplemental exam. The following criteria apply:

- received at least 50% in the overall mark
- attended at least 80% of the classes

The supplemental exam will cover the whole semester. It will be comprised of multiple choice questions and diagrams.

4. Students missing the unit tests for any reason will **NOT** be able to write them at any other date.
5. Students missing the mid-term exam or final exam because of illness or other serious reason must phone the professor **before** the exam to inform her/him (759-2554 ext. 630). Those students who have notified the professor of their absence, according to policy, will be eligible to arrange an opportunity as soon as possible to write the exam at another time. Those students who **do not notify the professor** will receive a zero grade for that exam. **It is the student's responsibility** on his/her first day back at school to contact the professor to arrange to write the exam. Failure to notify the professor at this time will result in a mark of "0".
6. Students receiving borderline marks (59,, 69, 79, 89) may, at the professor's discretion, have their mark advanced to the next category if they have attended at least 80% of the classes.

V. EVALUATION PROCESS/GRADING SYSTEM:

7. Course Grading Scheme:

| Grade | Definition | Grade Point Average |
|----------------|---|---------------------|
| A ⁺ | 90 - 100% | 4.00 |
| A | 80 - 89% | 3.75 |
| B | 70 - 79% | 3.00 |
| C | 60 - 69% | 2.00 |
| R (Repeat) | 59% or below | |
| CR (Credit) | Credit for diploma requirements has been awarded. | |
| S | Satisfactory achievement in field placement or non-graded subject areas. | |
| U | Unsatisfactory achievement in field placement or non-graded subject areas. | |
| X | A temporary grade. This is used in limited situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see <i>Policies and Procedures Manual - Deferred Grades and Make-up</i>). | |
| NR | Grade not reported to Registrar's office. This is used to facilitate transcript preparation when, for extenuating circumstances, it has not been possible for the faculty member to report grades. | |

VI. SPECIAL NOTES:

Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your instructor and/or the Special Needs office as soon as possible. Visit Room E1204 or call Extension 493, 717, or 491 so that support services can be arranged for you.

Retention of course outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

VI. SPECIAL NOTES:

Plagiarism:

Students should refer to the definition of "academic dishonesty" in Student Rights and Responsibilities. Students who engage in "academic dishonesty" will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course outline amendments:

The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.