

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE: Principles of Microbiology
CODE NO. : Biol. 2111 **SEMESTER:** Fall 2005
PROGRAM: Collaborative B.Sc.N.
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Office: D1201 759-2554 ext. 630
DATE: June, 2005 **PREVIOUS OUTLINE DATED:** Sept. 2004

APPROVED:

ASSOCIATE DEAN

DATE

TOTAL CREDITS: 3
PREREQUISITE(S): OAC/12U level biology or equivalent
HOURS/WEEK: 3 hours of lecture per week plus 3 hours of laboratory per week

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For additional information, please contact the Associate Dean,
School of Health and Human Services
(705) 759-2554, Ext. 603/689

I. COURSE DESCRIPTION:

This course is an introduction to microbiology and is offered to students in the Bachelor of Science in Nursing program. The topics covered include morphology and structure, classification, microbiology techniques, microbial nutrition, growth, environmental effects on microbes, mutation and genetic recombination, sterilization and disinfection, and antimicrobial chemotherapeutic agents. Students cannot retain credit for both BIOL 2111 and BIOL 2110.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Define the essential differences in structure and function between prokaryotes and eukaryotes.
2. Acquire and utilize the appropriate terminology related to microbiology as a scientific discipline.
3. Acquire the ability to practice aseptic technique both in the laboratory and as it would apply to clinical settings.
4. Describe the various types of microbes from a morphological perspective and be able to discuss aspects of their nutritional and growth requirements, reproductive styles, techniques utilized to control their growth, and pathological conditions caused by representative organisms.
5. Successfully produce pure cultures of microbes in a variety of media, through experience in the laboratory setting.
6. Demonstrate a facility for the observation of microbes using microscopic, staining and isolation techniques.

III. TOPICS:

1. Introduction to Microbiology
2. Prokaryotes and Eukaryotes
3. Nutritional Types of Bacteria
4. Basic Taxonomy of Microbes
5. The Light Microscope and its Use in Visualizing Microbes Alone or in Combination with Staining Techniques
6. How to Cultivate Microbes
7. What Microbes Need to Eat; Nutritional Requirements
8. How to Isolate a Pure Culture of Microbes
9. The Morphology and Structure of Bacteria
10. Microbial Growth
11. The Environment and Its Effects on Microbes
12. Microbial Genetics: How Microbes Reproduce, Recombine and Mutate
13. How to Kill a Microbe I: Chemical Agents
14. How to Kill a Microbe II: Physical Agents
15. Antimicrobial Chemotherapeutic Agents
16. Microbial Normal Flora and Microbial Diseases

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Cowan, M. K., and Talaro, K.P. (2006). *Microbiology: A Systems Approach*. Toronto: McGraw-Hill

Cowan, K., Talaro, K.P. and Boury, N. (2006). *Student Study Guide for use with Microbiology: A Systems Approach*. Toronto: McGraw-Hill.

Brown, A.E. (2005). *Benson's Microbiological Applications Complete Version: Laboratory Manual in General Microbiology*, (9th ed.). Toronto: McGraw-Hill.

Note: As a service to students, all three of the above REQUIRED texts are packaged together for a discounted price compared to the separate price for all three.

A clean, white, laboratory coat that is separate from the one used in the clinical setting. You may use the same lab coat that was used for your A&P course.

Several grease pencils (black or red) or Sharpie markers (either can be obtained in any office supply retail outlet) for labelling of glassware, plates, etc.

A pair of laboratory safety goggles/glasses. These may be purchased at the Campus Shoppe.

An additional box of disposable gloves; these may be purchased at any drug store or health supply store. There will be an initial supply of gloves available in the laboratory, but students will need to purchase one additional box of gloves.

V. EVALUATION PROCESS/GRADING SYSTEM:

The final grade will be determined based on the following:

Midterm Exam (full lecture period):	30%
Final Exam (3 hour; schedule TBA)	40%
Laboratory Component	20%
Term Research Paper	10%

Note: Students who miss either the midterm or the final exam without notifying the instructor (759-2554 ext. 630) BEFORE the exam will receive a zero (0) grade for that exam. It is STRONGLY recommended that students who miss the exam for an emergency reason contact the instructor (via phone, written note or email using the Sault College email server) before the exam to alert the instructor of their absence. On the first day back to classes IT IS THE **STUDENT'S** RESPONSIBILITY to contact the instructor to arrange an alternate exam date. Missed laboratory quizzes will receive a zero (0) grade; NO alternate dates will be provided for writing these quizzes. There will be no 'make-up' labs for completing the assigned laboratory exercises; students must 'catch-up' in subsequent lab periods.

MIDTERM GRADES:

The determination of midterm grades as "S" or "U" will be based on the cumulative grades of all tests and/or laboratory work completed up to the date of submission of midterm grades. Any student who does not achieve a passing grade on the majority of graded work will receive a "U" grade at midterm. Those who do receive a "U" grade at midterm are encouraged to schedule a meeting with the professor for additional help towards success in the course.

The following semester grades will be assigned to students in post-secondary courses:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	

S	Satisfactory achievement in field /clinical placement or non-graded subject area.
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

NOTE:

For such reasons as program certification or program articulation, certain courses require minimums of greater than 50% and/or have mandatory components to achieve a passing grade.

It is also important to note, that the minimum overall GPA required in order to graduate from a Sault College program remains 2.0.

All NURS courses require 60% for a passing grade.

All science courses, including BIOL2105, BIOL2111, CHMI2220 and elective courses require 50% for a passing grade.

VI. SPECIAL NOTES:**Attendance**

Students are expected to attend **all** classes and laboratory exercises. Various handouts may be given out during class/lab and students are responsible for keeping up with the material missed. The easiest way to keep up is to ATTEND CLASS.

PLEASE NOTE: As is stated in your B.Sc.N. Student Manual: "Punctual and regular attendance at the various academic exercises is required of all students. Unexcused absences in excess of 20% may jeopardize receipt of credit for the course. An unexcused absence is one in which the professor was not notified of the absence. An excused absence includes absences where the professor is notified via voice mail, in person, via the internal (college) email server or via a written note." This policy will be adhered to **RIGOROUSLY**. It is imperative that for success to occur in this course, attendance be at least 80% for both lectures and laboratory exercises.

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. Visit Room E1101 or call Extension 703 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.

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.