SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE:	**Microbiology for the Health Sciences**
CODE NO. :	**Biol. 2036** **SEMESTER: Fall 2016**
PROGRAM:	**Collaborative B.Sc.N.**
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DATE:	**Sept. 2016** **PREVIOUS OUTLINE DATED: Sept. 2015**
APPROVED:	*Marilyn King* *June, 2016*
	CHAIR, HEALTH PROGRAMS **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**

I. COURSE DESCRIPTION:

This course is an introductory microbiology course with applications in the health sciences. It will provide students with the basics of microbial cell structure and function, antimicrobial therapy and drug resistance, the immune system, antibodies, and diagnostic microbiology. The involvement of microbes in emerging and re-emerging infectious diseases will be briefly discussed. Nosocomial and sexually transmitted infections will also be discussed. Pre-requisites: BIOL1506/1507, 12U Biology, or permission of the instructor. May not be combined with BIOL2026 for credit (lec 3 hrs, lab 3 hrs).

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Students in this course will be exposed to the basic principles of microbiology and the involvement of microbes in diseases. The teaching involves both theory and practical aspects of microbiology as students engage in weekly laboratory exercises. Students learn the art of microbial manipulation and a thorough knowledge of their structure and how to control their growth by means of physical and chemical methods. Students will build a better understanding of the role of microbes in health and disease and how to control their involvement in diseases within health care facilities. The following outcomes will be met by students who successfully complete this course.

(A) Knowledge

- To familiarize students with the basic structure and morphology of microorganisms, with emphasis on bacteria.
- To introduce students to the immune and non-immune protective systems in humans.
- To introduce students to the field of infectious diseases and such areas as epidemiology and diagnostic microbiology.
- To train students in distinguishing between normal mictoflora, opportunistic pathogens, and emerging infectious agents.
- To learn the principles and applications of the various chemical, physical, and radiation-based methods of microbial control.
- To expose students to the dynamics of common nosocomial infections and emerging infectious agents.

(B) Skills

- To equip students with the knowledge and practical skills of sterile techniques of handling and culturing microorganisms.
- To train students to be able to correlate certain clinical symptoms with specific infectious diseases.
- To enable students to identify common pathogenic bacteria and be able to explain clinical diagnostic tests and antibiotic testing results.

III. TOPICS:

1. Introduction to and Brief History of Microbiology
2. Introduction to the Microbial World
3. Microbial Cell Structure
4. Viruses
5. Microbial Growth and Culture Techniques
6. Physical and Chemical Control of Microbial Growth
7. Antibiotics and Drug Resistance
8. Human Innate Immune Defenses
9. Immunity and Vaccination in Humans
10. Nosocomial Infections and Sexually Transmitted Diseases
11. Emerging Infectious Diseases
12. Diagnostic Microbiology

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Strelkaukas, A., A. Edwards, B. Fahnert, G. Pryor, J, Strelkauskas. (2015). *Microbiology, A Clinical Approach* (2nd ed.). New York, NY: Garland Science Taylor and Francis. ISBN: 978-0-815-34513-8

Pollack, R. A., Findlay, L., Mondschein, W., Modesto, R. R. (2012). *Laboratory exercises in microbiology* (4rd ed.). Toronto, ON: John Wiley and Sons. ISBN : 978-1-118-13525-9

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.

A supply of gloves will be made available in the laboratory.

V. EVALUATION PROCESS/GRADING SYSTEM:

The pass mark for this course is 60% (a "C" grade). The final grade will be determined based on the following:

Midterm Exam (full lecture period):	25%
Final Exam (3 hour; schedule TBA)	45%
Laboratory Tests (weekly quizzes; final comprehensive lab exam)	30%

Note: Students who miss either the midterm or the final exam without notifying the instructor (759-2554 ext. 2630) **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.

The following semester grades will be assigned to students:

Grade	Definition	Grade Point Equivalent
A+	90 – 100%	4.00
A	80 – 89%	
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.	

If a faculty member determines that a student is at risk of not being academically successful, the faculty member may confidentially provide that student's name to Student Services in an effort to help with the student's success. Students wishing to restrict the sharing of such information should make their wishes known to the coordinator or faculty member.

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.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located in D2L and on the portal form part of this course outline.