

Dept. of Science  
Grande Prairie Regional College

MI 2650  
General Microbiology  
3(3-0-4)

Course Outline  
Fall 2010-2011

Instructor

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**Description:** This course covers aspects of bacterial physiology such as nutrient uptake, metabolism, extracellular proteins, chemotaxis and differentiation. Symbiotic associations and interaction of microbes with the environment are major topics. Basic principles of industrial microbiology and the use of biotechnology for the production of economically and medically important substance will be covered. Laboratory exercises are designed to complement the material included in classes.

**Transfer:** BIOL 3xx – Athabasca University  
BIOL 274 – Augustana University  
MICRB 265 – University of Alberta  
Jr. BIOL – University of Calgary  
BIOL 3200 – University of Lethbridge  
BIOL 2xx – Concordia University College

**NOTE 1:** At the University of Calgary, students who pass MI 2650 will not be given credit for BIOL 231, but the course can be used as the pre-requisite for CMMB 343.

**Pre-requisites:** BI 1070 and CH 1610 or CH 2610

**Schedule:** Classes: Monday (1130-1250) and Friday (1000-1120) J204  
Labs: Wednesday (1430-1720) and Friday (1230-1320) J126

**Textbooks:** “Brock – Biology of Microorganisms” (12<sup>rd</sup> Edition, 2009)  
Madigan, Martinko, Dunlap & Clark  
Pearson / Benjamin Cummings Publishers

MI 2650 Lab Manual  
Grande Prairie Regional College

The 10<sup>th</sup> or 11<sup>th</sup> Editions of the textbook may be used, but the page numbers and figures will differ from the 12<sup>th</sup> edition.

For extra help, the text includes an access code for “The Microbiology Place” which contains a number of useful resources including practice quizzes, videos and animations. You are encouraged to use this site as much as possible.

**Materials:** Copies of the Course Outline and the Powerpoint slides used in class will be available on Moodle. Other material may be made available.

There are many useful resources available on the World Wide Web including:

“**Medical Microbiology**” (<http://129.109.136.65/microbook/toc.html>)

**Microbiology 101 Internet Text** (<http://wsu.edu/~hurlbert/pages/101hmpg.html>)

Responsibilities: Since participation in lectures, and completion of assignments are important components of this course, regular attendance in class is strongly advised. Students who chose not to attend or complete assignments must assumed the risks involved. In this regard, your attention is directed to the Academic Guidelines of Grande Prairie Regional College as described in the Calendar. In particular, students should be familiar with the section on plagiarism, cheating and the resultant penalties, since these are serious issues and will be dealt with severely.

Students in MI 2650 MUST read the relevant pages of the textbook in order to supplement the information provided in classes.

In order to successfully complete MI 2650, students MUST attend all scheduled laboratory sessions and achieve a mean score of 50% on the laboratory assignments, including the Lab Exam.

All laboratory assignments MUST be completed and handed in at the time specified. **Late reports will not be marked.**

Due to the complexity of the laboratory exercises in MI 2650, they can be completed only during the scheduled times.

Evaluation:	Lab Reports	15%
	Lab Quizzes	5%
	Final Lab Exam	20%
	Mid-term Exam	20%
	Final Exam	40%

Final grades will be determined using the following chart:

<u>Grade</u>	<u>Final Mark</u>
A+	>90%
A	87-90%
A-	83-86%
B+	79-82%
B	74-78%
B-	70-73%
C+	69-74%
C	65-68%
C-	61-64%
D+	55-60%
D	50-55%
F	<50%

Grades will be assigned based on the marks of individual students – a bell curve will not be used.

## TOPIC OUTLINE

<u>Topic</u>	<u>Text pages</u>
Introduction to Microbiology	1-24
Prokaryotic structure	33-37; 66-106; 109-110; 427-437; 451-455; 477-478
Metabolic Diversity of Prokaryotes	39-45; 107-133; 494-498; 578-611; 612-644
Classification of Prokaryotes	37-38; 377-395; 399-401; 446; 487-489; Appendix 2 (A5-A12)
DNA Structure and Function	181-206; 282-284
Gene regulation in Prokaryotes	182-194; 208-212; 224-250; 294-306
Microbial Habitats	676-680; 687-693; 714-732
Prokaryotic growth	141-174; 510-515
Control of growth	779-810; 1026-1032; 1043-1049
Microbial interaction with man	811-838

To improve understanding of the material covered during classes and to ensure successful completion of MI 2650, it is strongly suggested that students read the relevant text pages in advance of the classes.