



**CALENDAR 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.

**LEARNING OUTCOMES:**

1. Students should know structure and metabolism of procarotic organisms.
2. Students should know the principles of microbial ecology.
3. Students should understand the importance of microbes to the environment.
4. Students should be able to apply learned principles to other areas of biology.

**COURSE OBJECTIVES:**

1. To gain an understanding of microbe structure and function.
2. To gain a knowledge of the associations between microbes and other organisms.
3. To develop critical thinking skills with respect to microbiology.

**CREDIT/CONTACT HOURS:** 3 credits (3-0-4)

<b>DELIVERY MODE(S):</b>	Classes	Tuesdays	1130-1250 (J204)
		Thursdays	1130-1250 (J204)
	Labs	Tuesdays	1430-1720 (J130)
		Thursdays	1300-1420 (J126)

**TRANSFERABILITY:**

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.

**EVALUATIONS:**

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

**GRADING CRITERIA:**

<b>GRANDE PRAIRIE REGIONAL COLLEGE</b>			
<b>GRADING CONVERSION CHART</b>			
<b>Alpha Grade</b>	<b>4-point</b>	<b>Percentage</b>	<b>Designation</b>
<b>A<sup>+</sup></b>	<b>4.0</b>	<b>90 – 100</b>	<b>EXCELLENT</b>
<b>A</b>	<b>4.0</b>	<b>85 – 89</b>	
<b>A<sup>-</sup></b>	<b>3.7</b>	<b>80 – 84</b>	<b>FIRST CLASS STANDING</b>
<b>B<sup>+</sup></b>	<b>3.3</b>	<b>77 – 79</b>	
<b>B</b>	<b>3.0</b>	<b>73 – 76</b>	<b>GOOD</b>
<b>B<sup>-</sup></b>	<b>2.7</b>	<b>70 – 72</b>	
<b>C<sup>+</sup></b>	<b>2.3</b>	<b>67 – 69</b>	<b>SATISFACTORY</b>
<b>C</b>	<b>2.0</b>	<b>63 – 66</b>	
<b>C<sup>-</sup></b>	<b>1.7</b>	<b>60 – 62</b>	
<b>D<sup>+</sup></b>	<b>1.3</b>	<b>55 – 59</b>	<b>MINIMAL PASS</b>
<b>D</b>	<b>1.0</b>	<b>50 – 54</b>	
<b>F</b>	<b>0.0</b>	<b>0 – 49</b>	<b>FAIL</b>
<b>WF</b>	<b>0.0</b>	<b>0</b>	<b>FAIL, withdrawal after the deadline</b>

\*\* 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

### **STUDENT RESPONSIBILITIES:**

Refer to the College Policy on Student Rights and Responsibilities at [www.gprc.ab.ca/d/STUDENTRIGHTSRESPONSIBILITIES](http://www.gprc.ab.ca/d/STUDENTRIGHTSRESPONSIBILITIES)

### **STATEMENT ON PLAGIARISM AND CHEATING:**

Refer to the College Student Misconduct: Academic and Non-Academic Policy at [www.gprc.ab.ca/d/STUDENTMISCONDUCT](http://www.gprc.ab.ca/d/STUDENTMISCONDUCT)

\*\*Note: all Academic and Administrative policies are available at [www.gprc.ab.ca/about/administration/policies/](http://www.gprc.ab.ca/about/administration/policies/)

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. 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.

Since material covered in BI 1070 is relevant to MI 2650, it is assumed that students have retained that information and will be able to answer exam questions that refer to it.

## MI 2650 - TOPIC OUTLINE

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.

<u>TOPIC</u>	<u>TEXT READINGS</u>	
	13 <sup>th</sup> Edition	14 <sup>th</sup> Edition
Introduction to Microbiology	1-23; 447-454	1-25; 348-354
Procaryotic structure and function	34-36; 47-84; 133; 155-162; 192-193	32-64; 159; 108-115; 125-126
Nutrition & Metabolic Diversity of Procaryotes	36-38; 94-97; 106-108; 341-371; 373-410; 711-713; 714-715	79-80; 82-84; 95-96; 379-432; 650-657
Genetic Regulation & Signal Transduction	170-174; 193-195; 210-223; 225-227;	120-127; 216-230; 232-233
Microbial Growth	118-149; 279-284;	144-171; 305-308
Control of Microbial Growth	756-786	158-182; 811-826
	672-676;	598-600

Microbial Associations:		
<i>Agrobacterium</i>	440-442; 729-730	336-339; 678-679
Nitrogen Fixation	365-368; 723-728	100-102; 673-678
Ruminant digestion	734-738	683-687
Microbes and man	738-741; 788-789; 798-807	687-691; 714-725