



UNIVERSITY OF CALGARY  
FACULTY OF SCIENCE  
DEPARTMENT OF BIOLOGICAL SCIENCES  
COURSE OUTLINE

1. **Course: CMMB 343 – MICROBIOLOGY**

Lecture Section:	L01	MWF	15:00-15:50	ST 135	WINTER 2015
Instructor(s):	Dr. S. Wong		BI 178A	220-5721	slwong@ucalgary.ca
	Dr. D. Storey		BI 196A	220-5274	<a href="mailto:storey@ucalgary.ca">storey@ucalgary.ca</a>
	W. Huddleston		EEEL 235B	220-7739	wrhuddle@ucalgary.ca

Desire 2 Learn site for this course is CMMB343 L01-(Winter 2015)-Microbiology  
Biological Sciences Department BI 186; (403) 220-3140; biosci@ucalgary.ca

2. **PREREQUISITE(S):** Chemistry 351 and one of Biology 231 or 243 or 311 or Medical Science 341.  
See section 3.5.C in the Faculty of Science section of the online Calendar  
(<http://www.ucalgary.ca/pubs/calendar/current/sc-3-5.html>)
3. **Grading:** The University policy on grading and related matters is described sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Laboratory		30%
First Midterm Exam	Feb. 23	15%
Second Midterm Exam	Mar. 25	15%
Final Laboratory exam		10%
Final exam (cumulative)		30%
(There will be a final exam scheduled by the Registrar's Office.)		

Each piece of work (assignment, laboratory report, midterm test or final examination) submitted by the student will be assigned a percentage score. The student's average percentage score for the various components listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade using the conversion scale provided below, bearing in mind that a maximum grade of D<sup>+</sup> will result if the student does not write and pass (> 50%) the final lab exam or the laboratory component of the course. Students must attend all laboratory classes; lab assignments will not be accepted from students who were absent without a valid excuse from the lab in which data were collected/distributed. Students who miss a substantial number of labs will not be permitted to write the final laboratory exam.

4. **Missed Components of Term Work:** The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in [Section 3.6](#). It is the student's responsibility to familiarize himself/herself with these regulations. See also [Section E.6](#) of the University Calendar
5. **Dates and times of class exercises held outside of class hours:** The weekly laboratory exercises will require students to return to the lab the day following their scheduled lab to record experimental results. The lab will be open throughout the day (Monday, Wednesday and Friday) to accommodate students.

**REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY.** If you have a clash with this out-of-class-time-activity, please inform your instructor as soon as possible so that alternative arrangements may be made for you.

6. **Course Materials:** TEXT: Required: Huddleston et al. 2015. CMMB 343 Lab Manual  
Madigan and Martinko. Brock: Biology of Microorganisms.  
14<sup>th</sup> Edition. Pearson Prentice-Hall.  
A laboratory jacket (available at the bookstore) is **required** for CMMB 343
- Optional: Leboffe and Pierce. A Photographic Atlas for the Microbiology Laboratory. 4<sup>th</sup> Edition.  
Morton Publishing Company.

RESERVE READING ROOM: Books and reviews are listed on the last page.

7. **Examination Policy:** No electronic or written aids (e.g. cell phones, tablets, computers, PDAs, notes, textbooks) will be allowed during writing of any exams. Non-programmable calculators will be permitted to answer quantitative questions on exams, if applicable, and permission to do this will be clearly indicated on the examination paper. Students should also read the Calendar, [Section G](#), on Examinations.
9. In this course, the quality of the student's writing in laboratory reports will be a factor in the evaluation of those reports. See also [Section E.2](#) of the University Calendar.
10. **Human studies statement:** indicating whether students in the course may be expected to participate as subjects or researchers. See also [Section E.5](#) of the University Calendar.

STUDIES IN THE BIOLOGICAL SCIENCES INVOLVE THE USE OF LIVING AND DEAD ORGANISMS. Students are expected to be familiar with <http://www.ucalgary.ca/pubs/calendar/current/sc-5-1.html> of the on-line calendar.

See also <http://www.ucalgary.ca/pubs/calendar/current/e-5.html>.

#### 11. OTHER IMPORTANT INFORMATION FOR STUDENTS:

- (a) **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under [Section K](#). Student Misconduct to inform yourself of definitions, processes and penalties.
- (b) **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).
- (c) **Academic Accommodation Policy:** Students with documentable disabilities are referred to the following links: Students with Disabilities: <http://www.ucalgary.ca/pubs/calendar/current/b-1.html> [B.1](#) and Student Accessibility Services: <http://www.ucalgary.ca/access/>.
- (d) **Safewalk:** Campus Security will escort individuals day or night (<http://www.ucalgary.ca/security/safewalk/>). Call 220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- (e) **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPPA). As one consequence, students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information see also <http://www.ucalgary.ca/secretariat/privacy>.
- (f) **Student Union Information:** VP Academic Phone: 220-3911 Email: [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca).  
SU Faculty Rep. Phone: 220-3913 Email: [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca); [Student Ombudsman](#)
- (g) **Internet and Electronic Device Information:** You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.
- (h) **U.S.R.I.:** At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses ([www.ucalgary.ca/usri](http://www.ucalgary.ca/usri)). Your responses make a difference - please participate in USRI Surveys.

Department Approval \_\_\_\_\_ ORIGINAL SIGNED \_\_\_\_\_ Date \_\_\_\_\_

UNIVERSITY OF CALGARY  
DEPARTMENT OF BIOLOGICAL SCIENCES  
COURSE OUTLINE  
**CMMB 343**  
**MICROBIOLOGY**

TERM:

Winter 2015

SECTION NO: 01

Prerequisites: Chemistry 351 and one of Biology 231 or 243 or 311 or Medical Science 341.

**NOTE:** A student may not register in a course unless he/she has a grade of at least C- in each prerequisite course.

Prior completion of or concurrent registration in Biochemistry 393 and Chemistry 353 is strongly recommended.

COURSE COORDINATOR: Dr. S.L. Wong

LECTURER(S): Dr. D. Storey BI 196A 220-5274 storey@ucalgary.ca  
Dr. S.L. Wong BI 178A 220-5721 slwong@ucalgary.ca

LAB COORDINATOR: Bill Huddleston EEEL 235B 220-7739 wrhuddle@ucalgary.ca

LECTURES: MWF 15:00 – 15:50 ST 135

LABS: T 09:00/13:00 EEEL 303/369  
R 09:00/13:00 EEEL 303/369

TEXT: Required: Huddleston et al. 2015. CMMB 343 Lab Manual  
Madigan and Martinko. Brock Biology of Microorganisms.  
14<sup>th</sup> Edition. Pearson Prentice-Hall.  
A laboratory jacket (available at the bookstore) is **required** for CMMB 343

Optional: Leboffe and Pierce. A Photographic Atlas for the Microbiology Laboratory. 4<sup>th</sup> Edition.  
Morton Publishing Company.

RESERVE READING ROOM: Books and reviews are listed on the following page.

MARK DISTRIBUTION: A. Composition of Final Grade

A+ ≥ 93			
A ≥ 90	Laboratory		30%
A- ≥ 85	First Midterm Exam	Feb. 23	15% (50 min)
B+ ≥ 80	Second Midterm Exam	Mar. 25	15% (50 min)
B ≥ 77	Final Laboratory exam		10% (2 hours)
B- ≥ 73	Final exam (cumulative)		30% (3 hours)
C+ ≥ 70			
C ≥ 65	B. <u>Final Exam</u>		
C- ≥ 60	There will be a final examination scheduled by the		
D+ ≥ 55	Registrar's Office.		
D ≥ 50			
F < 50			

An introductory study of the systematics, ecology, physiology, molecular biology and role in pathogenesis of the major groups of prokaryotes.

**CMMB 343 - Lecture schedule Winter 2015**

<b>Date</b>	<b>Topic</b>	<b>Lecturer</b>
Jan 12	Introduction (Microorganisms and Microbiology)	D. Storey
Jan 14	Importance of microorganisms to evolution and life	D. Storey
Jan 16	Bacterial Cell Structure	D. Storey
Jan 19	Bacterial Cell Structure	D. Storey
Jan 21	Bacterial Cell Structure	D. Storey
Jan 23	Growth and Metabolism	D. Storey
Jan 26	Growth and Metabolism	D. Storey
Jan 28	Growth and Metabolism	D. Storey
Jan 30	Growth and Metabolism	D. Storey
Feb 2	Adaptation to Extreme Environments	D. Storey
Feb 4	Nutrient Cycles	D. Storey
Feb 6	Carbon Cycle and Biogeochemistry	D. Storey
Feb 9	Microbial Ecosystems	D. Storey
Feb 11	Microbial Ecology	D. Storey
Feb 13	Microbial Ecology	D. Storey
<b>Feb 16-22</b>	<b>Reading WEEK</b>	
Feb 23	<b>First Midterm Exam (in class, TBA) 50 minutes</b>	
Feb 25	Bacterial genomes	S.-L. Wong
Feb 27	Bacterial genomes and gene organization	S.-L. Wong
Mar 2	Gene organization and Transposon	S.-L. Wong
Mar 4	Transposon	S.-L. Wong
Mar 6	Plasmid and Conjugation	S.-L. Wong
Mar 9	Conjugation	S.-L. Wong
Mar 11	Transformation	S.-L. Wong
Mar 13	Genetic engineering	S.-L. Wong
Mar 16	Bacteriophages and viruses	S.-L. Wong
Mar 18	Bacteriophages and viruses	S.-L. Wong
Mar 20	Bacteriophages and viruses	S.-L. Wong
Mar 23	Protein secretion	S.-L. Wong
Mar 25	<b>Second Midterm exam (in class, TBA) 50 minutes</b>	
Mar 27	Protein secretion	S.-L. Wong
Mar 30	Bacterial communication	S.-L. Wong
Apr 1	Bacterial communication	S.-L. Wong
Apr 3	Good Friday (No class)	
Apr 6	Microbes that cause infections	D. Storey
Apr 8	Microbes that cause infections	D. Storey
Apr 10	Immunology	S.-L. Wong
Apr 13	Immunology	S.-L. Wong
Apr 15	Immunology	S.-L. Wong

**Final Exams (cumulative): April 18-29, 2015**

## MICROBIOLOGY RESERVED READING LIST

- Brock Biology of Microorganisms (14<sup>th</sup> edition) Madigan, Martinko, Stahl and Clark, 2015
- Bacterial Metabolism (2nd ed.) - Gottschalk - QR 88 G67
- Bacterial Energetics (The Bacteria Volume 12) - Krulwich - QR 41 G78
- Biology of the Prokaryotes – Lengeler et al., (1999)
- Early Life - Margulis - QH 325 M32
- Microbiology: An Evolving Science, 3<sup>rd</sup> edition – Slonczewski and Foster- 2013
- Physiology of the Bacterial Cell: A Molecular Approach - Neidhardt et al. - QR 84 N44
- Variations in Autotrophic Life - Shively and Barton - QR 88 V37
- Bergey's Manual of Systematic Bacteriology on ONE HOUR RESERVE - 7<sup>th</sup> Ed. - QR 81 S63  
8<sup>th</sup> Ed. - QR 81 S63  
9<sup>th</sup> Ed. vol.1 - QR 81 S633  
vol.2 - QR 81 S633
- Molecular Genetics of Bacteria – Snyder and Champness – (4<sup>th</sup> Ed.), 2013
- Molecular Evolution - Terzaghi et al., - QR 371 M68
- Microbiology - An Introduction (4th Ed.) - Tortora et al., - QR 41.2 T67
- Fundamental Bacterial Genetics – Nancie Trun and Janine Trempey, 2004 Edition
- Basic Virology – Edward K. Wagner, Martinez J. Hewlett; 2<sup>nd</sup> Edition, 2003
- Genes VIII – Benjamin Lewis, 2004 Edition

### Laboratory Attendance:

Attendance is required at all laboratory classes. It is the student's responsibility to provide a written medical or other legal excuse for an absence immediately upon return to class. The documentation must be explicit in regards to the days missed, the reason, and when the student can return to classes. A doctor's or medical clinic note that does not include a valid reason for missing the lab will not be accepted.

### Academic Misconduct:

Academic misconduct will not be tolerated in CMMB 343. A **single offence of cheating or plagiarism** on term work, quizzes or examinations may lead to severe disciplinary action. **Cheating** involves giving or receiving information during a quiz or examination. **Plagiarism** involves submitting work as if it is the student's own work. Any work, in whole or in part, must be referenced if it is obtained from any other source. Refer to the University of Calgary online calendar at <http://www.ucalgary.ca/honesty> for further information.

### Regrading of Term Work and Midterm Exams

A student that is not satisfied with the grading of a laboratory submission should first speak to the lab TA. If satisfaction is not achieved, the student should submit the piece of term work to Bill Huddleston for an independent reappraisal. This **MUST** be done within **15 days** of the work being returned to the student. Refer to the University of Calgary calendar and page v of the 2015 Lab Manual for further information. Same rule applies to the two midterm exams. Please contact the corresponding instructors within 15 days after the official posting of the exam scores.