

9. **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>.

10. **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.
SU Faculty Rep. Phone: 220-3913 Email: 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). Your responses make a difference - please participate in USRI Surveys.

Department Approval: _____ ORIGINAL SIGNED _____ Date: _____

Associate Dean's Approval for
out of regular class-time activity: _____ ORIGINAL SIGNED _____ Date: _____
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UNIVERSITY OF CALGARY
DEPARTMENT OF BIOLOGICAL SCIENCES
COURSE OUTLINE
CMMB 523
DNA GENOMES AND RNA FUNCTION

TERM: Winter 2015 SECTION: 01

PREREQUISITE: CMMB 411

Students may not register in a course unless they have a grade of at least C- in each prerequisite course.

LECTURERS: Dr. S. Zimmerly BI 319C 220-7933 zimmerly@ucalgary.ca
Dr. S.L. Wong BI 178A 220-5721 slwong@ucalgary.ca

LECTURES: MWF 14:00 – 14:50 KNB 128

TEXT: Recommended Molecular Biology of the Gene. Watson et al. Pearson. 7th Edition. (or equivalent textbook)

MARK DISTRIBUTION: A. Composition of Final Grade

The requirements for this course include assignments, a term paper, a midterm exam, a midterm quiz and a final examination. Consistent with current regulations all course work will be given a letter grade. In computation of the final grade, each component of course work will be weighted as follows:

Midterm Exam	25 %
Midterm Quiz	10 %
Assignments	20 %
Final Exam	45 %

B. Final Exam

There will be a final examination scheduled by the Registrar's Office.

COURSE DESCRIPTION

An examination and comparison of the roles of DNA and RNA in the cell. Includes chromatin structure, transcriptional regulation, mechanisms of post-transcriptional regulation at the RNA level, and the diverse roles played by RNA, ranging from information molecules to structural scaffolds to ribozymes.

Grading Scale

A+	= 95	B-	= 70	D	= 50
A	= 85	C+	= 67	F	= below 50
A-	= 80	C	= 63		
B+	= 77	C-	= 60		
B	= 73	D+	= 55		

1. Regulation of prokaryotic gene expression (SLW)

Methods to study bacterial transcription: (a) Recombinant DNA methods to produce and purify transcription factors; (b) Footprinting and other molecular biological approaches (e.g. surface plasmon resonance based biosensor) to study protein-nucleic acid and protein-protein interactions. Structure-function studies of both RNA polymerase and promoter sequences, analyses of the transcription process and examples of gene regulation by different strategies.

2. Genome sequencing (SZ)

Strategies and methods for sequencing bacterial and eukaryotic genomes. Genome composition of bacterial and eukaryotic genomes, with substantial detail on the human genome. Experiments designed to understand genomic biology, such as microarray analyses and genome-wide screens. Next-generation sequencing and applications. Experimental characterization following from the genome projects.

3. Topics in eukaryotic gene expression and RNA (SZ)

Summary of the diverse roles of RNA in the cell. Post-transcriptional regulation mechanisms, non-coding RNAs, riboswitches, catalytic RNAs and the RNA world hypothesis.