

YORK UNIVERSITY
FACULTY OF PURE AND APPLIED SCIENCE

Fall, 2009

SC/BIOL 3110 3.0 - MOLECULAR BIOLOGY I: NUCLEIC ACID METABOLISM

COURSE DIRECTOR: Dr. Michael Crerar
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LECTURES: Tues. and Thurs., 10:00-11:30 am, in Vari Hall, rm A.

REQUIRED TEXT: "Genes IX" by Benjamin Lewin, (2008), Jones and Bartlett Publishers - in the York University Bookstore.

Additional (recommended) texts: "Genes and Genomes" by M. Singer & P. Berg and "Molecular Biology" (2nd edition) by D. Friefelder - both are on reserve for this course in the Science library.

ASSIGNMENTS AND GRADING:

Two mid-term tests: 25% each = 50%
Final exam = 50%

This course is designed to provide an understanding of molecular processes involved in nucleic acid (DNA and RNA) metabolism and will teach not only the facts, but also insights into how that information was and is being obtained. Topics will include: the structure and function of DNA and RNA, recombinant DNA technology, the molecular anatomy of genes and genomes, chromosome structure and function, DNA and RNA replication, DNA recombination and repair.

Molecular mechanisms underlying the regulation of gene expression will be discussed in SC/BIOL 3130 3.0, Molecular Biology II.

(over)

Specific Topics will include:

"Central Dogma" hypothesis of information flow.
 Structure and physical/chemical properties of DNA and RNA.
 Recombinant DNA technology.
 The molecular anatomy of genes and genomes.
 Packaging of DNA in cells: chromosomes and nucleosomes.
 The replicon and DNA replication (DNA->DNA).
 Replication of retroviruses (RNA->DNA->RNA).
 RNA virus replication (RNA->RNA).
 DNA recombination and repair.

Timetable (lectures and tests):

Lectures: Sept. 10, 15, 17, 22, 24, 29,
 Oct. 1, 6, 8

Reading week: Oct 10-16

Term test #1: Tues. Oct. 20 = 25%. (On lectures Sept.10 - Oct. 8)

Lectures: Oct. 22, 27, 29,
 Nov. 3, 5, 10, 12

Term test #2: Tues. Nov. 17 = 25%. (On lectures Oct. 22 - Nov. 12)

Lectures: Nov. 19, 24, 26,
 Dec 1, 3, 8

Final exam: date to be scheduled = 50%. (On all lecture material)
 (In the final exam period.)

Note:

(1) If you miss one of the term tests and have proper documentation, the second term test will be worth 33% and the final exam 67%. If you miss both term tests and have proper documentation, the final exam will be worth 100%.

(2) All students who miss the final exam will be required to petition through the Registrar's Office in order to write a deferred final exam.