BIOL 4668/7668 – EUKARYOTIC MOLECULAR GENETICS
Spring, 2013  Cherry Emerson bld. Room # 320  12:05 – 1:25 PM

Professors:

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(Prior appointment by E-mail is strongly recommended for a meeting during office hours and required for any meeting outside of the office hours)

- B. Lewin (2007) Genes IX. Jones and Bartlett Publishers, Inc. Scientific reviews and research papers (to be posted on Web).

TENTATIVE SYLLABUS

Week 1: 01/8, 10 Introduction/Techniques in molecular genetics I (FS) Ch. 1, 6, 21
Week 2: 01/15 Techniques in molecular genetics II (FS) Ch. 21
01/17 Model genetic systems (FS) Ch. 22 and outside sources
Week 3: 01/22, 24 Transcription and RNA processing I, II (FS) Ch. 12, 13
Week 4: 01/29 Regulation of transcription (FS) Ch. 17, 19, 20
01/31 Protein biosynthesis I (FS) Ch. 14
Week 5: 02/05, 07 Regulatory RNAs I, II (FS) Ch. 6, 18 and outside sources
Week 6: 02/12 RNA editing (FS) Ch. 6, 18 and outside sources
02/14 EXAM I
Week 7: 02/19 DNA and chromatin structure (KL) Ch. 6, 7
02/21 Chromosome duplication and condensation (KL) Ch. 7 and outside sources
Week 8: 02/26 DNA replication I (KL) Ch. 8 and outside sources
02/28 DNA replication II (KL) Ch. 8 and outside sources
Week 9: 03/05 Telomeres and telomerases (KL) Ch. 8 and outside sources
03/07 Direct reversal and BER (KL) Ch. 9 and outside sources
Week 10: 03/12 NER (KL) Ch. 9 and outside sources
03/14 EXAM II
Week 11: 03/19, 21 SPRING BREAK
Week 12: 03/26 DSB Repair I: Homologous recombination (FS) Ch. 10 and outside sources
03/28 DSB Repair II: NHEJ (FS) Ch. 9 and outside sources
Week 13: 04/02 Site-specific recombination (FS) Ch. 11 and outside sources
04/04 Mutagenesis and MMR I (KL) Ch. 9 and outside sources
Week 14: 04/09 Mutagenesis and MMR II (KL) Ch. 9 and outside sources
04/11 Cell cycle and checkpoint control (KL) Ch. 11 and outside sources
Week 15: 04/16 Transposable elements (KL) Ch. 11 and outside sources
04/18 Genetic instability and cancer I (KL) Ch. 9 and outside sources
Week 16: 04/23 Genetic instability and cancer II (KL) Ch. 9 and outside sources
04/25 Trinucleotide repeats and neurological diseases (KL) Ch. 11 and outside sources

Finals week: 04/30 FINAL EXAM
NOTE:
1) Only eukaryotic material is covered in each chapter, except for the cases when prokaryotic materials are used for the comparison.
2) Most lectures use outside sources (provided via Web) in addition to the textbook.
3) If you have previously taken BIOL 4469 (Mol. Biology) or BIOL 7668 (Euk. Mol. Genetics - graduate), you cannot get additional credit for BIOL 4668.
4) Exam will be given only during class hours on the dates specified in the syllabus.
5) There will be no early finals.
6) Students registered for BIOL 7668 are required to co-register for BIOL 7964.
7) Watson et al. textbook package for BIOL 7668 includes a special supplement – Scientific American (Current Issues in Cell, Molecular Biology and Genetics).

Exam rules:
Students are allowed to use notes (no more than 1 page per person, could be double-sided, handwritten or printed, stapled or clipped together; you can use only your own notes and cannot ask another person for his/her notes).
Textbooks, folders, binders, notebooks, paper printouts, cell phones or laptops are not allowed.

Grading:
BIOL 4668:
Each Exam – 30%
Quizzes / in class activity – 10%

BIOL 7668:
Each Exam – 25%
Quizzes / in class activity – 10%
Homework (based on materials covered in BIOL 7964 seminars) – 15%