BIOL 4668/7668 – EUKARYOTIC MOLECULAR GENETICS
Spring, 2012 Whitaker bld. Room # 1103  12 – 1:30 PM

Professors:

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Francesca Storici
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Office CE 331 (Office hours –Wednesdays 2 – 3 PM)

(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: 01/10, 12  Introduction/Techniques in molecular genetics I (FS)  Ch. 1, 6, 21
Week 2: 01/17 Technique in molecular genetics II (FS)  Ch. 21
01/19  Model genetic systems (FS)  Ch. 22 and outside sources
Week 3: 01/24,26  Transcription and RNA processing I, II (FS)  Ch. 12, 13
Week 4: 01/31  Regulation of transcription (FS)  Ch. 17, 19, 20
02/02  Protein biosynthesis I (FS)  Ch. 14
Week 5: 02/07,09  Regulatory RNAs I, II (FS)  Ch. 6, 18 and outside sources
Week 6: 02/14  RNA editing (FS)  Ch. 6, 18 and outside sources
02/16  EXAM I
Week 7: 02/21  DSB Repair I: Homologous recombination (FS) Ch. 10 and outside sources
02/23  DSB Repair II: NHEJ (FS)  Ch. 9 and outside sources
Week 8: 02/28  Site-specific recombination (FS)  Ch. 11 and outside sources
03/01  DNA and chromatin structure (KL)  Ch. 6, 7
Week 9: 03/06  Chromosome duplication and condensation (KL) Ch. 7 and outside sources
03/08  DNA replication I (KL)  Ch. 8 and outside sources
Week 10: 03/13  DNA replication II (KL)  Ch. 8 and outside sources
03/15  EXAM II
Week 11: 03/20,22  SPRING BREAK
Week 12: 03/27  Telomeres and telomerases (KL)  Ch. 8 and outside sources
03/29  Direct reversal and BER (KL)  Ch. 9 and outside sources
Week 13: 04/03  NER (KL)  Ch. 9 and outside sources
04/05  Mutagenesis and MMR I (KL)  Ch. 9 and outside sources
Week 14: 04/10  Mutagenesis and MMR II (KL)  Ch. 9 and outside sources
04/12  Cell cycle and checkpoint control (KL)  Ch. 11 and outside sources
Week 15: 04/17  Transposable elements (KL)  Ch. 11 and outside sources
04/19  Genetic instability and cancer I (KL)  Ch. 11 and outside sources
Week 16: 04/24  Genetic instability and cancer II (KL)  Ch. 11 and outside sources
04/26  Trinucleotide repeats and neurological diseases (KL)  Ch. 11 and outside sources

Finals week: 05/01  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%
**Official School Calendar - Spring Semester 2012**

**January**

3 Undergraduate Curriculum Committee - Petitions (Full Committee)

4 - 13 Phase II Registration For Spring Semester 2012

- All Students
- Registration ends at 4:00pm ET

9 Classes Begin - Spring Semester 2012.


13 Last day to register, make schedule changes, and/or drop courses without a "W" grade for Spring Semester 2012 by 4:00pm ET.

16 Official School Holiday.

17 Last day for reactivation of degree petitions to be received by the Registrar's Office for Spring commencement.

17 Fee payment deadline - 4:00pm ET for Spring Semester 2012 to avoid class cancellation. Visit [www.bursar.gatech.edu/calendar.php](http://www.bursar.gatech.edu/calendar.php).

17 Undergraduate Curriculum Committee - Academic Matters and Appeals (Full Committee)

19 Graduate Curriculum Committee - Academic Matters (Full Committee)

24 Undergraduate Curriculum Committee - Petitions (Subcommittee)

**February**

1 Deadline for readmission applications for Summer Term 2012 for students with an academic standing of drop or review. All other readmissions see April 1.

9 Graduate Curriculum Committee - Academic Matters (Full Committee)

14 Undergraduate Curriculum Committee - Academic Matters and Appeals (Full Committee)

17 Progress Report Deadline - All 1000 & 2000 level course grades must be entered online by Noon ET.

28 Undergraduate Curriculum Committee - Petitions (Subcommittee)

**March**

2 Deadline to change grade mode from letter grade to pass/fail (and vice versa). No changes to audit mode permitted after the last day of registration. Visit [www.catalog.gatech.edu/rules/10a/php](http://www.catalog.gatech.edu/rules/10a/php).

2 Last day to apply for grade substitution.

2 Last day to drop individual courses with a grade of "W" by 4:00 pm ET.

8 Graduate Curriculum Committee - Academic Matters (Full Committee)
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<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>13</td>
<td>Undergraduate Curriculum Committee - Academic Matters and Appeals (Full Committee)</td>
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<tr>
<td>14</td>
<td>Last day to withdraw from school with “W” grades in all courses for Spring Semester 2012 by 4:00pm ET.</td>
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<td>14</td>
<td>Schedule of classes for Summer and Fall Semesters 2012 available on-line.</td>
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<td>19 - 23</td>
<td>Spring Break.</td>
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<td>20</td>
<td>Undergraduate Curriculum Committee - Petitions (Full Committee)</td>
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<td>April 1</td>
<td>Deadline for readmission applications for Summer Term 2012. The deadline for readmission applicants with an academic standing of drop or review was February 1, 2012.</td>
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<td>2</td>
<td>Graduate Thesis Deadline at Noon ET.</td>
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<td>2 - 27</td>
<td>Phase I Registration For Fall Semester 2012</td>
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<td>- Current Students</td>
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<td>- Registration ends at 4:00pm ET</td>
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<td>2 - 27</td>
<td>Phase I Registration For Full, Early, and Late Summer Sessions 2011</td>
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<td>- Current Students</td>
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<td>- Registration ends at 4:00pm ET</td>
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<td>3</td>
<td>Undergraduate Curriculum Committee - Petitions (Subcommittee)</td>
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<td>12</td>
<td>Graduate Curriculum Committee - Academic Matters (Full Committee)</td>
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<tr>
<td>17</td>
<td>Undergraduate Curriculum Committee - Academic Matters and Appeals (Full Committee)</td>
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<td>22</td>
<td>Last day to apply for cross registration for Summer Semester 2012.</td>
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<td>24</td>
<td>Undergraduate Curriculum Committee - Petitions (Subcommittee)</td>
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<td>27</td>
<td>Last day of classes.</td>
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<td>4/30</td>
<td>Final Exams.</td>
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<td>May</td>
<td>Commencement - PhD and Master’s Ceremony 7:00pm.</td>
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<td>END OF TERM.</td>
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<td>5</td>
<td>Commencement - Bachelor’s Ceremony 9:00am.</td>
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<td>7</td>
<td>Deadline - All grades must be entered on-line by Noon ET.</td>
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<td>8</td>
<td>Grades available online for students after 6:00pm ET.</td>
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10 - Phase II Registration For Full, Early, and Late Summer Semesters 2012 - New and Current Students (Incoming Summer Freshmen see Late Summer Session Calendar June 24-29). Registration ends at 4:00 pm ET.

14 - Fee payment deadline - 4:00pm ET for Summer Terms 2012. Visit www.bursar.gatech.edu/calendar.php.

14 - Classes Begin - Summer Term 2012.

21 - Fee payment deadline - 4:00pm ET for Summer Terms 2012 to avoid class cancellation. Visit www.bursar.gatech.edu/calendar.php.