INSTRUCTORS

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PREREQUISITES
Undergraduate molecular and cellular biology or biochemistry

COURSE LEARNING OBJECTIVES

Upon completion of this course, students will be able to:

1. Explain current knowledge of genome structure and function

2. Explain experimental approaches to dissect genomes, transcriptomes, proteomes and metabolomes

3. Proficiently access and interpret web based data sets and apply web based tools to their interpretation

4. Integrate web based information and primary literature to generate hypotheses
<table>
<thead>
<tr>
<th>LEC</th>
<th>DATE</th>
<th>TOPIC</th>
<th>INSTR</th>
<th>HMWK/READINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>DNA REPLICATION &amp; REPAIR</strong></td>
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<tr>
<td>1</td>
<td>M 8/23</td>
<td>Course Overview &amp; Introduction to Molecular and Cellular Analyses</td>
<td>Peter</td>
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<tr>
<td>2</td>
<td>W 8/25</td>
<td>DNA replication I. Fidelity</td>
<td>Peter</td>
<td>Hwk.1 – due</td>
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<td>3</td>
<td>F 8/27</td>
<td>DNA replication II. DNA Repair</td>
<td>Peter</td>
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<td>W 9/1</td>
<td>DNA replication IV. DNA Replication</td>
<td>Peter</td>
<td>Hwk.4 – due</td>
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<td>6</td>
<td>F 9/3</td>
<td>DNA replication V. DNA Replication</td>
<td>Peter</td>
<td>Plant Physiol. 207 144: 1697-714 Hwk.5 – due</td>
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<tr>
<td>M 9/6</td>
<td>NO CLASS- LABOR DAY</td>
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<td>Peter</td>
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<td>7</td>
<td>W 9/8</td>
<td>DNA replication VI. Origins/regulation</td>
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<td>Hwk.6 – due</td>
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<td>9</td>
<td>M 9/13</td>
<td>Cell Cycle II. G&lt;sub&gt;0&lt;/sub&gt;-G&lt;sub&gt;1&lt;/sub&gt;</td>
<td>Peter</td>
<td>Hwk.8 – due</td>
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<td>11</td>
<td>F 9/17</td>
<td>Chromosome Structure, Chromatin, DNA Packaging, Nucleosomes</td>
<td>Peter</td>
<td>Hwk.10 – due</td>
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<td>12</td>
<td>M 9/20</td>
<td><strong>Chromatin Dynamics</strong></td>
<td>Peter</td>
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<td>TBD</td>
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<td><strong>OUT OF CLASS EXAM</strong></td>
<td>Peter</td>
<td>Take Home Due 9/24</td>
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<td><strong>GENE EXPRESSION</strong></td>
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<td>13</td>
<td>W 9/22</td>
<td>Prokaryotic Transcription I</td>
<td>Altpeter</td>
<td>MCB- Chap 6, 299-309</td>
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<td>14</td>
<td>F 9/24</td>
<td>Prokaryotic Transcription II</td>
<td>Altpeter</td>
<td>MCB- Chap 7, 395-400 Cell 98: 1-4</td>
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<td>15</td>
<td>M 9/27</td>
<td>Transcription of the Eukaryotic Nuclear Genome</td>
<td>Altpeter</td>
<td>MCB- Chap 6, 309-313</td>
</tr>
</tbody>
</table>

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### Transgene Expression in Plants I

*Altpeter*
- Trends Biotechn. 21: 20-28
- Trends Plant Sci. 7: 84-91
- Mol. Breeding 15: 305-327

### Transgene Expression in Plants II

*Altpeter*
- Mol. Breeding 15: 305-327

### Biology of Gene Silencing

*Altpeter*

### NO CLASS - HOMECOMING

### Gene Silencing II

*Altpeter*

### OUT OF CLASS EXAM

*Altpeter*

### Web Resources for Metabolism

*Hanson*

### MCA & Metabolic Engineering

*Hanson*

### Out of Class Exam

*Hanson*

### Web Resources for Functional Genomics

*Davis*

### Functional Genomics

### Proteome Analysis

*Davis*

### Determining Function: Reverse Genetics

*Davis*

### Determining Function: Forward Genetics

*Davis*

### Forward Genetics paper discussion

*Davis*

### Additional Reading Materials

*Biochemistry and Molecular Biology of Plants*, (Buchanan, Gruissem, Jones, ed. 2000)


*Molecular Biology of the Cell: A Problems Approach*

*Genes IX* (Lewin, 2008)
Papers from the primary literature will be assigned

GRADING
The final grade will be determined by the performance on 4 sections each worth 100 points. The instructor of each module will communicate their breakdown of points between, participation, homework, and exams.

Note: EXAMS will be scheduled in the evenings outside of normal class hours or they will be take home exams.

Course Materials on Web (SkyDrive):

URL:  

PROFESSIONALISM STATEMENT
Scientists are professionals guided by specific values and behaviors. These values and behaviors include respect, cooperation, active participation, intellectual inquiry, integrity, timeliness, and attendance. In addition to your performance on the graded materials, you will be evaluated on your growth as a professional. Professional characteristics include punctuality, attendance, participation, collegial attitude, and willingness to help others learn. If you are ill or an emergency occurs, contact your instructor PRIOR TO the scheduled class time; otherwise your attendance and participation are firm expectations.

CLASS POLICIES
LATE ASSIGNMENTS- A penalty of 33% per day will be taken off for each late assignment. Reasonable explanations for late assignments will be taken under consideration, particularly if communicated ahead of the deadline.

MAKEUP EXAMS- Make-up exams or course work will be accepted only by special permission of the course instructors. Permission to make up work will be granted on a case by case basis and not all requests will be approved.
ACADEMIC HONESTY, SOFTWARE USE, UF COUNSELING SERVICES, SERVICES FOR STUDENTS WITH DISABILITIES

Preamble: In adopting this honor code, UF students recognize that academic honesty and integrity are fundamental values of the university community. Students who enroll at the University commit to holding themselves and their peers to the high standard of honor required by the honor code. Any individual who becomes aware of a violation of the honor code is bound by honor to take corrective action. The quality of a University of Florida education depends on community acceptance and enforcement of the honor code.

The Honor Code: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

On all work submitted for credit by students at the University, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

The University requires all members of its community to be honest in all endeavors. A fundamental principle is that the whole process of learning and pursuit of knowledge is diminished by cheating, plagiarism and other acts of academic dishonesty. In addition, every dishonest act in the academic environment affects other students adversely, from the skewing of the grading curve to giving unfair advantage for honors or for professional or graduate school admission. Therefore, the University will take severe action against dishonest students. Similarly, measures will be taken against faculty, staff and administrators who practice dishonest or demeaning behavior.

Student responsibility: Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean, or Student Honor Court.

Faculty responsibility: Faculty members have a duty to promote honest behavior and to avoid practices and environments that foster cheating in their classes. Teachers should encourage students to bring negative conditions or incidents of dishonesty to their attention. In their own work, teachers should practice the same high standards they expect from their students.

Administration responsibility: As highly visible members of our academic community, administrators should be ever vigilant to promote academic honesty and conduct their lives in an ethically exemplary manner.

STUDENT CONDUCT CODE

Students enjoy the rights and privileges that accrue to membership in a university community and are subject to the responsibilities that accompany that membership. For a system of effective campus governance, it is incumbent upon all members of the campus community to notify appropriate officials of any violations of regulations and to
assist in their enforcement. The University's conduct regulations, available to all students in the Student Guide, are set forth in Florida Administrative Code. Questions can be directed to the Dean of Students Office. This is the first phase of career development and the faculty believes that students need to behave as professionals, conscientiously following commonly accepted norms and meeting deadlines.

**ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES**- Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodations.

**UF COUNSELING SERVICES**-

The University of Florida knows that your well-being plays a major role in your academic, professional and personal success. With this in mind, it provides its graduate students with a number of services that aid you in maintaining a safe, healthy lifestyle and enriching personal life:

*Counseling Center*
http://www.counsel.ufl.edu/

*Student Mental Health*
http://shcc.ufl.edu/smhs/

*Center for Sexual Assault/Abuse Recovery and Education*
http://shcc.ufl.edu/care/

*Student Health Care Center*
http://shcc.ufl.edu/

*International Center*
http://www.ufic.ufl.edu/

*Dean of Students Office*
http://www.dso.ufl.edu/