INTRODUCTION TO
PLANT MOLECULAR BIOLOGY
SYLLABUS

I. Course and Instructor Information.

- Course: HOS 3305
- Section: 3831
- Credit Hours: 3
- Period 2-3: T 8:30 - 9:20 am & 9:35 - 10:25 am
  R 8:30 - 9:20 pm
- Room: 2318 Fifield Hall
- Pre-requisites: BSC 2007, BOT 2010, or BSC 2010
- Instructor: C. Eduardo Vallejos
- Office: 2243 Fifield Hall
- Phone: 273-4845
- e-mail: vallejos@ufl.edu (Subject must be “HOS 3305”)
- Office hours: M 1:00 - 2:00 pm,
  R 9:30 - 10:30 am, or by appointment

II. Course Description.

Molecular Biology is the branch of biology that studies the structure and function of macro molecules that encode and regulate the flow of genetic information used by living organisms. This course will focus on the structure and content of the three genomes found in plant cells, gene structure, expression, and regulation. Other topics addressed in this class are transposable elements, and plant transformation procedures. A brief introduction to bioinformatics is also included.

III. Course Goals. This course aims to:
- Provide students with a solid understanding of the relationship between structure and function of macromolecules that carry and express genetic information.
- Foster the development of critical thinking in considering methods of scientific inquiry and assessment of results.
- Familiarize students with the utilization of bioinformatics resources.

IV. Learning Objectives. After taking this course students should be able to:
- Identify the different components of the cell machinery that maintain and express the genetic information stored in cells of living organisms.
- Identify the basic methods and approaches used in molecular biology.
- Explain the role played by the molecular components of the genetic machinery.
- Use their knowledge of structure and function of macromolecules to interpret biological phenomena such as growth, development and responses to biotic and abiotic stimuli.
V. Reading Material.

Unfortunately, there are no text books on Plant Molecular Biology. Weaver’s book covers most of the topics I cover in this class, albeit in greater detail than I do. I will provide an “Outline” for each section to delimit the areas that will be covered. When appropriate, I will address specific articles dealing with plant-specific features. I will make copies of these articles available to the class.

Additional References

VI. Class Schedule.

<table>
<thead>
<tr>
<th>Wk#</th>
<th>Tuesday</th>
<th>Thursday</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug-23 Introduction History of Molecular Biology</td>
<td></td>
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<tr>
<td>2</td>
<td>Aug-28 DNA Characteristics Molecular Tools</td>
<td>Aug-30 Molecular Tools I</td>
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<td>3</td>
<td>Sep-4 Molecular Tools I</td>
<td>Sep-6 NO MEETING</td>
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<tr>
<td>4</td>
<td>Sep-11 DNA Replication DNA Replication</td>
<td>Sep-13 Cell Cycle DNA Repair</td>
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<tr>
<td>5</td>
<td>Sep-18 DNA Repair DNA Recombination</td>
<td>Sep-20 <strong>First Midterm</strong></td>
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<td>6</td>
<td>Sep-25 Plant Genome Ribosomal DNA, satDNA</td>
<td>Sep-27 Centromere, Transposons</td>
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<tr>
<td>7</td>
<td>Oct-2 Transposons Cytoplasmic Genomes</td>
<td>Oct-4 Transcription, mRNA</td>
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<tr>
<td>9</td>
<td>Oct-16 RNA Processing RNA Processing</td>
<td>Oct-18 RNA Processing</td>
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<tr>
<td>10</td>
<td>Oct-23 Molecular Tools II Molecular Tools II</td>
<td>Oct-25 <strong>Second Midterm</strong></td>
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<tr>
<td>11</td>
<td>Oct-30 Translation Translation</td>
<td>Nov-1 Translation</td>
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<tr>
<td>12</td>
<td>Nov-6 Translation Translation</td>
<td>Nov-8 Genome Sequencing</td>
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**VII. Student Evaluation.** Students will be evaluated according to their knowledge of the topics, level of comprehension, and ability to analyze and interpret information presented in class and in reading assignments.

<table>
<thead>
<tr>
<th>Homework.</th>
<th>10%</th>
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<tbody>
<tr>
<td>First Mid-Term.</td>
<td>20%</td>
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<tr>
<td>Second Mid-Term.</td>
<td>20%</td>
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<tr>
<td>Third Mid-Term.</td>
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<tr>
<td>Final Exam.</td>
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*Make-up exams.*

Students who are unable to take scheduled exams due to scheduling conflicts with other courses, or with religious holidays, should contact the instructor for alternate arrangements.

**Grading Scale**

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<th>Score</th>
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<th>Score</th>
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<th>Score</th>
<th>Grade</th>
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<tbody>
<tr>
<td>100</td>
<td>A</td>
<td>86</td>
<td>B+</td>
<td>74</td>
<td>C+</td>
<td>62</td>
<td>D+</td>
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<tr>
<td>90</td>
<td>A-</td>
<td>82</td>
<td>B</td>
<td>70</td>
<td>C</td>
<td>58</td>
<td>D</td>
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<tr>
<td>78</td>
<td>B-</td>
<td>74</td>
<td>C-</td>
<td>66</td>
<td>D-</td>
<td>54</td>
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**VIII. University Policies.**

*Academic Honesty*

Every student has signed the following statement after completion of the registration form at the University of Florida:

“I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University.”
Software Use

All faculty, staff and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

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 accommodation.

IX. Student Services.

The University and Gainesville Community offer a number of personal counseling services for students at the University of Florida. Contact the appropriate agency listed below:

- Student Health Services 392-1161
  Student Health Care Center (1 Fletcher Driver)
  Monday - Friday, 8:00am - 4:30pm
  http://www.shcc.ufl.edu

- University Counseling & Wellness Center 392-1575
  A counselor is available to assist students to work through personal issues.
  P301 Peabody Hall
  Monday - Friday, 8:00am - 5:00pm
  http://www.counseling.ufl.edu/cwc/

- International Student Services 392-5323, ext. 600
  Assistance is provided for International students at the University.
  123 Grinter Hall
  Monday - Friday, 8:00am - 4:30pm
  http://www.ufic.ufl.edu/iss.htm

- Career Development Assistance and Counseling (352) 392-1601
  Career Resource Center M-F; 8:00am - 4:30pm
  http://www.crc.ufl.edu

- Dean of Students Office, 392-1261
  A staff member is available to assist students.
  P202 Peabody Hall
  Monday - Friday, 8:00am - 4:30pm
  http://www.dso.ufl.edu