PS532 Environmental Plant Ecophysiology (3) – Fall 2016

**Instructor:**
Dr. Feng Chen  
348 Plant Biotechnology Building  
Office: 974-8521; e.mail: fengc@utk.edu

**Class:**
Ellington Plant Sciences Bldg. room 128, 11:10 am – 12:25 pm Tuesday and Thursday

**Course description and learning objective:**
To learn physiological and ecological principles of plants and the relation of those principles to plant responses to the environment. Topics include water relations, photosynthesis, physiological controls over plant growth and development, stress physiology, plant interactions with biotic agents, impact of plant biotechnology, and introduction to environmental genomics. Prereq: Biology PS348 or equivalent.

**Textbook:**

**University’s honor statement:**
“An essential feature of the University of Tennessee is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity.”

**Evaluation and grades:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>Mid-term exam</td>
<td>200 pts</td>
</tr>
<tr>
<td>Final exam</td>
<td>200 pts</td>
</tr>
<tr>
<td>Presentation</td>
<td>75 pts</td>
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<tr>
<td>Class participation</td>
<td>25 pts</td>
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500 pts total

<table>
<thead>
<tr>
<th>Grading (%)</th>
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<tbody>
<tr>
<td>≥ 92</td>
<td>A</td>
<td>460 pts</td>
</tr>
<tr>
<td>86-92</td>
<td>B+</td>
<td>430 pts</td>
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<tr>
<td>80-85</td>
<td>B</td>
<td>400 pts</td>
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<tr>
<td>76-79</td>
<td>C+</td>
<td>380 pts</td>
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<tr>
<td>68-75</td>
<td>C</td>
<td>340 pts</td>
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<td>60-67</td>
<td>D</td>
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<td>&lt; 60</td>
<td>F</td>
<td>&lt;300 pts</td>
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<td>Month</td>
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<td>Topic</td>
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<tr>
<td>Aug</td>
<td>18 R</td>
<td>Introduction: objectives, format, and grading</td>
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<td></td>
<td>23 T</td>
<td>A review of plant anatomy</td>
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<tr>
<td></td>
<td>25 R</td>
<td>Water relations</td>
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<td></td>
<td>30 T</td>
<td>Drought ecophysiology</td>
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<tr>
<td>Sep</td>
<td>1 R</td>
<td><strong>ADMINISTRATIVE CLOSING</strong></td>
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<tr>
<td></td>
<td>6 T</td>
<td>Photosynthesis</td>
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<td></td>
<td>8 R</td>
<td>Photosynthesis: physiological and ecological considerations</td>
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<td></td>
<td>13 T</td>
<td>Respiration: basics and its relation to plant productivity</td>
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<td>15 R</td>
<td>Secondary metabolites and their roles in biology/ecology</td>
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<td>20 T</td>
<td>An overview on plant growth and development</td>
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<td>22 R</td>
<td>Cell walls: structure, biogenesis and bioenergy</td>
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<td>27 T</td>
<td><strong>MID-TERM EXAM</strong></td>
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<td>29 R</td>
<td>Plant hormones: types, functions and evolution</td>
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<td>Oct</td>
<td>4 T</td>
<td>Phytochrome: biology and ecological functions</td>
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<td>7 R</td>
<td><strong>FALL BREAK</strong></td>
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<td></td>
<td>11 T</td>
<td>Flowering: how plants time it</td>
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<td>13 R</td>
<td>Seed formation and dormancy</td>
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<td>18 T</td>
<td>Seed germination and seedling establishment</td>
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<td>20 R</td>
<td>Senescence: how and why plants commit suicide</td>
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<td>Plant interactions with biotic agents</td>
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<td>27 R</td>
<td>Stress physiology</td>
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<td>Nov</td>
<td>1 T</td>
<td>Case study: volatile-mediated plant-insect interactions</td>
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<td>3 R</td>
<td>Plant biotechnology: basics and ecological concerns</td>
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<td>Student presentations</td>
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<td>Dec</td>
<td>1 R</td>
<td><strong>NO CLASS. STUDY PERIOD.</strong></td>
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<td>5 M</td>
<td><strong>FINAL EXAM: 10:15 a.m. – 12:15 p.m. Ellington Plant Sciences Bldg 128,</strong></td>
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