



King Saud University  
College of Food and Agriculture Sciences  
Department of Plant Production

## Course Specifications

### PPS 203 –Crop Ecology

Professor Ali Abdullah Alderfasi  
Instructor

## Course Specifications

Institution	King Saud University	Date of Report:	2013
College/Department: College of Food and Agriculture Sciences / Department of Plant Production			

### A. Course Identification and General Information

1. Course title and code: Crop Ecology (PPS 203)			
2. Credit hours: 2 (2+0)			
3. Program(s) in which the course is offered: Plant Production Sciences (If general elective available in many programs indicate this rather than list programs)			
4. Name of faculty member responsible for the course: Dr. Ali Abdullah Alderfasi			
5. Level/year at which this course is offered: 5 <sup>th</sup> level / 3 <sup>rd</sup> year			
6. Pre-requisites for this course (if any): PPS 201			
7. Co-requisites for this course (if any): N/A			
8. Location if not on main campus: N/A			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="90%"/>
b. Blended (traditional and online)	<input type="checkbox"/>	What percentage?	<input type="text"/>
c. e-learning	<input type="checkbox"/>	What percentage?	<input type="text"/>
d. Correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>
f. Other (Field Trips)	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="10%"/>
Comments:			
PPS 203 is an obligatory course for students of plant production sciences program. The course discusses environmental factors affecting plant growth, such as water, nutrients and light. The course stresses on understanding of different sources of plants environmental stresses and how these stresses are affecting plant growth and how plant response to these factors.			

## B Objectives

1. What is the main purpose for this course?

The main purpose of this course are:

- To develop an understanding of the important principles underlying the practices used in the culture of crop plants and to develop the ability to apply these principles in production strategies.
- To clarify for students the basic information about different climatic factors that affecting plant growth.
- To let the students understanding the relationships between plants growth and environmental factors that affecting the growth and physiological functions in crop and how plants response to these factors.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

- 1- The course contents and mode of instruction will be reviewed as new teaching resources and tools are implemented.
- 2- Introducing lab activities to support the course content.
- 3- Peer review consultation.

## C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered:

Topic	No of Weeks	Contact hours
Identification of biotic and abiotic environmental factors	2	4
Climatic factors affecting in plant growth.	1	2
Crop response to climatic and biotic factors.	1	2
Light as a factor.	1	2
Water as a factor.	1	2
Temperature and Soil nutrients.	1	2
Other climatic factors affecting crop growth.	1	2

Field trip	1	2
Plant Growth under stresses & how plant responds.	1	2
Environmental Stress Physiology.	1	2
Adaptation of plant to stresses	1	2
Acclimation of plant to stresses	1	2
Review of the course	1	2

2. Course components (total contact hours and credits per semester): 26 hours						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	26	N/A	-	-	(Field Trip) 2	28
Credit	2	N/A	-	-	-	2

3. Additional private study/learning hours expected for students per week.
N/A

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
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	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
1.1	Recognize climatic factors affecting plant growth.	Lectures	Written Test.
1.2	Outline plant water, nutrients, and other	Lectures	Written Test

	growth requirements.		
1.3	State different stresses in plants	Lectures	Written Test
1.4	Recall how environmental factors affect growth & physiological processes in plants.	Lectures	Written Test
<b>2.0</b>	<b>Cognitive Skills</b>		
2.1	Differentiate among various environmental factors and their impacts on plant growth.	Lectures	Written Test and report
2.2	Explain plant mechanisms to tolerate stresses.	Lectures	Written Test and report
2.3	Diagram soil nutrient requirements of plants.	Lectures	Written Test
2.4	Measure some environmental impacts on plants.	Lectures - Group discussion	Written Test
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		
3.1	Analyze data collected from stressed plants under field conditions.	Field Trip	Written test and/ or reports
3.2	Show ability to work in group in report writings.	Lectures, Discussion	Written test and/ or reports
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
4.1	Evaluate suitability of selected crops to prevailing local climate.	Lectures, Discussion	Written test and/ or reports
4.2	Interpret data collected from stressed plants	Lectures, Discussion	Written test and/ or reports
<b>5.0</b>	<b>Psychomotor</b>		
5.1	N/A	N/A	N/A
5.2	N/A	N/A	N/A

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	1 <sup>st</sup> mid-term theoretical and practical exams	7	40%
2	Web posts reports and homework	Weekly	20%
3	2 <sup>nd</sup> mid-term theoretical and practical exams	N/A	N/A
4	Final Exam	Last week	40%

#### D. Student Academic Counseling and Support

<p>1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)</p> <p style="text-align: center;">2 hours per week</p>
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#### E. Learning Resources

<p>I. List Required Textbooks: <b>None</b></p> <p>II. Essential References</p> <p>Connor, D.J., Loomis, R.S. and Cassman, K.G. (2011). Crop Ecology-Productivity and Management in Agricultural Systems. Cambridge Press.</p> <p>Levitt, C. (1980). Responses of Plants to Environmental Stresses II. Academic Press, INC, USA</p> <p>Sinclair, T.R. and F. P. Gardner (1998). Principles of Ecology in Plant Production. CABI. UK</p> <p>Hanan, J.A. (1984). Plant Environmental Measurements. Bookmarker Guild, Colorado, USA</p> <p>Loomis, R .S. (1992). Crop Ecology: Productivity and Management in Agricultural Systems. Cambridge University Press, Science - 538 pages</p>
<p>2. List Essential References Materials (Journals, Reports, etc.)</p> <p style="text-align: center;"><a href="http://fac.ksu.edu.sa/aderfasi">http://fac.ksu.edu.sa/aderfasi</a></p>
<p>3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)</p> <ul style="list-style-type: none"> <li>– Introduction to Plant Physiology. John Wiley &amp; Sons, Inc. USA. (1995).</li> <li>– Plant Physiology on Line (<a href="http://4e.plantphys.net/">http://4e.plantphys.net/</a>).</li> </ul>

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

- <http://fac.ksu.edu.sa/aderfasi>
- <https://tawasol.ksu.edu.sa/groups/my>
- <http://4e.plantphys.net/chapter.php?ch=26>
- <http://bookshop.cabi.org/default.aspx?site=191&page=2633&pid=1331>
- <http://www.sciencedirect.com/science/book/9780123744319>
- <https://lms.ksu.edu.sa/webapps/login/>

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

None

## F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

- [Lecture and laboratory rooms to accommodate 30 students](#)

2. Computing resources (AV, data show, Smart Board, software, etc.)

- [Smart classroom equipped with laptop computer - projector system](#)

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

None

## G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- [Course teaching evaluation by the students through “Edugate” system of King Saud University website by the end of each semester.](#)

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor

None

3 Processes for Improvement of Teaching

- [Training sessions for instructors.](#)

<ul style="list-style-type: none"><li>• Workshops to facilitate the exchange of experiences among faculty members.</li><li>• Regular colleagues meetings where problems are discussed and solutions given.</li></ul>
<p>4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)</p> <ul style="list-style-type: none"><li>• Students are given chance to double-check marking of their mid-term exams.</li><li>• According to KSU rules, students who believe they are under graded can have their papers checked by a second reviewer.</li></ul>
<p>5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.</p> <ul style="list-style-type: none"><li>• Compare syllabi and course description with other universities (including those on the net).</li><li>• Biannual meetings of members of department council to discuss improvement.</li><li>• Have an internal curriculum committee to review the curriculum periodically and suggest improvements.</li></ul>

**Faculty or Teaching Staff:** Prof. Ali Abdullah Alderfasi

**Signature:** \_\_\_\_\_

**Date Report Completed:** \_\_\_\_\_

**Received by:** Professor Nasser A. Al-Suhaibani **Department Head**

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_