



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

## Course Specifications

### PPS 404 – Principles of field experiments

Prof. Abdullah A. Al-Doss

Instructor

## Course Specifications

Institution	King Saud University	Date of Report	2014
College/Department: College of Food and Agricultural Sciences, Plant production Department			

### A. Course Identification and General Information

1. Course title and code: Principles of field experiments (PPS 404)			
2. Credit hours 2(1+1)			
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 Prof. Abdullah A. Al-Doss			
5. Level/year at which this course is offered 8 <sup>th</sup> level/ 4 <sup>th</sup> year			
6. Pre-requisites for this course (if any) PPS 201 Principles of Plant Production			
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="70%"/>
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 (lab session)	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="30%"/>
Comments:			
PPS 404 is a required course. Modes of instruction include traditional lecture-class discussion (70%) and lab session (30%). Students are encouraged to learn and develop the skills for planning, conducting and analyzing experiments.			

## B Objectives

<p>1. What is the main purpose for this course?</p> <p>The main purposes are to:</p> <ul style="list-style-type: none"> <li>• Provide students with elements and structure of scientific experiments.</li> <li>• Demonstrate to students the different types of agricultural experiments.</li> <li>• Illustrate to students data collection, analysis and result illustration.</li> <li>• Expose students to statistical analysis software.</li> </ul>
<p>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)</p> <ul style="list-style-type: none"> <li>• Introduction of new versions of statistical software.</li> <li>• Involve the students in undergoing experiments in the educational farm near campus.</li> <li>• Use of Smart Classroom for teaching.</li> <li>• Evaluation of students by quizzes and using different type of questions with feedback after each quiz.</li> </ul>

## 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		
List of Topics	No. of Weeks	Contact Hours
Definitions, terminology, Scope and functions of statistics and experimental design.	2	4
Elements of scientific experiments	1	2
Principles of experimental designs	1	2
Types of Agricultural experiments.	1	2
Preparation for field experiments	1	2
Completely randomized design (CRD)	1	2
Randomized complete block design (RCBD)	1	2

Latin square (LS)	1	2
Factorial experiments	1	2
Split plot Design	1	2
Sampling and data collection	1	2
Data analysis and results illustration	2	4

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	14	N/A	N/A	14	N/A	28
Credit	1	N/A	N/A	1	N/A	2

3. Additional private study/learning hours expected for students per week. None
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

NQF Learning Domains	Suggested Verbs
<b>Knowledge</b>	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
<b>Cognitive Skills</b>	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
<b>Interpersonal Skills &amp; Responsibility</b>	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write
<b>Communication, Information Technology, Numerical</b>	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize

<b>Psychomotor</b>	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct

	<b>NQF Learning Domains And Course Learning Outcomes</b>	<b>Course Teaching Strategies</b>	<b>Course Assessment Methods</b>
<b>1.0</b>	<b>Knowledge</b>		
1.1	State definitions, terminology and scop experimental design	Lecture and discussion	Written Test, MCQs
1.2	Define types of Agricultural experiments	Lecture and discussion	Written Test, MCQs
1.3	Recognize planning and management of experiments	Lecture and discussion	Written Test, MCQs
1.4	Recognize advantages and disadvantages of the different experimental designs	Lecture and discussion	Written Test, MCQs
<b>2.0</b>	<b>Cognitive Skills</b>		
2.1	Analyze data using variance procedures	Lectures and discussion	Written Test
2.2	Reorganize aspects related to Control of error in field experiment	Lectures and group discussion	Written Test
2.3	Develop skills to select design and execute experiments to given problems.	Lecture and discussion	Written Test
2.4	Develop analytical skills to given data	Lecture and Lab exercises	Lab reports and/ or exams
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		
3.1	Show ability to constructively work in a group	Lecture and Lab exercises	Lab reports and/ or exams
3.2	Demonstrate personal skills to identify	Discussion	Lab reports and/ or

	appropriate experimental design.		exams
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
4.1	Operate small experiments during lab exercises	Lab groups	Lab reports and/ or exams
4.2	Operate statistical software for data analysis	Lab exercises	Lab reports and/ or exams
<b>5.0</b>	<b>Psychomotor</b>		
	Not Applicable		

<b>5. Schedule of Assessment Tasks for Students During the Semester</b>			
	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 exam	Week 7	30%
2	2 <sup>nd</sup> exam	Week 14	30%
3	Final Exam	-	40%
4	Total		100%

#### **D. Student Academic Counseling and Support**

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)

2 hours per week

#### **E. Learning Resources**

1. List Required Textbooks

None

2. List Essential References Materials (Journals, Reports, etc.)

Journal of the Royal Statistical Society: Series B (Statistical Methodology)

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

- Gomez, K. A. and Gomez, A. A. 1999. Statistical procedures for Agricultural research. John Wiley & sons. New York.

<p>2. Peterson, R.G. 1994. Agricultural Field Experiments: Design and Analysis. Marcel Dekker, Inc., New York, NY.</p> <p>3. Collins, C.A, and F.M. Seeney. 1999. Statistical Experiment Design and Interpretation. Wiley Blackwell, New York, NY.</p> <p>4. Mead R., R. N. Curnow, A. M. Hasted and R. M Curnow 2002. Statistical Methods in Agriculture and Experimental Biology, Third Edition, Chapman &amp; Hall/CRC.</p>
<p>4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)</p> <ul style="list-style-type: none"> <li>• Experimental Design</li> <li>• Agricultural experiments</li> <li>• <a href="http://www.quantitativeskills.com/sisa/">http://www.quantitativeskills.com/sisa/</a></li> </ul>
<p>5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.</p> <p style="text-align: center;">None</p>

#### F. Facilities Required

<p>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.)</p>
<p>1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)</p> <p style="text-align: center;">Lecture room and laboratory is enough to accommodate 30 students</p>
<p>2. Computing resources (AV, data show, Smart Board, software, etc.)</p> <ul style="list-style-type: none"> <li>• Smart Board</li> <li>• Projector system</li> <li>• Computers</li> <li>• Statistical software</li> </ul>
<p>3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)</p> <p style="text-align: center;">None</p>

#### G Course Evaluation and Improvement Processes

<p>1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching</p> <p>Course teaching evaluation by the students through “Edugate” system of King Saud University website by the end of each semester.</p>
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2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor <p style="text-align: center;">None</p>
3 Processes for Improvement of Teaching <ul style="list-style-type: none"><li>• Training sessions for instructors.</li><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>
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) <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>
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. <ul style="list-style-type: none"><li>• Compare syllabus 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. Abdullah A. Al-Doss

**Signature:** \_\_\_\_\_ **Date Report Completed:** 2014

**Received by:** Prof. Nasser A. Al-Suhaibani **Dean/Department Head**

**Signature:** \_\_\_\_\_ **Date:** 2014