

**Doctor of Philosophy**  
**Program in Agronomy**  
**(New Curriculum 2005)**

**1. Title of Curriculum**

ภาษาไทย : ปรัชญาดุษฎีบัณฑิต สาขาวิชาพืชไร่  
ภาษาอังกฤษ : Doctor of Philosophy (Agronomy) (English Program)

**2. Name of Degree**

ภาษาไทย : ปรัชญาดุษฎีบัณฑิต (พืชไร่)  
: ปร.ด. (พืชไร่)  
ภาษาอังกฤษ : Doctor of Philosophy (Agronomy)  
: Ph.D. (Agronomy)

**3. Objectives of the Curriculums**

To produce Ph.D. graduates with the following qualifications :

- 3.1 Being high caliber scientists and valuable human resources in crop production in both government and private sectors, nationally and internationally.
- 3.2 Capable of analyzing problems and conducting research for problem solving and as well as conducting in-depth research to generate new knowledge in agronomy.
- 3.3 Capable of applying new knowledge in teaching and conducting research in agronomy effectively.

**4 Curriculum**

**4.1 The Doctorate Degree Program**

The doctorate degree program is research oriented, and admits students either with a Bachelor degree or with a Master degree. Students are required to do research. This program comprises two majors, Plant Breeding and Crop Production. Two study plans are offered:

**Type 1** emphasizes research that will show evidence of substantial original scholars and contain material worthy of publication.

- (1) Candidates with bachelor's degree or equivalent are required to complete the minimum of 82 credits for thesis works and to take the following non-credit courses: Seminar I (114 891), Seminar III (114 991), Seminar IV (114 992), Seminar V (114 993), and any other course auditions as seen appropriate by the thesis advisory committee.

- (2) Candidates with master's degree or equivalent are required to complete the minimum of 48 credits for thesis work and to take the following non-credit courses: Seminar III (114 991), Seminar IV (114 992), Seminar V (114 993), and any other course auditions as seen appropriate by the thesis advisory committee.

**Type 2** requires students to take both course work and thesis research that contains original contribution to the knowledge of the field of study.

- (1) Candidates with bachelor's degree or equivalent are required to complete the minimum of 48 credits for thesis works and the minimum of 34 credits of course work.
- (2) Candidates with master's degree or equivalent are required to complete the minimum of 36 credits for thesis works and the minimum of 12 credits of course work.

#### 4.2 Requirements for the Completion of the Doctorate Degree

To fulfil the requirements for the Doctor of Philosophy degree, the followings are to be satisfied:

- 4.2.1 English examination as in accordance with the standard issued by the Department of Plant Science and Agricultural Resources, and the Graduate School, Khon Kaen University
- 4.2.2 Qualifying examination
- 4.2.3 Thesis proposal
- 4.2.4 Thesis work published in accredited scientific journals, 3 publications for Type 1(1), 2 for Type 1(2) and Type 2(1), and 1 for Type 2(1)

#### 4.3 Program Structure

##### Type 1

- (1) For the applicants with Bachelor's degree or equivalent

Course work	Non-credit required courses as deemed appropriate
Thesis work	Minimum of 82 credits
Total 82 credits	

- (2) For the applicants with Master's degree or equivalent

Course work	Non-credit required courses as deemed appropriate
Thesis work	Minimum of 48 credits
Total 48 credits	

##### Type 2

- (1) For the applicants with Bachelor's degree or equivalent

Course work	Minimum of 34 credits
Required	16 credits
Elective	18 credits

Thesis Minimum of 48 credits

Total 82 credits

**(2) For the applicants with Master's degree or equivalent**

Course work Minimum of 12 credits

Required 6 credits

Elective 6 credits

Thesis Minimum of 36 credits

Total 48 credits

**5. Program Contents**

**5.1 Type 1(1)**

114 891 Agronomy Seminar I 1(1-0-3)

114 991 Agronomy Seminar III 1(1-0-3)

114 992 Agronomy Seminar IV 1(1-0-3)

114 993 Agronomy Seminar V 1(1-0-3)

and others as recommended by the advisory committee.

114 996 Thesis 82 credits

**5.2 Type 1(2)**

114 991 Agronomy Seminar III 1(1-0-3)

114 992 Agronomy Seminar IV 1(1-0-3)

114 993 Agronomy Seminar V 1(1-0-3)

and others as recommended by the advisory committee.

114 997 Thesis 48 credits

**5.3 Type 2(1)**

Course work with minimum of 34 credits, comprising 16 credits of the required courses and minimum of 18 credits from elective.

*Required courses* Total of 16 credits

114 701 Research Methods in Agriculture 3(2-3-0)

114 761 Agricultural System Analysis 3(1-6-0)

114 801 Current Topics in Crop Production 3(1-6-6)

114 891 Agronomy Seminar I 1(1-0-3)

114 894 Special Problems 3(1-6-3)

114 991 Agronomy Seminar III 1(1-0-3)

114 992 Agronomy Seminar IV 1(1-0-3)

114 993 Agronomy Seminar V 1(1-0-3)

*Elective* Minimum of 18 credits

At least 9 credits must be selected from courses in group A, and the others from those in group B.

**For Major in Plant Breeding :**

**Group A**

114 732	Quantitative Genetics	3(3-0-0)
114 733	Biotechnology in Plant Breeding	3(3-0-0)
114 734	Plant Breeding Techniques	3(2-3-0)
114 831	Advances in Plant Breeding	3(3-0-0)
311 725	Gene Transfer Technology in Higher Plant	3(2-3-4)

**Group B**

132 712	Soil Water and Plant Relationships	3(3-0-3)
122 743	Environmental Pollution and Management	3(3-0-3)
114 702	Forage Research Methods	3(3-0-0)
114 703	Crop Growth Modeling	3(2-3-3)
114 741	Crop Adaptation	3(3-0-0)
114 742	Nutrition of Field Crops	3(3-0-0)
114 743	Physiology of Crop Growth and Development	3(3-0-0)
114 744	Applied Physiology in Crop Production	3(3-0-0)
114 762	Cropping Systems	3(3-0-0)
115 721	Agricultural Marketing Management	3(3-0-9)
311 715	Plant Tissue and Cell Culture	3(2-3-4)

Or any other courses suggested by the advisory committee under the approval of the Department of Plant Science and Agricultural Resources.

**For Major in Crop Production :**

**Group A**

114 703	Crop Growth Modeling	3(2-3-3)
114 741	Crop Adaptation	3(3-0-0)
114 742	Nutrition of Field Crops	3(3-0-0)
114 743	Physiology of Crop Growth and Development	3(3-0-0)
114 744	Applied Physiology in Crop Production	3(3-0-0)

**Group B**

110 770	Insect Pest Management	3(2-3-0)
111 731	Epidemiology and Plant Disease Management	3(2-3-2)

132 711	Advanced Soil Fertility	3(3-0-3)
132 712	Soil Water and Plant Relationships	3(3-0-3)
122 733	Remote Sensing	3(2-3-2)
132 741	Integrated Soil Resources Management	3(3-0-3)
122 743	Environmental Pollution and Management	3(3-0-3)
112 748	Management of Natural Resources and Environments	3(3-0-0)
114 702	Forage Research Methods	3(3-0-0)
114 704	Physiology and Biochemistry of Herbicides	3(3-0-0)
114 751	Seed Quality Control	3(2-3-0)
114 752	Seed Physiology	3(3-0-0)
114 762	Cropping Systems	3(3-0-0)
115 721	Agricultural Marketing Management	3(3-0-9)
311 711	Plant Metabolism	3(3-0-0)
311 715	Plant Tissue and Cell Culture	3(2-3-0)

Or any other courses suggested by the advisory committee under the approval of the Department of Plant Science and Agricultural Resources.

114 998	Thesis	48 credits
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#### 5.4 Type 2(2)

Course work with minimum of 12 credits, comprising 6 credits of the required courses and minimum of 6 credits from elective.

<i>Required courses</i>	Total of 6 credits	
114 801	Current Topics in Crop Production	3(1-6-6)
114 991	Agronomy Seminar III	1(1-0-3)
114 992	Agronomy Seminar IV	1(1-0-3)
114 993	Agronomy Seminar V	1(1-0-3)

<i>Elective</i>	Minimum of 6 credits	
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#### For Major in Plant Breeding :

132 712	Soil Water and Plant Relationships	3(3-0-3)
122 743	Environmental Pollution and Management	3(3-0-3)
114 702	Forage Research Methods	3(3-0-0)
114 703	Crop Growth Modeling	3(2-3-3)
114 732	Quantitative Genetics	3(3-0-0)
114 733	Biotechnology in Plant Breeding	3(3-0-0)

114 734	Plant Breeding Techniques	3(2-3-0)
114 742	Nutrition of Field Crops	3(3-0-0)
114 762	Cropping Systems	3(3-0-0)
114 831	Advances in Plant Breeding	3(3-0-0)
115 721	Agricultural Marketing Management	3(3-0-9)
311 715	Plant Tissue and Cell Culture	3(2-3-4)
311 725	Gene Transfer Technology in Higher Plant	3(2-3-4)

Or any other courses suggested by the advisory committee under the approval of the Department of Plant Science and Agricultural Resources.

**For Major in Crop Production :**

110 770	Insect Pest Management	3(2-3-0)
111 731	Epidemiology and Plant Disease Management	3(3-0-3)
132 711	Advanced Soil Fertility	3(3-0-3)
132 712	Soil Water and Plant Relationships	3(3-0-3)
122 733	Remote Sensing	3(2-3-2)
132 741	Integrated Soil Resources Management	3(3-0-3)
122 743	Environmental Pollution and Management	3(3-0-3)
114 702	Forage Research Methods	3(3-0-0)
114 703	Crop Growth Modeling	3(2-3-3)
114 704	Physiology and Biochemistry of Herbicides	3(3-0-0)
114 741	Crop Adaptation	3(3-0-0)
114 742	Nutrition of Field Crops	3(3-0-0)
114 743	Physiology of Crop Growth and Development	3(3-0-0)
114 744	Applied Physiology in Crop Production	3(3-0-0)
114 751	Seed Quality Control	3(2-3-0)
114 752	Seed Physiology	3(3-0-0)
114 762	Cropping Systems	3(3-0-0)
115 721	Agricultural Marketing Management	3(3-0-9)
311 711	Plant Metabolism	3(3-0-0)
311 715	Plant Tissue and Cell Culture	3(2-3-4)

Or any other courses suggested by the advisory committee under the approval of the Department of Plant Science and Agricultural Resources.

114 998	Thesis	36 credits
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## 6. Study Plan

### *First Year 1<sup>st</sup> Semester*

Course No.	Course Name	Type of the Study Program			
		1(1)	1(2)	2(1)	2(2)
xxx xxx	Elective	-	-	3	6
114 701	Research Methods in Agriculture	-	-	3	-
114 761	Agricultural System Analysis	-	-	3	-
114 996	Thesis	10	-	-	-
114 997	Thesis	-	9	-	-
114 999	Thesis	-	-	-	3
	Total	10	9	9	9

### *First Year 2<sup>nd</sup> Semester*

Course No.	Course Name	Type of the Study Program			
		1(1)	1(2)	2(1)	2(2)
xxx xxx	Elective	-	-	3	-
114 801	Current Topics	-	-	3	3
114 894	Special Problems	-	-	3	-
114 891	Agronomy Seminar I	non-credit	-	1	-
114 996	Thesis	10	-	-	-
114 997	Thesis	-	9	-	-
114 998	Thesis	-	-	3	-
114 999	Thesis	-	-	-	6
	Total	10	9	13	9

\* Required non-credit

### *Second Year 1<sup>st</sup> Semester*

Course No.	Course Name	Type of the Study Program			
		1(1)	1(2)	2(1)	2(2)
xxx xxx	Elective	-	-	6	-
114 991	Agronomy Seminar III	non-credit	non-credit	1	1
114 996	Thesis	10	-	-	-
114 997	Thesis	-	10	-	-
114 998	Thesis	-	-	6	-
114 999	Thesis	-	-	-	9
	Total	10	10	13	10

**Second Year 2<sup>nd</sup> Semester**

Course No.	Course Name	Type of the Study Program			
		1(1)	1(2)	2(1)	2(2)
xxx xxx	Elective	-	-	3	-
114 992	Agronomy Seminar IV	non-credit	non-credit	1	1
114 996	Thesis	10	-	-	-
114 997	Thesis	-	10	-	-
114 998	Thesis	-	-	9	-
114 999	Thesis	-	-	-	9
	Total	10	10	13	10

**Third Year 1<sup>st</sup> Semester**

Course No.	Course Name	Type of the Study Program			
		1(1)	1(2)	2(1)	2(2)
xxx xxx	Elective	-	-	3	-
114 993	Agronomy Seminar V	non-credit	non-credit	1	1
114 996	Thesis	10	-	-	-
114 997	Thesis	-	10	-	-
114 998	Thesis	-	-	9	-
114 999	Thesis	-	-	-	9
	Total	10	10	13	10

**Third Year 2<sup>nd</sup> Semester**

Course No.	Course Name	Type of the Study Program			
		1(1)	1(2)	2(1)	2(2)
114 996	Thesis	10	-	-	-
114 998	Thesis	-	-	9	-
	Total	10	-	9	-

**Fourth Year 1<sup>st</sup> Semester**

Course No.	Course Name	Type of the Study Program			
		1(1)	1(2)	2(1)	2(2)
114 996	Thesis	10	-	-	-
114 998	Thesis	-	-	9	-
	Total	10	-	9	-



***Fourth Year 2<sup>nd</sup> Semester***

<b>Course No.</b>	<b>Course Name</b>	<b>Type of the Study Program</b>			
		<b>1(1)</b>	<b>1(2)</b>	<b>2(1)</b>	<b>2(2)</b>
114 996	Thesis	12	-	-	-
114 998	Thesis	-	-	3	-
	Total	12	-	3	-
<b>Cumulative credits</b>		<b>82</b>	<b>48</b>	<b>82</b>	<b>48</b>