

# Course Syllabus

## Principles of Tropical Agronomy (01013231)

First Semester 2013

1. Faculty of Agriculture

Department of Agronomy

2. Subject code 01013231 (3-0-6)

Subject: Principles of Tropical Agronomy

### 3. Course Description

Agrometeorology and climate change in the tropics, genetic resources and crop improvement, biotechnology and tropical crop production, crop physiology, cropping system and pattern, tropical crop production and management, seed production and major development of tropical agronomy research and new technology (case study).

### 4. Objectives

To provide knowledge in principles of tropical agronomy and factors influencing the production of tropical field crops.

### 5. Course Outline

#### 5.1 Introduction

5.1.1 The boundaries, scale and scope of tropical agronomy

#### 5.2 Agrometeorology and climate change in the tropics

5.2.1 Solar radiation

5.2.2 Water & hydrological cycle

5.2.3 Climate change

#### 5.3 Genetic resources and crop improvement

5.3.1 Evolution and genetic manipulation

5.3.2 Characteristics of the main crop types

5.3.3 Crop improvement

#### 5.4 Biotechnology and tropical crop production

#### 5.5 Crop physiology

5.5.1 Plant population and yield

5.5.2 Timing and environmental control of timing

#### 5.6 Cropping system and pattern

#### 5.7 Tropical crop production and management

5.7.1 Tillage and tillage operations

5.7.2 Soil and nutrient management

5.7.3 Irrigation and water management

5.7.4 Weed management

5.7.5 Harvest and post-harvest management

5.8 Seed production

5.9 Major development of tropical agronomy research & new technology (case study)

6. **Teaching method**    Lecture and group discussion

7. **Teaching tools**        Overhead projector, LCD and computer and sheet or hand outs

8. **Evaluation**

Assignment	20 %
Class attention, participation and responsibility	10 %
Mid-term examination	35 %
Final examination	35%

9. **Grading**

>80.0%	A
75.0 – 79.9%	B+
70.0 – 74.9%	B
65.0 – 69.9%	C+
60.0 – 64.9%	C
55.0 – 59.9%	D+
50.0 – 54.9%	D
<50.0%	F

10. **Consultancy** Students can meet and consult to the course managers:

Dr Wanchai Chanprasert -    Agronomy Department, Room 107  
Monday – Friday, 8:00-16:30  
Tel. 02-5793130, 02-5794371 ext.104  
Mobile phone: 081-3365254  
e-mail : agrwcc@ku.ac.th

Ajahn Parichart Promchote -    Agronomy Department, Room 202  
Monday – Friday, 8:00-16:30  
Tel. 02-5793130, 02-5794371 ext. 110  
Mobile phone: 083-2714539  
e-mail : agrprc@ku.ac.th

## 11. Text books for further reading

Acquaah, G. 2005. Principles of Crop Production: Theory, Techniques, and Technology. 2<sup>nd</sup> Edition. Pearson Prentice Hall, Upper Saddle River, New Jersey, 740p.

Azam-Ali, S. N. and G. R. Squire. 2002. Principles of Tropical Agronomy. Wallingford: CAB International. 238p.

Nosberger, J., H.H. Geiger and P.C. Struik. 2001. Crop Science: Progress and Prospects. CABI Publishing, Wallingford, Oxon, UK. 398p.

Pratley, J. 2003. Principles of Field Crop Production. Oxford University Press, Melbourne.

Simpson, M. G. 2010. Plant Systematics. 2<sup>nd</sup> ed., Academic Press in an imprint of Elsevier, Oxford. 740 p.

Sinclair, T.R. and F.P. Gardner. 1998. Principles of ecology in plant production. CAB International, Wallingford, Oxon, UK. 189p.

## 12. Teaching schedule 3 Credits : Lecture 3 hours/week

Friday 9:00-12:00 Venue: Room ? , ? Floor, Vajiranusorn Bldng

23 Aug 13	- Course Details and Orientation - Introduction	3	Wanchai
30 Aug 13	- The boundaries, scale and scope of tropical agronomy	3	Wanchai
6 Sep 13	- Agrometeorology and climate change in the tropics (Solar radiation, Water cycle, Climate change)	3	Parichart
13 Sep 13	- Crop physiology (Plant population and yield, C3/C4 plants, Crop responses to environment)	3	Ed
20 Sep 13	- Tropical crop production and management (Tillage and tillage operations, Irrigation and water management)	3	Ed
27 Sep 13	- Soil and nutrient management	3	Sutkhet
30 Sep – 10 Oct 13	<b>First online class evaluation by students</b>		

Date	Topic	Hours	Lecturer
4 Oct 13	- Genetic resources and crop improvement (Evolution and genetic manipulation, Characteristics of the main crop types, Crop improvement)	3	Piya
11 Oct 13	- Biotechnology and tropical crop production	3	Pasajee
18 Oct 13	Mid-term Exam 18 Oct 2013 : 9.00-11.00	2	Wanchai & Parichart
25 Oct 13	- Cropping system and pattern	3	Sutkhet
1 Nov 13	- Weed management	3	Sarawut
8 Nov 13	- Harvest and post-harvest management	3	Wanchai
15 Nov 13	- Seed Production	3	Wanchai
22 Nov 13	- Major development of tropical agronomy research and new technology (case study)	3	Parichart &Wanchai
25 Nov – 8 Dec 13	Second online evaluation by students		
29 Nov 13	- Major development of tropical agronomy research and new technology (case study)	3	Parichart &Wanchai
6 Dec 13	- Wrap-up and Concluding Remarks	3	Wanchai
13 Dec 13	Final Exam 13 Dec 2013 : 9.00-11.00	2	Wanchai & Parichart

### 13. Lecturers

Associate Professor Dr. Ed Sarobol

Associate Professor Dr. Wanchai Chanprasert

Assistant Professor Dr. Sutkhet Nakasathein

Assistant Professor Dr. Piya Kittipadakul

Dr. Sarawut Roongmekharat

Ajahn Parichart Promchote

Dr. Pasajee Kongsila

Signature 

(Ajahn Parichart Promchote)

25 July 2013

Signature 

(Dr. Wanchai Chanprasert)

25 July 2013