



Republic of the Philippines
OFFICE OF THE PRESIDENT
COMMISSION ON HIGHER EDUCATION

CHED MEMORANDUM ORDER (CMO)

No. 09
Series 2006

SUBJECT: POLICIES AND STANDARDS FOR BACHELOR OF SCIENCE IN
AGROFORESTRY (BSAF)

In accordance with the pertinent provision of Republic Act (RA) No. 7722, otherwise known as the "Higher Education Act of 1994," and for the purpose of rationalizing the undergraduate agroforestry education in the country the following policies and standards are hereby adopted and promulgated by the Commission.

ARTICLE I
INTRODUCTION

Section 1. Rationale and Background

Agroforestry Education is the process of preparing human resource imbued with competencies in the science and practice of producing and maximizing the positive ecological and economic interactions between the woody perennials and agricultural crops and/or animals grown in the same unit of land. It is anchored on the belief that an educated human resource can be an instrument of harmonizing and/or unifying the interaction and synergy between the soul (people) and the soil upon which agroforestry crops are grown to provide economic upliftment of the people and sustain the environment.

The essence of this unity is dynamically situated in the individual's context, culture, environment and changing contingencies. The program believes that environment is the context in which agroforestry occurs. It carries with it a commitment to care for the environment as well as to provide care within the environment while its resources are being mustered for socio-economic productivity. Within the context of caring, the program places value on the quality of human life.

ARTICLE II
AUTHORITY TO OPERATE

The BS Agroforestry program shall be operated only by institutions of higher learning with proper authority granted by the Commission on Higher Education (CHED), for private institutions or by the respective Boards for chartered State Universities and Colleges (SUCs).

ARTICLE III
PROGRAM SPECIFICATION

Section 2. Degree name. Bachelor of Science in Agroforestry (BSAF)

Section 3. Program description

a. Objectives

The Bachelor of Science in Agroforestry (BSAF) is a set of multi-dimensional learning designed to prepare professionals with general competencies in carrying out the science, art and business of a dynamic and interactive process of production, management and utilization of trees and other woody perennials, agricultural crops and/or animals and soils and related environment in the same unit of land arranged either zonally, mixed simultaneously or sequentially for the twin purpose of conservation and socio-economic productivity.

The curriculum is process-based and is anchored on the observation that the practice of agroforestry is predicated on critical thinking, analytical reasoning and ability to critique and construct knowledge as faculty and students engage in the mutual search for meaning and understanding of professionalizing agroforestry.

b. Specific professions/careers/occupations or trades that the graduates of the program may go into:

- Technicians
- Teachers
- Researchers
- Supervisor
- Technical consultants in business
- entrepreneurs

In addition the practice of Agroforestry includes:

- a. preparations of feasibility studies, and specifications for the production, harvesting, processing, utilization and marketing of woody perennials and agricultural crops and/or animals for multiple products and services including conservation and cleaner production practices;
- b. development of management plans with a step-by-step time-line plans with recommendations on appropriate species and strategies for the unique site; a plan for long-term fertility management; for marketing final products including budget and economic projections; fruit growers and farms to diversify products and integrate more trees into their plantings, with appropriate species and techniques to support existing crops, reduce expenses and increase the diversity and economic resiliency of the project. These can include animal fodder, windbreaks, mulch banks, shades, integrated timber or native trees, and many other practices;
- c. planning and implementation of agroforestry nurseries including seed orchards; soil and water resources conservation measures; wood products manufacturing and marketing;
- d. provision of related activities or services such as the conduct of agroforestry experiments, research, extension, development, training or communications; the teaching of subjects in academic institutions and for licensure examinations; undertaking, supervision and/or administration of studies, programs, stations, centers, community/provincial/regional/national offices of government agencies and institutions requiring agroforestry professionals; technical or management consultants needed by or required of local government units, private

corporations, foundations, non-government associations and foreign-assisted projects; and

- e. Agroforestry graduates shall ensure that agroforestry activities will conform to the observance of the requirements of good agroforestry environmental protection/pollution, conservation, health risks and cleaner production practices affecting the natural resources and the ecosystem;

Section 4. Allied programs

BSAF is closely related to the fields of agriculture, forestry, fisheries, agribusiness, agricultural engineering, veterinary medicine, food technology and ecotourism

ARTICLE IV COMPETENCY STANDARDS

The BSAF program aims to develop well-rounded professionals with the following core competencies for admission, progression and graduation:

A. Diagnostic Ability

| Performance Standards | Core Competencies |
|---|---|
| 1. Critical/lateral thinking/systems thinking | Conduct research and identify cause-effect relationship in critical situations. |
| 2. Innovativeness | Show proactive, creative and risk-taking abilities. |
| 3. Ecology-based Diagnostics and Design | Diagnose problems, constraints, needs and opportunities; design and attest appropriate ecology-based interventions. |

B. Offer Solution

| Performance Standards | Core Competencies |
|-------------------------------------|--|
| 1. Policy Analysis | Familiarity of policies, plans and programs of agencies involved in the uplands, lowlands and coastal development. |
| 2. Use of Agroforestry Technologies | Demonstrate ability to identify and use appropriate agroforestry technologies. |
| 3. Entrepreneurship | Conduct feasibility studies, preparation of project proposals and management plans/resource generation; establish, operate and manage agroforestry enterprises/projects. |

C. Effective Interpersonal Relationship

| Performance Standards | Core Competencies |
|--------------------------------|--|
| 1. Communication and extension | Communicate sufficiently for interaction with others in oral, written and/or electronic forms; conduct community organizing, participatory extension and development activities. |
| 2. Team player | Demonstrate team leadership skills to work with and inspire members and relate to other groups or organizations. |
| 3. Social Behavior | Develop a mature, sensitive and effective ethical relationship (compassion, integrity, interest motivation) with individuals, families and groups from a variety of political, social, emotional, cultural and intellectual backgrounds. |

ARTICLE V CURRICULUM

Section 5. Curriculum Description

This curriculum is designed to prepare well-rounded agroforestry professionals with competencies in the art, business and science of agroforestry. The curriculum is divided into three major parts. The first part is composed of general education courses (59 units) which are geared toward providing basic skills in the arts and sciences. The second part is composed of core courses (39 units) which provide the fundamental skills needed by all agroforestry professionals. The third part of the curriculum is composed of major courses (46 units) that will develop competence in the scientific field of agroforestry science and management.

Section 6. Curriculum Outline

a. GENERAL EDUCATION - 62 UNITS

A. Natural Sciences

11

| | |
|-----------------------------------|---|
| 1. Nat. Sci. 1 – Botany 1 | 3 |
| 2. Nat Sci. 2 - Zoology 1 | 3 |
| 3. Nat Sci. 2 - General Chemistry | 5 |

B. Mathematics

9

| | |
|--------------------------------|---|
| 1. Math 1 - College Algebra | 3 |
| 2. Math 2 - Plane Trigonometry | 3 |
| 3. Statistics 1 | 3 |

C. Social Sciences

12

| | |
|--|---|
| 1. Social Science 1 - Society and Culture with Family Planning | 3 |
| 2. Social Science 2 - Philippine History | 3 |
| 3. Social Science 3 - Philippine Government and Politics | 3 |
| 4. Social Science 4 -General Economics (with Taxation and Agrarian Reform) | 3 |

D. Humanities and Literature

9

| | |
|--|---|
| 1. Humanities 1- Introduction to the Humanities | 3 |
| 2. Humanities 2 - Philosophy and Ethics (3) | 3 |
| 3. Literature 1 - The Literatures of the Philippines | 3 |

E. Language

15

| | |
|---|---|
| English | |
| 1. English 1 – Study and Thinking Skills in English | 3 |
| 2. English 2 – Writing in the Discipline | 3 |
| 3. English 3 - Scientific Writing | 3 |
| Filipino | |
| 4. Filipino 1 - Sining Pakikipagtalastasan | 3 |
| 5. Filipino 2 – Pagbas at pagsulat sa Iba't-Ibang Disiplina | 3 |

F. Elective (Information Technology, Natural Science or Mathematics)

3

G. Life and Works of Rizal

3

H. National Service Training Program (NSTP)

(6)

I. Physical Education (PE)

(8)

b. CORE COURSES – 39

A. Crop Science

6

| | |
|-------------------|---|
| 1. Crop Science 1 | 3 |
| 2. Crop Science 2 | 3 |

B. Animal Science

6

| | |
|-----------------------|---|
| 1. Animal Science 1 a | 3 |
| 2. Animal Science 1 b | 3 |

C. Integrated Pest Management

3

| | |
|-------------------------------|---|
| 1. Integrated Pest Management | 3 |
|-------------------------------|---|

D. Soil Science 1

3

| | |
|-----------------|---|
| 1. Soil Science | 3 |
|-----------------|---|

E. Agroforestry

18

| | |
|--|---|
| 1. Introduction to Agroforestry | 3 |
| 2. Agroforestry Nursery Management | 3 |
| 3. Agroforestry Taxonomy | 3 |
| 4. Applied Plant Physiology for Agroforestry | 3 |
| 5. Fundamentals of Surveying and Mapping | 3 |
| 6. Agroforestry Ecology | 3 |

F. Applied Sociology

3

| | |
|----------------------|---|
| 1. Applied Sociology | 3 |
|----------------------|---|

c. MAJOR COURSES - 46

| | |
|--|---|
| 1. Community Organizing and Development in Agroforestry | 3 |
| 2. Diagnosis, Design and Appraisal of Agroforestry System | 3 |
| 3. Industrial Agroforestry Project Planning and Management | 3 |
| 4. Agroforestry Governance, Policies and Programs | 3 |
| 5. Agroforestry Production and Management Systems | 5 |
| 6. Soil and Water Conservation | 3 |
| 7. Entrepreneurship in Agroforestry | 5 |
| 8. Agroforestry Research Methods | 5 |
| 9. Agroforestry Extension Models and Approaches | 3 |
| 10. Seminar in Agroforestry | 1 |

| | |
|---|---|
| 1. Electives (Note: Elective courses should be supportive with the students' occupational plans and determined in consultation with the adviser) Any of the following areas: 1. Environment 2. Resource Management 3. Social Forestry 4. Agribusiness 5. Policy Studies/Governance 6. Coastal Agroforestry 7. Geomatics 8. Information Communication and Technology | 6 |
| 2. Field Practicum, Entrepreneurship or Thesis (Institutions may opt to allow students to divide/distribute the 6 units credit into either two semesters and one summer with 2 units each; or into 2 semesters with 3 units for each semester) | 6 |

TOTAL NUMBER OF UNITS-----147

Summary:

| | | |
|---------------------------|---|----|
| General Education Courses | - | 59 |
| Core Courses | - | 39 |
| Major Courses | - | 46 |

147

Section 7. Sample Program of Study

1st Semester 1st Year 2nd Semester

| Subjects | Units | Lect Hrs. | Lab Hrs. |
|---|-----------|-----------|----------|
| English 1 – Study and Thinking Skills in English | 3 | 3 | 0 |
| Filipino 1 - Sining Pakikipagtalastasan | 3 | 3 | 0 |
| Math 1 - College Algebra | 3 | 3 | 0 |
| Humanities 1- Introduction to the Humanities | 3 | 3 | 0 |
| Social Science 1 - Society and Culture with Family Planning | 3 | 3 | 0 |
| Nat. Sci. 1 – Botany 1 | 3 | 2 | 3 |
| Nat Sci. 2 - Zoology 1 | 3 | 2 | 3 |
| NSTP | (3) | | |
| PE I | (2) | | |
| TOTAL | 21 | | |

| Subjects | Units | Lect Hrs. | Lab Hrs. |
|--|-----------|-----------|----------|
| English 2 – Writing in the Discipline | 3 | 3 | 0 |
| Humanities 2 - Philosophy and Ethics (3) | 3 | 3 | 0 |
| Social Science 2 - Philippine History | 3 | 3 | 0 |
| Statistics I | 3 | 3 | 0 |
| Nat Sci. 2 - General Chemistry | 5 | 3 | 6 |
| NSTP | (3) | | |
| PE II | (2) | | |
| TOTAL | 17 | | |

1st Semester 2nd Year 2nd Semester

| Subjects | Units | Lect Hrs. | Lab Hrs. |
|--|-----------|-----------|----------|
| English 3 - Scientific Writing | 3 | 3 | 0 |
| Filipino 2 – Pagbas at pagsulat sa Iba't-Ibang Disiplina | 3 | 3 | 0 |
| Literature 1 - The Literatures of the Philippines | 3 | 3 | 0 |
| Math 2 - Plane Trigonometry | 3 | 3 | 0 |
| Social Science 3 - Philippine Government and Politics | 3 | 3 | 0 |
| Crop Science 1 | 3 | 2 | 3 |
| Animal Science 1a | 3 | 2 | 3 |
| PE III | (2) | | |
| TOTAL | 21 | | |

| Subjects | Units | Lect Hrs. | Lab Hrs. |
|---|-----------|-----------|----------|
| Social Science 4 -General Economics (with Taxation and Agrarian Reform) | 3 | 3 | 0 |
| Life and Works of Rizal | 3 | 3 | 0 |
| Introduction to Agroforestry | 3 | 3 | 0 |
| Applied Sociology | 3 | 3 | 0 |
| Crop Science 2 | 3 | 2 | 3 |
| Animal Science 1b | 3 | 2 | 3 |
| PE IV | (2) | | |
| TOTAL | 18 | | |

Summer

| Subjects | Units | Lect Hrs. | Lab Hrs. |
|---------------------------------|-------|-----------|----------|
| Agroforestry Nursery Management | 3 | 2 | 3 |

3rd Year

1st Semester

| Subjects | Units | Lect Hrs. | Lab Hrs. |
|--|-------|-----------|----------|
| Agroforestry Ecology | 3 | 2 | 3 |
| Integrated Pest Management | 3 | 2 | 3 |
| Soil Science 1 | 3 | 2 | 3 |
| Agroforestry Taxonomy | 3 | 2 | 3 |
| Community Organizing and Development in Agroforestry | 3 | 2 | 3 |
| Agroforestry Governance Policies and Programs | 3 | 3 | 0 |
| TOTAL | 18 | | |

2nd Semester

| Subjects | Units | Lect Hrs. | Lab Hrs. |
|--|-------|-----------|----------|
| Elective (GE) | 3 | 2 | 3 |
| Applied Plant Physiology for Agroforestry | 3 | 2 | 3 |
| Fundamentals of Surveying and Mapping | 3 | 1 | 6 |
| Soil and Water Conservation | 3 | 2 | 3 |
| Diagnosis, Design and Appraisal of AF System | 3 | 2 | 3 |
| Elective (Major) | 3 | | |
| TOTAL | 18 | | |

Summer

| Subjects | Units | Lect Hrs. | Lab Hrs. |
|----------------------------------|-------|-----------|----------|
| Entrepreneurship in Agroforestry | 5 | 3 | 6 |

4th Year

1st Semester

| Subjects | Units | Lect Hrs. | Lab Hrs. |
|--|-------|-----------|----------|
| Agroforestry Research Methods | 5 | 3 | 6 |
| Agroforestry Production and Management Systems | 5 | 3 | 6 |
| Agroforestry Extension Models and Approaches | 3 | 2 | 3 |
| TOTAL | 13 | | |

2nd Semester

| Subjects | Units | Lect Hrs. | Lab Hrs. |
|---|-------|-----------|----------|
| Industrial Agroforestry Project Planning and Management | 3 | 2 | 3 |
| Field Practicum, Entrepreneurship or Thesis | 6 | | |
| Elective (Major) | 3 | | |
| Seminar in Agroforestry | 1 | | |
| TOTAL | 10 | | |

Total Units

147

ARTICLE VI
COURSE SPECIFICATIONS
(Annex A)

ARTICLE VII
GENERAL REQUIREMENTS

Section 8. Program Administration

1. Qualifications of a Dean and Department Chair

- Outstanding academic credentials with a minimum masters degree in related degree program
- Five years of satisfactory administrative service to the University, or equivalent experience.
- Full-time teaching experience of at least two (2) years
- Commitment to the University and to the Unit.

2. Responsibilities of a Dean

- Acts as the over-all administrator of the college;
- Provides direction and leadership to education, research and extension;
- Establishes linkages and collaborates with other agroforestry organization on the various issues and concerns concerning agroforestry education;
- Formulates and implements plans and programs on resource generation;
- Prepares and submit an annual report and plan for the coming year to the President/Chancellor of the University; and
- Carry-out the implementation of the Policies and Standards for BSAF as prescribed by CHED

3. Responsibilities of a Department Chair

- The Chairman of the Department shall determine the administrative organization and conduct of work of his department.
- Administrative matters affecting a department shall be subject to the control of the Dean or Director of the college or school but academic matters shall be under the jurisdiction of the department chairman within the limitations herein set under the divisional scheme.
- Prepare the agenda and preside over the meetings of the departmental faculty; provided that the Dean shall be notified of all meetings and furnished a copy of the agenda.
- Supervise and coordinate the planning, implementation, and evaluation of instruction, research, and extension programs of the Department.
- Recommend or endorse to the Dean proposed personnel actions in accordance with the University rules and regulations.
- Prepare the annual report

Section 9. Faculty

1. Qualifications.

In addition to the general education faculty, the institution offering BSAF should have a minimum faculty of 12 full-time equivalent instructors (3 in forestry, 3 in agriculture and 6 in agroforestry and related technical courses). At least four of them must have advanced degrees in any of the following fields of specialization where the institution would like to develop its niche and be known for its excellence, provided each shall have different specialization: Agroforestry, Crop Science, Animal Science, Soil Science, Food Science and Post-Harvest Technology, Silviculture, Forest Biological Sciences and Forest Resources Management (Ecology, Physiology, Botany, Dendrology), and Geomatics. There should be a sustainable human resources management program.

Considering the curriculum, the minimum per year breakdown of the 12 full-time equivalent faculty should be as follows:

| Year of operation | No. of faculty | Discipline |
|----------------------|----------------|--|
| 1 st Year | 1 | 1 in agroforestry |
| 2 nd Year | 3 | 1 in agroforestry 1 in forestry 1 in agriculture |
| 3 rd Year | 8 | 4 in agroforestry 2 in forestry 2 in agriculture |
| 4 th Year | 12 | 6 in agroforestry 3 in forestry 3 in agriculture |

Faculty-student ratio of 1:20 using the full-time equivalent for teaching as basis should be the minimum.

2. Load

Teaching load requirements for the BSAF program per semester shall be as follows:

- A faculty should not be assigned more than four (4) different courses/semester.
- In no instance should the aggregate teaching load of the faculty exceed 21 units.
- A faculty may be assigned an overload in accordance with the policy of the institution.
- Teaching hours per day should not exceed 4 lecture hours.

3. Employment status

The institution shall maintain a minimum of 12 full-time faculty members to teach the core and major courses of BSAF program. At least 50% of the full-time faculty should have permanent or regular status. Further, for private Higher Education Institutions (HEIs) the employment status should conform with the provision in the Manual of Regulation for Private Schools.

Section 10. Library

1. Librarians.

The Head Librarian should: 1) have an appropriate professional training; and 2) a registered librarian;

The library should be: 1) staff with one full time professional librarian for every 1,000 students and 2) a ratio of 1 librarian to 2 staff/clerks should be observed. Further, for private HEIs the qualification for librarian should conform with the provision in the Manual of Regulation for Private Schools.

2. Book collections.

There should be a minimum of 5 book titles (less than 10 years old) per subject for the GE and core courses, and at least 1 book title for each of the major courses. There should be at least one book for every 10 students. Current subscription of minimum of 1 refereed journal in forestry, 1 in agriculture and at least 2 in agroforestry and/or related fields should be available.

3. Space requirements.

The library seating capacity should be at least 10 percent of the combined total number of students and faculty.

Internet access capability, as well as access to photocopying facilities and other electronic service facilities

Section 11. Facilities and Equipment.

1. Classroom requirements. The classroom requirement for agroforestry schools are as follows:

- a. Floor space of 1.5 sq. m. per student (based on UNESCO Standard)
- b. A maximum of 45 students per class
- c. At least 30% of the total area of the classroom shall be for circulation and walls.

2. Laboratory requirements.

a. The institution shall have the following functional laboratories:

Ecology/Botany/Physiology
Soils/Silviculture
Crop Protection

Herbarium
Surveying/Mapping/Drafting Room
Crop Science
Animal Science
Food Science/Post-harvest
Computer laboratory with GIS capability
Audio-visual and its equipment. (List of equipment is incorporated in the Course Specification)

b. Land area and agroforestry demonstration.

There should be a minimum area of 50 hectares allocated for the BSAF program for instruction, research, extension and production (agroforestry demonstration farm). A viable agroforestry enterprise/demonstration farm/nurseries of at least 10 hectares should be maintained for the development of students' entrepreneurial skills.

c. The laboratory space requirements are as follows:

- a. Floor space of 2.3 sq. m per student'
- b. A maximum of 20 students per laboratory class
- c. At least 30% of the total area of the laboratory be for circulation and walls

Section 12. Admission

Completion of high school and passing the required admission test, if applicable, shall be prerequisites for admission.

Section 13. Research and Extension

For the agroforestry school to have a strong instructional program, it must create a wealth of information through a viable agroforestry research program. It must, likewise, undertake extension and development activities in order to translate its research findings that can be applied by farmers and other stakeholders. A minimum of 15 percent of the total agroforestry approved budget shall be allocated for an in-house research and extension program.

Section 14. Entrepreneurship/Production

The school must be able to demonstrate productivity of agroforestry enterprises that can be emulated by the students in developing their entrepreneurial skills.

ARTICLE VIII REPEALING CLAUSE

All existing orders and issuances and parts thereof inconsistent with the provision of this Policies and Standards are hereby repealed, superseded or modified accordingly.

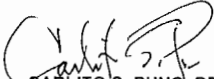
**ARTICLE IX
EFFECTIVITY CLAUSE**

All HEIs offering BSAF shall strictly adhere to the herein PS for BSAF. All baccalaureate programs in agroforestry other than BSAF shall be phased out in favor of the BSAF program. These Policies and Standards shall take effect beginning School Year 2007-2008.

For strict compliance.

Pasig City, Philippines March 10, 2006

FOR THE COMMISSION


CARLITO S. PUNG, DPA
Chairman