UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG 101 Introduction to Agriculture
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

This course is an introduction to the science of agriculture. This course explains the scientific principles behind the discipline that feeds, shelters, and clothes the world's population. Three hours of lecture and three hours of laboratory. Prerequisite: MA085 or higher.

3. COURSE CONTENT:

Agriculture is the broad based industry which is engaged in the production of plants and animals for food and fiber. This course introduces the students to a wide range of science studies which have direct application to their everyday lives, lab sessions provide students with hands-on experiences with some of the science topics cover in lectures and to develop observational and writing skills, visits/tours to agriculture facilities on island are included as part of the lab. Topics covered include:

a. History of agriculture with a time line of agriculture advancements
b. Soil and plant nutrition
c. Carbon and Nitrogen Cycles
d. Plant Reproduction
e. Plant Pathology
f. Entomology
g. Aquaculture
h. Agriculture animal production
i. Marketing
j. Plant Physiology
k. Genetics and genetic engineering

4. RATIONALE FOR OFFERING COURSE:

a. Introduces students to agriculture science and its history.
b. Introduces students to the scientific method and general scientific concepts.
c. Exposes students to basic lab writing skills.
d. Enables students to interpret current science advances as they relate to food and fiber production.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

Students must have good reading and comprehension skills. There are no prerequisites, but a background in biology, zoology, chemistry and physics is helpful.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

1. Students will be able to articulate the influence of early cultures and geography on agriculture production at the local, national, and international level.
2. Students will be able to identify the 20 fields of study and their basic technologies that are behind the production of food and fiber.
3. Students will be able to identify 10 common agricultural practices that pose risks to the environment and to society at large.
4. Students will conduct and report on a semester long laboratory project that requires the student to collect, organize, analyze, and interpret data.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

Handouts provided by the lecturing instructor; notes taken by the students during lectures.

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

12. EVALUATION AND GRADES (SEE INSTRUCTOR):

13. COURSE POLICIES (SEE INSTRUCTOR):

14. SPECIAL NEEDS:

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15. CALENDAR OR SCHEDULE (SEE INSTRUCTOR):

16. DROP DATES:

University policy sets the drop dates. See the semester schedule of courses.

17. STUDENT WORK LOAD (SEE INSTRUCTOR):

18. SUPPLEMENTARY MATERIALS/ADDITIONAL RESOURCES (SEE INSTRUCTOR):

19. CONTACT INFORMATION FOR CLASSMATES:

Exchange contact info with at least one classmate. Contact your classmate(s) if you miss class or if you want to form a study group.

[1]**BASED ON DR. BARBARA GROSS DAVIS, UC BERKELEY MODEL "CREATING A SYLLABUS".** From the hard copy book *Tools for Teaching* by Barbara Gross Davis; Jossey-Bass Publishers: San Francisco, 1993. Linking to this book chapter from other websites is permissible. However, the contents of this chapter may not be copied, printed, or distributed in

hard copy form without permission. For a more detailed explanation on each numbered section of the syllabus, please visit: http://teaching.berkeley.edu/bgd/syllabus.html.

[2]Program SLOs:

BS Agriculture goals include the following:

1. TECHNICAL KNOWLEDGE. Graduates will gain the theoretical and practical scientific knowledge needed for continued effective and sustainable crop production, as well as the information and subject-matter mastery required for exercising wise judgment in dealing with complex issues in resource management and conservation. And, it must be instilled that education is a life-long pursuit.

2. PROFESSIONAL AND COMMUNICATION SKILLS. Students will develop the human and technical skills needed to function in the forefront of an increasingly complex and competitive society: oral and written communication, and leadership skills, and the critical, integrative thinking capacity supports competent problem solving and decision making.

3. TECHNOLOGICAL LITERACY: Graduates are competent at applying technological skills to their chosen work. They are also competent in the use of analog and digital equipment used in modern agricultural systems. Graduates effectively judge the usefulness and appropriateness of existing and new technologies in their professional endeavors.

4. PERSPECTIVE. The graduate should have a holistic perspective of agriculture; an appreciation of agriculture as a highly sophisticated, integrated system that operates within a political environment and on a global scale. He/she must be able to visualize what makes the whole work, and understand the responsibilities of the agronomist within the system with respect to production of an abundant, safe, and nutritious food supply within the context of wise management of natural resources.

5. ETHICS/VALUES. The curriculum should lead students in development of an appreciation of ethical resource management responsibilities in regional, national and world social and economic contexts. It must instill awareness for sustainable management of energy, soil, water, wildlife and other natural resources.

6. DIVERSITY. For society to function effectively and justly for each person, graduates must appreciate the richness that our diverse backgrounds and philosophies bring to the whole. Understanding of and appreciation for the political, cultural, and religious opinions and practices of others is the hallmark of an educated person.

7. ANALYTIC SKILLS. Graduates are competent at collecting, organizing, analyzing, interpreting and presenting quantitative and qualitative data in agricultural science.

UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG 102 Plant Biology
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

This course is an introduction to the study of living plants and their relationship to the environment. Topics include plant cells, tissues, growth, reproduction, metabolism, genetics, classification, and evolution. The course focuses on the impact of light, temperature, soil and other environmental components on plant growth. Lab experiments will illustrate basic principles of plant biology. It includes 3 hours of lecture and 3 hours of lab weekly. Prerequisites: MA085 or higher.

3. COURSE CONTENT:

The course introduces basic principles of plant science. The topics of plant biology include plant cells, tissues, organs, growth, reproduction, metabolism, genetics, classification and evaluation. It focuses environmental factors influencing the plant growth. Environmental factors include light, temperature, water, and soil. Lab experiments will illustrate basic principles of plant biology. The course meets for three hours lecture and three hours laboratory weekly. Student must take both lecture and laboratory concurrently.

Topics covered are:

- Nature of life Plant reproduction and
- Plant cells, tissues, organs
- Roots, stems, leaves, flowers, fruits, seeds
- Plant physiology and morphogenesis
- Plant metabolism and growth
- Plant reproduction and propagation
- Plant improvement: genetics and biotechnology
- Plant evolution
- Plant classification

- Plants and environments

4. RATIONALE FOR OFFERING COURSE:

There are no plant biology courses being offered at the University of Guam. Tropical Agriculture and Environmental Science Program offers several upper division courses of horticulture science and plant pathology courses that requires for students to know basic principles of plant science prior to taking those upper division courses. This course will be a core requirement for Agricultural Science major and a prerequisite for Agriculture upper division classes. Students learn the overview of the basic concept of plant science to fulfill the general education science requirement.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

Prerequisites: MA085 or higher and AG101 or BI100 or BI157 or BI158.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- Describe how and why all life is dependent on green organisms.
- Explain how humans have impacted their environment.
- Explain briefly what the scientific method is.
- Explain the nature of compounds, acids, bases and salts.
- Identify and describe the structure and function of plant cells, organelles, tissues and organs.
- Describe the functions of root, stems, leaves flowers, fruits and seeds.
- Describe the differences between photosynthesis and respiration.
- Diagram and describe the phases of meiosis and mitosis.
- Describe the structure and functions of DNA.
- Distinguish between phenotype and genotype.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

12. EVALUATION AND GRADES (SEE INSTRUCTOR):

13. COURSE POLICIES (SEE INSTRUCTOR):

14. SPECIAL NEEDS:

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2. PROFESSIONAL AND COMMUNICATION SKILLS. Students will develop the human and technical skills needed to function in the forefront of an increasingly complex and competitive society: oral and written communication, and leadership skills, and the critical, integrative thinking capacity supports competent problem solving and decision making.

3. TECHNOLOGICAL LITERACY: Graduates are competent at applying technological skills to their chosen work. They are also competent in the use of analog and digital equipment used in modern agricultural systems. Graduates effectively judge the usefulness and appropriateness of existing and new technologies in their professional endeavors.

4. PERSPECTIVE. The graduate should have a holistic perspective of agriculture; an appreciation of agriculture as a highly sophisticated, integrated system that operates within a political environment and on a global scale. He/she must be able to visualize what makes the whole work, and understand the responsibilities of the agronomist within the system with respect to production of an abundant, safe, and nutritious food supply within the context of wise management of natural resources.

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UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG 109 The Insect World
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

This course is an overview of insect biology for non- scientists. Emphasis is on insect behavior, ecology and structural/ morphological adaptations. Lab is geared toward identifying common insects and experimentally examining aspects of insect biology. The course may be used as an AG elective, but will not serve to replace AG course. Three hours of lecture and three hours of laboratory weekly. Prerequisite: MA085 or higher.

3. COURSE CONTENT:

Insects comprise more than half of all known species and are critically important to the functioning of terrestrial ecosystems. As pollinators, vectors of diseases and agricultural pests, they have an important direct impact on the lives of humans. Insects also share many biological features with more complex organisms and can be used as models for understanding much of biology. Thus they serve as a general introduction to many wider themes in biology and ecology. Topics covered are:

A. Animals with external skeletons, internal and external anatomy of insects,
B. Growth and development of insects, diversity and classification of insects,
C. Nervous systems and sensory structures, basic behaviors,
D. Communication of insects with the world around them, courtship, copulation and oviposition
E. Herbivores, predators, parasites and blood suckers
F. Insect societies: parental care and pre-social behavior and social insects
G. Plant insect interactions: Pollination and interactions: Herbivores
H. Populations growth and containment: general principles
I. Insects and their predators, insects as scavengers and decomposers, insects adapting to their physical environment, insects as vectors of plant and animal disease, insect borne disease and human history, insects as pests of agriculture

J. Pesticides and their side effects, biological control and other non-pesticide controls, and
K. Eating insects and other human uses of insects

4. RATIONALE FOR OFFERING COURSE:

A. Introduces students to the science of entomology.
B. Introduces students to the scientific method and general scientific concepts.
C. Exposes students to basic technical writing skills.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

High school biology.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

1. Students will be able to identify the importance of insects' role in the world to the functioning of the terrestrial ecosystems.
2. Students will be able explain how insects deal with the world around them.
3. Students will be able to use insects as examples to apply concepts and comparisons with other organisms.
4. Students will explore experimental techniques, learn technical writing skills, will be given hands on experience to ideas or material presented in lecture, and develop critical thinking.
5. Students will be able to identify insects to the level order.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

None. Chapters of various books and magazines articles on reserve in library.

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

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UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG 136 Science of Aquaculture
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

This course is designed to introduce students to the science of aquaculture. Lectures focus on the history, theory and description of aquaculture systems around the world. Laboratories allow students hands-on experience with field testing of water quality; field identification of fish, crustaceans, aquatic plants, and parasites; reproduction of certain aquaculture species; and other cultural practices. Three hours lecture and three hours laboratory weekly. Prerequisite: MA085 or higher.

3. COURSE CONTENT:

A. History of aquaculture,
B. Culture systems,
C. Ecology of ponds, fertilization and water quality,
D. Economics of aquaculture, marketing of aquaculture products,
E. Feeds and nutrition,
F. Physiology of organisms, reproduction, diseases, larval culture, grow-out methods,
G. Harvesting, processing and quality control,
H. Integrated systems, species introductions,
I. Aquaculture and the environment.

4. RATIONALE FOR OFFERING COURSE:

The interest in aquaculture has been evident in the private business sector for many years. The shortage of trained personnel to staff the facilities and increasing interest in the field by students were primary in developing the course.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

This is an introductory level course examining the field of aquaculture and initiating students to the aspects of science needed to enter the field. No previous skills or background needed, just a willingness to learn.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

- Demonstrate an understanding of history, impact, current status and future trend of aquaculture.
- Demonstrate an understanding of anatomy and physiology of fish.
- Develop working knowledge of major components in aquaculture development.
- Establish hand-on experience in aquaculture practices: water quality monitor and sampling, as well as data collection and interpretation in aquaculture system.
- Identify the species and describe the systems commonly used in Guam Aquaculture.
- Identify disease and environmental/water quality constraints to productions.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

12. EVALUATION AND GRADES (SEE INSTRUCTOR):

13. COURSE POLICIES (SEE INSTRUCTOR):

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UNIVERSITY OF GUAM
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COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG 211 Principles of Animal Science
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

This course covers adaptation, distribution and numbers of livestock throughout the world; significance and economic importance; trends in livestock production; introduction to feeding, breeding, disease control, growth, and physiology. Three hours of lecture and three hours of laboratory weekly. Prerequisite: MA085 or higher BI157-157L (BI157-157L and BI158-158L preferred)

3. COURSE CONTENT:

There is hardly any sphere of human life not directly or indirectly impacted by animals or their products. To name a few: Food, leather, wool, life saving pharmaceutical products, transportation, fuel, fertilizer and companionship. The following topics will be covered in this course:

A. Scope and Future of Animal Agriculture
B. Animal Products
C. Common Terminology in Animal Science
D. Animal Improvement (Animal Breeds, Breeding & Selection)
E. Anatomy and Physiology of Farm Animals
F. Reproduction of Farm Animals (Egg Production, Lactation, Growth & Body Composition)
G. Animal Nutrition, (Digestion, Metabolism)
H. Animal Management (Beef, Swine, Dairy, Poultry)
I. Disease Control
J. Animal Behavior
K. Case and Humane Treatment of Laboratory Animals

4. RATIONALE FOR OFFERING COURSE:

a. The course is an introduction of the study of animals.
b. It is designed to present an integrated view of farm animals (animal contribution, distribution, ecological and economic importance).
c. It develops an understanding and appreciation of the many field of animal science.
d. Introduces students to the general scientific concepts and methodology.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

MA085 or higher BI157-157L (BI157-157L and BI158-158L preferred)

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

1. Student will describe major commercial breeds of livestock and poultry.
2. Student will demonstrate animal husbandry skills.
3. Student will demonstrate an integrated view of farm animals (animal contribution, distribution, ecological and economic importance).
4. Student will describe general scientific concepts and methodology.

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Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

There is no required textbook for this class. Pertinent material will be given as handouts. Instructor will make all instructional video tapes and computer based programs available to the students. Readings will be assigned from current topics in professional journals and other references.

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

12. EVALUATION AND GRADES (SEE INSTRUCTOR):

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[2]Program SLOs:
BS Agriculture goals include the following:

1. TECHNICAL KNOWLEDGE. Graduates will gain the theoretical and practical scientific knowledge needed for continued effective and sustainable crop production, as well as the information and subject-matter mastery required for exercising wise judgment in dealing with complex issues in resource management and conservation. And, it must be instilled that education is a life-long pursuit.

2. PROFESSIONAL AND COMMUNICATION SKILLS. Students will develop the human and technical skills needed to function in the forefront of an increasingly complex and competitive society: oral and written communication, and leadership skills, and the critical, integrative thinking capacity supports competent problem solving and decision making.

3. TECHNOLOGICAL LITERACY: Graduates are competent at applying technological skills to their chosen work. They are also competent in the use of analog and digital equipment used in modern agricultural systems. Graduates effectively judge the usefulness and appropriateness of existing and new technologies in their professional endeavors.

4. PERSPECTIVE. The graduate should have a holistic perspective of agriculture; an appreciation of agriculture as a highly sophisticated, integrated system that operates within a political environment and on a global scale. He/she must be able to visualize what makes the whole work, and understand the responsibilities of the agronomist within the system with respect to production of an abundant, safe, and nutritious food supply within the context of wise management of natural resources.

5. ETHICS/VALUES. The curriculum should lead students in development of an appreciation of ethical resource management responsibilities in regional, national and world social and economic contexts. It must instill awareness for sustainable management of energy, soil, water, wildlife and other natural resources.

6. DIVERSITY. For society to function effectively and justly for each person, graduates must appreciate the richness that our diverse backgrounds and philosophies bring to the whole. Understanding of and appreciation for the political, cultural, and religious opinions and practices of others is the hallmark of an educated person.

7. ANALYTIC SKILLS. Graduates are competent at collecting, organizing, analyzing, interpreting and presenting quantitative and qualitative data in agricultural science.

UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG 281 Principles of Horticulture Science
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

This course introduces principles of plant-soil-climate relations and physical characteristics in horticultural crop production, current practices included. Emphasis is on the practical aspects of producing vegetable, fruit and ornamental crops in the tropics. Three hours of lecture and three hours lab weekly. Prerequisite: MA110 or higher and AG102 or BI157 or BI158.

3. COURSE CONTENT:

This course will provide students the basic knowledge of horticultural science and technology. Horticulture science will include plant classification, structure, growth, metabolism, differentiation, development, reproduction, and plant growth response to environmental factors such as soil, water, light, and temperature. Horticultural technology will describe various horticultural practices and crop management used in growing horticultural plants, including propagation, mineral nutrition, training and pruning, growth regulation, plant protection, breeding and marketing. Economically and culturally important crops on Guam and other tropical regions will be emphasized.

4. RATIONALE FOR OFFERING COURSE:

The course is the basic horticulture science and technology course for all students in the field of general agriculture, general horticulture, ornamental horticulture, tropical fruits horticulture, tropical vegetable horticulture, turf management, plant nursery management, landscape management, extension horticulture, secondary education in plant sciences, agribusiness, environment science, conservation, ethnobotany, and horticulture therapy. This course is a foundation of all upper horticulture and related agriculture courses. It is a

required course for all majors in Agriculture Degree and Agriculture Secondary Education Degree.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

Prerequisite: MA110 or higher and AG102 or BI157 or BI158.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

1. Student will describe botanical and horticultural classification of plants.
2. Student will demonstrate horticultural skills of plant propagation.
3. Student will demonstrate horticultural skills of general garden plant care including pruning, irrigation, and fertilizer application and plant diagnostics.
4. Student will describe scientific names, origin, economic/cultural uses, plant improvement methods, and post-harvest handling of at least three important plants in horticulture.
5. Student will describe how horticulturists can modify environmental factors affecting plant growth in order to produce superior agricultural crops.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

12. EVALUATION AND GRADES (SEE INSTRUCTOR):

13. COURSE POLICIES (SEE INSTRUCTOR):

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15. CALENDAR OR SCHEDULE (SEE INSTRUCTOR):

16. DROP DATES:

University policy sets the drop dates. See the semester schedule of courses.

17. STUDENT WORK LOAD (SEE INSTRUCTOR):

18. SUPPLEMENTARY MATERIALS/ADDITIONAL RESOURCES (SEE INSTRUCTOR):

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3. TECHNOLOGICAL LITERACY: Graduates are competent at applying technological skills to their chosen work. They are also competent in the use of analog and digital equipment used in modern agricultural systems. Graduates effectively judge the usefulness and appropriateness of existing and new technologies in their professional endeavors.

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UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG 321 Horticulture Plant ID
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

This course is designed for students who would like to identify the plants that are important to Guam's culture, economy, and environment. This course will introduce the subject of higher plant nomenclature and provide practical experience in plant identification of fruits, vegetable, weeds, and ornamental plants. One hour of lecture and three hours of laboratory weekly. Prerequisite: AG102 or consent of instructor.

3. COURSE CONTENT:

This course will introduce nomenclature of plants which are important to Guam's culture, economy and environment. Basic botanical terms used in plant classification system will be introduced. Live specimens and herbarium of different groups of plants will be presented in each class. Students will be able to recognize plant morphology and the principal characteristics of each plant.

4. RATIONALE FOR OFFERING COURSE:

Recognition of plant names and their importance on Guam will aid students to gain knowledge in plant biology, agricultural science, environmental science, and ethonobotany.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

Prerequisite: AG 102 or consent of instructor.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

Students will be able to:

1. Identify up to 150 different species of plants used or that are important to Guam's culture, economy and environment.
2. Differentiate among different leaf, floral and fruiting structures used to identify trees, shrubs, and herbaceous plants.
3. Select appropriate fruits, vegetables, and ornamental plants for use in Guam.
4. Apply the binomial nomenclature system to name plants found in the landscape.
5. Apply the basics of plant classification to fruits, vegetables, weeds and ornamental plants found in Guam.
6. Construct a plant specimen reference collection using pressed plant specimens and/or photographs collected by the student.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

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UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG 340 Pest Management
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

A capstone agriculture course that draws from the student's experience in soil science, horticulture, biology, entomology, and plant pathology to introduce the student to common agricultural pests (insects, plant pathogens and weeds) and their management. As part of the lecture portion of the course, students will be expected to pass the University of Guam Private Pesticide Applicators course and the Nation Plant Diagnostic Network (NPDN) First Detector Course. Laboratory portion of the course will include field trips, exercises in the Cooperative Extension Service Plant Diagnostic Clinic and lab work in pest identification and pest control pests. Three-hours of lecture and three-hours of laboratory weekly. This is a required course for Agriculture Science major Applied Emphasis and an upper elective for Research emphasis. Prerequisite: AG 281. Suggested courses but not required biology, entomology, plant pathology, plant ID.

3. COURSE CONTENT:

Pest management is the science of preventing, suppressing, or eradicating biological organisms that are causing a problem. Pest management practices may be classified according to the *approach* or the *method* used to deal with a pest problem. In terms of approach, pest management practices may be designed to (1) prevent a problem, (2) suppress a problem, or (3) eradicate a problem. In regard to method, pest management practices may be classified in a number of categories of which the most common are (1) chemical, (2) cultural and mechanical, (3) biological, and (4) legal.

The concepts of *"Integrated Pest Management"* (1PM) will be emphasized in this course as a preferred approach to controlling pests. This management strategy takes into consideration the ecology of the environment and all relevant interactions that pest management practices may have upon the environment in which one or more pest

problems may exist. When 1PM principles are applied to a given pest problem, it is generally assumed that environmental impact and economic risks have been minimized. Since 1PM considers all applicable methods, it is also assumed that emphasis on chemical methods may be reduced when effective non-chemical alternative methods are available. As a result, implementation of 1PM principles and practices is advocated in various federal and state regulations affecting pesticides. Section 11(c) of FIFRA specifically advocates that 1PM techniques be included in training of certified applicators of restricted use pesticides.

Topics covered are:

Definitions and brief history: ecological foundations
Arthropods: basic anatomy of insects, insect life cycle, site specific insects
Rodent and other pests
Weed science: Weed identification and Weed Ecology
Brief History of Plant Pathology
Plant Diseases: Disorders, Symptoms, Bacteria, Mycoplasmas, Fungi, Viruses and Nematodes
Integrated Pest Management: Effect on Yield
Control: Cultural, Physical Control, Biological Control
Pesticide: Formulations, Application, Calibration Methods, Safely, Poisoning, Ecosystem and Laws

4. RATIONALE FOR OFFERING COURSE:

This is the foundation course for all agriculture elective courses dealing with plant science.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

This is a required course for Agriculture Science major Applied Emphasis and an upper elective for Research emphasis. Prerequisite: AG 281. Suggested courses but not required biology, entomology, plant pathology, plant ID.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

1. Students will be able to label a total of 50 anatomical parts of insects, weeds, and fungi.
2. Students will be able to draw and label life cycles of three insects, four weeds, and one each of the following plant diseases: imperfect fungi, bacteria, and viruses.
3. Students will be able to develop control strategies for 20 of Guam’s most common pests incorporating cultural, physical and chemical methods.
4. Student will be expected to pass the University of Guam Private Pesticide Applicators course and the Nation Plant Diagnostic Network (NPDN) First Detector Course.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

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11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

12. EVALUATION AND GRADES (SEE INSTRUCTOR):

13. COURSE POLICIES (SEE INSTRUCTOR):

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UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG 342 Principles of Agricultural Engineering
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

This course is an introduction to engineering principles in agriculture with emphasis on land measurements, farm power and machinery, farm structures, farm electrification and farm water management. This course consists of three hours of lecture and three hours of laboratory weekly. Prerequisite: MA161a or higher.

3. COURSE CONTENT:

Introduction to surveying, grading, and earthwork calculations. Principles of farm power and machinery. Various types of engines, harvesting equipment, plows, disc harrows, power sprayers,...etc. Principles of farm structures and farm electrification. Types of structures, governing design principles for animal housing and storage structures. Electrical requirements of farm equipment. Single phase and three phase power supply. Principles of farm water management. Types of irrigation systems, water requirements of crops and animals. Microirrigation systems, their operation and maintenance.

4. RATIONALE FOR OFFERING COURSE:

This core course for agriculture majors introduces to them some basic agricultural engineering principles. Agriculture involves land measurements, farm equipment, and animal housing, storage, electricity and water. Students are exposed to these aspects of agriculture to help them prepare for their future jobs as farm managers, researchers or consultants etc.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

Students must have a good mathematics background. They must have completed MA 161 or concurrently enrolled into it. AG 141 is helpful but not required. It is recommended that students complete lower level agricultural courses before registering for this course.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

Students will be able to:

1. Carry out three types of leveling surveys - differential leveling, profile leveling, and topographic leveling.
2. List and describe various irrigation methods, microirrigation system parts, operation, and maintenance of drip irrigation systems.
3. Calculate irrigation water requirement and irrigation schedules of agricultural crops.
4. Demonstrate knowledge of the principles of operation of internal Combustion engines, work, energy, power, power trains and speed reduction gears.
5. Calculate heat load and ventilation requirements for animal structures and housing.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

Handouts provided by the instructor and notes taken by the students during lectures.

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UNIVERSITY OF GUAM
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COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG/BI 345 General Entomology
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

This course is an overview of insect biology with emphasis on fundamental problems encountered by insects, and the structural and functional adaptations used to overcome these problems. The laboratory focuses on insect identification. An insect collection is required. The course meets for three hours of lecture weekly. Prerequisites: BI157-157L or AG109 or AG281.

3. COURSE CONTENT:

This course provides students with basic biological information relating to arthropods in general and insects specifically. Topics include systematic, morphology, physiology, behavior and ecology of insects. Insect pest management is also covered, as are techniques for collecting, preserving, and identifying insects. Entomology resources on the internet are also examined. Insects on Guam are emphasized through the preparation of an insect collection with identification to the family level required. Use of computers in internet access, data analysis, and report writing is emphasized.

4. RATIONALE FOR OFFERING COURSE:

The course is an elective upper division entomology course for all majors in the Agriculture Degree and Agriculture Secondary Education Degree in the College of Agriculture and Life Sciences, and for biology majors in the College of Arts and Sciences. Insects constitute a major component of the world's biotic community. Insects found in the Western Pacific region are diverse and many are unique in the world. Others have been imported inadvertently over the years and have established stable populations. Some of the endemic and introduced insects are serious economic pests, competing with man for food and fiber. The study of insects has long been a cornerstone of biology.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

Prerequisite courses are BI157-l57L, or AG 109, or AG 281. The student should be well versed in basic biology, and possess strong reading and writing skills.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

1. The student will be able to identify insects on Guam to the family level.
2. The student will be able to describe the basic biology and ecology of the insect orders, and of the most important families within those orders.
3. The student will be able to identify and describe the function of external and internal anatomical features of the various insect orders.
4. The student will be able to write a research paper on an entomological topic using college level English and following formats acceptable for current professional scientific journals.
5. The student will be able to prepare an insect collection using acceptable museum-acceptable preservation and mounting procedures.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

12. EVALUATION AND GRADES (SEE INSTRUCTOR):

13. COURSE POLICIES (SEE INSTRUCTOR):

14. SPECIAL NEEDS:

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15. CALENDAR OR SCHEDULE (SEE INSTRUCTOR):

16. DROP DATES:

University policy sets the drop dates. See the semester schedule of courses.

17. STUDENT WORK LOAD (SEE INSTRUCTOR):

18. SUPPLEMENTARY MATERIALS/ADDITIONAL RESOURCES (SEE INSTRUCTOR):

19. CONTACT INFORMATION FOR CLASSMATES:

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2. PROFESSIONAL AND COMMUNICATION SKILLS. Students will develop the human and technical skills needed to function in the forefront of an increasingly complex and competitive society: oral and written communication, and leadership skills, and the critical, integrative thinking capacity supports competent problem solving and decision making.

3. TECHNOLOGICAL LITERACY: Graduates are competent at applying technological skills to their chosen work. They are also competent in the use of analog and digital equipment used in modern agricultural systems. Graduates effectively judge the usefulness and appropriateness of existing and new technologies in their professional endeavors.

4. PERSPECTIVE. The graduate should have a holistic perspective of agriculture; an appreciation of agriculture as a highly sophisticated, integrated system that operates within a political environment and on a global scale. He/she must be able to visualize what makes the whole work, and understand the responsibilities of the agronomist within the system with respect to production of an abundant, safe, and nutritious food supply within the context of wise management of natural resources.

5. ETHICS/VALUES. The curriculum should lead students in development of an appreciation of ethical resource management responsibilities in regional, national and world social and economic contexts. It must instill awareness for sustainable management of energy, soil, water, wildlife and other natural resources.

6. DIVERSITY. For society to function effectively and justly for each person, graduates must appreciate the richness that our diverse backgrounds and philosophies bring to the whole. Understanding of and appreciation for the political, cultural, and religious opinions and practices of others is the hallmark of an educated person.

7. ANALYTIC SKILLS. Graduates are competent at collecting, organizing, analyzing, interpreting and presenting quantitative and qualitative data in agricultural science.

UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG/NS 380 Principles of Soil Science
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

This course delves into the basic principles of the fundamentals of the chemical, physical, and biological properties of soils; their formation, fertility, and management, and the effects of inorganic and organic chemicals on soil processes and properties as they relate to environmental pollution. Two hours of lecture, one hour recitation and three hours laboratory weekly. Prerequisites: MA110 or higher and any two chemistry courses.

3. COURSE CONTENT:

A. Fundamental principles of soil science, including topics in soil genesis and classification, soil physics, soil chemistry,
B. Soil biology, soil fertility
C. Plant nutrition, soil and natural ecosystems.
D. Examples of local and global soil-related problems and issues.

4. RATIONALE FOR OFFERING COURSE:

A. This course is recommended for all student considering careers involving engineering/construction, agriculture, landscaping, gardening or environmental management.
B. It will expose students to methods in practical problem-solving and basic scientific laboratory skills. The scientific methods are also emphasized.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

Prerequisite courses: MA110 or higher and any two chemistry courses.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

1. The Soil formation factors, Soil classification system, Soil morphology and different Soil behavior.
2. Learn how soil's chemical, biological, and physical properties affect soil quality as a medium for plant growth.
3. Learn how soil's chemical, biological, and physical properties interact to affect soil nutrient utilization by plant as influenced by different soil properties.
4. Determine soil's chemical, biological, and physical properties by conducting laboratory exercises.
5. Learn how to follow the safety procedures while conducting laboratory exercises.
6. Learn the basic analytical skills and calculations

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

12. EVALUATION AND GRADES (SEE INSTRUCTOR):

13. COURSE POLICIES (SEE INSTRUCTOR):

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17. STUDENT WORK LOAD (SEE INSTRUCTOR):

18. SUPPLEMENTARY MATERIALS/ADDITIONAL RESOURCES (SEE INSTRUCTOR):

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UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG/BI 430 Scientific Digital Photography
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

Student will develop observational aesthetic skills and learn how to extract relevant information from nature using macro-photography, photomicrography, or special exposure and digital processing techniques. This course includes two one-hour lectures and a three-hour laboratory weekly.

3. COURSE CONTENT:

This course develops the student's skills in observing and documenting natural and scientific phenomena. Students will learn how to select the appropriate camera equipment, settings, and processing of images to communicate their intended ideas using the constraints of scientific ethical considerations of publishing images in scientific literature.

4. RATIONALE FOR OFFERING COURSE:

Photography is one of the primary means through which scientific observation and research is documented and presented to colleagues and the public. By developing technical observational and aesthetic skills, students will learn how to extract relevant information from nature using macro-photography, photomicrography, special techniques digital processing.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

None

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT

LEARNING OUTCOMES - SLOs):

Students will be able to:

1. Make an exposure appropriate to the visual concept desired to communicate.
2. Make an exposure with a digital camera and download it to a workstation and make a print and or screen image.
3. Merge and process digital images.
4. Given a choice of lenses, the student will be able to select an appropriate focal length to communicate theirs ideas.
5. Student will be able to choose the appropriate shutter speed, aperture and ISO to communicate desired idea.
6. Given a photograph, the student will be able to articulate criticism regarding the image and evaluate its quality.
7. Use digital techniques to enhance images to optimize desired image information.
8. Retouch an image to enhance specific objects in the image using the ethical considerations of publishing images in scientific literature.
9. Insert reference lines into images to indicate proper scale.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

12. EVALUATION AND GRADES (SEE INSTRUCTOR):

13. COURSE POLICIES (SEE INSTRUCTOR):

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UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG 480 Tropical Soil Management and Fertility
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

This course examines the origin, development, properties, and management of tropical soils and the importance of key physical, chemical, and biological properties. Emphasis is on application of principles. Prerequisite: AG380

3. COURSE CONTENT:

This course will examine the characteristics and management of tropical agricultural systems. Students will learn of the principle characteristics of tropical soils including soil classification, soil physical and chemical properties, and plant nutrient and organic matter cycling. In addition, students will be introduced to the role of soil in common tropical agricultural systems including shifting cultivation, agroforestry, and continuous cultivation systems. The concept of sustainable agriculture and the effects of agricultural management on the environment will also be presented and illustrated in examples from tropical regions around the world.

4. RATIONALE FOR OFFERING COURSE:

This course is recommended for all students considering careers involving agriculture, international affairs, or environmental science. It will provide students with an understanding of local and global agricultural and environmental issues and the relevance of soil science principles to those issues.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

Prerequisite courses: AG 280 or consent of the instructor.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT

LEARNING OUTCOMES - SLOs):

1. Interpret how soil chemical, biological, and physical factors interact to affect the soil as a medium for plant growth.
2. Explain the role of plant nutrients in plant growth and the processes affecting nutrient utilization under tropical conditions.
3. Identify nutrient management practices, including the use of soil amendments that maximize plant productivity and profitability while conserving or enhancing environmental quality under tropical conditions.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

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13. COURSE POLICIES (SEE INSTRUCTOR):

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15. CALENDAR OR SCHEDULE (SEE INSTRUCTOR):

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18. SUPPLEMENTARY MATERIALS/ADDITIONAL RESOURCES (SEE INSTRUCTOR):

19. CONTACT INFORMATION FOR CLASSMATES:

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UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG 481 Environmental Soil Science
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

An overview of soil properties and their impact on the environment will be discussed. Tropics covered include: soil erosion, soil conservation, soil enhancement, non- point source pollution, soil contamination, and waste management. Students will develop skills in soil and water contaminant analysis and environmental assessment. This course weekly consists of three hours of lecture and a three-hour laboratory. Prerequisites: AG/NS380 and MA161a or higher.

3. COURSE CONTENT:

This course covers topics related to the processes of soil erosion and the off-site damage from sedimentation, soil and water pollution and the impact of non-point source pollution on the environment. The techniques of soil and water conservation and management will also be discussed. Other topics covered in this course include contaminated soil and pollution mitigation. Techniques used for bioremediation of contaminated soils and how soil can be managed to filter out contaminants will be introduced. In the section of waste management benefits and problems associated with utilization and disposal of organic wastes on agricultural and forestlands will be discussed.

4. RATIONALE FOR OFFERING COURSE:

This course will also strengthen the student's problem solving abilities and communication skills in the area of soil management from environmental aspect of it. The course will prepare student (both graduate and undergraduates) for the wider job markets such as land management, environmental consultants, waste management and positions in land utilization, soil and water quality assessment, and remediation of contaminated land resources.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

The students of AG 481 should possess a basic knowledge of soil principals and characteristics such as chemical, physical and biological properties of soils. The students of this course should also possess a basic knowledge of math and chemistry and environmental biology. College algebra, pre-calculus and/or any introductory math course should provide the students with basic math requirement for this course. A general chemistry courses such CH 102/CH 102L and environmental biology (BI 100) should provide necessary chemistry and biology background for the students of this course. Since the aforementioned courses are the pre-requisite for the AGINS 280 (principal of soil science) therefore the students who take AG 380 should already be equipped with an appropriate background for this course.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

1. List environmental assessment and soil contaminants measuring techniques and analysis.
2. Define the processes and impacts of soil erosion (water, wind).
3. Explain the soil conservation techniques for controlling soil erosion
4. Explain to mange to soil fertility and productivity while maintaining the environmental integrity.
5. Identify the techniques that are used for bioremediation of contaminated soils
6. Explain how soil can be managed to filter out contaminants before they reach the groundwater.

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Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

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(See Instructor)

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COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG 484 Tropical Vegetable Production
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

This course covers topics related to the vegetable crop production in the tropics. Topics include botany and classification of vegetable, crop production and management systems, plant growth and development influenced by genetics and environment factors, vegetable variety development and testing, and vegetable seed production technology. This course meets for three hours lecture and three hours laboratory weekly. Prerequisite: AG281.

3. COURSE CONTENT:

This course will provide students the overview of science and technology dealing with vegetable crops. Topics will include vegetables in human nutrition, origin, domestication and classification of vegetables, genetic and environmental factors influencing the growth and development of vegetables, variety development and testing, vegetable seed production technology, seed quality testing, crop management, soil management, water management, post-harvest technology for vegetables, and economics of vegetable production in the tropics. Economically and culturally important crops on Guam and other tropical islands of the Pacific will be emphasized.

4. RATIONALE FOR OFFERING COURSE:

This course serves as an elective upper division horticulture course for all majors in the Agriculture Degree Program and Agriculture Secondary Education Degree Program. It is the applied horticulture science and technology course for all students in the field of general agriculture, horticultural science, extension horticulture, secondary education in plant sciences, agribusiness, environmental science, conservation and ethnobotany.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

AG 281 and other plant science and biology courses

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

1. Student will describe classification of vegetable crops.
2. Student will describe growth habit and adaptation of vegetable crops
3. Student will identify important vegetable crops produced in Guam, in US and in the world.
4. Student will demonstrate growing vegetables using general crop production skills including land preparation, planting, irrigation, fertilizer application, pest control, harvest, and post harvest handling.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

12. EVALUATION AND GRADES (SEE INSTRUCTOR):

13. COURSE POLICIES (SEE INSTRUCTOR):

14. SPECIAL NEEDS:

"If you are a student with a disability who will require a accommodation(s) to participate in this course, please contact me or the Institutional Compliance Officer privately to discuss your specific needs. You will need to provide me with documentation concerning your need for accommodation(s) from the EEO/ADA and TITLE IX Office. If you have not registered with the EEO/ADA and Title IX Office, you should do so immediately at 735-2244, (TTY) 735-2243 to coordinate your accommodation request."

15. CALENDAR OR SCHEDULE (SEE INSTRUCTOR):

16. DROP DATES:

University policy sets the drop dates. See the semester schedule of courses.

17. STUDENT WORK LOAD (SEE INSTRUCTOR):

18. SUPPLEMENTARY MATERIALS/ADDITIONAL RESOURCES (SEE INSTRUCTOR):

19. CONTACT INFORMATION FOR CLASSMATES:

Exchange contact info with at least one classmate. Contact your classmate(s) if you miss class or if you want to form a study group.

[1]**BASED ON DR. BARBARA GROSS DAVIS, UC BERKELEY MODEL "CREATING A SYLLABUS".** From the hard copy book *Tools for Teaching* by Barbara Gross Davis; Jossey-Bass Publishers: San Francisco, 1993. Linking to this book chapter from other websites is permissible. However, the contents of this chapter may not be copied, printed, or distributed in hard copy form without permission. For a more detailed explanation on each numbered section of the syllabus, please visit: http://teaching.berkeley.edu/bgd/syllabus.html.

[2]Program SLOs:

BS Agriculture goals include the following:

1. TECHNICAL KNOWLEDGE. Graduates will gain the theoretical and practical scientific knowledge needed for continued effective and sustainable crop production, as well as

the information and subject-matter mastery required for exercising wise judgment in dealing with complex issues in resource management and conservation. And, it must be instilled that education is a life-long pursuit.

2. PROFESSIONAL AND COMMUNICATION SKILLS. Students will develop the human and technical skills needed to function in the forefront of an increasingly complex and competitive society: oral and written communication, and leadership skills, and the critical, integrative thinking capacity supports competent problem solving and decision making.

3. TECHNOLOGICAL LITERACY: Graduates are competent at applying technological skills to their chosen work. They are also competent in the use of analog and digital equipment used in modern agricultural systems. Graduates effectively judge the usefulness and appropriateness of existing and new technologies in their professional endeavors.

4. PERSPECTIVE. The graduate should have a holistic perspective of agriculture; an appreciation of agriculture as a highly sophisticated, integrated system that operates within a political environment and on a global scale. He/she must be able to visualize what makes the whole work, and understand the responsibilities of the agronomist within the system with respect to production of an abundant, safe, and nutritious food supply within the context of wise management of natural resources.

5. ETHICS/VALUES. The curriculum should lead students in development of an appreciation of ethical resource management responsibilities in regional, national and world social and economic contexts. It must instill awareness for sustainable management of energy, soil, water, wildlife and other natural resources.

6. DIVERSITY. For society to function effectively and justly for each person, graduates must appreciate the richness that our diverse backgrounds and philosophies bring to the whole. Understanding of and appreciation for the political, cultural, and religious opinions and practices of others is the hallmark of an educated person.

7. ANALYTIC SKILLS. Graduates are competent at collecting, organizing, analyzing, interpreting and presenting quantitative and qualitative data in agricultural science.

UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG 484 Tropical Vegetable Production
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

This course covers topics related to the vegetable crop production in the tropics. Topics include botany and classification of vegetable, crop production and management systems, plant growth and development influenced by genetics and environment factors, vegetable variety development and testing, and vegetable seed production technology. This course meets for three hours lecture and three hours laboratory weekly. Prerequisite: AG281.

3. COURSE CONTENT:

This course will provide students the overview of science and technology dealing with vegetable crops. Topics will include vegetables in human nutrition, origin, domestication and classification of vegetables, genetic and environmental factors influencing the growth and development of vegetables, variety development and testing, vegetable seed production technology, seed quality testing, crop management, soil management, water management, post-harvest technology for vegetables, and economics of vegetable production in the tropics. Economically and culturally important crops on Guam and other tropical islands of the Pacific will be emphasized.

4. RATIONALE FOR OFFERING COURSE:

This course serves as an elective upper division horticulture course for all majors in the Agriculture Degree Program and Agriculture Secondary Education Degree Program. It is the applied horticulture science and technology course for all students in the field of general agriculture, horticultural science, extension horticulture, secondary education in plant sciences, agribusiness, environmental science, conservation and ethnobotany.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

AG 281 and other plant science and biology courses

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

1. Student will describe classification of vegetable crops.
2. Student will describe growth habit and adaptation of vegetable crops
3. Student will identify important vegetable crops produced in Guam, in US and in the world.
4. Student will demonstrate growing vegetables using general crop production skills including land preparation, planting, irrigation, fertilizer application, pest control, harvest, and post harvest handling.

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

10. ADDITIONAL MATERIALS OR EQUIPMENT (SEE INSTRUCTOR):

11. ASSIGNMENTS, TERM PAPERS AND EXAMS (SEE INSTRUCTOR):

12. EVALUATION AND GRADES (SEE INSTRUCTOR):

13. COURSE POLICIES (SEE INSTRUCTOR):

14. SPECIAL NEEDS:

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15. CALENDAR OR SCHEDULE (SEE INSTRUCTOR):

16. DROP DATES:

University policy sets the drop dates. See the semester schedule of courses.

17. STUDENT WORK LOAD (SEE INSTRUCTOR):

18. SUPPLEMENTARY MATERIALS/ADDITIONAL RESOURCES (SEE INSTRUCTOR):

19. CONTACT INFORMATION FOR CLASSMATES:

Exchange contact info with at least one classmate. Contact your classmate(s) if you miss class or if you want to form a study group.

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[2]Program SLOs:

BS Agriculture goals include the following:

1. TECHNICAL KNOWLEDGE. Graduates will gain the theoretical and practical scientific knowledge needed for continued effective and sustainable crop production, as well as

the information and subject-matter mastery required for exercising wise judgment in dealing with complex issues in resource management and conservation. And, it must be instilled that education is a life-long pursuit.

2. PROFESSIONAL AND COMMUNICATION SKILLS. Students will develop the human and technical skills needed to function in the forefront of an increasingly complex and competitive society: oral and written communication, and leadership skills, and the critical, integrative thinking capacity supports competent problem solving and decision making.

3. TECHNOLOGICAL LITERACY: Graduates are competent at applying technological skills to their chosen work. They are also competent in the use of analog and digital equipment used in modern agricultural systems. Graduates effectively judge the usefulness and appropriateness of existing and new technologies in their professional endeavors.

4. PERSPECTIVE. The graduate should have a holistic perspective of agriculture; an appreciation of agriculture as a highly sophisticated, integrated system that operates within a political environment and on a global scale. He/she must be able to visualize what makes the whole work, and understand the responsibilities of the agronomist within the system with respect to production of an abundant, safe, and nutritious food supply within the context of wise management of natural resources.

5. ETHICS/VALUES. The curriculum should lead students in development of an appreciation of ethical resource management responsibilities in regional, national and world social and economic contexts. It must instill awareness for sustainable management of energy, soil, water, wildlife and other natural resources.

6. DIVERSITY. For society to function effectively and justly for each person, graduates must appreciate the richness that our diverse backgrounds and philosophies bring to the whole. Understanding of and appreciation for the political, cultural, and religious opinions and practices of others is the hallmark of an educated person.

7. ANALYTIC SKILLS. Graduates are competent at collecting, organizing, analyzing, interpreting and presenting quantitative and qualitative data in agricultural science.

UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS[1]

1. BASIC INFORMATION (SEE INSTRUCTOR):

(1) Semester/year:_____
(2) Course: AG 486 Ornamental Crop Production in the Tropics
(3) Class Meeting:_____
(4) Instructor:_____
(5) Office:_____
(6) Phone:_____
(7) Email:_____
(8) Fax Number:_____
(9) Office Hours:_____

2. CATALOG COURSE DESCRIPTION:

This course covers topics related to the production of ornamental plants in the tropics. Lectures cover the propagation, management and post-harvest handling of specific crops. Laboratories include plant identification and demonstrations of topics covered in lectures. It meets for three hours lecture and three hours laboratory weekly. Prerequisite: AG 281

3. COURSE CONTENT:

This course provides students an overview of the art, science and technology of propagating and growing ornamental plants. Topics include propagation, growing and finishing potted and nursery plants. Cultivar selection, nursery management, irrigation, structures, and plant identification are also covered. Crops most suited to the tropics will be emphasized. Native plants with ornamental value will be covered. Use of computers will be an integral part of the course including observing web pages and production of printed materials with desktop publishing.

4. RATIONALE FOR OFFERING COURSE:

The course is an elective upper division horticulture course for all majors in the Agriculture Degree and Agriculture Secondary Education Degree. Tourism is a major industry in the region and ornamental horticulture plays a key role. Many tourist sites have landscaping, and interiors are decorated with potted plants and cut flowers. This course integrates topics covered in other courses in the production of finished plants.

5. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

AG 281 is required. Courses in biology, crop protection and agricultural engineering are recommended.

6. LEARNING OBJECTIVES FOR STUDENTS (INTENDED STUDENT LEARNING OUTCOMES - SLOs):

Students will be able to:
1. Identify and describe common ornamental plants.
2. Develop a crop production schedule for a nursery operation
3. Describe the appropriate pretreatments for plant propagation
4. Describe and explain a mist propagation system

Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

Program SLOs[2]: See below.

7. CONCEPTUAL STRUCTURE OF THE COURSE (SEE INSTRUCTOR):

8. FORMAT AND ACTIVITIES IN THE COURSE (SEE INSTRUCTOR):

9. TEXTBOOK AND READINGS:

(See Instructor)

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