

Northern Marianas College
CURRICULUM ACTION REQUEST

Effective Semester / Session: Fall 2012

Type of Action:


- New
- Modification
- Move to Inactive (Stop Out)
- Cancellation

Course Alpha and Number: BI 141

Course Title: Plant Science

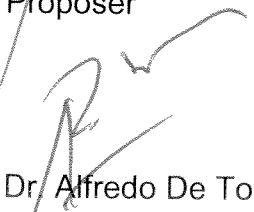
Reason for initiating, revising, or canceling:

This course guide is being modified for periodic updates.


Dr. Alfredo De Torres

Proposer

04 April 12
Date


Dr. Alfredo De Torres

Department Chair

04 April 12
Date


Barbara Meralen

Dean of Academic Programs and Services

4.10.12
Date

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Course Guide

Course: BI 141 Plant Science

1. **Department**
Sciences, Mathematics, Health and Athletics
2. **Purpose**
Plant Science focuses on the scientific discipline of plant biology. The primary target population for this course consists of students who are enrolled in the A.S. Natural Resources Management degree program. BI 141 is also recommended as a science elective to other programs.
3. **Description**
 - A. **Required/Recommended Textbook(s) and Related Materials**
Required:
Mauseth, James D. *Botany: An Introduction to Plant Biology*. 2nd ed. Sudbury, MA: Jones & Bartley Publishers, 1998.
Readability level: Grade 10

Recommended:
Whistler, W. Arthur. *Wayside Plants of the Islands: A Guide to the Lowland Flora of the Pacific Islands*. Honolulu, HI: Isle Botanica, 1995.
Readability level: Grade 10
 - B. **Contact Hours**
 1. **Lecture:** 3 hours per week / 45 hours per semester
 2. **Lab:** 3 hour per week / 45 hours per semester
 3. **Other:**
 - C. **Credits**
 1. **Number:** 4
 2. **Type:** Regular degree credits
 - D. **Catalogue Course Description**
This course introduces students to the study of living plants to illustrate the fundamental principles of plant ecology. Topics will cover cellular organization, photosynthesis, respiration, growth and development, reproduction, mineral nutrition and water absorption. Laboratory and field trips are required. English Placement Level: EN 093/094. Math Placement Level: MA 091; or consent/ permission of instructor (COI).

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E. Degree or Certificate Requirements Met by Course

A grade of "C" or higher in this course fulfills an elective requirement for the A.S. degree in Natural Resources Management and it also satisfies the science elective option for other programs.

F. Course Activities and Design

This course incorporates lectures, guest speakers, audiovisual presentations, student oral presentations, take-home and web-based assignments, a plant collection, periodic quizzes, exams, and a comprehensive final exam. Students will be required to participate fully in all class activities.

4. Course Prerequisite(s); Concurrent Course Enrollment; Required English/Mathematics Placement Level(s)

Prerequisite(s): None

English Placement Level: EN 093/094

Math Placement Level: MA 091 or consent/permission of instructor (COI)

5. Estimated Cost of Course; Instructional Resources Needed

Cost to the Student: Tuition for a 4-credit course; cost of the textbooks; lab fee; and instructional materials fee.

Cost to the College: Instructor's salary.

Instructional resources needed for this course include classroom and laboratory space, chalkboard/whiteboard and supplies, TV/VCR, videotaped programs, digital camera, video flex camera attachment for microscopes, stereo and compound microscopes, microscope slides and cover slips, overhead projector and transparencies, slide projector, multimedia projector, pruners, soil probes, shovels, buckets, field implements, plastic bags, glassware and basic laboratory supplies

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6. Method of Evaluation

Student grades will be based on the regular letter grade system as described below:

- A: Excellent – grade points: 4.0;
- B: Above average – grade points: 3.0;
- C: Average – grade points: 2.0;
- D: Below average – grade points: 1.0;
- F: Failure – grade points: 0.0.

NMC's grading and attendance policies will be followed.

Student learning will be evaluated on the basis of class participation, oral presentations, assignments, class project, lab/field trip reports, quizzes, exams, and a comprehensive final exam.

7. Course Outline

This is a topical outline and does not necessarily indicate the sequence in which the material will be presented.

- 1.0 Plants and People
 - 1.1 Introduction to plants and our environment
 - 1.2 Plants and human health
 - 1.3 Scientific method
 - 1.4 Principles of Chemistry

- 2.0 Plant Structure
 - 2.1 Cell structure
 - 2.2 Growth and division of the cell
 - 2.3 Tissues and primary growth of stems
 - 2.4 Leaves
 - 2.5 Roots
 - 2.6 Woody plants
 - 2.7 Flowers and reproduction

- 3.0 Plant Physiology
 - 3.1 Photosynthesis
 - 3.2 Respiration
 - 3.3 Transport processes
 - 3.4 Soils and mineral nutrition
 - 3.5 Development and morphogenesis
 - 3.6 Metabolism

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- 4.0 Genetics/Evolution
 - 4.1 Genetics
 - 4.2 Population genetics/evolution
 - 4.3 Classification/systematic
 - 4.4 Prokaryotes
 - 4.5 Fungi
 - 4.6 Nonvascular plants
 - 4.7 Vascular plants without seeds
 - 4.8 Gymnosperms
 - 4.9 Angiosperms

- 5.0 Ecology
 - 5.1 Populations and ecosystems
 - 5.2 Biomes

8. **Instructional Goals**

This course will introduce students to:

- 1.0 The influence of plant on our planet, environment, and society;
- 2.0 The organs of plants and their functions;
- 3.0 Physiological processes of plants and their functions;
- 4.0 The basics of genetics and evolution;
- 5.0 Classifications and systematics of plant; and
- 6.0 Current plant science research areas.

9. **Student Learning Outcomes**

Upon successful completion of this course, students will be able to:

- 1.0 Demonstrate an understanding of the influence of plants on our planet, environment, and society;
- 2.0 Identify and characterize the organs of plants and their functions;
- 3.0 Identify and describe the physiological processes and their functions;
- 4.0 Discuss the basics of genetics and evolution;

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- 5.0 Scientifically classify plants; and
- 6.0 Identify and discuss the most current plant science research areas.

10. Assessment Measures

Assessment of student learning may include, but not be limited to, the following:

- 1.0 Students are evaluated through classroom participation, quizzes, mid- term test, and final exam, researched written reports, and researched multimedia presentations, recitations and cooperative participation, homework or assignments, and projects.