University of Hawai‘i Articulation Agreement
Leeward Community College and the
University of Hawai‘i at Mānoa, College of Tropical Agriculture and Human Resources

Associate in Arts (AA) Degree with Academic Subject Certificate in
Plant Bioscience Technology (PBT)

With

Bachelor of Science (BS) in Tropical Plant and Soil Sciences (TPSS)
with Specializations in:
Tropical Landscape Horticulture
Genetics and Physiology
Environmental Soil Sciences
Plant Production and Management

Bachelor of Science (BS) in Plant and Environmental Protection Sciences (PEPS)

The purpose of this Agreement is to facilitate the transfer of students who complete the Associate in Arts (AA) degree with an Academic Subject Certificate (ASC) in Plant Bioscience Technology at Leeward Community College (CC) to the University of Hawai‘i at Mānoa (UHM), College of Tropical Agriculture and Human Resources (CTAHR). Students who complete the Associate in Arts (AA) degree with an Academic Subject Certificate (ASC) in Plant Bioscience Technology under the terms of this Agreement may transfer as classified students to the University of Hawai‘i at Mānoa Bachelor of Science (BS) in Tropical Plant and Soil Sciences with Specializations in ①Tropical Landscape Horticulture, ②Genetics and Physiology, ③Environmental Soil Sciences, and/or ④Plant Production and Management. Students may also choose to transfer as classified students to the University of Hawai‘i at Mānoa Bachelor of Science (BS) in Plant and Environmental Protection Sciences. Existing requirements for the AA with ASC and the BS degrees are provided as attachments, and form the basis for this Agreement. Subsequent changes to the curricular requirements of any program may require revisions to this Agreement.

Students who complete the Associate in Arts (AA) degree with an Academic Subject Certificate (ASC) in Plant Bioscience Technology at Leeward Community College according to the current Leeward Community College Catalog are eligible for admission to the University of Hawai‘i at Mānoa, per Executive Policy E5.209. In order to maximize the number of credits that will meet the Bachelor of Science in Tropical Plant and Soil Sciences with Specializations **or** Plant and Environmental Protection Sciences, students interested in pursuing these programs should consult the University of Hawai‘i at Mānoa, College of Tropical Agriculture and Human Resources (CTAHR) program requirements and complete courses at Leeward CC that would fulfill the UHM requirements. Articulated Plant Bioscience Technology courses noted in the table on the next page are accepted as meeting the requirements of UHM CTAHR TPSS or PEPS programs.

This Agreement is effective beginning Fall 2012 through Spring 2017, and is based on UHM's General Education and Focus requirements in effect in the Spring 2012 semester.

The University of Hawai'i at Mānoa agrees to allow students who have completed the Associate in Arts (AA) degree with an Academic Subject Certificate (ASC) in Plant Bioscience Technology under the University of Hawai'i at Mānoa, College of Tropical Agriculture and Human Resources (CTAHR) Tropical Plant and Soil Sciences (TPSS) with Specializations **or** Plant and Environmental Protection Sciences (PEPS) to complete the UHM's coursework as follows:

Tropical Plant and Soil Sciences (TPSS)

*UH Mānoa requirements are those in effect for the 2011-2012 academic year. Students are advised to consult future UH Mānoa catalogs to determine if changes have been made to any requirements.

University of Hawai'i at Mānoa **College of Tropical Agriculture and Human Resources (CTAHR)** UHM courses in *Italics and **Bold*** have no Leeward CC equivalent and must be taken at UHM	**Leeward Community College** Leeward CC courses in *Italics and **Bold*** may be taken as part of the AA requirement.
UHM General Education Core Requirements (three credits each, unless noted otherwise):	Students who complete their AA degree will have fulfilled all General Education requirements for a Bachelor of Science in Tropical Plant and Soil Sciences with Specializations core.
A. Foundations (1) FW = Written Communication (ENG 100) (2) FS = Symbolic Reasoning (MATH 100); for Environmental Soils Science, MATH 215 (3) FG = Global & Multicultural Perspective (A/ B/ C), first course (4) FG = Global & Multicultural Perspective (A/ B/ C), second course	(1) FW = ENG 100 Expository Writing (2) FS = MATH 103 College Algebra (recommend MATH 140 Pre-Calculus: Trigonometry and Analytic Geometry) (3) FG = three credits required, first course (4) FG = three credits required, second course from a different category
B. Diversification (1) DA/DH/DL = Arts, Humanities, & Literature, first course (2) DA/DH/DL = Arts, Humanities, & Literature, second course (3) DB = BOT 101 (3 credits) (4) DP = CHEM 161 (3 credits) DP = CHEM 162 (3 credits) (5) DY = BOT 101L (1 credit) DY = CHEM 161L (1 credit) DY = CHEM 162L (1 credit) (6) DS = Social Sciences, first course (7) DS = Social Sciences, second course	(1) DA/DH/DL = three credits required, first course (2) DA/DH/DL = three credits required, second course from a different group (3) DB = BOT 101 Botany (3 credits) **OR** BIOL 171 Intro to Biology (3 credits) (4) DP = CHEM 161B General Chemistry I (4 credits) (5) DY = BOT 101L Botany Lab **OR** BIOL 171L Intro to Biology Lab (1 credit) (6) DS = three credits required, first course (7) DS = three credits required, second course from a different discipline

Tropical Plant and Soil Sciences (TPSS)

*UH Mānoa requirements are those in effect for the 2011-2012 academic year. Students are advised to consult future UH Mānoa catalogs to determine if changes have been made to any requirements.

University of Hawai'i at Mānoa **College of Tropical Agriculture and Human Resources (CTAHR)** UHM courses in *Italics and* ***Bold*** have no Leeward CC equivalent and must be taken at UHM	**Leeward Community College** Leeward CC courses in *Italics and* ***Bold*** may be taken as part of the AA requirement.
UHM Graduation Requirements	
C. Focus (1) H = Hawaiian, Asian & Pacific (2) E = Contemporary Ethical Issues (300+) (3) O = Oral Communications (300+)	 (1) H = one of the courses above designated "H" (2) -- (3) --
Writing Intensive (W) (1) First 100 or 200-level course (2) Second 100 or 200-level course (3) TPSS 200W, Tropical Crop Science, third course (4) Fourth course, first 300+-level course (5) Fifth course, ***TPSS 492W***, Internship, second 300+-level course	Writing Intensive (W) (1) First 100 or 200-level course (2) Second 100 or 200-level course (3) Third 100 or 200-level course (4) – (5) --
D. Hawaiian/Second Language Alternative Any four (4)-course combination of Language, Natural Science, and Social Science (with a maximum of two Social Science courses) (1) First course (2) Second course (3) Third course (4) Fourth course	
E. Credit Minimums (1) 124 total applicable (2) 30 in residence at UHM	
F. Grade Point Average (GPA) (1) 2.0 cumulative or higher (2) Good academic standing	
College of Tropical Agriculture and Human Resources Requirements	
G. CTAHR Required Set of Interrelated Courses (1) ***FAMR 380**^{DS}&380L*** Research Methodology (4 credits) **OR** ***NREM 310*** Statistics in Agriculture (3 credits) (2) ***TPSS 492W*** Internship (4 credits)	
H. Credit Minimums (1) 128 total applicable (2) 60 non-introductory	

Tropical Plant and Soil Sciences (TPSS)

*UH Mānoa requirements are those in effect for the 2011-2012 academic year. Students are advised to consult future UH Mānoa catalogs to determine if changes have been made to any requirements.

University of Hawai'i at Mānoa **College of Tropical Agriculture and Human Resources (CTAHR)** UHM courses in *Italics and* ***Bold*** have no Leeward CC equivalent and must be taken at UHM	**Leeward Community College** Leeward CC courses in *Italics and* ***Bold*** may be taken as part of the AA requirement.
Tropical Plant and Soil Sciences Major Requirements	**Plant Bioscience Technology Required Program Courses**
①Tropical Landscape Horticulture	***PBT 100*** Orientation to HI's Ag Industry (1 credit) ***PBT 141*** Integrated Pest Management (3 credits) ***PBT 275*** Introduction to Crop Improvement (4 credits) ***PBT 290B/C/D/E*** Plant Bioscience Tech Internship (1-4 credits) ***ICS 100*** Computing Literacy and Applications (3 credits)
I. Group A: Fundamental courses (take all seven) (1) TPSS 200 W Tropical Crop Science (2) ***TPSS 304*** Fundamentals of Soil Sciences (4 credits) (3) ***TPSS 351*** Enterprise Management (4) ***TPSS 463*** Irrigation & Water Management (5) ***TPSS 481*** Weed Science (6) ***PEPS 363*** General Entomology (3 credits) and Lab (1 credit) (7) ***PEPS 405*** Plant Pathogens & Diseases (4 credits)	This PBT course is accepted as meeting the requirements of a UHM CTAHR course at left: (1) PBT 200 Introduction to Plant Science (3 credits) (2) – (3) – (4) – (5) – (6) – (7) --
J. Group B: Production & Management courses (seven courses from Groups B and C, with a minimum of two courses from Group B) (1) TPSS 364 Horticulture Practices (2 credits) (2) See Advising Checklist for Tropical Landscape Horticulture Specialization courses.	These PBT courses are accepted as meeting the requirements of a UHM CTAHR course at left: (1) PBT 200L Introduction to Plant Science (1 credit) **and** PBT 264 Introduction to Horticulture and Plant Propagation (3 credits) (2) --
K. Group C: Design & Practice courses (1) See Advising Checklist for Tropical Landscape Horticulture Specialization courses.	

Tropical Plant and Soil Sciences (TPSS)

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University of Hawai'i at Mānoa College of Tropical Agriculture and Human Resources (CTAHR) UHM courses in *Italics and* ***Bold*** have no Leeward CC equivalent and must be taken at UHM	**Leeward Community College** Leeward CC courses in *Italics and* ***Bold*** may be taken as part of the AA requirement.
②Genetics and Physiology	This PBT course is accepted as meeting the requirements of a UHM CTAHR course at left:
I. Group A: Fundamental courses (take both) (1) TPSS 200 W Tropical Crop Science (2) ***TPSS 351*** Enterprise Management)	 (1) PBT 200 Introduction to Plant Science (3 credits) (2) --
J. Group B: Genetics & Physiology courses (12 courses from Groups B and C, with a minimum of 4 courses from Group B) (1) TPSS 371 Genetics: Theory to Application (3 credits) (2) See Advising Checklist for Genetics and Physiology Specialization courses.	This PBT course is accepted as meeting the requirements of a UHM CTAHR course at left: (1) PBT 275 Introduction to Crop Improvement (4 credits) (2) --
K. Group C: Supporting courses (1) See Advising Checklist for Genetics and Physiology Specialization courses.	
③Environmental Soil Sciences	This PBT course is accepted as meeting the requirements of a UHM CTAHR course at left:
I. Major Requirements (take all) (1) TPSS 200 W Tropical Plant Science (3 credits) (2) ***TPSS 300*** Tropical Crop Production Systems (4 credits) (3) ***TPSS 304*** Fundamentals of Soil Science (4 credits) (4) ***TPSS 351*** Enterprise Management (5) ***TPSS 435*** Environmental Soil Chemistry (6) ***TPSS 450*** Nutrient Mgmt Soils & Plants (7) ***NREM 301*** Natural Resource Management	 (1) PBT 200 Introduction to Plant Science (3 credits) (2) – (3) – (4) – (5) – (6) – (7) --
J. Twelve (12) elective credits (1) GEOG 101/101L The Natural Environment (2) ICS 101/101L Tools for the Computer Age (3) See Advising Checklist for Environmental Soil Sciences Specialization courses.	 (1) DP = GEOG 101 (3 credits) DY = GEOG 101L (1 credit) (2) ICS 101 Digital Tools for the Information World **OR** BUS 101 Business Computer Systems (3 credits) (3) --

Tropical Plant and Soil Sciences (TPSS)

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University of Hawai'i at Mānoa College of Tropical Agriculture and Human Resources (CTAHR) UHM courses in *Italics and **Bold*** have no Leeward CC equivalent and must be taken at UHM	**Leeward Community College** Leeward CC courses in *Italics and **Bold*** may be taken as part of the AA requirement.
④Plant Production & Management	These PBT courses are accepted as meeting the requirements of UHM CTAHR courses on the left:
I. Group A: Fundamental courses (take all 8)	
(1) TPSS 200 W Tropical Crop Science (3 credits)	(1) PBT 200 Introduction to Plant Science (3 credits)
(2) ***TPSS 300*** Tropical Crop Production Systems (4 credits)	(2) --
(3) ***TPSS 304*** Fundamentals of Soil Science (4 credits)	(3) --
(4) ***TPSS 351*** Enterprise Management (3 credits)	(4) --
(5) TPSS 364 Horticulture Practices (2 credits)	(5) PBT 200L Introduction to Plant Science Lab (1 credit) **and** PBT 264 Introduction to Horticulture and Plant Propagation (3 credits)
(6) ***PEPS 363*** General Entomology (3 credits)	(6) --
(7) ***PEPS 363L*** General Entomology Lab (1 credit)	(7) --
(8) ***PEPS 405*** Plant Pathogens & Disease (4 credits)	(8) --
J. Group B: Production courses (take 2 or more)	
(1) See Advising Checklist for Plant Production & Management Specialization courses.	
K. Group C: Supporting courses (take 2 or more)	
(1) See Advising Checklist for Plant Production & Management Specialization courses	
L. Group D: Elective courses	
(1) See Advising Checklist for Plant Production & Management Specialization courses	

Plant and Environmental Protection Sciences (PEPS)

*UH Mānoa requirements are those in effect for the 2011-2012 academic year. Students are advised to consult future UH Mānoa catalogs to determine if changes have been made to any requirements.

University of Hawai'i at Mānoa College of Tropical Agriculture and Human Resources (CTAHR) UHM courses in *Italics and **Bold*** have no Leeward CC equivalent and must be taken at UHM	**Leeward Community College** Leeward CC courses in *Italics and **Bold*** may be taken as part of the AA requirement.
UHM General Education Core Requirements (three credits each, unless noted otherwise):	Students who complete their AA degree will have fulfilled all General Education requirements for a Bachelor of Science in Plant and Environmental Protection Sciences core.
A. Foundations (1) FW = Written Communication (ENG 100) (2) FS = Symbolic Reasoning (MATH 100 (See UHM Catalog for list of other courses) See the UHM Catalog and follow the requirements for: (3) FG = Global & Multicultural Perspective (A/ B/ C), first course (4) FG = Global & Multicultural Perspective (A/ B/ C), second course	(1) FW = ENG 100 Expository Writing (2) FS = MATH 103 College Algebra (recommend MATH 140 Pre-Calculus: Trigonometry and Analytic Geometry) (3) FG = three credits required, first course (4) FG = three credits required, second course from a different category
B. Diversification (1) DA/DH/DL = Arts, Humanities, & Literature, first course (2) DA/DH/DL = Arts, Humanities, & Literature, second course (3) DB = BIOL 171 (3 credits) **OR** DB = BOT 101 (3 credits) **OR** DB = ZOOL 101 (3 credits) (4) DP = CHEM 161 (3 credits) **AND** DP = CHEM 162 (3 credits) (5) DB = PEPS 210 or PEPS 250 (3 credits) (6) DY = BIOL 171L (1 credit) **OR** DY = BOT 101L (1 credit) **OR** DY = ZOOL 101L (1 credit) **AND** DY = CHEM 161L (1 credit) **AND** DY = CHEM 162L (1 credit) (7) DS = Social Sciences, first course (8) DS = Social Sciences, second course, different department	(1) DA/DH/DL = three credits required, first course (2) DA/DH/DL = three credits required, second course from a different group (3) DB = BIOL 171 Intro to Biology (3 credits) **OR** DB = BOT 101 Botany (3 credits) (4) DP and DY = CHEM 161B General Chemistry I (4 credits) (5) DB = -- (6) DY = BIOL 171L Intro to Biology Lab (1 credit) **OR** DY = BOT 101L Botany Lab (1 credit) Noted above #(4) DY and DP= CHEM 161B General Chemistry I (4 credits) (7) DS = three credits required, first course (8) DS = three credits required, second course from a different discipline
UHM Graduation Requirements	
C. Focus (1) H = Hawaiian, Asian & Pacific (2) E = Contemporary Ethical Issues (300+) (3) O = Oral Communications (300+)	(1) H = one of the courses above designated "H" (2) -- (3) --

Plant and Environmental Protection Sciences (PEPS)

*UH Mānoa requirements are those in effect for the 2011-2012 academic year. Students are advised to consult future UH Mānoa catalogs to determine if changes have been made to any requirements.

University of Hawai'i at Mānoa **College of Tropical Agriculture and Human Resources (CTAHR)** UHM courses in *Italics and* ***Bold*** have no Leeward CC equivalent and must be taken at UHM	**Leeward Community College** Leeward CC courses in *Italics and* ***Bold*** may be taken as part of the AA requirement.
Writing Intensive (W) (1) First 100 or 200-level course (2) Second 100 or 200-level course (3) Third 100 to 200-level course (4) Fourth course, first 300+-level course (5) Fifth course, second 300+-level course	Writing Intensive (W) (1) First 100 or 200-level course (2) Second 100 or 200-level course (3) Third 100 or 200-level course (4) – (5) --
D. Hawaiian/Second Language – choose <u>one</u> option (1) Show proficiency at the 202 level in a language (2) Show proficiency at the 102 level in a language and take an additional Social Science course and a Natural Science course. (3) Take an additional two Social Science courses and two Natural Science courses	
E. Credit Minimums (1) 124 total applicable (2) 30 in residence at UHM	
F. Grade Point Average (GPA) (1) 2.0 cumulative or higher (2) Good academic standing	
College of Tropical Agriculture and Human Resources Requirements	
G. CTAHR Required Set of Interrelated Courses (1) ***FAMR 380****^{DS}&***380L*** Research Methodology (4 credits) **OR** ***NREM 310*** Statistics in Agriculture (3 credits) (2) PEPS 495 Internship (4 credits)	
H. Credit Minimums (1) 128 total applicable (2) 60 non-introductory	

Plant and Environmental Protection Sciences (PEPS)

*UH Mānoa requirements are those in effect for the 2011-2012 academic year. Students are advised to consult future UH Mānoa catalogs to determine if changes have been made to any requirements.

University of Hawai'i at Mānoa **College of Tropical Agriculture and Human Resources (CTAHR)** UHM courses in *Italics and* ***Bold*** have no Leeward CC equivalent and must be taken at UHM	**Leeward Community College** Leeward CC courses in *Italics and* ***Bold*** may be taken as part of the AA requirement.
Plant and Environmental Protection Sciences Required Courses	**Plant Bioscience Technology Required Program Courses** ***PBT 100*** Orientation to HI's Ag Industry (1 credit) ***PBT 141*** Integrated Pest Management (3 credits) ***PBT 275*** Introduction to Crop Improvement (4 credits) ***PBT 290B/C/D/E*** Plant Bioscience Tech Internship (1-4 credits) ***ICS 100*** Computing Literacy and Applications (3 credits)
I. Related Requirements (12 credits) (1) BIOL 171 DB BIOL 171L DY **OR** BOT 101 DB BOT 101L DY **OR** ZOOL 101 DB ZOOL 101L DY (2) CHEM 161 DP CHEM 161L DY (3) CHEM 162 DP CHEM 162L DY	(1) DB = BIOL 171 Introduction to Biology (3 credits) DY = BIOL 171L Intro to Biology Lab (1 credit) **OR** DB = BOT 101 Botany (1 credit DY = BOT 101L Botany Lab (1 credit) (2) DP & DY = CHEM 161B General Chemistry I (4 credits) (3) --
J. Core courses (36 credits) (1) See Advising Checklist for Plant and Environmental Protection Sciences courses.	
K. Additional courses from PEPS 200-399 (2 courses) (1) PEPS 310 Environmental Agriculture (3 credits) (2) PEPS 371 Genetics: Theory to Application (3 credits) (3) See Advising Checklist for Plant Environmental Protection Services courses.	These PBT courses are accepted as meeting the requirements of UHM CTAHR courses at left: (1) PBT 141 Integrated Pest Management (3 credits) (2) PBT 275 Introduction to Crop Improvement (4 credits) (3) --
L. Additional credits from PEPS 400-499 (9 credits)	

This Agreement will remain in effect until July 2017. It will be subject to review in July 2016 and may be continued, revised, or discontinued with the consent of all faculty and administrators of all campuses represented in this Agreement.

University of Hawai'i at Mānoa

Virginia S. Hinshaw, Chancellor

Reed Dasenbrock, Vice Chancellor for Academic Affairs

Sylvia Yuen, Interim Dean and Director, College of Tropical Agriculture and Human Resources

Charles M. Kinoshita, Associate Dean, Academic & Student Affairs

Robert E. Paull, Department Chair, Tropical Plant and Soil Sciences

Kenneth W. Leonhardt, Specialist, TPSS

Brent S. Sipes, Department Chair, Plant and Environmental Protection Sciences

Mark Wright, Associate Specialist, PEPS

Janice Y. Uchida, Departmental Undergraduate Advisor, PEPS

Leeward Community College

Manuel J. Cabral, Chancellor

Michael H. Pecsok, Vice Chancellor and Chief Academic Officer

James Goodman, Dean, Arts and Sciences

Janice Ito, Chair
Math and Science Division

Kabi R. Neupane, Associate Professor
Biology

ASSOCIATE IN ARTS DEGREE (Minimum 60 credits) **Attachment A**

Academic Subject Certificate (Minimum 27 credits)

Effective Fall 2012

In order to obtain the Plant Bioscience Technology Program Academic Subject Certificate (minimum 27 credits—highlighted courses) and Associate in Arts degree (minimum 60 credits), students must pass all **required** BIOL, CHEM, ICS, and PBT, courses with a grade of C or better.

General Education Requirements (32 credits)
Foundation and Diversification Core

Foundation Requirements (12 credits)

Written Communication (FW) ....._____(3)
ENG 100 Composition I
Symbolic Reasoning (FS) ....._____(3)
MATH 103 College Algebra
Highly Recommend MATH 140 for UHM CTARH, TPSS Progm.
Global Multicultural Perspectives (FG)....._____(6)
Two (2) courses, each from a different group. See current catalog for courses.

Group A	Group B	Group C
ANTH 151	ART 176	GEOG 151
ART 175	HIST 152	MUS 107
HIST 151	ANTH 152	REL 150

Diversification Requirements (20 credits)

Arts, Humanities, and Literature..... _____(6)
Six (6) total credits required; select two (2) courses, each from a different group. See current catalog for courses.
Diversification Arts (DA)....._____(3) and/or
Diversification Literature (DL) ....._____(3) and/or
Diversification Humanities (DH)....._____(3)

Diversification Social Sciences (DS)....._____(6)
Six (6) total credits required from two (2) different disciplines. See current catalog for courses in AMST, ANTH, ECON, FAMR, GEOG, IS, POLS, PSY, SOC, WS, etc.

Natural Sciences ..... _____(8)
Two (2) courses required for a total of 7-8 credits. One (1) course from Biological Science (DB) and one (1) course from Physical Science (DP); one (1) of the courses must include a lab (DY)
BIOL 101 Biology for Non-majors ..... _____(4)
[not recommended if you are transferring to a four-year university] = DB & DY
Or BIOL 171 & 171L Introduction to Biology (4) = DB & DY
Or BOT 101 & 101L Botany (4) = DB & DY
CHEM 151B Elementary Survey of Chemistry.... _____(4)
[not recommended if you are transferring to a four-year university] = DP
Or CHEM 161B General Chemistry (4) = DP & DY

Graduation Requirements (3 credits)

Oral Communication (3 credits)
Oral Communication....._____(3)
COM 210HON Honors Colloquium
SP 151 Personal and Public Speech
SP 200 Speaking Skills for Prospective Teachers
SP 231 Interpretive Reading
SP 215 Principles of Effective Public Speaking

Focus Requirements (from any required courses taken)
Hawaiian, Asian, & Pacific Issues (HAP) (one course).. _____
Writing Intensive (WI) two (2) courses..... 1st course _____
2nd course _____

Elective Credits (9 credits). Recommend the following three (3) courses:

GEOG 101 Natural Environment (3) ....._____(3)
ICS 101 Digital Tools for the Information World (3) _____(3)
Or BUS 101 Business Computer Systems (3)
ACC 124 College Accounting I (3) **Or** BUSN 164 Career Success (3) **Or** MGT 125 Starting a New Business(3)..... _____(3)

Plant Bioscience Technology Requirements (16-19 credits)

PBT 100 Orientation to HI's Ag Industry
formerly BIOL 197C ....._____(1)
PBT 200 & 200L Intro to Plant Science and Lab ....._____(4)
formerly BIOL 197A & 197B
PBT 264 Introduction to Horticulture and
Plant Propagation ....._____(3)
PBT 141 Integrated Pest Management..... _____(3)
PBT 275 Introduction to Crop Improvement..... _____(4)
PBT 290B/C/D/E Plant Bioscience Tech. Internship ..._____(1-4)

Apply for the Academic Subject Certificate in Plant Bioscience Technology as soon as all 27+ credits of the highlighted courses are completed.

Tropical Plant & Soil Sciences
University of Hawaii at Manoa

Advising Checklist for Tropical Landscape Horticulture

Student Name: _____ **Mentor:** _____ **Date:** _____

List courses and/or semester taken (3 credits/course unless indicated otherwise)

I. University Core Requirements (UHM)

A. Foundations

Written Communication (ENG 100) _____
Symbolic Reasoning (MATH 100) _____
Global & Multicultural Perspectives (6 cr.) _____ _____

B. Diversification

Arts, Humanities & Literature (6 cr.) _____ _____
Social Sciences (6 cr.) _____ _____
Natural Sciences: BOT 101 and BOT 101L (1) _____ _____
CHEM 161 and CHEM 161L (1) _____ _____
CHEM 162 and CHEM 162L (1) _____ _____

C. Special Graduation

Hawaiian, Asian & Pacific (H) _____
Contemporary Ethical Issues (E) _____
Oral Communications (O) _____
Writing Intensive (W) (5 courses, 2 non-introductory) _____ _____ _____
(TPSS 200 & TPSS 492, plus 3 others) _____ _____

D. Hawaiian/Second Language alternative

Any four-course combination of Language, Natural Science, and Social Science with a maximum of 2 Social Science courses _____ _____ _____ _____

II. College Requirements (CTAHR)

____NREM 310 Statistics in Agriculture or ____FAMR 380 (3) & Lab (1) Research Methodology
____TPSS 492 W Internship (4)

III. Major Requirements (TPSS)

Group A. **Fundamental** courses (take all **7**)

____ TPSS 200 W Tropical Crop Science
____ TPSS 304 Fundamentals of Soil Science (4)
____ TPSS 351 Enterprise Management*
____ TPSS 463 Irrigation & Water Management
____ TPSS 481 Weed Science
____ PEPS 363 General Entomology (3) & Lab (1)
____ PEPS 405 Plant Pathogens & Disease (4)

Students are required to take **7** courses from Groups B and C below, with a minimum of **2** courses from Group B.

Group B. **Production & Management** courses

____ TPSS 300 Tropical Crop Production Systems (4)
____ TPSS 364 Horticulture Practices (2)
____ TPSS 402 Flower Crop Production
____ TPSS 405 Turf Management
____ TPSS 420 Plant Propagation
____ TPSS 430 Nursery Management
____ TPSS 435 Environmental Soil Science
____ TPSS 450 Nutrient Mgt. Soils & Plants (4)
____ TPSS 460 Plant Soil Atmosphere Physics

Group C. **Design & Practice** courses.

____ TPSS 322 Marketing Perishable Products* ____ TPSS 341 Agribusiness Accounting & Financial Analysis*
____ TPSS 350 Tropical Landscape Practices
____ TPSS 352 Tropical Landscape Planting, Design & Graphics Studio ____ TPSS 353 Landscape Architecture History, Theory & Practice
____ TPSS 369 Ornamental Plant materials ____ TPSS 409 Cultural Geography
____ TPSS 421 Tropical Seed Science (2) ____ TPSS 429 Spreadsheet Modeling for Business & Economic Analysis* ____ TPSS 430 Nursery Management
____ TPSS 431 Cropping Systems ____ TPSS 440 Tissue Culture & Transformation
____ TPSS 453 Plant Breeding & Genetics ____ TPSS 470 Plant Physiology (3) & Lab (1)
____ TPSS 473 Postharvest Physiology ____ TPSS 491 Experimental Topics (variable credit) ____ TPSS 499 Directed Study (variable credit) ____ ARCH 235, Computer Applications in Architecture (2) & Lab (1)
____ ARCH 241 Introduction to Urban Design
____ ART 113 Introduction to Drawing ____ BOT 448 Cognitive Ethnobotany
____ GEOG 309 Plants, People and Ecosystems ____ GEOG 328 Culture and Environment
____ SOC 301 Survey of Urban Sociology

____ Any non-introductory HNFAS, MBBE, NREM, PEPS, GEOG, BOT, ACC, BUS, CHEM or PHYS course, or any other TPSS course with approval of the undergraduate academic advisor.

* Students who complete these four courses will earn a Certificate in Agribusiness Management

Total Credit Requirement: 128 *Fall 2010*

University of Hawai'i at Mānoa
College of Tropical Agriculture and Human Resources Program Sheet 2010-2011
Bachelor of Science (BS) in Tropical Plant and Soil Sciences
Specialization: Genetics and Physiology
Admissions: Open Process: Declaration
Min. Total Credits: 128 (95 in core & major + 33 in electives)

UHM General Education Core Requirements
Foundations
❑ FW
❑ FS
❑ FG (A / B / C)
❑ FG (A / B / C)
Diversification
❑ DA / DH / DL
❑ DA / DH / DL
❑ DB
❑ DP
❑ DY
❑ DS
❑ DS
** See degree, college and major requirements for courses that can also fulfill these.*

UHM Graduation Requirements
Focus
❑ H
❑ E (300+)
❑ O (300+)
❑ W
❑ W
❑ W
❑ W (300+)
❑ W (300+)
Hawaiian / Second Language Alternative
• Any four-course combination of language, natural science, and social science (with a max. of 2 social science courses) ❑ _____ ❑ _____ ❑ _____ ❑ _____
Credit Minimums
• 124 total applicable
• 30 in residence at UHM
Grade Point Average
• 2.0 cumulative or higher
• Good academic standing

College Requirements
CTAHR Required Set of Interrelated Courses
❑ FAMR 380*DS /380L or NREM 310
❑ Internship or capstone course (TPSS 492)
Credit Minimums
• 128 total applicable
• 60 non-introductory

Tropical Plant and Soil Sciences Major Requirements
See back for major requirements. Meet regularly with your major advisor.

Major Requirements for BS in Tropical Plant and Soil Sciences	
Specialization: Genetics and Physiology	
Admission: Open	
Application: NA	
Min. major credits: 42 (54 with related requirements)	
Min. exit GPA: 2.0 in the major	
Requirements	
Tropical Plant and Soil Sciences Related Requirements (12 credits)	
❑ BOT 101*DB / ❑ 101L*DY	
❑ CHEM 161*DP / ❑ 161L*DY	
❑ CHEM 162*DP / ❑ 162L*DY	
Tropical Plant and Soil Sciences Fundamental Courses (6 credits)	
❑ TPSS 200	
❑ TPSS 351	
Additional Tropical Plant and Soil Sciences Courses (36 credits)	
12 courses of **genetics & physiology** and **supporting** courses:	
❑ _____ ❑ _____ ❑ _____ ❑ _____	
❑ _____ ❑ _____ ❑ _____ ❑ _____	
❑ _____ ❑ _____ ❑ _____ ❑ _____	
*Students must take **at least four (4) genetics & physiology courses**.*	
Tropical Landscape Horticulture Course Lists (see catalog for prerequisites)	
Genetics & Physiology	*TPSS 371, 440, 453, 470/470L; BIOL 340; MBBE 304, 401*
Supporting	*TPSS 236, 300, 304, 409, 416, 420, 435, 450, 460, 463, 491; BIOL 124/124L, BIOL 407; BOT 201/201L, 410/410L, 461; GEO 101; MICR 314; MBBE 402/402L or BIOL 402 or BIOC 341; PEPS 363/363L, 403, 405*
Students who complete TPSS 322, 341, 351, and 429 will earn a Certificate in Agribusiness Management. TPSS 322 may be substituted with BUS 312.	
Notes	
CTAHR Office of Academic and Student Affairs: Gilmore 210; (808) 956-8183/(808) 956-6733; acadaff@ctahr.hawaii.edu; www.ctahr.hawaii.edu	
TPSS Program: St John 102; (808) 956-8351; tpss@ctahr.hawaii.edu; www.ctahr.hawaii.edu/ctahr2001/tpss	
TPSS Undergraduate Advisor: Ken Leonhardt, PhD; St John 19; (808) 956-8909; leonhard@hawaii.edu	

v. KL 1/1/2010

Tropical Plant & Soil Sciences
University of Hawaii at Manoa

Advising Checklist for Environmental Soil Sciences

Student Name: _____ **Mentor:** _____ **Date:** _____

List courses and/or semester taken (3 credits/course unless indicated otherwise)

I. University Core Requirements (UHM)

A. Foundations

- Written Communication (ENG 100) _____
- Symbolic Reasoning (MATH 215) _____
- Global & Multicultural Perspectives (6 cr.) _____ _____

B. Diversification

- Arts, Humanities & Literature (6 cr.) _____ _____
- Social Sciences (6 cr.) _____ _____
  - Natural Sciences: BOT 101 and BOT 101L (1) _____ _____
    - CHEM 161 and CHEM 161L (1) _____ _____
    - CHEM 162 and CHEM 162L (1) _____ _____

C. Special Graduation

- Hawaiian, Asian & Pacific (H) _____
- Contemporary Ethical Issues (E) _____
- Oral Communications (O) _____
- Writing Intensive (W) (5 courses - 2 non-introductory) _____ _____ _____
  - (TPSS 200 & TPSS 492, plus 3 others) _____ _____

D. Hawaiian/Second Language alternative

- Any four-course combination of Language, Natural Science, and Social Science with a maximum of 2 Social Science courses _____ _____ _____ _____

II. College Requirements (CTAHR)

____NREM 310 Statistics in Agriculture or ____FAMR 380 (3) & Lab (1) Research Methodology
____TPSS 492 W Internship (4)

III. Major Requirements (TPSS) (take all)

- TPSS 200 W Tropical Plant Science _____
- TPSS 300 Tropical Crop Production Systems _____
- TPSS 351 Enterprise management _____
- TPSS 304 Fundamentals of Soil Science _____
- TPSS 435 Environmental Soil Chemistry _____
- TPSS 450 Nutrient Mgmt Soils & Plants _____
- NREM 301 Natural Resource Management _____

Take 12 elective credits from the following

- TPSS 460 Plant Soil Atmosphere Physics _____
- TPSS 463 Irrigation and Water Management _____
- TPSS 499 Directed Studies (variable credit) _____
- NREM 461 Soil Erosion & Conservation _____
- MICRO 485 Microbial Ecology _____
- MET 101 Introduction to Meteorology _____
- GEOG 101/101L The Natural Environment _____
- ICS 101/101L Tools for the Computer Age _____

Total Credit Requirement: 128

Fall 2010

Tropical Plant & Soil Sciences
University of Hawaii at Manoa

Advising Checklist for Plant Production & Management

Student Name: _____ **Mentor:** _____ **Date:** _____

List courses and/or semester taken (3 credits/course unless indicated otherwise)

I. University Core Requirements (UHM)

A. Foundations

Written Communication (ENG 100) _____
Symbolic Reasoning (MATH 100) _____
Global & Multicultural Perspectives (6 cr.) _____ _____

B. Diversification

Arts, Humanities & Literature (6 cr.) _____ _____
Social Sciences (6 cr.) _____ _____
Natural Sciences: BOT 101 and BOT 101L (1) _____ _____
CHEM 161 and CHEM 161L (1) _____ _____
CHEM 162 and CHEM 162L (1) _____ _____

C. Special Graduation

Hawaiian, Asian & Pacific (H) _____
Contemporary Ethical Issues (E) _____
Oral Communications (O) _____
Writing Intensive (W) (5 courses, 2 non-introductory) _____ _____ _____
(TPSS 200 & TPSS 492, plus 3 others) _____ _____

D. Hawaiian/Second Language alternative

Any four-course combination of Language, Natural Science, and Social Science with a maximum of 2 Social Science courses _____ _____ _____ _____

II. College Requirements (CTAHR)

____NREM 310 Statistics in Agriculture or ____FAMR 380 (3) & Lab (1) Research Methodology
____TPSS 492 W Internship (4)

III. Major Requirements (TPSS)

Group A. Take all **8 Fundamental** courses

____ TPSS 200 W Tropical Crop Science
____ TPSS 300 Tropical Crop Production Systems (4)
____ TPSS 304 Fundamentals of Soil Science (4)
____ TPSS 351 Enterprise Management*
____ TPSS 364 Horticulture Practices (2)
____ PEPS 363 General Entomology
____ PEPS 405 Plant Pathogens & Disease (4)
____ PEPS 363L General Entomology lab (1)

Students are required to take **6** courses from the three groups below, including at least **2** from group B, and at least **2** from group C.

Group B (**Production** courses; take 2 or more)

____ TPSS 220 Organic Crop Production (2)
____ TPSS 401 Vegetable Crop Production
____ TPSS 402 Flower and Foliage Crop Production
____ TPSS 403 Tropical Fruit Production
____ TPSS 405 Turf Management
____ HWST 352 Advanced Taro Cultivation

Group C (**Supporting** courses; take 2 or more)

____ TPSS 350 Tropical Landscape Practices
____ TPSS 369 Ornamental Plant materials
____ TPSS 420 Plant Propagation
____ TPSS 430 Nursery Management

____ TPSS 450 Nutrient Mgt. Soils & Plants (4) ____ TPSS 463 Irrigation and Water Management
____ TPSS 481 Weed Science

Group D (**Elective** courses)
____ TPSS 236 Renewable Energy and Society ____ TPSS 322 Marketing Perishable Products*
____ TPSS 353 Tropical Landscape Planting, Design & Graphics Studio ____ TPSS 352 Landscape Architecture History, Theory & Practice
____ TPSS 409 Cultural Geography ____ TPSS 416 Issues Concerning Biotechnology
____ TPSS 421 Tropical Seed Science (2) ____ TPSS 431 Cropping Systems
____ TPSS 435 Environmental Soil Science ____ TPSS 440 Tissue Culture & Transformation
____ TPSS 453 Plant Breeding & Genetics ____ TPSS 460 Plant Soil Atmosphere Physics
____ TPSS 470 Plant Physiology & Lab (1) ____ TPSS 473 Postharvest Physiology
____ TPSS 491 Experimental Topics (variable credit) ____ TPSS 499 Directed Study (variable credit)
____ TPSS 341 Agribusiness Accounting and Financial Analysis*
____ TPSS 429 Spreadsheet Modeling for Business & Economic Analysis*

____ Any non-introductory HNFAS, MBBE, NREM, PEPS, GEOG, BOT, ACC, BUS, CHEM or PHYS course, or any other TPSS course with approval of the undergraduate academic advisor.

* Students who complete these four courses will earn a Certificate in Agribusiness Management

Total Credit Requirement: 128 *Fall 2010*

University of Hawai'i at Mānoa
College of Tropical Agriculture and Human Resources Program Sheet 2010-2011
Bachelor of Science (BS) in Plant and Environmental Protection Sciences
Admissions: Open Process: Declaration
Min. Total Credits: 128 (85 in core & major + 43 in electives)

UHM General Education Core Requirements
Foundations
❑ FW
❑ FS
❑ FG (A / B / C)
❑ FG (A / B / C)
Diversification
❑ DA / DH / DL
❑ DA / DH / DL
❑ DB
❑ DP
❑ DY
❑ DS
❑ DS
** See degree, college and major requirements for courses that can also fulfill these.*

UHM Graduation Requirements
Focus
❑ H
❑ E (300+)
❑ O (300+)
❑ W
❑ W
❑ W
❑ W (300+)
❑ W (300+)
Hawaiian / Second Language – choose <u>one</u> option
❑ Show proficiency at the 202 level in a language
❑ Show proficiency at the 102 level in a language or take an additional social science course and natural science course
❑ Take an additional two social science courses and two natural science courses
Credit Minimums
• 124 total applicable
• 30 in residence at UHM
Grade Point Average
• 2.0 cumulative or higher
• Good academic standing

College Requirements
CTAHR Required Set of Interrelated Courses
❑ FAMR 380*DS/380L or NREM 310
❑ Internship or capstone course (PEPS 495)
Credit Minimums
• 128 total applicable
• 60 non-introductory

Plant and Environmental Protection Sciences Major Requirements
See back for major requirements. Meet regularly with your major advisor.

Major Requirements for BS in Plant and Environmental Protection Sciences
Admission: Open
Application: NA
Min. major credits: 36 (48 with related requirements)
Min. exit GPA: 2.0 in the major
Requirements
Plant and Environmental Protection Sciences Related Requirements (12 credits)
❑ BIOL 171*DB / ❑ 171L*DY **or** ❑ BOT 101*DB / ❑ 101L*DY **or** ❑ ZOOL 101*DB / ❑ 101L*DY
❑ CHEM 161*DP / ❑ 161L*DY
❑ CHEM 162*DP / ❑ 162L*DY
Plant and Environmental Protection Sciences Core Courses (36 credits)
❑ PEPS 210*DB or 250*DB
❑ PEPS 363 / ❑ 363L
❑ PEPS 405
❑ PEPS 495
❑ PEPS 499 (6 credits)
Two additional courses from PEPS 200-399: ❑ _____ ❑ _____
9 additional credits from PEPS 400-499: ❑ _____ ❑ _____ ❑ _____ ❑ _____ ❑ _____ ❑ _____
Notes
CTAHR Office of Academic and Student Affairs: Gilmore 210; (808) 956-8183/(808) 956-6733; acadaff@ctahr.hawaii.edu; www.ctahr.hawaii.edu PEPS Program: Gilmore 310; (808) 956-6737; peps@ctahr.hawaii.edu; www.ctahr.hawaii.edu/peps PEPS Undergraduate Advisor: Janice Uchida, PhD; St John 304C; (808) 956-2827; juchida@hawaii.edu

v. JU 3/15/2010