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.*

<table>
<thead>
<tr>
<th>University of Hawai’i at Mānoa College of Tropical Agriculture and Human Resources (CTAHR)</th>
<th>Leeward Community College</th>
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<tbody>
<tr>
<td>UHM courses in <em>Italic</em> and <strong>Bold</strong> have no Leeward CC equivalent and must be taken at UHM</td>
<td>Leeward CC courses in <em>Italic</em> and <strong>Bold</strong> may be taken as part of the AA requirement.</td>
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<thead>
<tr>
<th>UHM General Education Core Requirements (three credits each, unless noted otherwise):</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Foundations</strong></td>
<td></td>
</tr>
<tr>
<td>(1) FW = Written Communication (ENG 100)</td>
<td>(1) FW = ENG 100 Expository Writing</td>
</tr>
<tr>
<td>(2) FS = Symbolic Reasoning (MATH 100); for Environmental Soils Science, MATH 215</td>
<td>(2) FS = MATH 103 College Algebra (recommend MATH 140 Pre-Calculus: Trigonometry and Analytic Geometry)</td>
</tr>
<tr>
<td>(3) FG = Global &amp; Multicultural Perspective (A/B/C), first course</td>
<td>(3) FG = three credits required, first course</td>
</tr>
<tr>
<td>(4) FG = Global &amp; Multicultural Perspective (A/B/C), second course</td>
<td>(4) FG = three credits required, second course from a different category</td>
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</tbody>
</table>

| **B. Diversification** | |
| (1) DA/DH/DL = Arts, Humanities, & Literature, first course | (1) DA/DH/DL = three credits required, first course |
| (2) DA/DH/DL = Arts, Humanities, & Literature, second course | (2) DA/DH/DL = three credits required, second course from a different group |
| (3) DB = BOT 101 (3 credits) | (3) DB = BOT 101 Botany (3 credits) **OR** BIOL 171 Intro to Biology (3 credits) |
| (4) DP = CHEM 161 (3 credits) | (4) DP = CHEM 161B General Chemistry I (4 credits) |
| DP = CHEM 162 (3 credits) | (5) DY = BOT 101L Botany Lab **OR** BIOL 171L Intro to Biology Lab (1 credit) |
| (5) DY = BOT 101L (1 credit) | |
| DY = CHEM 161L (1 credit) | |
| DY = CHEM 162L (1 credit) | |
| (6) DS = Social Sciences, first course | (6) DS = three credits required, first course |
| (7) DS = Social Sciences, second course | (7) DS = three credits required, second course from a different discipline |
### Tropical Plant and Soil Sciences (TPSS)

*Tropical Plant and Soil Sciences (TPSS) requirements at UH Mānoa 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.*

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#### UHM Graduation Requirements

<table>
<thead>
<tr>
<th>Focus</th>
</tr>
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<tbody>
<tr>
<td>(1) H = Hawaiian, Asian &amp; Pacific</td>
</tr>
<tr>
<td>(2) E = Contemporary Ethical Issues (300+)</td>
</tr>
<tr>
<td>(3) O = Oral Communications (300+)</td>
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<th>Writing Intensive (W)</th>
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<tr>
<td>(1) First 100 or 200-level course</td>
</tr>
<tr>
<td>(2) Second 100 or 200-level course</td>
</tr>
<tr>
<td>(3) TPSS 200W, Tropical Crop Science, third course</td>
</tr>
<tr>
<td>(4) Fourth course, first 300+-level course</td>
</tr>
<tr>
<td>(5) Fifth course, <strong>TPSS 492W</strong>, Internship, second 300+-level course</td>
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</tbody>
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<thead>
<tr>
<th>Hawaiian/Second Language Alternative</th>
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<tbody>
<tr>
<td>Any four (4)-course combination of Language, Natural Science, and Social Science (with a maximum of two Social Science courses)</td>
</tr>
<tr>
<td>(1) First course</td>
</tr>
<tr>
<td>(2) Second course</td>
</tr>
<tr>
<td>(3) Third course</td>
</tr>
<tr>
<td>(4) Fourth course</td>
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<tr>
<th>Credit Minimums</th>
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<tbody>
<tr>
<td>(1) 124 total applicable</td>
</tr>
<tr>
<td>(2) 30 in residence at UHM</td>
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<tr>
<th>Grade Point Average (GPA)</th>
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<tr>
<td>(1) 2.0 cumulative or higher</td>
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<td>(2) Good academic standing</td>
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#### CTAHR Required Set of Interrelated Courses

<table>
<thead>
<tr>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) <strong>FAMR 380</strong> &amp; <strong>380L</strong> Research Methodology (4 credits) OR <strong>NREM 310</strong> Statistics in Agriculture (3 credits)</td>
</tr>
<tr>
<td>(2) <strong>TPSS 492W</strong> Internship (4 credits)</td>
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<tr>
<th>Credit Minimums</th>
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<tbody>
<tr>
<td>(1) 128 total applicable</td>
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<td>(2) 60 non-introductory</td>
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Tropical Plant and Soil Sciences (TPSS)

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Tropical Plant and Soil Sciences Major Requirements

<table>
<thead>
<tr>
<th>Tropical Landscape Horticulture</th>
</tr>
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</table>

**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)

**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.

**K. Group C: Design & Practice courses**
1. See Advising Checklist for Tropical Landscape Horticulture Specialization courses.

<table>
<thead>
<tr>
<th>Plant Bioscience Technology Required Program Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PBT 100</strong> Orientation to HI’s Ag Industry (1 credit)</td>
</tr>
<tr>
<td><strong>PBT 141</strong> Integrated Pest Management (3 credits)</td>
</tr>
<tr>
<td><strong>PBT 275</strong> Introduction to Crop Improvement (4 credits)</td>
</tr>
<tr>
<td><strong>PBT 290B/C/D/E</strong> Plant Bioscience Tech Internship (1-4 credits)</td>
</tr>
<tr>
<td><strong>ICS 100</strong> Computing Literacy and Applications (3 credits)</td>
</tr>
</tbody>
</table>

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. —

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. —
# Tropical Plant and Soil Sciences (TPSS)

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</tr>
</tbody>
</table>

## Genetics and Physiology

<table>
<thead>
<tr>
<th>Group A: Fundamental courses (take both)</th>
<th>This PBT course is accepted as meeting the requirements of a UHM CTAHR course at left:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) TPSS 200 W Tropical Crop Science</td>
<td>(1) PBT 200 Introduction to Plant Science (3 credits)</td>
</tr>
<tr>
<td>(2) <strong>TPSS 351</strong> Enterprise Management</td>
<td>(2) --</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group B: Genetics &amp; Physiology courses (12 courses from Groups B and C, with a minimum of 4 courses from Group B)</th>
<th>This PBT course is accepted as meeting the requirements of a UHM CTAHR course at left:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) TPSS 371 Genetics: Theory to Application (3 credits)</td>
<td>(1) PBT 275 Introduction to Crop Improvement (4 credits)</td>
</tr>
<tr>
<td>(2) See Advising Checklist for Genetics and Physiology Specialization courses.</td>
<td>(2) --</td>
</tr>
</tbody>
</table>

## Environmental Soil Sciences

<table>
<thead>
<tr>
<th>Group C: Supporting courses</th>
<th>This PBT course is accepted as meeting the requirements of a UHM CTAHR course at left:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) See Advising Checklist for Genetics and Physiology Specialization courses.</td>
<td>(1) PBT 200 Introduction to Plant Science (3 credits)</td>
</tr>
</tbody>
</table>

## Major Requirements (take all)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPSS 200 W Tropical Plant Science (3 credits)</td>
<td></td>
</tr>
<tr>
<td><strong>TPSS 300</strong> Tropical Crop Production Systems (4 credits)</td>
<td></td>
</tr>
<tr>
<td><strong>TPSS 304</strong> Fundamentals of Soil Science (4 credits)</td>
<td></td>
</tr>
<tr>
<td><strong>TPSS 351</strong> Enterprise Management</td>
<td></td>
</tr>
<tr>
<td><strong>TPSS 435</strong> Environmental Soil Chemistry</td>
<td></td>
</tr>
<tr>
<td><strong>TPSS 450</strong> Nutrient Mgmt Soils &amp; Plants</td>
<td></td>
</tr>
<tr>
<td><strong>NREM 301</strong> Natural Resource Management</td>
<td></td>
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</tbody>
</table>

## Twelve (12) elective credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 101/101L The Natural Environment</td>
<td></td>
</tr>
<tr>
<td>ICS 101/101L Tools for the Computer Age</td>
<td></td>
</tr>
<tr>
<td>See Advising Checklist for Environmental Soil Sciences Specialization courses.</td>
<td></td>
</tr>
</tbody>
</table>

### Notes

- **DP** = GEOG 101 (3 credits)
- **DY** = GEOG 101L (1 credit)
- ICS 101 Digital Tools for the Information World
  - OR
  - BUS 101 Business Computer Systems (3 credits)
Tropical Plant and Soil Sciences (TPSS)

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**Plant Production & Management**

- **I. Group A: Fundamental courses (take all 8)**
  1. TPSS 200 W Tropical Crop 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 (3 credits)
  5. TPSS 364 Horticulture Practices (2 credits)
  6. **PEPS 363** General Entomology (3 credits)
  7. **PEPS 363L** General Entomology Lab (1 credit)
  8. **PEPS 405** Plant Pathogens & Disease (4 credits)

- **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

<table>
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<tr>
<th>These PBT courses are accepted as meeting the requirements of UHM CTAHR courses on the left:</th>
</tr>
</thead>
</table>

- 1. PBT 200 Introduction to Plant Science (3 credits)
- 2. --
- 3. --
- 4. --
- 5. PBT 200L Introduction to Plant Science Lab (1 credit) and PBT 264 Introduction to Horticulture and Plant Propagation (3 credits)
- 6. --
- 7. --
- 8. --
# 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) | **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. |
<table>
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<tr>
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<tbody>
<tr>
<td><strong>A. Foundations</strong></td>
<td></td>
</tr>
</tbody>
</table>
(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)  
Note 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 |
| **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

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- 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

### D. Hawaiian/Second Language – choose one 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**<sup>DS</sup> & **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)**

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**UHM courses in *Italics and Bold* have no Leeward CC equivalent and must be taken at UHM**

**Leeward CC courses in *Italics and Bold* have no UHM equivalent.**

### 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. **(1) BIOL 171 DB**
   - **BIOL 171L DY OR**
   - **BOT 101 DB**
   - **BOT 101L DY OR**
2. **ZOOL 101 DB**
   - **ZOOL 101L DY**
3. **(2) CHEM 161 DP**
   - **CHEM 161L DY**
4. **(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. **(1) See Advising Checklist for Plant and Environmental Protection Sciences courses.**

### K. Additional courses from PEPS 200-399 (2 courses)

1. **(1) PEPS 310 Environmental Agriculture**
   - (3 credits)
2. **(2) PEPS 371 Genetics: Theory to Application**
   - (3 credits)
3. **(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. **(1) PBT 141 Integrated Pest Management (3 credits)**
2. **(2) PBT 275 Introduction to Crop Improvement (4 credits)**
3. **(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

Leeward Community College

Manuel J. Cabral, Chancellor

Michael H. Pecskok, 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

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

Mark Wright, Associate Specialist, PEPS

Janice Y. Uchida, Departmental Undergraduate Advisor, PEPS
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)

<table>
<thead>
<tr>
<th>Written Communication (FW)</th>
<th>ENG 100 Composition I</th>
<th>Symbolic Reasoning (FS)</th>
<th>MATH 103 College Algebra</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Highly Recommend MATH 140 for UHM CTARH, TPSS Progm.</td>
</tr>
</tbody>
</table>

Global Multicultural Perspectives (FG) (6 credits)

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

**Diversification Requirements** (20 credits)

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

- **Global Multicultural Perspectives** (6 credits)
- **Diversification Social Sciences** (6 credits)

**Natural Sciences** (8 credits)

- 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 credits)
    - [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 credits)
    - [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)

<table>
<thead>
<tr>
<th>Oral Communication</th>
<th>COM 210HON Honors Colloquium</th>
<th>SP 151 Personal and Public Speech</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SP 200 Speaking Skills for Prospective Teachers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SP 231 Interpretive Reading</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SP 215 Principles of Effective Public Speaking</td>
<td></td>
</tr>
</tbody>
</table>

**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:**

<table>
<thead>
<tr>
<th>GEOG 101 Natural Environment (3)</th>
<th>ICS 101 Digital Tools for the Information World (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 124 College Accounting I (3)</td>
<td>Or BUS 101 Business Computer Systems (3)</td>
</tr>
<tr>
<td>Or BUSN 164 Career Success (3)</td>
<td>Or MGT 125 Starting a New Business (3)</td>
</tr>
</tbody>
</table>

### Plant Bioscience Technology Requirements (16-19 credits)

- BIOL 197C
- PBT 200 & 200L Intro to Plant Science and Lab .... (4 credits)
- Formerly BIOL 197A & 197B
- PBT 264 Introduction to Horticulture and Plant Propagation (3 credits)
- PBT 275 Introduction to Crop Improvement (4 credits)
- PBT 290B/C/D/E Plant Bioscience Tech. Internship (1-4 credits)
- Or BIOL 197C
- Or BUSN 164 Career Success (3 credits) Or MGT 125 Starting a New Business (3 credits)

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPSS 322</td>
<td>Marketing Perishable Products*</td>
</tr>
<tr>
<td>TPSS 350</td>
<td>Tropical Landscape Practices</td>
</tr>
<tr>
<td>TPSS 352</td>
<td>Tropical Landscape Planting, Design &amp; Graphics Studio</td>
</tr>
<tr>
<td>TPSS 353</td>
<td>Landscape Architecture History, Theory &amp; Practice</td>
</tr>
<tr>
<td>TPSS 359</td>
<td>Ornamental Plant Materials</td>
</tr>
<tr>
<td>TPSS 421</td>
<td>Tropical Seed Science (2)</td>
</tr>
<tr>
<td>TPSS 430</td>
<td>Nursery Management &amp; Economic Analysis*</td>
</tr>
<tr>
<td>TPSS 431</td>
<td>Cropping Systems</td>
</tr>
<tr>
<td>TPSS 453</td>
<td>Plant Breeding &amp; Genetics</td>
</tr>
<tr>
<td>TPSS 473</td>
<td>Postharvest Physiology</td>
</tr>
<tr>
<td>TPSS 477</td>
<td>Plant Physiology</td>
</tr>
<tr>
<td>ARCH 235</td>
<td>Computer Applications in Architecture (2) &amp; Lab (1)</td>
</tr>
<tr>
<td>ART 113</td>
<td>Introduction to Drawing</td>
</tr>
<tr>
<td>BOT 448</td>
<td>Cognitive Ethnobotany</td>
</tr>
<tr>
<td>GEOG 309</td>
<td>Plants, People and Ecosystems</td>
</tr>
<tr>
<td>GEOG 328</td>
<td>Culture and Environment</td>
</tr>
<tr>
<td>SOC 301</td>
<td>Survey of Urban Sociology</td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>
## UHM General Education Core Requirements

<table>
<thead>
<tr>
<th>Category</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundations</td>
<td>FW, FS</td>
</tr>
<tr>
<td></td>
<td>FG (A / B / C)</td>
</tr>
<tr>
<td>Diversification</td>
<td>DA / DH / DL</td>
</tr>
<tr>
<td></td>
<td>DB</td>
</tr>
<tr>
<td></td>
<td>DP</td>
</tr>
<tr>
<td></td>
<td>DY</td>
</tr>
<tr>
<td></td>
<td>D8</td>
</tr>
<tr>
<td></td>
<td>D6</td>
</tr>
</tbody>
</table>

*See degree, college and major requirements for courses that can also fulfill these.*

## UHM Graduation Requirements

<table>
<thead>
<tr>
<th>Focus</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>E (300+)</td>
</tr>
<tr>
<td></td>
<td>O (300+)</td>
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<tr>
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<td>W</td>
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<td>W</td>
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<td></td>
<td>W (300+)</td>
</tr>
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<td></td>
<td>W (300+)</td>
</tr>
</tbody>
</table>

### Hawaiian/Second Language Alternative
- Any four-course combination of language, natural science, and social science (with a max. of 2 social science courses)

<table>
<thead>
<tr>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

## College Requirements

### CTAHR Required Set of Interrelated Courses
- FAMR 380**TS** / 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
- CHEM 161
- CHEM 162

#### Tropical Plant and Soil Sciences Fundamental Courses (6 credits)
- TPSS 200  
- TPSS 351

#### Additional Tropical Plant and Soil Sciences Courses (36 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPSS 371</td>
<td></td>
</tr>
<tr>
<td>440</td>
<td></td>
</tr>
<tr>
<td>453</td>
<td></td>
</tr>
<tr>
<td>470L</td>
<td></td>
</tr>
<tr>
<td>BIOL 340</td>
<td></td>
</tr>
<tr>
<td>MBBE 304</td>
<td></td>
</tr>
<tr>
<td>401</td>
<td></td>
</tr>
</tbody>
</table>

#### Tropical Landscape Horticulture Course Lists (see catalog for prerequisites)

<table>
<thead>
<tr>
<th>Genetics &amp; Physiology</th>
<th>Supporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPSS 322</td>
<td></td>
</tr>
<tr>
<td>341</td>
<td></td>
</tr>
<tr>
<td>351</td>
<td></td>
</tr>
<tr>
<td>429</td>
<td></td>
</tr>
</tbody>
</table>

**Students must take at least four (4) genetics & physiology courses.**

**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; leonhardt@hawaii.edu

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v. KL 1/1/2010
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
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
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPSS 450</td>
<td>Nutrient Mgt. Soils &amp; Plants (4)</td>
</tr>
<tr>
<td>TPSS 481</td>
<td>Weed Science</td>
</tr>
</tbody>
</table>

**Group D (Elective courses)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPSS 236</td>
<td>Renewable Energy and Society</td>
</tr>
<tr>
<td>TPSS 322</td>
<td>Marketing Perishable Products*</td>
</tr>
<tr>
<td>TPSS 353</td>
<td>Tropical Landscape Planting, Design &amp; Graphics Studio</td>
</tr>
<tr>
<td>TPSS 352</td>
<td>Landscape Architecture History, Theory &amp; Practice</td>
</tr>
<tr>
<td>TPSS 409</td>
<td>Cultural Geography</td>
</tr>
<tr>
<td>TPSS 416</td>
<td>Issues Concerning Biotechnology</td>
</tr>
<tr>
<td>TPSS 421</td>
<td>Tropical Seed Science (2)</td>
</tr>
<tr>
<td>TPSS 435</td>
<td>Environmental Soil Science</td>
</tr>
<tr>
<td>TPSS 440</td>
<td>Tissue Culture &amp; Transformation</td>
</tr>
<tr>
<td>TPSS 453</td>
<td>Plant Breeding &amp; Genetics</td>
</tr>
<tr>
<td>TPSS 460</td>
<td>Plant Soil Atmosphere Physics</td>
</tr>
<tr>
<td>TPSS 470</td>
<td>Plant Physiology &amp; Lab (1)</td>
</tr>
<tr>
<td>TPSS 473</td>
<td>Postharvest Physiology</td>
</tr>
<tr>
<td>TPSS 491</td>
<td>Experimental Topics (variable credit)</td>
</tr>
<tr>
<td>TPSS 499</td>
<td>Directed Study (variable credit)</td>
</tr>
<tr>
<td>TPSS 341</td>
<td>Agribusiness Accounting and Financial Analysis*</td>
</tr>
<tr>
<td>TPSS 429</td>
<td>Spreadsheet Modeling for Business &amp; Economic Analysis*</td>
</tr>
</tbody>
</table>

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*
### UH General Education Core Requirements

- **Foundations**
  - FW
  - FS
  - FG (A / B / C)
  - FG (A / B / C)

- **Diversification**
  - DA / DH / DL
  - DB
  - DP
  - DY
  - DS
  - D6

*See degree, college and major requirements for courses that can also fulfill these.*

### UH Graduation Requirements

- **Focus**
  - H
  - E (300+)
  - O (300+)

- • W
  - W
  - W (300+)
  - W (300+)

### Hawaiian/Second Language – choose one 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

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### College Requirements

- **CTAHR Required Set of Interrelated Courses**
  - FAMR 380*TS/380L or NREM 310
  - Internship or capstone course (PEPS 495)

### Credit Minimums

- 128 total applicable
- 60 non-introductory

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**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  
- BIOL 171*DY  
- BOT 101*DB  
- BOT 101*DY  
- CHEM 161*DF  
- CHEM 161*DY  
- CHEM 162*DF  
- CHEM 162*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; pepsi@ctahr.hawaii.edu; www.ctahr.hawaii.edu/pepsi  
PEPS Undergraduate Advisor: Janice Uchida, PhD; St John 304C; (808) 956-2827; juchida@hawaii.edu