

Tropical Agriculture and the Environment (TAE)

Plant Physiology and Genetics

*UH Manoa requirements are those in effect for the 2017-2018 academic year. Students are advised to consult future UH Manoa catalogs to determine if changes have been made to any requirements.

UHM General Education Core Requirements (three credits each, unless noted otherwise)

College of Tropical Agriculture and Human Resources Requirements

A. Foundations

- (1) FW =Written Communication (ENG 100, ENG 100A, ENG 190, ESL 100 or AMST 111)
- (2) FS = Symbolic Reasoning (MATH 140 or NREM 203)
- (3) FG = Global & Multicultural Perspective (A/ B/ C), first course
FG =Global & Multicultural Perspective (A/ B/ C), second course

G. CTAHR Required Set of Interrelated Courses

- (1) FAMR 380* DS & 380L Research Methodology (4 cr) **OR** NREM 310 Statistics in Agriculture (3 cr)
- (2) TPSS 492 Internship (TPSS 492 (1 cr) + TPSS 492L (3 cr) = 4 credits)

B. Diversification

- (1) DA/DH/DL =Arts, Humanities, & Literature, first course
- (2) DA/DH/DL = Arts, Humanities, & Literature, second course
- (3) DS = Social Sciences, first course
- (4) DS = Social Sciences, second course
- (5) DB = BIOL 171
- (6) DY = BIOL 171L (1cr)
- (7) DB = BIOL 172
- (8) DY = BIOL 172L (1cr)
- (9) DP = CHEM 161 (3cr)
- (10) DY = CHEM 161L (1cr)
- (11) DP = CHEM 162 (3cr)
- (12) DY = CHEM 162L (1cr)

Tropical Agriculture and the Environment (TAE) Requirements (21 Credits)

H. TAE Core

- 1) TPSS 200 Agriculture, Environment, and Society
- 2) BIOL 265 Ecology and Evolutionary Biology or PEPS 210 Introduction to Environmental Science
- 3) TPSS 304 Fundamentals of Soil Science (4)
- 4) TPSS 470 Plant Physiology
- 5) TPSS 470L Plant Physiology Laboratory
- 6) PEPS 421W Foundations of Pest Management (4)
- 7) TPSS/PEPS 499 Directed Research (3)

UHM Graduation Requirements Focus

- (1) H = Hawaiian, Asian & Pacific
- (2) E = Contemporary Ethical Issues (300+) will be satisfied by taking any one of the following: TPSS 416 Introduction to Social, Ethical, and Political Issues Associated with Biotechnology; PEPS 310 Environment and Agriculture; PEPS 350 Invasive Pest Species; PEPS 451 Environmental Law; MBBE/BIOL 304 Biotechnology: Science and Ethical Issues; CMB 351/BIOL 340 Genetics, Evolution and Society
- (3) Oral Communication (300+)
- (4) Writing Intensive (W)
 - a. First 100 or 200-level course
 - b. Second 100 or 200-level course
 - c. TPSS 200, Tropical Crop Science, third course
 - d. Fourth course PEPS 421 Foundations of Pest Mgmt
 - e. Fifth course, TPSS 492L, Internship

Certificate in Agribusiness Management

- (1) ECON 130 Principles of Economics
- (2) TPSS 322 Farm & Food Marketing or BUS 312
- (3) TPSS 341 Managerial Accounting
- (4) TPSS 351 Enterprise Management
- (5) TPSS 429 Spreadsheet Modeling for Business & Economic Analysis

Graduation Requirements

E. Grade Point Average (GPA)

- (1) 2.0 cumulative or higher
- (2) Good academic standing

F. Credit Minimums

- (1) 120 Credits - Total Applicable
- (2) 30 Credits in residence at UHM Graduation
- (3) 45 Upper Division (300+) credits

D. Hawaiian/Second Language - *Alternative*

Any four (4)-course combination of Languages, TPSS, PEPS or other approved related course not used to satisfy requirements in the TAE major.

- (1) First course
- (2) Second course
- (3) Third course
- (4) Fourth course

Plant Physiology and Genetics

Take 10 courses from the two groups below including at least three (3) from Group A.

Group A: Take 3 or more

- (3) TPSS 371 Genetics: Theory to Application
- (4) TPSS 440 Tissue Culture/Transformation
- (5) TPSS 453 Plant Breeding & Genetics
- (6) BIOL 340 Genetics, Evolution & Society
- (7) MBBE 304 Biotechnology: Science & Ethical Issues
- (8) MBBE 401 Molecular Biotechnology

Group B: Supporting Courses

- (1) TPSS 300 Tropical Crop Production Systems
- (2) TPSS 336 Renewable Energy and Society
- (3) TPSS 409 Cultural Biogeography
- (4) TPSS 416 Issues Concerning Biotechnology
- (5) TPSS 420 Plant Propagation
- (6) TPSS 430 Nursery Management
- (7) TPSS 435 Environmental Soil Science
- (8) TPSS 450 Nutrient Mgmt. Soils & Plants
- (9) TPSS 460 Soil Plant Environment
- (10) TPSS 463 Irrigation & Water Management
- (11) TPSS 481 Weed Science
- (12) TPSS 491 Experimental Topics
- (13) BIOL 124/124L Environment & Ecology
- (14) BIOL 407 Molecular Biology
- (15) BOT 201/201L Plant Evolutionary Diversity
- (16) BOT 410/410L Plant Anatomy
- (17) BOT 461 Systematics of Vascular Plants
- (18) GEOG 101 The Natural Environment
- (19) MICR 314 Research Ethics
- (20) MBBE 402/402L or BIOL 402 or BIOC 341 Biochemistry
- (21) PEPS 363/363L General Entomology
- (22) PEPS 403 Molecular Biosensors
- (23) PEPS 405 Plant Pathogens & Diseases