# HORTICULTURAL RESEARCH OPTION

This option is offered within the following major(s):

- Horticulture - College of Agricultural Sciences (http://catalog.oregonstate.edu/college-departments/agricultural-sciences/horticulture/horticulture-bs-hbs/)

The Horticultural Research option is designed for students interested in graduate school and/or a career in academic or industrial research. It provides you with an excellent foundation in the natural sciences and horticulture, and accommodates your specific research interests. Your studies will involve you in critical thinking, and allow you to seek out, synthesize, and apply information from many sources to analyze novel situations and solve problems.

You will complete a research project under the guidance of a faculty mentor, and will write an undergraduate thesis. Many theses focus on problems and challenges found in Oregon horticulture and provide Oregonians with innovative solutions.

Recent graduates have gone on to Masters and Ph.D. programs at Oregon State, U.C. Davis and Cornell University, received a Fulbright Scholarship to study abroad and have studied diverse topics such as plant breeding, green roof technology, entomology, and weed science.

## Active Learning

Our undergraduates have worked at local research institutions including the United States Department of Agriculture-Agricultural Research Service laboratories, the National Clonal Germplasm Repository in Corvallis, the Corvallis Plant Materials Center of the National Resources Conservation Service, and the North Willamette Research and Extension Center. With your faculty mentor, you'll determine the best setting for your research.

For more information, visit the Horticulture website (https://horticulture.oregonstate.edu/horticulture/students/undergraduate-students/).

**Option Code: 614**

In addition to the required Horticulture major Core courses, students in this proposed option will complete the following courses:

## Code

<table>
<thead>
<tr>
<th>Plant Materials</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Select one course from the following:</td>
<td></td>
<td>2-4</td>
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<tr>
<td>BOT 313</td>
<td>PLANT STRUCTURE</td>
<td></td>
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<tr>
<td>BOT 321</td>
<td>PLANT SYSTEMATICS</td>
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<tr>
<td>BOT 425</td>
<td>FLORA OF THE PACIFIC NORTHWEST</td>
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<tr>
<td>CROP 200</td>
<td>CROP ECOLOGY AND MORPHOLOGY</td>
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<tr>
<td>FES 241</td>
<td>DENDROLOGY</td>
<td></td>
</tr>
<tr>
<td>HORT 226</td>
<td>LANDSCAPE PLANT MATERIALS I: DECIDUOUS HARDWOODS AND CONIFERS</td>
<td></td>
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<tr>
<td>HORT 228</td>
<td>LANDSCAPE PLANT MATERIALS II: SPRING FLOWERING TREES AND SHRUBS</td>
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<tr>
<td>HORT 251</td>
<td>TEMPERATE TREE FRUIT, BERRIES, GRAPES, AND NUTS</td>
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<tr>
<td>HORT 255</td>
<td>HERBACEOUS ORNAMENTAL PLANT MATERIALS</td>
<td></td>
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<tr>
<td>HORT 433/CROP 433</td>
<td>SYSTEMATICS AND ADAPTATION OF VEGETABLE CROPS</td>
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</tbody>
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## Ecology

Select one course from the following: 3-4

- BI 370 ECOLOGY
- BOT 341 PLANT ECOLOGY
- HORT 318 *APPLIED ECOLOGY OF MANAGED ECOSYSTEMS

## Technology

Select one course from the following: 4

- HORT 414/CROP 414 PRECISION AGRICULTURE
- PBG 441 PLANT TISSUE CULTURE

## Horticultural Communication

Select one of the following Writing Intensive Courses: 3

- BOT 323 *FLOWERING PLANTS OF THE WORLD
- HORT 318 *APPLIED ECOLOGY OF MANAGED ECOSYSTEMS

## Capstone

Select one course from the following: 3-4

- HORT 452 BERRY AND GRAPE PHYSIOLOGY AND CULTURE
- HORT 453 GRAPEVINE GROWTH AND PHYSIOLOGY
- HORT 454 PRINCIPLES AND PRACTICES OF VINEYARD PRODUCTION
- HORT 463/CROP 463 SEED BIOLOGY
- HORT 481 HORTICULTURE PRODUCTION CASE STUDIES
- PBG 450 PLANT BREEDING

## Advanced Horticultural Science

- PBG 430 PLANT GENETICS 3

## Math and Science Foundation

- MTH 251 *DIFFERENTIAL CALCULUS 4
- MTH 252 INTEGRAL CALCULUS 4
- ST 351 INTRODUCTION TO STATISTICAL METHODS 4

Select three courses from the following:

- BB 350 ELEMENTARY BIOCHEMISTRY
- CH 331 ORGANIC CHEMISTRY
- CH 332 ORGANIC CHEMISTRY
- PH 201 *GENERAL PHYSICS
- PH 202 *GENERAL PHYSICS

Select 12 credits of upper-division Horticulture and Life Science courses with approval of research mentor and advisor

## Ecology and Sustainability Ecosystems Courses

Meets Synthesis requirements. Each course must be from a different department.

### Contemporary Global Issues

Select one course from the following: 3-4

- AEC 351 *NATURAL RESOURCE ECONOMICS AND POLICY 4
- AEC 352/ECON 352 *ENVIRONMENTAL ECONOMICS AND POLICY 4
- BI 301 *HUMAN IMPACTS ON ECOSYSTEMS
- CROP 330 *WORLD FOOD CROPS
- FES 365 *ISSUES IN NATURAL RESOURCES CONSERVATION
- FW 325 *GLOBAL CRISIS IN RESOURCE ECOLOGY
- GEOG 300 *SUSTAINABILITY FOR THE COMMON GOOD
- GEOG 330 *GEOGRAPHY OF INTERNATIONAL DEVELOPMENT AND GLOBALIZATION
- HORT 331/ENT 331 *POLLINATORS IN PERIL
- SUS 350 *SUSTAINABLE COMMUNITIES
- WSE 470 *FORESTS, WOOD AND CIVILIZATION
- Z 349 *BIODIVERSITY: CAUSES, CONSEQUENCES, AND CONSERVATION

## Science, Technology and Society

Select one course from the following: 3-4

- AGRI 411 *INTRODUCTION TO FOOD SYSTEMS: LOCAL TO GLOBAL 4
- ANS 315 *CONTENTIOUS SOCIAL ISSUES IN ANIMAL AGRICULTURE
- BI 348 *HUMAN ECOLOGY
Horticultural Research Option

**Course** | **Title** | **Credits**
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CH 374 | *TECHNOLOGY, ENERGY, AND RISK | 
ENGR 350 | *SUSTAINABLE ENGINEERING | 
ENGR 363 | *ENERGY MATTERS | 
ENSC 479 | **ENVIRONMENTAL CASE STUDIES** | 
FES 435/TOX 435 | *GENES AND CHEMICALS IN AGRICULTURE: VALUE AND RISK | 
FES 477/NSC 477 | *AGROFORESTRY | 
FES 485 | *CONSSENSUS AND NATURAL RESOURCES | 
FST 421 | *FOOD LAW | 
FW 470 | *ECOLOGY AND HISTORY: LANDSCAPES OF THE COLUMBIA BASIN | 
GEOG 300 | *SUSTAINABILITY FOR THE COMMON GOOD | 
GEOG 340 | *INTRODUCTION TO WATER SCIENCE AND POLICY | 
HORT 330/ENT 300 | *PLAGUES, PESTS, AND POLITICS | 
HORT 316 | PLANT NUTRITION | 
HORT 318 | *APPLIED ECOLOGY OF MANAGED ECOSYSTEMS | 
HORT 406 | PROJECTS: DATA PRESENTATIONS | 
HORT 412 | CAREER EXPLORATION: INTERNSHIPS AND RESEARCH PROJECTS | 
PBG 430 | PLANT GENETICS | 
PBG 441 | PLANT TISSUE CULTURE | 
CROP 440 | WEED MANAGEMENT | 
ENT 311 | INTRODUCTION TO INSECT PEST MANAGEMENT | 
ENT 411 | HORTICULTURE BOOK CLUB | 
PBB 441 | PLANT TISSUE CULTURE | 
PBB 403 | THESIS | 
HORT 481 | HORTICULTURE PRODUCTION CASE STUDIES | 
HORT 407 | SEMINAR | 
HORT 481 | HORTICULTURE PRODUCTION CASE STUDIES | 
HORT 411 | HORTICULTURE PRODUCTION CASE STUDIES | 
HORT 412 | CAREER EXPLORATION: INTERNSHIPS AND RESEARCH PROJECTS | 
PBB 430 | PLANT GENETICS | 
PBB 441 | PLANT TISSUE CULTURE | 
PBB 403 | THESIS | 
PBB 407 | SEMINAR | 
PBB 481 | HORTICULTURE PRODUCTION CASE STUDIES | 
PBB 481 | HORTICULTURE PRODUCTION CASE STUDIES | 
PBB 403 | THESIS |