AGRONOMY OPTION

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

- Crop and Soil Science - College of Agricultural Sciences (http://catalog.oregonstate.edu/college-departments/agricultural-sciences/crop-soil-science/crop-soil-science-bs-hbs)

Students in the Agronomy option will gain the knowledge and skills necessary to be active participants in producing food, feed, fiber, and energy crops for our world. Increased production of field crops—wheat, corn, rice, sorghum, soybeans, forages, cotton, etc.—will be essential to meet the basic needs of the world's ever-growing population and such production will need to be accomplished in a world of diminishing soil, water, mineral, and petrochemical resources. As an agronomic professional, you will have the knowledge and skill to access the potentials of a given production system and to choose plant materials and plant production practices that will optimize production while minimizing environmental impact. Maximum sustainable production will be your goal and you will need in-depth knowledge of plants, plant genetics, plant pests, soils, soil fertility, production equipment, economics, and politics to achieve this goal. Agronomists work for field crop production companies, as managers of small to large farms and ranches, and as managers of their own farming operations. Agronomists also work for federal, state, or local government agencies as educators, researchers, or field technicians. Others hold teaching, research, or extension positions in universities. Some work for private research laboratories, environmental service companies, insurance companies, or land appraisal firms.

### Code | Title | Hours
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**Major Core**

**General Science Core**

Select one of the following options: 12

**Option A: Principles of Biology**

- BI 211 | *PRINCIPLES OF BIOLOGY | 4
- BI 212 | *PRINCIPLES OF BIOLOGY | 4
- BI 213 | *PRINCIPLES OF BIOLOGY | 4

**Option B: Introductory Biology**

- BI 204 | *INTRODUCTORY BIOLOGY I | 4
- BI 205 | *INTRODUCTORY BIOLOGY II | 4
- BI 206 | *INTRODUCTORY BIOLOGY III | 4

- CH 231 | GENERAL CHEMISTRY | 5
  & CH 261 | and *LABORATORY FOR CHEMISTRY 231 | 4

- CH 232 | GENERAL CHEMISTRY & CH 262 | 5
  and *LABORATORY FOR CHEMISTRY 232 | 4

- CH 233 | GENERAL CHEMISTRY | 4
  & CH 263 | and *LABORATORY FOR CHEMISTRY 233 | 4

Select one of the following math classes: 4

- MTH 241 | *CALCULUS FOR MANAGEMENT AND SOCIAL SCIENCE | 4
- MTH 245 | *MATHEMATICS FOR MANAGEMENT, LIFE, AND SOCIAL SCIENCES | 4
- MTH 251 | *DIFFERENTIAL CALCULUS | 4

**Orientation**

- CROP 101/ENT 101/HORT 101/SOIL 101 | INTRODUCTION TO CROP, SOIL, AND INSECT SCIENCE | 1

### Agricultural Science

- BOT 331 | PLANT PHYSIOLOGY | 4
- BOT 350 | INTRODUCTORY PLANT PATHOLOGY | 4
- CROP 440 | WEED MANAGEMENT | 4
- ENT 311 | INTRODUCTION TO INSECT PEST MANAGEMENT | 4
- SOIL 205 | SOIL SCIENCE & SOIL 206 | 4
  and *SOIL SCIENCE LABORATORY FOR SOIL 205 | 4

### Experiential Learning

Select 3 or more credits of the following: 3

- CROP 401 | RESEARCH | 4
- CROP 403 | THESIS | 4
- CROP 410 | INTERNSHIP & CROP 407 | 4
  and SEMINAR | 4

### Ecological Learning

Select one of the following: 3-4

- BI 370 | ECOLOGY | 4
- BOT 341 | PLANT ECOLOGY | 4
- RNG 341 | RANGELAND ECOLOGY AND MANAGEMENT | 4

### Technology

- CROP 414 | PRECISION AGRICULTURE | 4

### Writing Intensive Course (WIC)

- CROP 325 | (Course Terminated in 2017) or SOIL 325 | 3

### Capstone

- CROP 480/HORT 480 | CASE STUDIES IN CROPPING SYSTEMS MANAGEMENT | 4

### Option Requirements

**Agronomy Core**

- CROP 200 | CROP ECOLOGY AND MORPHOLOGY | 3
- CROP 280 | INTRODUCTION TO THE COMPLEXITY OF OREGON CROPPING SYSTEMS | 4
- CROP 319 | PRINCIPLES OF FIELD CROP PRODUCTION | 4
- CROP 330 | *WORLD FOOD CROPS | 4
- PBG 430 | PLANT GENETICS | 3
- PBG 431 | PLANT GENETICS RECITATION | 3
- SOIL 316 | NUTRIENT CYCLING IN AGROECOSYSTEMS | 4
- ST 351 | INTRODUCTION TO STATISTICAL METHODS | 4
  or ST 411 | METHODS OF DATA ANALYSIS | 4

**Agronomy Electives**

Select at least 7-8 credits of the following: 7-8

- BEE 439 | IRRIGATION PRINCIPLES AND PRACTICES | 4
- BOT 313 | PLANT STRUCTURE | 4
- CROP 310 | FORAGE PRODUCTION | 4
- CROP 420 | SEED SCIENCE AND TECHNOLOGY (Ecampus only) | 4
- CROP 460 | SEED PRODUCTION | 4
- HORT 316 | PLANT NUTRITION | 4

**General Electives**

Select at least 7-8 credits of the following: 7-8

- BB 350 | ELEMENTARY BIOCHEMISTRY | 4
- BOT 321 | PLANT SYSTEMATICS | 4
- BOT 414 | AGROSTOLOGY | 4
- BOT 442 | PLANT POPULATION ECOLOGY | 4
Agronomy Option

BOT 480   PHOTOSYNTHESIS AND PHOTOBIOLOGY
BOT 488   ENVIRONMENTAL PHYSIOLOGY OF PLANTS
CH 331    ORGANIC CHEMISTRY
CH 332    ORGANIC CHEMISTRY
CH 337    ORGANIC CHEMISTRY LABORATORY
CROP 199  SPECIAL STUDIES: ISSUES IN SUSTAINABLE AGRICULTURE (Repeatable)
CROP 300/ HORT 300  CROP PRODUCTION IN PACIFIC NORTHWEST AGROECOSYSTEMS
CROP 418  TOXIC PLANTS IN PNW PASTURES (Ecampus only)
CSS 320   PRINCIPLES OF OIL AND FIBER CROP PRODUCTION (EOU only)
CSS 321   PRINCIPLES OF CEREAL CROP PRODUCTION (EOU only)
CSS 322   PRINCIPLES OF POTATO PRODUCTION (EOU only)
FES 365   *ISSUES IN NATURAL RESOURCES CONSERVATION (Cascades & Ecampus only)
GEOG 340  *INTRODUCTION TO WATER SCIENCE AND POLICY
HORT 433  SYSTEMATICS AND ADAPTATION OF VEGETABLE CROPS
or CROP 433 SYSTEMATICS AND ADAPTATION OF VEGETABLE CROPS
HORT 463  SEED BIOLOGY
or CROP 463 SEED BIOLOGY
MB 230    *INTRODUCTORY MICROBIOLOGY
PBG 441   PLANT TISSUE CULTURE
PBG 450   PLANT BREEDING
PH 201    *GENERAL PHYSICS
SOIL 395  *WORLD SOIL RESOURCES (Ecampus only)
SOIL 435  ENVIRONMENTAL SOIL PHYSICS
SOIL 445  ENVIRONMENTAL SOIL CHEMISTRY
SOIL 455  BIOLOGY OF SOIL ECOSYSTEMS
SOIL 466  SOIL MORPHOLOGY AND CLASSIFICATION
SOIL 475  SOIL RESOURCE POTENTIALS
WR 327    *TECHNICAL WRITING

Business and Economics
AEC 211  AGRICULTURAL AND FOOD MANAGEMENT  4
AEC 221  AGRICULTURAL AND FOOD MARKETING  3
AEC 250  *INTRODUCTION TO ENVIRONMENTAL ECONOMICS AND POLICY  3
or ECON 201  *INTRODUCTION TO MICROECONOMICS

Electives in Business
Select a minimum of 4 credits of the following: 4
AEC 311  INTERMEDIATE APPLIED ECONOMICS I: PRODUCERS AND CONSUMERS
AEC 372  AGRICULTURAL COOPERATIVES
AEC 388  AGRICULTURAL LAW
AEC 422  AGRICULTURAL BUSINESS MANAGEMENT
AEC 444  COMMODITY FUTURES AND OPTIONS MARKETS
AEC 460  CAPITAL INVESTMENT ANALYSIS USING AGBIZ LOGIC
BA 463  FAMILY ENTERPRISE GOVERNANCE

Experiential Learning Track (optional)
Select 10 or more credits of a structured internship

Research Track (optional)
Suggested classes - Select courses most relevant to your intended graduate school program
BB 350  ELEMENTARY BIOCHEMISTRY
BI 211  *PRINCIPLES OF BIOLOGY
& BI 212  and *PRINCIPLES OF BIOLOGY
& BI 213  and *PRINCIPLES OF BIOLOGY
BOT 321  PLANT SYSTEMATICS
BOT 341  PLANT ECOLOGY
BOT 414  AGROSTOLOGY
CH 331  ORGANIC CHEMISTRY
CH 332  ORGANIC CHEMISTRY
CH 337  ORGANIC CHEMISTRY LABORATORY
MB 230  *INTRODUCTORY MICROBIOLOGY
MTH 251  *DIFFERENTIAL CALCULUS
PH 201  *GENERAL PHYSICS
WR 327  *TECHNICAL WRITING

Total credits required for graduation 180

1 10 or more credits of a structured internship (CROP 410 INTERNSHIP) can be substituted for 6 of the 7–8 General Electives credits and four credits of Electives in Business. This would allow a student to use an entire term for internship work.

* Baccalaureate Core Course (BCC)
^ Writing Intensive Course (WIC)

Grade Requirements
Students pursuing the Agronomy option under the Crop and Soil Science major are required to receive a grade of C or better in all CROP, CSS, ENT, HORT, PBG, and SOIL courses required within their major and option.

Option Code: 784