

## CROP SCIENCE (CROP)

### CROP 101, INTRODUCTION TO CROP, SOIL, AND INSECT SCIENCE, 1 Credit

Introduces students with interests in crop, soil, and insect sciences to educational and professional opportunities in these disciplines. Speakers will discuss opportunities in research and academia as well as in the applied professional job market. CROSSLISTED as CROP 101/ENT 101/SOIL 101.

**Equivalent to:** ENT 101, HORT 101, SOIL 101

*Available via Ecampus*

### CROP 199, SPECIAL STUDIES: ISSUES IN SUSTAINABLE AGRICULTURE, 1-16 Credits

Invited speakers present seminars on specific aspects of agriculture relating to sustainability. Topics vary from term to term and year to year. May be repeated for credit when topics differ.

**Equivalent to:** CROP 199H

*This course is repeatable for 16 credits.*

### CROP 200, CROP ECOLOGY AND MORPHOLOGY, 3 Credits

An introduction to the concepts and principles of crop ecology and morphology and a foundation for other crop science courses. Examines the dynamics and function of crop communities, and the biotic and environmental interactions that influence productivity. Fundamentals of the developmental morphology of crop seeds, seedlings, and plants. Morphological features of seeds and plants in relation to the identification of crop families and species of economic importance.

**Equivalent to:** CSS 200

*Available via Ecampus*

### CROP 280, INTRODUCTION TO THE COMPLEXITY OF OREGON CROPPING SYSTEMS, 4 Credits

An introduction to field cropping systems of western Oregon. Provides students with a broad overview of the complexity of cropping systems and the knowledge required to grow and produce a crop—plant physiology, seed biology, plant pathology, soil fertility, entomology, and weed science. Students will observe a crop under different management strategies to enhance understanding of management approaches.

*Available via Ecampus*

### CROP 300, CROP PRODUCTION IN PACIFIC NORTHWEST AGROECOSYSTEMS, 4 Credits

Relation of crop production to human culture and the natural environment. Origins of agriculture and the processes of agricultural change, and productivity and sustainability of specific crop production systems in the Pacific Northwest. History, geography, resource requirements, and key challenges faced are presented. Fundamental crop production practices in relation to productivity and sustainability. Lec/lab/rec. CROSSLISTED as CROP 300/HORT 300.

**Equivalent to:** CSS 300, HORT 300

**Recommended:** One year of general biology

*Available via Ecampus*

### CROP 310, FORAGE PRODUCTION, 4 Credits

Importance of, and current production practices for, forage crops. Lec/lab.

**Equivalent to:** CSS 310

**Recommended:** (CSS 300 or CROP 300 or HORT 300) and (CSS 305 or CSS 205 or SOIL 205)

*Available via Ecampus*

### CROP 325, ^AG AND ENVIRONMENTAL PREDICAMENTS: A CASE STUDY APPROACH, 3 Credits

Analyze controversial agricultural and environmental issues, synthesize information from diverse sources, and apply scientific knowledge to recommend specific courses of action to solve real world problems. Develop oral and written communication skills through individual and group work. CROSSLISTED as CROP 325/SOIL 325/SUS 325. (Writing Intensive Course)

**Attributes:** CWIC – Core, Skills, WIC

**Equivalent to:** SOIL 325, SUS 325

### CROP 330, \*WORLD FOOD CROPS, 3 Credits

Origin, production, utilization, and improvement of the world's major food crops. The role of crop production in global economic and social development; food security and worldwide nutritional requirements. (Bacc Core Course)

**Attributes:** CSGI – Core, Synth, Global Issues

**Equivalent to:** CSS 330

**Recommended:** CSS 200 or CROP 200

*Available via Ecampus*

### CROP 340, \*PENS AND PLOWS: WRITINGS OF WORKING THE LAND, 3 Credits

A survey of literature from ancient Greece to the twentieth century focusing on the significance of agricultural life and/or the natural world. Students read and discuss writings considered critical in the development of Western culture and receive input on the literary significance and the accuracy of agriculture presented within the readings. (Bacc Core Course) Taught via Ecampus only.

**Attributes:** CPWC – Core, Pers, West Culture

**Equivalent to:** CSS 340

*Available via Ecampus*

## CROP 355, ORGANIC CERTIFICATION, 3 Credits

Learn about the USDA National Organic Program (NOP) standards relating to certified operations, inspection, certification processes, and labeling. Focus on the crops, processing, and livestock aspects of organic certification for farms and food manufacturing operations.

*Available via Ecampus*

## CROP 401, RESEARCH, 1-16 Credits

**Equivalent to:** CSS 401

*This course is repeatable for 16 credits.*

## CROP 403, THESIS, 1-16 Credits

Independent, original study and preparation of a senior thesis.

**Equivalent to:** CSS 403

*This course is repeatable for 16 credits.*

## CROP 405, READING AND CONFERENCE, 1-16 Credits

**Equivalent to:** CROP 405H, CSS 405

*This course is repeatable for 16 credits.*

## CROP 405H, READING AND CONFERENCE, 1-16 Credits

**Attributes:** HNRS – Honors Course Designator

**Equivalent to:** CROP 405, CSS 405H

*This course is repeatable for 16 credits.*

## CROP 407, SEMINAR, 1 Credit

**Equivalent to:** HORT 407, SOIL 407

*Available via Ecampus*

## CROP 410, INTERNSHIP, 1-6 Credits

Professional work experience previously approved and supervised by the department, written report required.

**Equivalent to:** CSS 410

*This course is repeatable for 12 credits.*

## CROP 414, PRECISION AGRICULTURE, 4 Credits

Provides insight into the technology available to support precision agriculture and data management planning applications. Examines the concepts and applications of precision agriculture to teach practical use of hardware, equipment and software. An overview of current technology including autonomous vehicles, GPS, soil and crop proximal sensors, imagery and mapping, variable rate control systems, and yield monitors. Lec/lab. CROSSLISTED as CROP 414/HORT 414.

**Equivalent to:** HORT 414

## CROP 418, TOXIC PLANTS IN PNW PASTURES, 1 Credit

Identifying and understanding ecology and biology of harmful weeds and poisonous plants found in Pacific Northwest pastures and rangelands and determining best management and control options. Taught via Ecampus only.

**Equivalent to:** CSS 418

**Recommended:** College-level plant biology and/or taxonomy courses.

## CROP 420, SEED SCIENCE AND TECHNOLOGY, 3 Credits

Seed formation and factors affecting their development and maturation. Seed structure and chemical composition. Physiological and biochemical aspects of seed germination, dormancy, deterioration and storability. The concept of seed quality, its importance in agriculture, its attributes and impact on field performance. Methods of measuring seed quality of conventional and genetically modified seeds. Taught via Ecampus only.

**Equivalent to:** CSS 420

**Recommended:** Biology, plant anatomy and/or physiology courses

*Available via Ecampus*

## CROP 433, SYSTEMATICS AND ADAPTATION OF VEGETABLE CROPS, 4 Credits

Covers the botanical and taxonomic relationships, breeding systems and adaptation of vegetable crops. Fresh material is used to illustrate varietal differences and traits of importance. Offered every year. CROSSLISTED as CROP 433/HORT 433 and CROP 533/HORT 533.

**Prerequisite:** BI 102 with D- or better or BI 213 with D- or better or BI 213H with D- or better or BI 223 with D- or better or BI 223H with D- or better or BI 311 with D- or better or BI 311H with D- or better or HORT 430 with D- or better or CSS 430 with D- or better or PBG 430 with D- or better or HORT 450 with D- or better or CSS 450 with D- or better or PBG 450 with D- or better

**Equivalent to:** HORT 433

## CROP 440, WEED MANAGEMENT, 4 Credits

Principles of weed control by cultural, biological, and chemical means; weed identification; introduction to herbicides and factors influencing their use. Lec/lab/rec.

**Equivalent to:** CSS 440

**Recommended:** One year biological science and one course in organic chemistry.

*Available via Ecampus*

## CROP 448, LIVESTOCK PRODUCTION ON PASTURE, 4 Credits

Focuses on grazing management in cultivated pastures in Oregon and other regions with similar agro-ecological conditions. Become familiar with the basic principles of pasture production, grazing management and feed planning and management in large and small ruminant production systems. Provides information on the underlying factors affecting pasture and animal production and product quality in pasture-based production systems. CROSSLISTED as ANS 448/CROP 448/RNG 448 and ANS 548/CROP 548/RNG 548.

**Equivalent to:** ANS 448, RNG 448

## CROP 460, SEED PRODUCTION, 3 Credits

An introduction to principles and practices of seed-based genetic delivery systems. Fundamentals of seed crop biology, cultivar maintenance and production methods are stressed. Concepts are illustrated using Pacific Northwest seed crops.

**Equivalent to:** CSS 460

**Recommended:** CROP 200 or CSS 200

*Available via Ecampus*

## CROP 463, SEED BIOLOGY, 3 Credits

Information about reproductive development of plants such as pollination and fertilization, which is important for the initiation of seed formation, will be provided. Embryo and endosperm development as well as accumulation of seed storage materials, which are major events during seed development, will be covered, as well as the dormancy and germination mechanisms in mature seeds. Lectures and discussions (presentations required for graduate students). Offered even years. Lec/lab. CROSSLISTED as CROP 463/HORT 463 and CROP 563/HORT 563.

**Equivalent to:** HORT 463

## CROP 470, OILSEEDS AND ESSENTIAL OIL CROPS, 3 Credits

Provides students with an understanding of the principles and the latest research information of field crop production, chemistry, oil extraction and utilization of OEOC. Includes the importance of OEOC, their uses, current trends, production systems for major crops, harvesting, drying, processing, and other post-harvest operations, fixed (fatty acid) and essential oil extraction methods, and oil utilization. Relevant recent research and review papers will be also included and the information discussed and assessed.

**Prerequisite:** CROP 200 with D- or better

## CROP 480, CASE STUDIES IN CROPPING SYSTEMS MANAGEMENT, 4 Credits

Decision cases involving the production of field and horticultural crops; individual and group activities; discussion of the decision-making process. Multiple field trips required. A field trip fee will be charged. CROSSLISTED as CROP 480/HORT 480 and CROP 580/HORT 580.

**Equivalent to:** HORT 480

**Recommended:** CROP 300 or HORT 300

*Available via Ecampus*

## CROP 499, SPECIAL TOPICS IN CROP SCIENCE AND SOIL SCIENCE, 1-16 Credits

Technical knowledge and skills development courses offered in a wide array of course formats. Topics vary from term to term and year to year. May be repeated for credit when topics differ.

**Equivalent to:** CROP 499H, CSS 499

*This course is repeatable for 16 credits.*

*Available via Ecampus*

## CROP 499H, SPECIAL TOPICS IN CROP SCIENCE AND SOIL SCIENCE, 1-16 Credits

Technical knowledge and skills development courses offered in a wide array of course formats. Topics vary from term to term and year to year. May be repeated for credit when topics differ.

**Attributes:** HNRS – Honors Course Designator

**Equivalent to:** CROP 499, CSS 499H

*This course is repeatable for 16 credits.*

## CROP 501, RESEARCH, 1-16 Credits

**Equivalent to:** CSS 501

*This course is repeatable for 16 credits.*

## CROP 503, THESIS, 1-16 Credits

**Equivalent to:** CSS 503

*This course is repeatable for 999 credits.*

## CROP 505, READING AND CONFERENCE, 1-16 Credits

**Equivalent to:** CSS 505

*This course is repeatable for 16 credits.*

## CROP 506, PROJECTS, 1-16 Credits

**Equivalent to:** CSS 506

*This course is repeatable for 16 credits.*

## CROP 507, SEMINAR, 1 Credit

Graded P/N.

**Equivalent to:** CSS 507

*This course is repeatable for 99 credits.*

## CROP 509, PRACTICUM IN TEACHING, 1-3 Credits

Developing skills and competence in teaching under staff supervision; organization and presentation of instructional material by assisting in laboratory, recitation, and lectures. CROSSLISTED as CROP 509/ENT 509/PBG 509/SOIL 509.

**Equivalent to:** CSS 509, ENT 509, PBG 509, SOIL 509

*This course is repeatable for 9 credits.*

## CROP 514, PRECISION AGRICULTURE, 4 Credits

Provides insight into the technology available to support precision agriculture and data management planning applications. Examines the concepts and applications of precision agriculture to teach practical use of hardware, equipment and software. An overview of current technology including autonomous vehicles, GPS, soil and crop proximal sensors, imagery and mapping, variable rate control systems, and yield monitors. Lec/lab.

## CROP 520, SEED SCIENCE AND TECHNOLOGY, 3 Credits

Seed formation and factors affecting their development and maturation. Seed structure and chemical composition. Physiological and biochemical aspects of seed germination, dormancy, deterioration and storability.

The concept of seed quality, its importance in agriculture, its attributes and impact on field performance. Methods of measuring seed quality of conventional and genetically modified seeds. Taught via Ecampus only.

**Equivalent to:** CSS 520

**Recommended:** Biology, plant anatomy and/or physiology courses

*Available via Ecampus*

## CROP 530, ORGANIC SOIL AND CROP MANAGEMENT, 3 Credits

Overview of organic soil and crop management, organic soil system management, soil microbiology under organic systems, cropping systems, organic cereal production systems, organic forage production system, organic horticultural systems management, organic field and horticulture cropping systems; recent research and case studies.

CROSSLISTED as CROP 530/SOIL 530.

**Equivalent to:** SOIL 530

**Recommended:** SOIL 525, CROP 200, SOIL 205 or introductory biology.

Completion or concurrent enrollment in AGRI 520

*Available via Ecampus*

## **CROP 533, SYSTEMATICS AND ADAPTATION OF VEGETABLE CROPS, 4 Credits**

Covers the botanical and taxonomic relationships, breeding systems and adaptation of vegetable crops. Fresh material is used to illustrate varietal differences and traits of importance. Lec/lab. Offered even years. CROSSLISTED as CROP 433/HORT 433 and CROP 533/HORT 533.

**Equivalent to:** CSS 533, HORT 533

**Recommended:** BI 102 or BI 213 or BI 311 or HORT 430 or CSS 430 or PBG 430 or HORT 450 or CSS 450 or PBG 450

## **CROP 540, WEED MANAGEMENT, 4 Credits**

Principles of weed control by cultural, biological, and chemical means; weed identification; introduction to herbicides and factors influencing their use. Lec/lab/rec.

**Equivalent to:** CSS 540

**Recommended:** One year biological science and one course in organic chemistry.

*Available via Ecampus*

## **CROP 548, LIVESTOCK PRODUCTION ON PASTURE, 4 Credits**

Focuses on grazing management in cultivated pastures in Oregon and other regions with similar agro-ecological conditions. Become familiar with the basic principles of pasture production, grazing management and feed planning and management in large and small ruminant production systems. Provides information on the underlying factors affecting pasture and animal production and product quality in pasture-based production systems. CROSSLISTED as ANS 448/CROP 448/RNG 448 and ANS 548/CROP 548/RNG 548.

**Equivalent to:** ANS 548, RNG 548

## **CROP 560, SEED PRODUCTION, 3 Credits**

An introduction to principles and practices of seed-based genetic delivery systems. Fundamentals of seed crop biology, cultivar maintenance and production methods are stressed. Concepts are illustrated using Pacific Northwest seed crops.

**Equivalent to:** CSS 560

**Recommended:** CROP 200 or CSS 200

*Available via Ecampus*

## **CROP 563, SEED BIOLOGY, 3 Credits**

Information about reproductive development of plants such as pollination and fertilization, which is important for the initiation of seed formation, will be provided. Embryo and endosperm development as well as accumulation of seed storage materials, which are major events during seed development, will be covered, as well as the dormancy and germination mechanisms in mature seeds. Lectures and discussions (presentations required for graduate students). Offered even years. Lec/lab. CROSSLISTED as CROP 463/HORT 463 and CROP 563/HORT 563.

**Equivalent to:** HORT 563

## **CROP 570, OILSEEDS AND ESSENTIAL OIL CROPS, 3 Credits**

Provides students with an understanding of the principles and the latest research information of field crop production, chemistry, oil extraction and utilization of OEOC. Includes the importance of OEOC, their uses, current trends, production systems for major crops, harvesting, drying, processing, and other post-harvest operations, fixed (fatty acid) and essential oil extraction methods, and oil utilization. Relevant recent research and review papers will be also included and the information discussed and assessed.

**Prerequisite:** CROP 200 with D- or better

**Recommended:** Horticulture, biology or chemistry course

## **CROP 580, CASE STUDIES IN CROPPING SYSTEMS MANAGEMENT, 4 Credits**

Decision cases involving the production of field and horticultural crops; individual and group activities; discussion of the decision-making process. Multiple field trips required. A field trip fee will be charged. CROSSLISTED as CROP 480/HORT 480 and CROP 580/HORT 580.

**Equivalent to:** HORT 580

**Recommended:** CROP 300 or HORT 300

*Available via Ecampus*

## **CROP 590, EXPERIMENTAL DESIGN IN AGRICULTURE, 4 Credits**

Field layout, analysis, and interpretation of basic experimental designs used in agronomy and plant breeding and including field plot techniques such as optimum plot size and shape, factorial arrangement, replication, sub-sampling, randomization, and blocking. Recitation provides practical experience with SAS. Lec/rec.

**Equivalent to:** CSS 590

**Recommended:** ST 351

*Available via Ecampus*

## **CROP 599, SPECIAL TOPICS IN CROP SCIENCE AND SOIL SCIENCE, 0-16 Credits**

Technical knowledge and skills development courses offered in a wide variety of course formats. Topics vary from term to term and year to year. May be repeated for credit when topics differ.

**Equivalent to:** CSS 599

*This course is repeatable for 16 credits.*

## **CROP 601, RESEARCH, 1-16 Credits**

**Equivalent to:** CSS 601

*This course is repeatable for 16 credits.*

## **CROP 603, THESIS, 1-16 Credits**

**Equivalent to:** CSS 603

*This course is repeatable for 999 credits.*

## **CROP 605, READING AND CONFERENCE, 1-16 Credits**

**Equivalent to:** CSS 605

*This course is repeatable for 16 credits.*

## **CROP 606, PROJECTS, 1-16 Credits**

**Equivalent to:** CSS 606

*This course is repeatable for 16 credits.*

## **CROP 607, SEMINAR, 1 Credit**

Graded P/N.

**Equivalent to:** CSS 607

*This course is repeatable for 99 credits.*

## **CROP 608, WORKSHOP, 1-16 Credits**

**Equivalent to:** CSS 608

*This course is repeatable for 16 credits.*

## **CROP 609, PRACTICUM IN TEACHING, 1-3 Credits**

Developing skills and competence in teaching under staff supervision; organization and presentation of instructional material by assisting in laboratory, recitation, and lectures. Graded P/N.

**Equivalent to:** ENT 609, PBG 609, SOIL 609

*This course is repeatable for 9 credits.*

## **CROP 660, HERBICIDE SCIENCE, 4 Credits**

Absorption, movement, and mechanism of action in plants; behavior of herbicides in soil. Offered alternate years.

**Recommended:** BOT 331 and (CSS 440 or CSS 540 or CROP 440 or CROP 540)

## **CROP 670, PHYSIOLOGY OF CROP YIELD, 3 Credits**

Concepts of crop growth and production in relation to environmental and physiological factors and their interactions; current literature.

**Equivalent to:** CSS 670

**Recommended:** BOT 331

## **CROP 699, SPECIAL TOPICS IN CROP SCIENCE AND SOIL SCIENCE, 1-16 Credits**

**Equivalent to:** CSS 699

*This course is repeatable for 16 credits.*