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. Open to all students. CROSSLISTED as ENT 101, SOIL 101.

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. 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.

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.

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 HORT 300.
Recommended: One year of general biology

CROP 310. FORAGE PRODUCTION. (4 Credits)
Importance of, and current production practices for, forage crops. Lec/ lab.
Recommended: (CSS 300 or CROP 300 or HORT 300) and (CSS 305 or CSS 205 or SOIL 205)

CROP 319. PRINCIPLES OF FIELD CROP PRODUCTION. (3 Credits)
Provides students with an understanding of the basic principles of field crop production-tiltage, soil testing, fertilization, variety selection, planting, and in-season crop management. Management practices for wheat, corn and soybean as .
Recommended: CROP 280 and SOIL 205

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
Recommended: CSS 200 or CROP 200

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

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.

CROP 401. RESEARCH. (1-16 Credits)
This course is repeatable for 16 credits.

CROP 403. THESIS. (1-16 Credits)
Independent, original study and preparation of a senior thesis. 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)
Senior seminar intended to instruct students on proper techniques for presentation of scientific material. Each student is expected to prepare and present a scientific seminar and to submit written documentation supporting that seminar.

CROP 410. INTERNSHIP. (1-6 Credits)
Professional work experience previously approved and supervised by the department, written report required. 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 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.
Recommended: College-level plant biology and/or taxonomy courses.
CROP 200. 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.
Recommended: Biology, plant anatomy and/or physiology 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.
Recommended: Biology, plant anatomy and/or physiology courses

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. Lec/lab. Offered even years.
CROSSLISTED as HORT 433/HORT 533.
Prerequisites: BI 102 with D- or better or BI 213 with D- or better or BI 311
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

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

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.
Recommended: CROP 200 or CSS 200

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.
CROSSLISTED as HORT 463/HORT 563. Lec/lab.
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 OEC. Includes the importance of OEC, 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.
Prerequisites: 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 HORT 480/HORT 580.
Equivalent to: HORT 480
Recommended: CROP 300 or HORT 300

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
This course is repeatable for 16 credits.

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
This course is repeatable for 16 credits.

CROP 501. RESEARCH. (1-16 Credits)
This course is repeatable for 16 credits.

CROP 503. THESIS. (1-16 Credits)
This course is repeatable for 999 credits.

CROP 505. READING AND CONFERENCE. (1-16 Credits)
This course is repeatable for 16 credits.

CROP 506. PROJECTS. (1-16 Credits)
This course is repeatable for 16 credits.

CROP 507. SEMINAR. (1 Credit)
Graded P/N.
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 ENT 509, PBG 509,
SOIL 509.
Equivalent to: 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.
Recommended: Biology, plant anatomy and/or physiology courses
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 SOIL 530.
Equivalent to: SOIL 530
Recommended: SOIL 525, CROP 200, SOIL 205 or introductory biology. Completion or concurrent enrollment in AGRI 520
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. CROSSLISTED as HORT 433/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.
Recommended: One year biological science and one course in organic chemistry.
CROP 560. SEED PRODUCTION. (3 Credits)
Recommended: CROP 200 or CSS 200
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. CROSSLISTED as HORT 463/HORT 563. Lec/lab.
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.
Prerequisites: 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 HORT 480/HORT 580.
Equivalent to: HORT 580
Recommended: CROP 300 or HORT 300
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.
Recommended: ST 351
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.
This course is repeatable for 16 credits.
CROP 601. RESEARCH. (1-16 Credits)
This course is repeatable for 16 credits.
CROP 603. THESIS. (1-16 Credits)
This course is repeatable for 99 credits.
CROP 605. READING AND CONFERENCE. (1-16 Credits)
This course is repeatable for 16 credits.
CROP 606. PROJECTS. (1-16 Credits)
This course is repeatable for 16 credits.
CROP 607. SEMINAR. (1 Credit)
Graded P/N.
This course is repeatable for 99 credits.
CROP 608. WORKSHOP. (1-16 Credits)
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.
Recommended: BOT 331
CROP 699. SPECIAL TOPICS IN CROP SCIENCE AND SOIL SCIENCE. (1-16 Credits)
This course is repeatable for 16 credits.