AGRICULTURE AND NATURAL RESOURCES

The Agriculture and Natural Resource (AGNR) Department prepares students with the knowledge and workforce skills to enter rapidly evolving career fields in Agriculture and Natural Resource Management. The rapid evolution in the scope and type of these career opportunities are driven by the reality that California and the United States are rapidly reaching a crisis situation in the management and conservation of natural resources. The recent crises with water and energy in California bear witness to this fact. The most important issues concern the critical natural resources of food, energy, water, air, minerals, wild-land, and wildlife. It is essential that our society be taught a greater awareness of the need to conserve and sustainably manage these resources. Careers and the public and private entities that produce, manage, and use these resources are expanding rapidly as the critical nature of these issues become more apparent. Individuals that are trained in agricultural and natural resource management principles and technologies are perfectly positioned to take advantage of these exciting opportunities.

The AGNR department provides students with a Guided Career Technical Pathways in: Agricultural Sciences and Natural Resources (ASNR). This pathway is designed to provide a seamless progression of study that can start in High School, through Community College, via one of two Associate of Science Transfer degrees- Plant Sciences or Animal Sciences and culminating in a University Degree. Students may also transition more directly into a career by taking career relevant classes and completing one or more of six(6) career focused Certificates of Achievement (in: Animal Science; Equine Science; Ecological Restoration; Environmental Horticulture and Landscaping; Natural Resource and Environmental Technology and Plant Science and Sustainable Agriculture) and/or a Environmental Horticulture Associates degree.

Career Opportunities

Agribusiness Managers, Economists, Statisticians and Analysts; Agriculture and Conservation Extension Officers; Agricultural and Food Inspectors; Agriculture and Natural Resource Educators; Artificial Insemination and Embryo Transfer Technician; Air Quality Monitoring Technicians; Arborists and Tree Pruning Technicians; Animal Scientists, Animal Breeders Trainers and Managers; Animal Product and Pharmaceutical Representatives; Education and Conservation Technicians Environmental Scientists; Environmental and Natural Resource Planners; Ecological Restoration Specialists; Farm/Ranch Hands and Managers; Field Biologists; Floral Design Technicians and Managers; Food Science, Processing and Safety Technician; Geographic Information Technicians and Analysts; Golf Course and Turf Grass Managers; Horticulture; Livestock Breed, Publication and Sales Representatives; Meat and Dairy Quality Control and Inspection Technicians Pesticide and Fertilizer Industry Sales Representatives; Irrigation Consultants and Technicians; Laboratory Technician, Landscape Architects and Designers; Landscape Contractors and Technicians; Natural Resource Management Technicians, Nursery Technicians and Managers; Nutritionist; Organic Practices Advisors; Park and Wildlife Managers; Pest Control Advisors, Plant Breeders, Propagators and Growers; Research Scientist; Solid Waste and Recycling Technicians; Waste Water Technicians; Water Conservation and Distribution Technicians; Environmental Sciences Lab Technicians; Wildlife, Fish and Conservation Biologists; Veterinary Assistants; Zoo, City, Country Club and Botanic Garden Horticulturists.

Faculty

Slade, Neville

Transfer

- University of California, Riverside College of Natural and Agricultural Sciences
- University of California, Davis College of Agriculture and Environmental Science
- California State University
  CSU campuses that offer majors or concentrations in Agricultural Science, Agriculture Business and Management, Environmental Horticulture, Plant Science, Natural Resource Management, Environmental Science, Animal and Veterinary Science, to include: Bakersfield, Chico, Fresno, Humboldt, Cal Poly Pomona and San Luis Obispo, San Bernardino, Stanislaus.

For the most up-to-date information on these programs and others, visit assist.org (https://www.assist.org/). Please stop by the Transfer Center in Building 23 or make an appointment with a counselor if you have questions.

Environmental Horticulture, AS

State Control Number: 04938
Program Code: OH.AS
Approved for Federal Financial Aid: Yes

This degree focuses on preparing students for careers in the landscaping, horticulture, agriculture and natural resource management sectors. The Environmental Horticulture major requires 18 units from any Agriculture and Natural Resource coursework. Career opportunities include landscape design, construction and management; nursery and greenhouse production; hydroponics, tree pruning; conservation; pest control; horticulture and fertilizer industry sales; irrigation design, installation and maintenance; floral design; agriculture production; soil health management, pest control, country club and botanic garden horticulture and plant material sales.

AGNR 138 Work Experience Education Art may be used as elective credit, but may not be used to fulfill major requirements.

To earn this degree, complete the major coursework with “C” grades or better and all of the following graduation requirements: 60 minimum degree-applicable units (including a maximum 4 units of activity); 2.0 minimum overall GPA; 12 degree-applicable units through VVC; Information Competency; Global Citizenship; Kinesiology, and the VVC General Education pattern (https://catalog.vvc.edu/degrees-certificates/vvcge/#vvcge). Courses may count in one area only, either in the major or in a general education category. Courses counted in one AA/AS major may not be used in another AA/AS major.

Code	Title	Units
Required Courses		
Complete 18 units from the following:		18.0
BIOL 100	General Biology	
CT 142	Renewable Energy Fundamentals	
FIRE 109	Wildland Fire Control	
POLS 206	Introduction to Environmental Policy and Natural Resource Management	

Code	Title	Units
Any course from Agriculture & Natural Resources (AGNR) numbered 50-199, except 138		
Total Units		**18**

Agricultural Animal Sciences, AS-T

State Control Number: 37514
Program Code: AGANSCIT.AS or AGANSCIT.IGETC.AS
Approved for Federal Financial Aid: Yes

This curriculum focuses on giving students a basic understanding of animal anatomy and physiology; animal production systems and issues in animal production that underlie a sustainable food supply. Competencies taught include Animal Science, Animal Nutrition, Animal Health/Veterinary Science and Environmental Science. Prepares student for employment in the animal science and production industry. Careers include: Agribusiness Managers, Nutritionists, Agriculture and Conservation Extension Officers, Agricultural Food Inspectors, Farm and Ranch Managers, Animal Trainers, Veterinary Assistants, Pharmaceutical and Feed Representatives. Students should consult with a counselor to determine whether this degree is the best option for their transfer goals and note that university degrees that are focused on preparing students for acceptance to a Veterinary School will require extra classes.

To earn this degree complete the major coursework listed here with "C" grades or better and the following graduation requirements: 60 CSU transferable units; either the CSU General Education (https://catalog.vvc.edu/degrees-certificates/csuge-breadth/#csuge) or IGETC (https://catalog.vvc.edu/degrees-certificates/igetc/#igetc) (for CSU or UC) pattern; and a 2.0 minimum overall CSU GPA. Courses used in the major may also be counted in the general education areas. Courses used for this major may also be used to earn other degrees at VVC.

Code	Title	Units
Required Courses		
CHEM 100	Introductory Chemistry	4.0
AGNR 178	Agriculture Economics	3.0
or ECON 102	Principles of Economics: Micro	
AGNR 100	General Animal Science	3.0
MATH 120	Introduction to Statistics	4.0-5.0
or MATH 120H		
or MATH 120S	Introduction to Statistics With Skills Support	
List A		
Complete one course from each of the following areas:		6.0-7.0
Area 1: Animal Production		
AGNR 102	Equine Science	
Area 2: Animal Health		
AGNR 101L	Livestock Feeding and Nutrition	
List B		
Complete up to 8 units of the following (any List A course not already used or choose a course below):		0-8.0
AGNR 175	Sustainable Agriculture, Environment and Society	
ALDH 125	Medical Aspects of Drugs & Alcohol	
BADM 103	Financial Accounting Fundamentals	
BADM 104	Managerial Accounting	
BIOL 100	General Biology	
CHEM 201	General Chemistry	
CHEM 202	General Chemistry	
CIS 101	Computer Literacy	
Total Units		**20-30**

Agricultural Plant Sciences, AS-T

State Control Number: 37515
Program Code: AGPLSCIT.AS or AGPLSCIT.IGETC.AS
Approved for Federal Financial Aid: Yes

This degree focuses on giving students a basic understanding of the proper structure and function of plant systems that underlie healthy ecosystems and provide a sustainable food supply. Competencies taught include: plant breeding, soil analysis, integrated pest management, irrigation methods, ecological restoration practices, and sustainable agriculture practices such as minimal tillage, crop rotation, poly-culture, and natural fertilizers. Students learn the best management practices, technology and skills to enter agricultural and related natural resource management careers, which include: Agriculture and Conservation Extension Officers; Agricultural Food Inspectors; Ecological Restoration Technicians, Farm, Ranch and Aquaculture Managers; Irrigation Designers and Installers; Golf Course and Turf Grass Managers; Irrigation and Fertilizer Industry Sales Representatives; Environmental Science/Natural Resource Management Technicians; Nursery and Greenhouse Technicians and Managers; Organic Practices Advisors, Park and Wildlife Managers; Pest Control Technicians and Advisors; Plant Propagators and Growers; Water Management and Conservation Technicians; Soils and Water Analysis Lab Technicians; and City, Country Club and Botanic Garden Horticulturists. Students should consult with a counselor to determine whether this degree is the best option for their transfer goals.

To earn this degree complete the major coursework listed here with "C" grades or better and the following graduation requirements: 60 CSU transferable units; either the CSU General Education (https://catalog.vvc.edu/degrees-certificates/csuge-breadth/#csuge) or IGETC (https://catalog.vvc.edu/degrees-certificates/igetc/#igetc) (for CSU or UC) pattern; and a 2.0 minimum overall CSU GPA. Courses used in the major may also be counted in the general education areas. Courses used for this major may also be used to earn other degrees at VVC.

Code	Title	Units
Required Courses		
AGNR 131	Introduction to Soil Science	4.0
CHEM 100	Introductory Chemistry	4.0
AGNR 178	Agriculture Economics	3.0
or ECON 102	Principles of Economics: Micro	
MATH 120	Introduction to Statistics	4.0-5.0
or MATH 120H		
or MATH 120S	Introduction to Statistics With Skills Support	
AGNR 123	Introduction to Plant Science	4.0
List A		
Complete one course from the following:		3.0-4.0
AGNR 122	Plant Propagation/Greenhouse Production	
AGNR 140	Plant Material and Usage I	
AGNR 141	Plant Materials and Usage II	
CHEM 281	Organic Chemistry	
List B		

Code	Title	Units
Complete up to 8 units from the following (any List A course not already used or choose a course below):		0-8.0
AGNR 121	Introduction to Environmental Horticulture	
AGNR 150	Landscape Design	
AGNR 152	Irrigation and Water Management	
AGNR 170	Environmental Science and Sustainability	
AGNR 175	Sustainable Agriculture, Environment and Society	
BADM 103	Financial Accounting Fundamentals	
BADM 104	Managerial Accounting	
BIOL 100	General Biology	
CHEM 201	General Chemistry	
CHEM 202	General Chemistry	
CIS 101	Computer Literacy	
CT 123	Surveying	
PHYS 100	Introductory Physics	
Total Units		**22-32**

Animal Science Specialist Certificate of Achievement

State Control Number: 38849
Program Code: ANIMSCSPEC.CERT
Approved for Federal Financial Aid: Yes

Prepares student for employment in the animal science and production industry. Careers include: Agribusiness Managers, Nutritionists, Agriculture and Conservation Extension Officers, Agricultural Food Inspectors, Farm and Ranch Managers, Animal Trainers, Veterinary Assistants, Pharmaceutical and Feed Representatives, Park and Wildlife Managers and Agriculture and Natural Resource Educators. Animal production is being asked to be sustainable-more economically, environmentally and socially responsible. This focus on sustainability is intensified by public concerns about “factory farming", food safety, antibiotic use and animal cruelty. This curriculum focuses on giving students a basic understanding of animal anatomy and physiology, animal production systems and health issues in animals. Competencies taught include Animal Science, Animal Nutrition, Animal Health, Veterinary Science, Soil Science, Plant Science and sustainable agricultural practices. A new breed of managers and technicians must adapt to these changes and have the skills to apply these new practices and technologies.

Code	Title	Units
Required Courses		
AGNR 100	General Animal Science	3.0
AGNR 101L	Livestock Feeding and Nutrition	3.0
AGNR 102	Equine Science	4.0
AGNR 107	Livestock Selection and Evaluation	3.0
AGNR 106	Veterinary Terminology and Technology	3.0
Total Units		**16**

Ecological Restoration Certificate of Achievement

State Control Number: 391010
Program Code: ECOLOGICALREST.CERT
Approved for Federal Financial Aid: Yes

This certificate provides a broad overview of the concepts and technologies that support ecological restoration of the ecological, physical and biological processes on an environmentally damaged site. This program also focuses on reclamation to minimize adverse effects of surface-mining and return lands to a beneficial end-use. Skills attained include: native plant propagation; plant material selection and planting; soil analysis and management; soil erosion control; performance standards and monitoring. This certificate prepares the student for entry-level positions within the nursery, recreational, restoration and land-use planning industry.

Code	Title	Units
Required Courses		
AGNR 60	Environmental Horticulture Laboratory	1.0
AGNR 74D	Ecological Restoration	1.0
AGNR 121	Introduction to Environmental Horticulture	3.0
AGNR 122	Plant Propagation/Greenhouse Production	3.0
AGNR 141	Plant Materials and Usage II	3.0
AGNR 172	Natural Resource Remote Sensing & GIS	3.0
AGNR 173	Watershed Management and Restoration	3.0
Total Units		**17**

Environmental Horticulture and Landscaping Certificate of Achievement

State Control Number: 38574
Program Code: ENVHORTLAND.CERT
Approved for Federal Financial Aid: Yes

The Environmental Horticulture and Landscaping Certificate prepares the student with the best management practices, science and technology skills to be successful in the horticulture and landscape industry. Career opportunities include: landscape design, construction and management; nursery and greenhouse production; hydroponics, tree pruning; conservation; pest control; horticulture and fertilizer industry sales; irrigation design, installation and maintenance; floral design; agriculture production; country club and botanic garden horticulture and plant material sales. Pressure on our natural resources and stringent environmental policies dictate socially acceptable and environmentally compatible solutions. These solutions include: native and drought tolerant plant palettes; natural fertilizers; natural pesticides and integrated pest management; drip irrigation to reduce water consumption and soil erosion. Students receive training and are encouraged to take industry certifications in: Qualified Water Efficient Landscaper (QWEL); Certified Irrigation Technician (CIT); and the Pesticide Applicator License (PA).

Code	Title	Units
Required Courses		
AGNR 60	Environmental Horticulture Laboratory	1.0
AGNR 74D	Ecological Restoration	1.0
AGNR 121	Introduction to Environmental Horticulture	3.0
AGNR 122	Plant Propagation/Greenhouse Production	3.0
AGNR 140	Plant Material and Usage I	3.0
AGNR 150	Landscape Design	3.0
AGNR 152	Irrigation and Water Management	3.0

Code	Title	Units
AGNR 153	Natural Landscape Maintenance	3.0
Total Units		**20**

Equine Science Specialist Certificate of Achievement

State Control Number: 38850
Program Code: EQNSCNSPEC.CERT
Approved for Federal Financial Aid: No

This certificate focuses on basic husbandry, preventative care and veterinary technology in horses. The anatomy and physiology of the horse is studied in comparison to other farm animals to give the student a picture of the need for specialized animal husbandry in the horse. Skills in basic health care, Radiology, Ultrasound, Endoscopy, Artificial Insemination and Embryo Transfer technology are emphasized. Preparation for careers in Equine production and breeding, education, training and health care.

Code	Title	Units
Required Courses		
AGNR 100	General Animal Science	3.0
AGNR 102	Equine Science	4.0
AGNR 105	Equine Health	3.0
AGNR 106	Veterinary Terminology and Technology	3.0
Total Units		**13**

Natural Resource and Environmental Technology Certificate of Achievement

State Control Number: 39103
Program Code: NATRESENVTECH.CERT
Approved for Federal Financial Aid: Yes

This certificate prepares students for the emerging "green" careers in industry and with natural resource management agencies such as: The Natural Resource Conservation Service, US Forestry Service, National Park Service, Bureau of Land Management, and other air and water management agencies. Students will learn the scientific concepts and skills needed to become technicians in: water and soils management, habitat restoration, ecological field data collection and interpretation, geospatial technologies, biodiversity management, and sustainable agriculture practices.

Code	Title	Units
Required Courses		
AGNR 74A	Sustainable Community Leadership	1.0
AGNR 74B	Biodiversity Management and Technology	1.0
AGNR 170	Environmental Science and Sustainability	4.0
AGNR 170L	Environmental Science Laboratory Laboratory	1.0
AGNR 172	Natural Resource Remote Sensing & GIS	3.0
AGNR 173	Watershed Management and Restoration	3.0
AGNR 177	Principles of Wildlife Management	3.0
Complete one course from the following:		1.0-4.0
AGNR 74C	Waste and Pollution Management	
AGNR 74D	Ecological Restoration	
AGNR 74E	Sustainable Agriculture Practices	
AGNR 74F		
AGNR 121	Introduction to Environmental Horticulture	
AGNR 122	Plant Propagation/Greenhouse Production	
AGNR 123	Introduction to Plant Science	
AGNR 131	Introduction to Soil Science	
AGNR 138	Work Experience Education Art	
AGNR 141	Plant Materials and Usage II	
AGNR 152	Irrigation and Water Management	
AGNR 171	Introduction to GIS in Natural Resources	
AGNR 175	Sustainable Agriculture, Environment and Society	
BIOL 100	General Biology	
CT 142	Renewable Energy Fundamentals	
FIRE 109	Wildland Fire Control	
POLS 206	Introduction to Environmental Policy and Natural Resource Management	
Total Units		**17-20**

Plant Science and Sustainable Agriculture Certificate of Achievement

State Control Number: 38516
Program Code: PLNTSCN.CERT
Approved for Federal Financial Aid: Yes

Prepares students with the best management practices, technology and skills to enter plant science related careers which include: Sustainable food production and processing, Agriculture and Conservation Extension Officers; Agricultural Food Inspectors; Ecological Restoration Technicians, Farm, Ranch and Aquaculture Managers; Irrigation Designers and Installers; Golf Course and Turf Grass Managers; Irrigation and Fertilizer Industry Sales Representatives; Environmental Science/ Natural Resource Management Technicians; Nursery and Greenhouse Technicians and Managers; Organic Practices Advisors, Park and Wildlife Managers; Pest Control Technicians and Advisors; Plant Propagators and Growers; Water Management and Conservation Technicians; Soils and Water Analysis Lab Technicians; and City, Country Club and Botanic Garden Horticulturists. Emerging technologies in integrated pest management (IPM), natural soil management, hydro-culture, ecological restoration and water management are emphasized. Students receive training and are encouraged to take the Pest Control Advisor (PCA) industry certification exam. This certificate also serves as a good crossover for students wishing to enter a natural resource management career.

Code	Title	Units
Required Courses		
AGNR 120	Integrated Pest Management	3.0
AGNR 122	Plant Propagation/Greenhouse Production	3.0
AGNR 123	Introduction to Plant Science	4.0
AGNR 131	Introduction to Soil Science	4.0
AGNR 141	Plant Materials and Usage II	3.0
AGNR 175	Sustainable Agriculture, Environment and Society	3.0
Total Units		**20**

Agriculture and Natural Resources Courses

AGNR 050 Innovations in Sustainable Agriculture And Horticulture (0.0 Units)
Students will learn the techniques and practices of Micro/Drip Irrigation, Hydroponics, Aquaponics, Intensive Vegetable Production, Permaculture and Ecological Restoration. Emphasis on hands on demonstrations and field studies where applicable.
Lab Hours: 54.0
Transfer: Not transferable

AGNR 60 Environmental Horticulture Laboratory (1.0 Units)
Horticulture laboratory setting for horticulture students to practice the skills gained from experience and traditional lecture/laboratory classes. This setting will further prepare students for employment in the horticulture industry.
Lab Hours: 54.0
Transfer: Not transferable

AGNR 60A Environmental Horticulture Laboratory (1.0 Units)
Horticulture laboratory setting for students to further develop skills taught in traditional lecture/lab classes. Particular emphasis on best practice, and technology for the production of vegetables, herbs, fruit and other food plants.
Lab Hours: 54.0
Transfer: Not transferable

AGNR 60B Environmental Horticulture Laboratory (1.0 Units)
Horticulture laboratory setting for students to further develop skills in the best practices and technology used for the production and maintenance of California Native plants for Ecological Restoration. Students learn propagation, seed collection and processing, pruning, organic fertilizing , pest management, drip irrigation and monitoring.
Lab Hours: 54.0
Transfer: Not transferable

AGNR 60C Environmental Horticulture Laboratory (1.0 Units)
Horticulture laboratory setting for students to further develop skills in the best practices, and technology used for the design, installation and management of low pressure and drip irrigation systems.
Lab Hours: 54.0
Transfer: Not transferable

AGNR 61C Recycling & Essentials of Composting (0.5 Units)
Students learn how to make productive use of unwanted yard waste and other biomass. Topics include: benefits of composting; the biological process of composting; materials that can and cannot be composted; composting methods; vermiculture; using the finished product as a soil conditioner or mulch; and using other solid waste such as straw and concrete in the landscape.
Lecture Hours: 9.0
Transfer: Not transferable

AGNR 74 Conservation & Sustainability Practices (5.0 Units)
This class introduces students to the exciting and rapidly expanding practices in the conservation and sustainable use of our natural resources. Local case studies and emerging green technology is presented. Students explore the social, economic, and environmental issues that underlie this new frontier in societal development. The Mojave Desert provides a wonderful natural laboratory where many of these sustainability issues can be explored.
Lecture Hours: 90.0
Transfer: Not transferable

AGNR 74A Sustainable Community Leadership (1.0 Units)
Students learn to plan,manage and implement sustainable development practices; development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. Focus is on the principles of Sustainable Development that ensure effective leadership and a balance of environmental, social, and economic issues. Extensive use is made of case studies and practical on-site experiences in the Mojave Desert.
Lecture Hours: 18.0
Transfer: Not transferable

AGNR 74B Biodiversity Management and Technology (1.0 Units)
The reduction of species diversity is a major indicator of the health of complete ecosystem. This class explores the science, tools and practice of conserving and managing biodiversity. Students learn to implement the exciting tools of Geographic Information Systems (GIS), Global Positioning Systems (GPS), Satellite Imaging and Database Management, along with an understanding of the expanding career opportunities in these fields. Extensive use is made of local Mojave Desert case studies.
Lecture Hours: 18.0
Transfer: Not transferable

AGNR 74C Waste and Pollution Management (1.0 Units)
Students study the use of our natural resources on the environmental, social and economic health of our planet. Focus on best practice and technologies for solid waste, green waste and waste water treatment. Careers in this rapidly expanding and dynamic field are highlighted. The consequences of poor management on the quality of our water and air are explored using real-world examples in the Mojave Watershed.
Lecture Hours: 18.0
Transfer: Not transferable

AGNR 74D Ecological Restoration (1.0 Units)
Students study ecological restoration that effectively repairs the damage done by human activities to natural habitats and ecosystems. The restoration methodologies study include: native materials acquisition, seed banking, Mycorrhizal relationships, seed treatments, greenhouse propagation, plant nutrient requirements, water requirements, transplanting protocols, soil evaluation and rehabilitation. Case studies will include riparian and surface mine reclamation in the Mojave Desert.
Lecture Hours: 18.0
Transfer: Not transferable

AGNR 74E Sustainable Agriculture Practices (1.0 Units)
This class explores the emerging practices of sustainable agriculture, in response to the negative consequences of industrialized agriculture. Tremendous progress has been made towards farming with nature and restoring ranches to be part of the natural ecosystem. This "farming with the wild" is not only producing more food but enhancing the environment. Students study sustainable practices such as: use of Heirloom seeds, natural fertilizers, drip irrigation, Integrated Pest Management, rotational grazing, organic farming, native hedgerows and natural pollination.
Lecture Hours: 18.0
Transfer: Not transferable

AGNR 100 General Animal Science (3.0 Units)
A scientific based overview of livestock and poultry production industry. Highlights anatomy, physiology, reproduction, nutrition, behavior, and health. Focuses on marketing pertinent to environmental and social issues, such as animal welfare. Includes human opportunity to influence trait inheritance, population densities, productivity and sustainability of the animal production industry. C-ID: AG-AS 104. CSU/UC
Lecture Hours: 54.0
Transfer: Transfers to both UC/CSU

AGNR 101L Livestock Feeding and Nutrition (3.0 Units)
The science of animal nutrition including the fundamentals of digestion and absorption in both ruminants and non-ruminants. Anatomy of large animal digestive systems will be discussed along with feed requirements. Students will formulate rations for a variety of livestock for maximum performance and growth. Laboratory required.
Lecture Hours: 36.0; Lab Hours: 54.0
Transfer: Transfers to both UC/CSU

AGNR 102 Equine Science (4.0 Units)
Survey of the equine industry, encompassing the importance and role of the horse throughout history. Focus is on breed selection and development, nutrition, disease, preventative health, reproductive management, basic horsemanship, stabling alternatives and career opportunities. Laboratory required. CSU/UC
Lecture Hours: 54.0; Lab Hours: 54.0
Transfer: Transfers to both UC/CSU

AGNR 105 Equine Health (3.0 Units)
Students learn basic equine veterinary care, principles and practices. Course introduces the diseases and lameness associated with the musculoskeletal system, as well as diseases of the respiratory, digestive, neurological, and reproductive systems. Emphasis is on preventive maintenance and managerial practices needed to keep the equine athlete, broodmare, or family horse in good health. CSU
Lecture Hours: 54.0
Transfer: Transfers to CSU only

AGNR 106 Veterinary Terminology and Technology (3.0 Units)
Introduction to veterinary terminology and technology for small and large animal diagnostic evaluation. (Formerly AGNR 51)
Lecture Hours: 54.0
Transfer: Transfers to CSU only

AGNR 107 Livestock Selection and Evaluation (3.0 Units)
Detailed analysis of various visual and physical methods of appraising beef, sheep, swine and horses concerning functional and economic value. Written and oral summaries of evaluation will be learned. Specific reference will be made to performance data, preparing animals for market and show.
Lecture Hours: 54.0
Transfer: Transfers to CSU only

AGNR 108 Animal Health & Sanitation (3.0 Units)
Study of common livestock diseases and fundamentals of immunity to include the livestock technician's role in promoting animal health and the foundation of disease control programs. Students are introduced to state-of-the art animal health care technology to include Endoscopy, Tomography (CT Scan), Magnetic Resonance Imaging, Radiography, Fluoroscopy, and Ultrasoundgraphy.
Lecture Hours: 54.0
Transfer: Transfers to CSU only

AGNR 120 Integrated Pest Management (3.0 Units)
Students will learn the principles and concepts of managing Arthropods and certain relatives affecting food, plants, animals, people, and their structures. Emphasizing insects, mites, ticks, spiders, and miscellaneous related groups; their morphological and phylogenetic relationships; habits and habitats; affecting the well-being of people. Class focuses on pest identification and the introduces the practices of Integrated Pest Management. CSU/UC
Lecture Hours: 36.0; Lab Hours: 54.0
Transfer: Transfers to CSU only

AGNR 121 Introduction to Environmental Horticulture (3.0 Units)
Introduction to environmental horticulture with an emphasis on propagation, nursery operations and sales, landscaping and ecological restoration. Topics include: plant structure, physiology and identification, propagation, landscape design, seed management, soil analysis, integrated pest management, and career opportunities.
Lecture Hours: 36.0; Lab Hours: 54.0
Transfer: Transfers to CSU only

AGNR 122 Plant Propagation/Greenhouse Production (3.0 Units)
Students will explore the challenges of propagation and production of native and drought tolerant plants that are adapted to the extreme climate of the High Desert using techniques commonly used in a professional greenhouse environment. Topics include sexual and asexual propagation techniques. The nursery operations of growing structures; site layout; preparation of planting media are emphasized. C-ID: AG-EH 116 L.
Lecture Hours: 36.0; Lab Hours: 54.0
Transfer: Transfers to CSU only

AGNR 123 Introduction to Plant Science (4.0 Units)
This course provides an introduction to plant science with topics in plant structure and function and the environmental factors involved in plant growth and development. Students will learn: plant physiology; plant reproduction and propagation; effects of soil; water and climate; use of plants to meet human needs; sustainable horticultural practices; integrated pest management; the role of new technologies in contemporary plant science. C-ID: AG-PS 106 L. CSU, UC.
Lecture Hours: 54.0; Lab Hours: 54.0
Transfer: Transfers to both UC/CSU

AGNR 131 Introduction to Soil Science (4.0 Units)
The study of soil derivation, classification, and characteristics. Soil use and management including erosion, moisture retention, structure, cultivation, organic matter and microbiology. Laboratory topics include soil type, classification, soil reaction, soil fertility and physical properties of soil. Laboratory included. C-ID: AG-PS 128 L.
Lecture Hours: 54.0; Lab Hours: 54.0
Transfer: Transfers to both UC/CSU

AGNR 138 Work Experience Education Art (1-8 Units)
Work Experience Education is a key element of Victor Valley College's comprehensive approach to career development. Work Experience Education is a 16-, 12-, or 8-week course that enables students to receive college credit for paid or unpaid work opportunities. This course helps students gain valuable on-the-job work experience while providing practical education, best practices in professional development, and academic guidance through the course of their work opportunity. The combination of practical experience and curricular development empowers students to be more competitive, efficient and valuable employees upon completion of this program and/or their academic program trajectory. The course is ideal for students who are cross-training at their current worksite for upward mobility or seeking career changes, as well as those looking for entry-level occupational training through work-based learning experiences such as through an internship. Work Experience Education transforms community businesses, industries, and public agencies into expanded educational training laboratories. Credit is awarded on the basis of learning objectives completed and the number of hours the student trains. Students must create/complete new learning objectives each semester they enroll. Students may utilize their present work sites. More details are available in the Work Experience Education Office, (760) 245-4271, ext. 2281. The office, located in the Academic Commons, is open Monday-Thursday, 8:00 a.m.-1:00 p.m., 2:00-6:00 p.m., and by appointment. Please refer to the Work Experience Education section in this catalog for more information. CSU
Transfer: Transfers to CSU only

AGNR 140 Plant Material and Usage I (3.0 Units)
Students will learn how to identify and use an array of plants appropriate for the climate of Southern California and the Mojave Desert. The growth habits and cultural requirements of drought tolerant landscape plants, vegetables, fruit trees, herbs, and houseplants will be discussed. This class is essential for landscape designers/installers and horticulturalists working in Southern California. C-ID: AG-EH 108 L. CSU/UC
Lecture Hours: 36.0; Lab Hours: 54.0
Transfer: Transfers to CSU only

AGNR 141 Plant Materials and Usage II (3.0 Units)
Students study the identification and usage of plants native to Southern California's mountains, deserts, & coastal areas. Emphasis will be placed on Mojave Desert native plants. Class will focus on the uses of these plants: commercially; for landscaping, in sustainable agriculture; fire ecology, land development; and ecological restoration. Class includes field trips to experience native plants in their natural environment. C-ID: AG-EH 112 L. CSU,UC
Lecture Hours: 36.0; Lab Hours: 54.0
Transfer: Transfers to both UC/CSU

AGNR 150 Landscape Design (3.0 Units)
Fundamentals and history of landscape design. Study of color, texture, form and use of landscape material. Emphasis will be on selection and placement of plant material, walks, patios, decks and other structures for landscape use. Students design and draft actual landscape projects.
Lecture Hours: 36.0; Lab Hours: 54.0
Transfer: Transfers to CSU only

AGNR 152 Irrigation and Water Management (3.0 Units)
This course prepares students to design, install and maintain a water efficient irrigation system. Topics include water supply, basic hydraulics, component identification and terminology, system layout, pipe sizing, types of heads, valves, controllers, and practices related to appropriate horticulture and small scale agriculture in California. UC,CSU
Lecture Hours: 36.0; Lab Hours: 54.0
Transfer: Transfers to both UC/CSU

AGNR 153 Natural Landscape Maintenance (3.0 Units)
This course prepares students to enhance the function and aesthetic value of public and private landscapes by applying appropriate maintenance techniques. Topics include plant selection, pruning, watering, soil fertility, pest management, weed control, and landscape maintenance business practices. Sustainable landscape practices will be emphasized throughout the course.
Lecture Hours: 36.0; Lab Hours: 54.0
Transfer: Transfers to CSU only

AGNR 160 Beginning Floral Design (3.0 Units)
An introduction to the fundamental theories, techniques and skills currently practiced in the floral industry. Includes applied art principles, cut flower care, handling practices, proper use of florist tools and materials, pricing of floral products and use of current floral business technology. Students construct corsages, floral arrangements, and foliage plant items, which meet floral industry standards.
Lecture Hours: 36.0; Lab Hours: 54.0
Transfer: Transfers to CSU only

AGNR 161 Advanced Floral Design (3.0 Units)
Contemporary design theory emphasizing creativity, self expression, and professional design situations. Students learn the skills and techniques of the floral industry, including wedding, sympathy, party, holiday, high style and advanced floral designs and displays. Other techniques include working with the customers, consultations, pricing and the use of computers.
Lecture Hours: 36.0; Lab Hours: 54.0
Transfer: Transfers to CSU only

AGNR 170 Environmental Science and Sustainability (4.0 Units)
A study of the applied natural sciences that support the sustainable use and conservation of the world's natural resources including: soil, water, forests, minerals, plant and animal life. Focused on implementing sustainability principles to balance environmental policy, economic stability and social equity to manage modern problems in resource use and global environmental issues. Emphasis on the the citizen's role in conservation with particular attention to California conditions.
Lecture Hours: 72.0
Transfer: Transfers to both UC/CSU

AGNR 170L Environmental Science Laboratory Laboratory (1.0 Units)
Students gain hands-on skills and experience with the scientific concepts and appropriate technology that support environmental science and conservation. Students will be introduced to the fundamental issues in natural resource management and the agencies responsible for their sustainable management. The major natural resources of land, soils, water, air, biodiversity, renewable energy, and ecosystems, will be covered along with the sustainable practices needed for their management.
Lab Hours: 54.0
Transfer: Transfers to both UC/CSU

AGNR 171 Introduction to GIS in Natural Resources (3.0 Units)
Focus on electronic methods of cartography, including mapping concepts and methods in Agriculture and Natural Resource Management (AGNR) applications. This course covers the history, structure and uses of the basic operations of Geographic Information Systems (GIS), including hardware and software requirements. Introduction to other Geo-Spatial Applications and Geographic Positioning Systems. UC,CSU
Lecture Hours: 36.0; Lab Hours: 54.0
Transfer: Transfers to both UC/CSU

AGNR 172 Natural Resource Remote Sensing & GIS (3.0 Units)
This course examines Geospatial Technologies, including Geographic Information Systems (GIS), in an interdisciplinary approach, supporting decision making in diverse natural resource scenarios. Drone technology, aerial photographs, Global Positioning Systems (GPS) and satellite imagery will be used to interpret, recognize and delineate vegetation types, land management practices, wildlife habitat, water resource management and other significant environmental parameters.
Lecture Hours: 36.0; Lab Hours: 54.0
Transfer: Transfers to CSU only

AGNR 173 Watershed Management and Restoration (3.0 Units)
An introduction to the methods, technology, and tools used to restore and enhance watershed health. This class focuses on water resource management in the West Mojave Desert and makes appropriate linkages to the critical nature of water management in California and around the world. Students explore the economic, political, social, and environmental pressures that must be balanced in providing sustainable water supplies. Students learn the scientific principles that support habitat restoration, groundwater management, soil erosion prevention, and water quality management. CSU
Lecture Hours: 54.0
Transfer: Transfers to CSU only

AGNR 175 Sustainable Agriculture, Environment and Society (3.0 Units)
This course explores how society is moving away from an industrialized to a sustainable agricultural model. Emphasis on sustainable agriculture's use of technology and the corresponding improvement of the health of the environment, economy, and society.
Lecture Hours: 54.0
Transfer: Transfers to both UC/CSU

AGNR 177 Principles of Wildlife Management (3.0 Units)
The study of plant and animal ecology in relation to principles of wildlife management with an emphasis on identification, sexing and aging criteria, wildlife population dynamics, wildlife habitat, and a review of trapping and marking techniques. Students will be introduced to the principles of biodiversity management and the use of Geospatial Technologies to monitor wildlife populations. CSU
Lecture Hours: 54.0
Transfer: Transfers to CSU only

AGNR 178 Agriculture Economics (3.0 Units)
The place of agriculture and farming in the economic system; basic economic concepts, and problems of agriculture; pricing and marketing problems, factors of production; and state and federal farm programs affecting the farmer's economic position.
Lecture Hours: 54.0
Transfer: Transfers to both UC/CSU

Program Learning Outcomes

Program Learning Outcomes (PLOs) are statements of the kind of learning a program hopes a student will achieve. The PLOs describe the knowledge, skills, problem-solving, communication and values that apply to all certificates and/or degrees within that program.

Upon completion of this program, students should be able to:

1. Evaluate and communicate analytically including synthesis, and research on the relationship between natural social and economic systems; principles and values that enhance leadership, personal/ social responsibility, community involvement and respect for others and the practices that support sustainability.
2. Apply complex problem-solving skills and critical thinking using technology, the scientific method, natural resource policy, sustainable practices to current/real-world Agriculture and Natural Resource Management issues.
3. To be prepared for an entry level career in the Agriculture and Natural Resource Management Industries and/or to transfer to an institute of higher education to further their preparation in one of the applied natural sciences or related disciplines.
4. Ability to solve complex problems and address current/real-world agriculture and natural resource management issues, by applying technological solutions, the scientific method and sustainable practice.
5. Ability to apply complex problem-solving skills using technology, scientific knowledge/ method, natural resource policy, sustainable practices, computer proficiency and industry standard equipment to current/real-world agriculture and natural resource management issues.
6. Implement animal science and best practice in the animal industry.
7. Demonstrate safe restraint and handling of animals, along with appropriate use of animal production and health tools/technologies.
8. Implement ecological restoration best practices to restore ecological, physical and biological processes to ecosystems.
9. Apply the scientific concepts and technological skills that support sustainable horticulture and landscape systems.
10. Implement best management practices in Environmental Horticulture and Natural Landscaping.
11. Implement equine husbandry and health care in the horse industry.
12. Demonstrate safe restraint and handling of horses, along with appropriate use of equine health care tools and technologies.
13. Apply the scientific concepts and technological skills that support natural resource management.
14. Apply the scientific concepts and technological skills that support sustainable plant health and natural resource management.
15. Implement agriculture and natural resource best practices, to solve agriculture and natural resource management issues.