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 also provides students with two Guided Career Technical Pathways in: Plant Sciences and Natural Resources; and Animal Science. These pathways are designed to provide a seamless progression of study that can start in High School, through Community College and culminating in a University Degree. Students may also transition more directly into a career by taking career relevant classes and completing career focused Certificates of Achievement.

Career Opportunities

Agribusiness Managers, Economists, Statisticians and Analysts; Agriculture and Conservation Extension Officers; Agricultural and Food Inspectors; Agriculture and Natural Resource Educators; Air Quality Monitoring Technicians; Arborists and Tree Pruning Technicians; Animal Scientists, Breeders and Managers; Animal Product and Pharmaceutical Representatives; Environmental Scientists; Environmental and Natural Resource Planners; Ecological Restoration Specialists; Farm/Ranch Hands and Managers; Field Biologists; Floral Design Technicians and Managers; Geospatial Technicians and Analysts; Golf Course and Turf Grass Managers; Horticulture, Pesticide and Fertilizer Industry Sales Representatives; Irrigation Consultants and Technicians; Landscape Architects and Designers; Landscape Contractors and Technicians; Natural Resource Management Technicians, Nursery Technicians and Managers; Organic Practices Advisors; Park and Wildlife Managers; Pest Control Advisors, Plant Breeders, Propagators and Growers; Solid Waste and Recycling Technicians; Waste Water Technicians; Water Conservation and Distribution Technicians; Environmental Sciences Lab Technicians; Education and Conservation Technicians, Wildlife, Fish and Conservation Biologists; Zoo, City, Country Club and Botanic Garden Horticulturists.

Faculty

Neville Slade

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 (04938)

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 landscape certificates or horticulture 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 Coop Ed Agnr 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 (catalog.vvc.edu/degrees-certificates/vvcge/#vvcge) pattern. 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.

Agricultural Animal Sciences, AS-T (37514)

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 (catalog.vvc.edu/degrees-certificates/csuge-breadth/#csuge) or IGETC (catalog.vvc.edu/degrees-certificates/igetc/#igetc) pattern; the Basic/Golden 4 requirements; 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 100	General Animal Science	3.0
AGNR 178	Agriculture Economics	3.0
or ECON 102	Principles of Economics: Micro	
CHEM 100	Introductory Chemistry	4.0
MATH 120/120H	Introduction to Statistics	4.0-5.0
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 (37515)

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, cover 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 (catalog.vvc.edu/degrees-certificates/csuge-breadth/#csuge) or IGETC (catalog.vvc.edu/degrees-certificates/igetc/#igetc) pattern; the Basic/Golden 4 requirements; 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 123	Introduction to Plant Science	4.0
AGNR 131	Introduction to Soil Science	4.0
AGNR 178	Agriculture Economics	3.0
or ECON 102	Principles of Economics: Micro	
CHEM 100	Introductory Chemistry	4.0
MATH 120/120H	Introduction to Statistics	4.0-5.0
or MATH 120S	Introduction to Statistics With Skills Support	
List A		
Complete one course from the following:		3.0-4.0
AGNR 122	Plant Propagation/Greenhouse Production	
AGNR 140	Plant Material & Usage I	
AGNR 141	Plant Materials and Usage II	
CHEM 281	Organic Chemistry	
List B		
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 (38849)

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 108	Animal Health & Sanitation	3.0
Complete two courses from the following:		6.0-8.0
AGNR 105	Equine Health	
AGNR 106	Veterinary Terminology and Technology	
AGNR 123	Introduction to Plant Science	
AGNR 131	Introduction to Soil Science	
AGNR 138	Coop Ed Agnr	
AGNR 170	Environmental Science and Sustainability	
AGNR 175	Sustainable Agriculture, Environment and Society	
AGNR 177	Principles of Wildlife Management	
AGNR 178	Agriculture Economics	
BADM 103	Financial Accounting Fundamentals	
BIOL 100	General Biology	
CHEM 100	Introductory Chemistry	
CIS 101	Computer Literacy	
MATH 120/120H	Introduction to Statistics	
or MATH 120S	Introduction to Statistics With Skills Support	
PHYS 100	Introductory Physics	
Total Units		**22-24**

Ecological Restoration Certificate of Achievement (39101)

This certificate provides a broad overview of the concepts and technologies that support ecological restoration, of the ecological, physical and biological processes to an environmentally damaged site. This program also focuses on reclamation to minimize adverse effects of surface-mining and return lands to 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 60B	Environmental Horticulture Laboratory	1.0
AGNR 74D	Ecological Restoration	1.0
AGNR 121	Introduction to Environmental Horticulture	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
Complete one course from the following:		3.0-4.0
AGNR 120	Integrated Pest Management	
AGNR 122	Plant Propagation/Greenhouse Production	
AGNR 131	Introduction to Soil Science	
AGNR 138	Coop Ed Agnr	
AGNR 150	Landscape Design	
AGNR 152	Irrigation and Water Management	
AGNR 153	Natural Landscape Maintenance	
AGNR 170	Environmental Science and Sustainability	
AGNR 177	Principles of Wildlife Management	
Total Units		**17-18**

Environmental Horticulture and Landscaping Certificate of Achievement (38574)

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; soil health management, pest control, country club and botanic garden horticulture and plant material sales. Pressure on our natural resources and stringent environmental policies, dictate socially acceptable and ecological 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). This certificate also serves as a good crossover for students wishing to enter a environmental/natural resource management career.

Code	Title	Units
Required Courses		
AGNR 60A	Environmental Horticulture Laboratory	1.0
AGNR 120	Integrated Pest Management	3.0
AGNR 121	Introduction to Environmental Horticulture	3.0
AGNR 122	Plant Propagation/Greenhouse Production	3.0
AGNR 140	Plant Material & Usage I	3.0
AGNR 150	Landscape Design	3.0
AGNR 152	Irrigation and Water Management	3.0
AGNR 153	Natural Landscape Maintenance	3.0
Complete one course from the following:		1.0-4.0
AGNR 60B	Environmental Horticulture Laboratory	
AGNR 60C	Environmental Horticulture Laboratory	
AGNR 123	Introduction to Plant Science	
AGNR 131	Introduction to Soil Science	
AGNR 141	Plant Materials and Usage II	
AGNR 170	Environmental Science and Sustainability	
AGNR 171	Introduction to GIS in Natural Resources	
AGNR 172	Natural Resource Remote Sensing & GIS	
AGNR 173	Watershed Management and Restoration	

Code	Title	Units
AGNR 175	Sustainable Agriculture, Environment and Society	
Total Units		**23-26**

Equine Science Specialist Certificate of Achievement (38850)

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.

Code	Title	Units
Required Courses		
AGNR 102	Equine Science	4.0
AGNR 105	Equine Health	3.0
AGNR 106	Veterinary Terminology and Technology	3.0
Complete one course from the following:		3.0-4.0
AGNR 100	General Animal Science	
AGNR 101L	Livestock Feeding and Nutrition	
AGNR 107	Livestock Selection and Evaluation	
AGNR 108	Animal Health & Sanitation	
AGNR 123	Introduction to Plant Science	
AGNR 131	Introduction to Soil Science	
AGNR 138	Coop Ed Agnr	
AGNR 175	Sustainable Agriculture, Environment and Society	
AGNR 177	Principles of Wildlife Management	
AGNR 178	Agriculture Economics	
ALDH 125	Medical Aspects of Drugs & Alcohol	
BIOL 100	General Biology	
Total Units		**13-14**

Floral Design Technician Certificate of Career Preparation

This specialized certificate prepares the student for employment in a commercial flower shop as a designer or assistant to the manager. These classes are taught by professionals in the industry and opportunities for success as a florist are unlimited. Whether for fun or profit, floral design is rapidly becoming a growing industry.

Code	Title	Units
Required Courses		
AGNR 121	Introduction to Environmental Horticulture	3.0
AGNR 160	Beginning Floral Design	3.0
AGNR 161	Advanced Floral Design	3.0
Complete one course from the following:		2.0-3.0
AGNR 120	Integrated Pest Management	
AGNR 122	Plant Propagation/Greenhouse Production	
AGNR 123	Introduction to Plant Science	
AGNR 138	Coop Ed Agnr	
AGNR 140	Plant Material & Usage I	
AGNR 141	Plant Materials and Usage II	
AGNR 150	Landscape Design	
AGNR 152	Irrigation and Water Management	
CMST 109	Public Speaking	
Total Units		**11-12**

Geospatial Technology Certificate of Achievement (39102)

The Geospatial Technology Certificate introduces students to the scientific techniques, theoretical and practical applications associated with this field and prepares them to enter this exciting field as Geographic Information Systems (GIS) Technician or Analyst. Includes a “hands on” focus where students are introduced to the highly sophisticated software packages through modeling real-world agricultural, conservation, natural resource and sustainability projects with local agencies and businesses. This focus values quick student transition from classroom setting to “real-world” problem solving. Students get familiarity and experience with: Geographic Information Systems (GIS); Global Positioning Systems (GPS); Remote Sensing and Systems Control and Data Acquisition (SCADA) and Telemetry.

Code	Title	Units
Required Courses		
AGNR 74B	Biodiversity Management and Technology	1.0
AGNR 74D	Ecological Restoration	1.0
AGNR 171	Introduction to GIS in Natural Resources	3.0
AGNR 172	Natural Resource Remote Sensing & GIS	3.0
AGNR 173	Watershed Management and Restoration	3.0
AGNR 175	Sustainable Agriculture, Environment and Society	3.0
Complete one course from the following:		3.0-4.0
AGNR 150	Landscape Design	
AGNR 170	Environmental Science and Sustainability	
AGNR 177	Principles of Wildlife Management	
BET 112	Spreadsheet: Excel for Windows A/B/C	
CIS 280	Fundamentals of Database Management Systems	
FIRE 109	Wildland Fire Control	
GEOG 101	Introduction to Physical Geography	
GEOG 110	Introduction to Geographic Information Systems	
POLS 206	Introduction to Environmental Policy And Natural Resource Management	
Total Units		**17-18**

Irrigation and Water Management Certificate of Achievement (38852)

This Certificate prepares students with the best management practices, technology and skills to enter careers in the rapidly emerging fields of water management. Water is arguably California, the South West United States and the world's most critical resource. Water managers are required to sustainably manage and balance the water needs for agricultural, environmental, and urban needs. Agricultural irrigation is the largest user in California at 41%, and outdoor irrigation can represent up to 75% of urban use. Focus is on California’s sophisticated water storage, transportation and distribution infrastructure and progressive water legislation. Technologies introduced include: irrigation management systems; potable water distribution and treatment; Geospatial Technology; Supervisory Control and Data Acquisition (SCADA); waste water treatment; water quality analysis and hydro-culture. This certificate prepares students to take the Qualified Water

Efficient Landscaper (QWEL) and Certified Landscape Irrigation Auditor (CLIA) industry certification exams, and serves as a good crossover for students wishing to enter other natural resource management careers.

Code	Title	Units
Required Courses		
AGNR 74E	Sustainable Agriculture Practices	1.0
AGNR 152	Irrigation and Water Management	3.0
AGNR 170L	Environmentl Science & Sustainabilty Lab	1-4
AGNR 172	Natural Resource Remote Sensing & GIS	3.0
AGNR 173	Watershed Management and Restoration	3.0
AGNR 175	Sustainable Agriculture, Environment and Society	3.0
Complete one course from the following:		3.0-4.0
AGNR 121	Introduction to Environmental Horticulture	
AGNR 123	Introduction to Plant Science	
AGNR 131	Introduction to Soil Science	
AGNR 140	Plant Material & Usage I	
AGNR 150	Landscape Design	
AGNR 153	Natural Landscape Maintenance	
AGNR 170	Environmental Science and Sustainability	
AGNR 176	Advanced Irrigation Technology	
CTPW 116A	Water Distribution Systems I	
CTPW 119	Wastewater Operations	
POLS 206	Introduction to Environmental Policy And Natural Resource Management	
Total Units		**17-21**

Natural Resource and Environmental Technology Certificate of Achievement (39103)

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	Environmentl Science & Sustainabilty Lab	1-4
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	Sustainable Bldg & Energy Practices	
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	Coop Ed Agnr	
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		**17-23**

Plant Science Certificate of Achievement (38516)

The Plant Science Certificate prepares students with the best management practices, technology and skills to enter plant science related 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. 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 74D	Ecological Restoration	1.0
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
Complete one course from the following:		1-4
AGNR 60A	Environmental Horticulture Laboratory	
AGNR 60B	Environmental Horticulture Laboratory	
AGNR 60C	Environmental Horticulture Laboratory	
AGNR 121	Introduction to Environmental Horticulture	
AGNR 140	Plant Material & Usage I	
AGNR 150	Landscape Design	

Code	Title	Units
AGNR 152	Irrigation and Water Management	
AGNR 170	Environmental Science and Sustainability	
AGNR 171	Introduction to GIS in Natural Resources	
AGNR 172	Natural Resource Remote Sensing & GIS	
AGNR 173	Watershed Management and Restoration	
Total Units		**22-25**

Agriculture and Natural Resources Courses

AGNR 60 Environmental Horticulture Laboratory (1-4 Units)
Horticulture laboratory setting for horticulture experience and traditional lecture/lab classes. This setting will further prepare students for employment in the horticulture industry.
Lab Hours: 54.00
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: 54.00
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: 54.00
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: 54.00
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: 9.00
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: 90.00
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: 18.00
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: 18.00
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: 18.00
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: 18.00
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: 18.00
Transfer: Not transferable

AGNR 74F Sustainable Bldg & Energy Practices (1.0 Units)
Introduction to renewable energy technology for home use and ecological design. Students study the latest technology to produce energy from the sun, wind, Geothermal and biomass. The sustainable building practices of straw-bale, Super Adobe, Cob, grey-water and solar radiant heating are explored.
Lecture Hours: 18.00
Transfer: Not transferable

AGNR 100 General Animal Science (3.0 Units)
A Scientific 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. C-ID: AG-AS 104.
Lecture Hours: 54.00
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: 36.00; Lab Hours: 54.00
Transfer: Transfers to both UC/CSU

AGNR 102 Equine Science (4.0 Units)
Survey of the equine industry, encompassing the evolution and role of the equine species throughout history, breed selection and development, nutrition, disease, preventative health, reproductive management, basic horsemanship, stabling alternatives and career opportunities. Laboratory required.
Lecture Hours: 54.00; Lab Hours: 54.00
Transfer: Transfers to both UC/CSU

AGNR 105 Equine Health (3.0 Units)
Students learn the basics of proper veterinary care of the horse, including what to do before the veterinarian is called. 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 in the High Desert region of California. Grade option.
Lecture Hours: 54.00
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: 54.00
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: 54.00
Transfer: Transfers to CSU only

AGNR 108 Animal Health & Sanitation (3.0 Units)
Study of common livestock diseases and undamentals 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: 54.00
Transfer: Transfers to CSU only

AGNR 120 Integrated Pest Management (3.0 Units)
Students will learn to employ the principles and concepts of managing insects, diseases and weeds in the landscape and nursery industry. The class will focus on pest identification and the emerging practices of Integrated Pest Management. Effective use of pesticides and weedicides under the existing laws and regulations, will be emphasized.
Lecture Hours: 36.00; Lab Hours: 54.00
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: 36.00; Lab Hours: 54.00
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: 36.00; Lab Hours: 54.00
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.
Lecture Hours: 54.00; Lab Hours: 54.00
Transfer: Transfers to CSU only

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: 54.00; Lab Hours: 54.00
Transfer: Transfers to both UC/CSU

AGNR 138 Coop Ed Agnr (1-8 Units)
Cooperative Education is a key element of Victor Valley College's comprehensive approach to career development. Cooperative 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. Cooperative 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 Cooperative 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.
Transfer: Transfers to CSU only

AGNR 140 Plant Material & 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.
Lecture Hours: 36.00; Lab Hours: 54.00
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.
Lecture Hours: 36.00; Lab Hours: 54.00
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: 36.00; Lab Hours: 54.00
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.
Lecture Hours: 36.00; Lab Hours: 54.00
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 planting, pruning, watering, soil fertility, pest management, weed control, and landscape maintenance business practices. Sustainable landscape practices will be emphasized throughout the course.
Lecture Hours: 36.00; Lab Hours: 54.00
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: 36.00; Lab Hours: 54.00
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: 36.00; Lab Hours: 54.00
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: 72.00
Transfer: Transfers to CSU only

AGNR 170L Environmentl Science & Sustainabilty Lab (1-4 Units)
Students gain hands-on skills and experience with the appropriate technology that supports environmental science and conservation. Students will learn about the diverse agencies that manage our resources along with their history and philosophies. Each of the major natural resources such as water, air, sustainable building, renewable energy, forests, wildlife, agriculture, and soils will be covered and the environmental policies that govern the use of these resources. (Formerly AGNR 75).
Lab Hours: 54.00
Transfer: Transfers to both UC/CSU

AGNR 171 Introduction to GIS in Natural Resources (3.0 Units)
Focus on electronic methods of cartography following a presentation of mapping concepts and methods in AGNR applications. This course covers the history, structure and uses of the basic operations of Geographic Information Systems (GIS), including hardware and software requirements used in AGNR. Examination of the role of other spatial technologies:aerial photography, remote sensing, and Global Positioning Systems - GPS.
Lecture Hours: 36.00; Lab Hours: 54.00
Transfer: Transfers to both UC/CSU

AGNR 172 Natural Resource Remote Sensing & GIS (3.0 Units)
This course examines Geographic Information Systems (GIS) in an interdisciplinary approach for analysis and decision making in diverse natural resource industries. 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. (Formerly AGNR 72)
Lecture Hours: 36.00; Lab Hours: 54.00
Transfer: Transfers to CSU only

AGNR 173 Watershed Management and Restoration (3.0 Units)
An introduction to the methods, techniques, 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. (Formerly AGNR 73)
Lecture Hours: 54.00
Transfer: Not transferable

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: 54.00
Transfer: Transfers to both UC/CSU

AGNR 176 Advanced Irrigation Technology (3.0 Units)
Students will be introduced to the proper steps to design an irrigation system. They will learn about equipment, water management techniques and water quality technology that supports better management of our limited water supply. Exciting new technology in domestic water conservation and water quality will be introduced. (Formerly AGNR 76).
Lecture Hours: 54.00
Transfer: Not transferable

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 sustainability principles.
Lecture Hours: 54.00
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: 54.00
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. Plan and prepare floral products for display or resale.

2. Demonstrate an understanding of basic floral design theory and construct a minimum of five different floral arrangements and corsages.

3. Demonstrate the safe and appropriate use of floral design and horticulture technology tools and equipment.

4. 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.

5. 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.

6. Apply the scientific concepts and technological skills that support sustainable horticulture and landscape systems.

7. Implement best management practices in Environmental Horticulture and Natural Landscaping.

8. Apply the scientific concepts and technological skills that support sustainable plant health and natural resource management.

9. Implement agriculture and natural resource best practices, to solve agriculture and natural resource management issues.

10. 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.

11. 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.

12. 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.

13. 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.

14. Implement animal health care in a Veterinary Practice.

15. Demonstrate safe restraint and handling of animals, along with appropriate use of Veterinary tools and technologies.

16. Implement equine husbandry and health care in the horse industry.

17. Demonstrate safe restraint and handling of horses, along with appropriate use of equine health care tools and technologies.

18. Implement animal science and best practice in the animal industry.

19. Demonstrate safe restraint and handling of animals, along with appropriate use of animal production and health tools/technologies.

20. Apply the scientific concepts and technological skills that support sustainable irrigation and water management.

21. Implement water management best practice and technology, to solve water and other natural resource management issues.

22. Apply the scientific concepts and technological skills that support Geospatial Technology.

23. Implement Geospatial Technology best practice, to solve water and other natural resource management issues.

24. Apply the scientific concepts and technological skills that support natural resource management.

25. Implement natural resource management best practice, to solve natural resource management issues.

26. Apply the scientific concepts and technological skills that support restoration of environmentally damaged sites.

27. Implement ecological restoration best practices to restore ecological, physical and biological processes to ecosystems.