AGRICULTURE AND NATURAL RESOURCES

The Agriculture and Natural Resource (AGNR) Department prepares students with the workforce skills to enter the rapidly evolving career fields in Agriculture and Natural Resource Management. The AGNR department also provides educational pathways to assist students to move on to higher education.

The rapid evolution in the scope and type of these career opportunities are driven by some of the most stringent environmental laws and policy in the world. The implementation of these laws requires innovative thinking, long term planning and sustainable best practice. A new kind of educational approach is needed to prepare applicants with the necessary science, understanding of social/political frameworks, technical expertise and soft skills. It is essential that our society be taught a greater awareness of the need to conserve and wisely manage these resources. Careers in the public and private entities that manage and use these resources are expanding rapidly as the critical nature of these issues becomes more apparent.

Individuals that are trained in agricultural and natural sciences (a High School through University Educational Pathway is being designed in the area), technologies, practices, principles and issues are well positioned to take advantage of these exciting opportunities.

The department has designed its educational programs on the following premises:

1. A focus on the applied sciences (Animal, Soil, Plant and Environmental) that support the disciplines of agriculture and natural resource management.
2. Application of evolving technologies that are essential to manage the complex agriculture and natural resource issues that society faces today. Examples include: natural building, organic gardening, water and soils testing, drip irrigation, ecological restoration, plant propagation, animal ultrasound and artificial insemination, Geographic Information Systems (GIS) and Global Positioning Systems (GPS).
3. Students will become aware of the importance of political and other social sciences that support sustainable development, so that communities can seek an appropriate balance of the environmental, social and economic needs of their region.
4. Increased “hands-on” learning and field experiences. The skills needed to be successful in these areas are best taught through actual experience via laboratories, investigative field experiences, internships, field trips and local case studies.


Career Opportunities


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 Science 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)

To earn this degree, complete the major coursework listed here 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 (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.

The Environmental Horticulture major requires 18 units from any landscape certificates or horticulture coursework. AGNR 138 Coop Ed Agnr may be used as elective credit, but may not be used to fulfill major requirements.

Agriculture Animal Sciences AS-T (37514)

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.vcc.edu/degrees-certificates/csuge-breadth/#csuge) or IGETC (catalog.vcc.edu/degrees-certificates/igetc/#igetc) pattern; the Basic/Golden 4 requirements; and a 2.0 minimum overall CSU GPA. Courses used in the
Agriculture and Natural Resources

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.

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>AGNR 100</td>
<td>General Animal Science</td>
<td>3.0</td>
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<tr>
<td>AGNR 178</td>
<td>Agriculture Economics</td>
<td>3.0</td>
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<tr>
<td>or ECON 102</td>
<td>Principles of Economics: Micro</td>
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<tr>
<td>CHEM 100</td>
<td>Introductory Chemistry</td>
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</tr>
<tr>
<td>MATH 120/120H</td>
<td>Introduction to Statistics</td>
<td>4.0-5.0</td>
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<tr>
<td>or MATH 120S</td>
<td>Introduction to Statistics With Skills Support</td>
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</tbody>
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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                        |       |
CT 123   | Surveying                                |       |
PHYS 100 | Introductory Physics                     |       |

Total Units 22-32

Animal Science Specialist Certificate of Achievement (38849)

Animal production is being asked to be sustainable, more economically, environmentally and socially responsible. In California, rapid housing development and new policies, such as Proposition 2 (the humane treatment of livestock) are encouraging new practices and technologies in all aspects of the industry, from managing animal waste to confined animal housing. A new breed of managers and technicians must adapt to these changes and have the skills to apply these new practices and technologies. Upon completion of the certificate the student should be able to:

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<tr>
<td>AGNR 101L</td>
<td>Livestock Feeding and Nutrition</td>
<td>3.0</td>
</tr>
<tr>
<td>AGNR 106</td>
<td>Veterinary Terminology and Technology</td>
<td>3.0</td>
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<tr>
<td>AGNR 107</td>
<td>Livestock Selection and Evaluation</td>
<td>3.0</td>
</tr>
<tr>
<td>AGNR 102</td>
<td>Equine Science</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Complete two courses from the following:

6.0-8.0

AGNR 105 | Equine Health                             |       |
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                     |       |
CHEM 100 | Introductory Chemistry                    |       |
MATH 120/120H | Introduction to Statistics               | 4.0-5.0 |
| or MATH 120S | Introduction to Statistics With Skills Support |   |
BADM 100 | General Biology                           |       |
BADM 100 | Introduction to Business Organizations    |       |
and soil erosion. Students receive training and are encouraged to take integrated pest management; drip irrigation to reduce water consumption; tolerant plant palettes; natural fertilizers; natural pesticides and compatible solutions. These solutions include: native and drought-tolerant 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.

**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.

**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; 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 an environmental/natural resource management career.

**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.
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.

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.

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 hydroculture. 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.
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 conservation, habitat restoration, ecological field data collection and interpretation, geospatial technologies, biodiversity management, and sustainable agriculture practices.

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>AGNR 74A</td>
<td>Sustainable Community Leadership</td>
<td>1.0</td>
</tr>
<tr>
<td>AGNR 74B</td>
<td>Biodiversity Management and Technology</td>
<td>1.0</td>
</tr>
<tr>
<td>AGNR 170</td>
<td>Environmental Science and Sustainability</td>
<td>4.0</td>
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<tr>
<td>AGNR 170L</td>
<td>Environmental Science &amp; Sustainability Lab</td>
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<td>AGNR 172</td>
<td>Natural Resource Remote Sensing &amp; GIS</td>
<td>3.0</td>
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<td>AGNR 173</td>
<td>Watershed Management and Restoration</td>
<td>3.0</td>
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<tr>
<td>AGNR 177</td>
<td>Principles of Wildlife Management</td>
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Complete one course from the following: 1.0-4.0

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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>AGNR 74C</td>
<td>Waste and Pollution Management</td>
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<tr>
<td>AGNR 74D</td>
<td>Ecological Restoration</td>
<td></td>
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<tr>
<td>AGNR 74E</td>
<td>Sustainable Agriculture Practices</td>
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<tr>
<td>AGNR 74F</td>
<td>Sustainable Bldg &amp; Energy Practices</td>
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<tr>
<td>AGNR 121</td>
<td>Introdcn to Environmental Horticulture</td>
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<td>AGNR 131</td>
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<tr>
<td>AGNR 138</td>
<td>Coop Ed Agnr</td>
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<tr>
<td>AGNR 141</td>
<td>Plant Materials and Usage II</td>
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<tr>
<td>AGNR 152</td>
<td>Irrigation and Water Management</td>
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<tr>
<td>AGNR 171</td>
<td>Introduction to GIS in Natural Resources</td>
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<tr>
<td>AGNR 175</td>
<td>Sustainable Agriculture, Environment and Society</td>
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<tr>
<td>BIOL 100</td>
<td>General Biology</td>
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<tr>
<td>CT 142</td>
<td>Renewable Energy Fundamentals</td>
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<td>FIRE 109</td>
<td>Wildland Fire Control</td>
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<tr>
<td>POLS 206</td>
<td>Introduction to Environmental Policy And Natural Resource Management</td>
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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.

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<tr>
<td>AGNR 74D</td>
<td>Ecological Restoration</td>
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<tr>
<td>AGNR 120</td>
<td>Integrated Pest Management</td>
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<tr>
<td>AGNR 122</td>
<td>Plant Propagation/Greenhouse Production</td>
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<tr>
<td>AGNR 123</td>
<td>Introduction to Plant Science</td>
<td>4.0</td>
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<tr>
<td>AGNR 131</td>
<td>Introduction to Soil Science</td>
<td>4.0</td>
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<tr>
<td>AGNR 141</td>
<td>Plant Materials and Usage II</td>
<td>3.0</td>
</tr>
<tr>
<td>AGNR 175</td>
<td>Sustainable Agriculture, Environment and Society</td>
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Complete one of the following: 1-4

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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>AGNR 60A</td>
<td>Environmental Horticulture Laboratory</td>
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<tr>
<td>AGNR 60B</td>
<td>Environmental Horticulture Laboratory</td>
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<tr>
<td>AGNR 60C</td>
<td>Environmental Horticulture Laboratory</td>
<td></td>
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<tr>
<td>AGNR 121</td>
<td>Introdcn to Environmental Horticulture</td>
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<tr>
<td>AGNR 140</td>
<td>Plant Material &amp; Usage I</td>
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<tr>
<td>AGNR 150</td>
<td>Landscape Design</td>
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<tr>
<td>AGNR 152</td>
<td>Irrigation and Water Management</td>
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<tr>
<td>AGNR 170</td>
<td>Environmental Science and Sustainability</td>
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<tr>
<td>AGNR 171</td>
<td>Introduction to GIS in Natural Resources</td>
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<tr>
<td>AGNR 172</td>
<td>Natural Resource Remote Sensing &amp; GIS</td>
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<tr>
<td>AGNR 173</td>
<td>Watershed Management and Restoration</td>
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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 61 Natural Landscape Practices (4.0 Units)
Introduction to the basics of landscape design; plant material selection; planting and care; composting; irrigation design and maintenance; organic and natural methods; soil factors; landscape redesign and renovation; integrated pest management; creating a custom landscape. Emphasis is on the use of water-conserving and resource-efficient practices in establishing functional, attractive landscapes.
Lecture Hours: 72.00
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.
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, and show.
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 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 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 fundamentals of immunity to the disease of 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 Introductn 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.
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.
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.
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.
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.
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 both UC/CSU

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
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 citizen’s role in conservation with particular attention to California conditions.
Lecture Hours: 72.00
Transfer: Transfers to both UC/CSU

AGNR 170L  Environmental Science & Sustainability Lab (1-4 Units)
(Formerly AGNR 75) 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.
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)
(Formerly AGNR 76) 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.
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

A student receiving a degree or certificate in this field will be able to:

- 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.
- 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.