

Admission Requirements For This Major

1. New freshmen admitted to USU in good standing qualify for admission to this major.
2. Transfer students from other institutions or students transferring from other USU majors need at least a 2.5 total GPA to be admitted to the Rangeland Resources major in good standing. Special attention will be given to the amount of, and performance in, prerequisite math and science courses.

The Program

Range scientists and managers deal with natural resources on rangelands—grasslands, deserts, woodlands, wetlands, and tundras—that occupy a significant land area in the USA and the world. Their job is to manage and conserve rangeland resources in such ways as to ensure the sustained output of such products and values as habitat for a wide variety of plant and animal life, forage for livestock and wildlife, water for agricultural and municipal use, and scenic beauty for recreational activities. Rangeland managers also restore lands damaged by past misuse.

Students working toward a Bachelor of Science degree in Rangeland Resources study a wide variety of subjects related to the scientific and social aspects of rangeland resources. Basic biology, ecology, chemistry, and mathematics courses provide a foundation for more advanced courses in ecosystem structure and function, vegetation measurement and management, animal production, soil and watershed stability, and resource economics. Several courses have been integrated into the degree program to show how science, society, and technology affect environmental systems and values. Many courses emphasize writing and interpersonal communication skills, which are important for working with farmers, ranchers, businesses, government agencies, environmental organizations, and members of the general public who are interested in rangeland resources.

The formal requirements for a Rangeland Resources major, together with University Studies requirements, are outlined in this program guide, which students are urged to read carefully and discuss with their academic advisor. The Rangeland Resources major is an intensive campus-based program designed with the expectation that students will acquire additional practical experience through various summer internship opportunities coordinated within the College of Natural Resources. Furthermore, undergraduate students are encouraged to join the Range Club, which is Utah State University’s student chapter of the Society for Range Management. This club provides enjoyable opportunities for getting acquainted with the range profession.

Career Opportunities

The issues and concerns surrounding rangelands are greater now than at any time during the last 100 years. Society has awakened to the fact that many of our rangelands are in an unstable condition and should be improved. This means an increased demand for range managers and scientists who know how to apply conservation practices and how to bring degraded lands back into production.

Historically, employment opportunities have been mainly in the federal land management agencies, but current trends indicate that opportunities are increasing in environmental consulting firms, large ranches, banks, real estate firms, and private environmental groups, such as The Nature Conservancy. More and more, graduates with the Bachelor of Science degree are choosing to pursue postgraduate education in order to enter careers in research, teaching, extension, and international range management.

Summer employment with the Forest Service, the Natural Resources Conservation Service, the Bureau of Land Management, and with private ranches and consulting firms will greatly enhance a student’s employment qualifications upon graduation. Opportunities for summer employment are plentiful, and faculty members assist students in obtaining jobs.

Degrees and Programs Offered Through This Department

- Conservation and Restoration Ecology:** Bachelor of Science (BS)
- Forestry:** BS, Master of Science (MS), and Doctor of Philosophy (PhD)
- Rangeland Resources:** BS
- Range Science:** MS and PhD
- Wildlife Science:** BS
- Wildlife Biology:** MS and PhD
- Ecology:** MS and PhD
- Natural Resources:** Master of Natural Resources (MNR)

Academic Advisement

All students should contact their academic advisor for assistance with course selection, program planning, and meeting graduation requirements. If they do not know who their advisor is, students should contact the Department of Wildland Resources (NR 206) or the College of Natural Resources Academic Service Center (NR 120).

Graduation Requirements: BS Degree in Rangeland Resources

Minimum University Requirements*

Total credits	120
Grade point average (most majors require higher GPA)	2.00 GPA
Credits of C- or better	100
Credits of upper-division courses (#3000 or above)	40
USU credits	30
(20 of which must be upper division, including 10 required by major)	
Completion of approved major program of study	See department
Credits in minor (if required by department)	12
Credits in American Institutions (ECN 1500; HIST 1700, 2700, or 2710; POLS 1100; or USU 1300)	3
University Studies requirements	See below

*Colleges and departments may require more credits or a higher GPA. See requirements on this sheet.

University Studies Requirements for Rangeland Resources Major

Note: Approved University Studies courses and requirements are listed in the *General Catalog*. The most current listings are shown online at: <http://www.usu.edu/generalcatalog/>

General Education Requirements (30-34 credits)

Competency Requirements (9-10 credits)

Communications Literacy (CL1 and CL2) (6 credits)

ENGL 1010 (CL1) (3 credits) or satisfactory AP, CLEP, IBO, ACT, or SAT score

AND

ENGL 2010 (CL2) (3 credits) or satisfactory IBO score

Quantitative Literacy (QL) (3-4 credits)

MATH 1050 (4 credits)

OR

MATH 1100 (3 credits)

OR

Satisfactory AP, CLEP, IBO, ACT, or SAT score

Computer and Information Literacy (0 credits)

Passing grade on six computer and information literacy related examinations. Students must pass all six examinations before earning 37 USU semester credits. (Effective Spring Semester 2010, students must fulfill this requirement prior to enrolling in ENGL 2010.)

Breadth Requirements (18-20 credits)

Select at least one approved course from each of the following six categories: **American Institutions (BAI)**, **Creative Arts (BCA)**, **Humanities (BHU)**, **Life Sciences (BLS)**, **Physical Sciences (BPS)**, and **Social Sciences (BSS)**. (CLEP or AP credit may be used.) At least two of the six breadth courses must be University Studies courses with a **USU prefix** (excluding USU 1000, 1010, 1100, 3330, 4900, and 6900). BIOL 1620 (BLS) and CHEM 1110 (BPS), 1120 (BPS), or 1220 (BPS) may be used toward this requirement. ENVS 2340 (BSS) and ECN 1500 (BAI) are recommended.

Exploration Requirement (3-4 credits)

Choose an additional class from one of the following General Education categories: QL, BAI, BCA, BHU, BLS, BPS, or BSS. Since MATH 1050 and 1100 are both required for the Rangeland Resources major, one of these courses will fulfill the Quantitative Literacy requirement and the other will fulfill the Exploration requirement.

Depth Education Requirements

Communications Intensive (CI) (2 courses)

WATS 3700 and WILD 4750 will meet this requirement.

Quantitative Intensive (QI) (1 course)

STAT 2000 or 3000 will meet this requirement.

Depth Course Requirements (4 credits minimum, including 2 credits minimum completed in each of two courses)

Complete at least 2 credits in approved 3000-level or above courses from each of the following two categories: **Humanities and Creative Arts (DHA)** and **Social Sciences (DSS)**. ENVS 4000 (DSS) may be used toward this requirement. PHIL 3510 (DHA) is recommended.

Rangeland Resources Major Required Curriculum (93 credits)

All courses required for the major must be taken on an *A-B-C-D-F* basis. A grade of *C-* or better is required for all WILD courses used to meet the requirements for a major in Rangeland Resources. The grade point average for all courses taught by the College of Natural Resources must be 2.5 or higher.

A. General Science Foundation Courses (34 credits) Credits

- BIOL 1610 Biology I (F) 4
- BIOL 1620 (BLS)¹ Biology II (Sp) 4
- MATH 1050 (QL) College Algebra (F,Sp,Su) 4
- MATH 1100 (QL) Calculus Techniques (F,Sp,Su) 3
- SOIL 3000 Fundamentals of Soil Science (F) 4
- STAT 2000 (QI) Statistical Methods (F,Sp) (3 cr) or
- STAT 3000 (QI) Statistics for Scientists (F,Sp,Su) (3 cr) 3
- NR 2220 General Ecology (F,Sp) 3

Select one of the following chemistry series (9 credits): Credits

General Chemistry Series

- CHEM 1110 (BPS) General Chemistry I (F,Sp) 4
- CHEM 1115 General Chemistry Laboratory (F,Sp) 1
- CHEM 1120 (BPS) General Chemistry II (Sp) 4

Chemistry Principles Series

- CHEM 1210 Principles of Chemistry I (F,Sp) 4
- CHEM 1215 Chemical Principles Laboratory I (F,Sp) 1
- CHEM 1220 (BPS) Principles of Chemistry II (F,Sp,Su) 4

B. Departmental Common Courses (24 credits)

- WILD 2000 Introduction to Wildland Resources (F,Sp) 1
- WILD 3600 Wildland Plant Ecology and Identification (F) 4
- WILD 3610 Wildland Animal Ecology and Identification (F) 4
- WILD 3800 Wildland Ecosystems (Sp) 3
- WILD 3810 Plant and Animal Populations (Sp) 3
- WILD 4750 (CI) Monitoring and Assessment in Natural Resource and Environmental Management (F) 3
- WILD 4850 Vegetation and Habitat Management (F) 3
- WILD 4910 Assessment and Synthesis in Natural Resource Science (Sp) 3

C. Degree Program Courses (19 credits)

- ADVS 2080 Beef Production Practices (Sp) (2 cr) or
- ADVS 2090 Sheep Production Practices (Sp) (2 cr) 2
- ENVS 3000 Natural Resources Policy and Economics (F) 4
- ENVS 4000 (DSS) Human Dimensions of Natural Resource Management (F) 3
- SOIL 5130 Soil Genesis, Morphology, and Classification (F) 4
- WATS 3700 (CI) Fundamentals of Watershed Science (Sp) 3
- WILD 4000 Principles of Rangeland Management (Sp) 3

D. Degree Program Electives (16 credits)

Students must meet with their advisor to plan a program of study for their 16 credits of degree program electives. Program option areas may include: agribusiness management, animal science, geographic information science, soil science, watershed science, and wildlife science. Students wanting to pursue employment with the Bureau of Land Management, U.S. Forest Service, Natural Resources Conservation Service, and other federal land management agencies should review the suggested electives listed below.

Suggested Electives for Federal Employment

Students wanting to qualify as a rangeland management specialist or soil conservationist with a federal land management agency should check the U.S. Office of Personnel Management website.

A listing of required coursework for the **Rangeland Management Series** (GS-454) is shown at:
<http://www.opm.gov/qualifications/SEC-IV/B/GS0400/0454.HTM>

In addition to several of the courses listed in sections *A* through *C* above, students must also take the following courses to meet the minimum requirements for the Rangeland Management Series:

Directly Related Plant Science Courses (select 2 courses) Credits

- BIOL 4400 (QI) Plant Physiology (F) 4
- BIOL 4420 Plant Taxonomy (Sp odd, Su even) 3
- PLSC 5550 Weed Biology and Control (F) 4
- WILD 4950 ST: Dendrology (F) 3

Related Resource Management Courses (select 1 course)

- ENVS 3300 Fundamentals of Recreation Resources Management (F) 3
- PLSC 4320 Forage Production and Pasture Ecology (F) 3
- WATS 4310 Wetland Ecology and Management (Sp) 3
- WILD 4500 Principles of Wildlife Management (Sp) 3
- WILD 5300 Wildlife Damage Management Principles (Sp) 3

A listing of required coursework for the **Soil Conservation Series** (GS-457) is shown at:
<http://www.opm.gov/qualifications/SEC-IV/B/GS0400/0457.HTM>

In addition to several of the courses listed in sections A through C above, students must also take the following course to meet the minimum requirements for the Soil Conservation Series:

Plant Science Course	Credits
<input type="checkbox"/> PLSC 5550 Weed Biology and Control (F)	4

E. General Electives

Students may take the remainder of the 120 credits from any department. The guidelines described previously under “Breadth Requirements” and “Depth Education Requirements” should be consulted to ensure meeting University Studies Requirements.

Students who transfer to USU with an Associate of Arts (AA) or Associate of Science (AS) degree from an approved institution will have satisfied the General Education portion of the University Studies requirements, but will still need to complete the Depth Education portion.

¹University Studies designations, including (BLS), (BPS), (DSS), (CI), (QI), and (QL), indicate that these courses may be counted for University Studies requirements, as well as for the Rangeland Resources major.

Rangeland Resources Major Recommended Four-Year Plan of Study

Students should meet regularly with their faculty advisor and carefully plan their academic program, keeping in mind that many upper-division courses have prerequisites and must be taken in sequence. Students following the recommended schedule listed below should be able to complete degree requirements in four years (eight semesters).

A. First Year (28 credits)

Fall Semester (14 credits)	Credits
<input type="checkbox"/> BIOL 1610 Biology I	4
<input type="checkbox"/> ECN 1500 (BAI) Introduction to Economic Institutions, History, and Principles (3 cr) or	
<input type="checkbox"/> Other approved Breadth American Institutions (BAI) course (3 cr)	3
<input type="checkbox"/> ENGL 1010 (CL1) Introduction to Writing: Academic Prose	3
<input type="checkbox"/> ENVS 2340 (BSS) Natural Resources and Society (3 cr) or	
<input type="checkbox"/> Other approved Breadth Social Sciences (BSS) course (3 cr)	3
<input type="checkbox"/> WILD 2000 Introduction to Wildland Resources	1

Spring Semester (14 credits)

<input type="checkbox"/> BIOL 1620 (BLS) Biology II	4
<input type="checkbox"/> MATH 1050 (QL) College Algebra	4
<input type="checkbox"/> USU 1320 (BHU) Civilization: Humanities (3 cr) or	
<input type="checkbox"/> Other approved Breadth Humanities (BHU) course (3 cr)	3
<input type="checkbox"/> USU 1330 (BCA) Civilization: Creative Arts (3 cr) or	
<input type="checkbox"/> Other approved Breadth Creative Arts (BCA) course (3 cr)	3

B. Second Year (32 credits)

Fall Semester (16 credits)	Credits
<input type="checkbox"/> CHEM 1110 (BPS) General Chemistry I (4 cr) or	
<input type="checkbox"/> CHEM 1210 Principles of Chemistry I (4 cr)	4
<input type="checkbox"/> MATH 1100 (QL) Calculus Techniques	3
<input type="checkbox"/> NR 2220 General Ecology	3
<input type="checkbox"/> Approved Depth Humanities and Creative Arts (DHA) course	3
<input type="checkbox"/> General Elective course(s)	3

Spring Semester (16 credits)

	Credits
<input type="checkbox"/> ADVS 2080 Beef Production Practices (2 cr) or	
<input type="checkbox"/> ADVS 2090 Sheep Production Practices (2 cr)	2
<input type="checkbox"/> CHEM 1115 General Chemistry Laboratory (1 cr) or	
<input type="checkbox"/> CHEM 1215 Chemical Principles Laboratory I (1 cr)	1
<input type="checkbox"/> CHEM 1120 (BPS) General Chemistry II (4 cr) or	
<input type="checkbox"/> CHEM 1220 (BPS) Principles of Chemistry II (4 cr)	4
<input type="checkbox"/> ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode	3
<input type="checkbox"/> STAT 2000 (QI) Statistical Methods (3 cr) or	
<input type="checkbox"/> STAT 3000 (QI) Statistics for Scientists (3 cr)	3
<input type="checkbox"/> Degree Program Elective course(s)	3

C. Third Year (30 credits)

Fall Semester (15 credits)

<input type="checkbox"/> SOIL 3000² Fundamentals of Soil Science	4
<input type="checkbox"/> WILD 3600 Wildland Plant Ecology and Identification	4
<input type="checkbox"/> WILD 3610 Wildland Animal Ecology and Identification	4
<input type="checkbox"/> Degree Program Elective course(s)	3

Spring Semester (15 credits)

<input type="checkbox"/> WATS 3700 (CI) Fundamentals of Watershed Science	3
<input type="checkbox"/> WILD 3800 Wildland Ecosystems	3
<input type="checkbox"/> WILD 3810 Plant and Animal Populations	3
<input type="checkbox"/> WILD 4000 Principles of Rangeland Management	3
<input type="checkbox"/> Degree Program Elective course(s)	3

D. Fourth Year (30 credits)

Fall Semester (17 credits)

<input type="checkbox"/> ENVS 3000 Natural Resources Policy and Economics	4
<input type="checkbox"/> ENVS 4000 (DSS) Human Dimensions of Natural Resource Management	3
<input type="checkbox"/> SOIL 5130 Soil Genesis, Morphology, and Classification	4
<input type="checkbox"/> WILD 4750 (CI) Monitoring and Assessment in Natural Resource and Environmental Management	3
<input type="checkbox"/> WILD 4850 Vegetation and Habitat Management	3

Spring Semester (13 credits)

<input type="checkbox"/> WILD 4910 Assessment and Synthesis in Natural Resource Science	3
<input type="checkbox"/> Degree Program Elective courses ³	10

²Students enrolling for SOIL 3000 should sign up for the Tuesday 9:30 a.m. lab and talk to the instructor.

³As part of these electives, it is recommended that students complete a 3-credit course having an economic emphasis.

Requirement Changes

Graduation requirements shown on this sheet are subject to change. Students should check with their faculty advisor regarding possible changes or for additional information regarding degree requirements, course sequencing, and departmental specialization options and their related coursework.

Materials for Persons with Disabilities

This requirement sheet is available in large print, audio, and braille format upon request to the USU Disability Resource Center.

For information contact

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