

Range Science (RNG)

RNG 136. Introduction to Range Management. 3 Credits.

Principles of range management which include plant identification, range evaluation, and range improvement. 3 lectures. F.

RNG 194. Individual Study. 1-5 Credits.

RNG 196. Field Experience. 1-15 Credits.

RNG 213. Rangeland Sampling Techniques. 3 Credits.

Introduction to rangeland aquatic, invertebrate, soil, and vegetation sampling techniques, and the proper procedures for basic data entry and interpretation. Prereq: RNG 136.

RNG 225. Natural Resource & Agro-Ecosystems. 3 Credits.

Introduction to scientific theories and their relation to natural resources and agriculture. Influence of these theories on current perspectives toward the environment. 3 lectures. Cross-listed with NRM 225.

RNG 294. Individual Study. 1-5 Credits.

RNG 296. Field Experience. 1-15 Credits.

RNG 394. Individual Study. 1-5 Credits.

RNG 397. Fe/Coop Ed/Internship. 1-15 Credits.

RNG 450. Range Plants. 3 Credits.

Identification, distribution, and forage value of important U.S. range plants. 1 lecture, 2 two-hour laboratories. {Also offered for graduate credit - see RNG 650.}.

RNG 451. Fire Ecology and Rangeland Management. 3 Credits.

Provide historical and contemporary evidence of fire as an ecological process that has shaped the biophysical, ecological, and socio-ecological systems humans experience. Emphasis on fire and conservation of rangeland systems and understanding fire application for management objectives. Prereq: RNG 136. Dual-listing: RNG 651.

RNG 452. Managing Natural and Rangeland Resources using GIS. 3 Credits.

The application of Geographic Information Systems to managing natural and rangeland resources will be investigated. Different natural and rangeland resource datasets, analysis methods, and software packages will be utilized. Cross-listed with NRM 452 and SOIL 452. Dual-listing: RNG 652.

RNG 453. Rangeland Resources Watershed Management. 3 Credits.

Study of the management of physical/biological settings and processes along with human activities on water and watersheds considering preventative and restorative strategies in a rangeland setting. Prereq: RNG 136 or NRM 225. Cross-listed with NRM 453. {Also offered for graduate credit - see RNG 653.}.

RNG 454. Wetland Resources Management. 3 Credits.

Principles of wetland systems, wetland management, wetland functions, wetland delineation, wetland assessment, and wetland improvement. Prereq: SOIL 210. Cross-listed with NRM 454 and SOIL 454. F (even years) {Also offered for graduate credit - see RNG 654.}.

RNG 455. Ecology and Management of Woody Plant Encroachment in Rangelands. 2 Credits.

Examination of woody plant encroachment as a global phenomenon in rangeland systems. Specific focus will be on the social-ecological drivers of woody encroachment, impacts on rangeland ecosystem services, and management approaches from the past to present. Prereq: RNG 136 or NRM 225 or instructor approval. Dual-listing: RNG 655.

RNG 456. Ecological Restoration. 3 Credits.

This course reviews ecological concepts inherent to ecosystem structure and function, including plant, soil, and animal ecology, and ecosystem response to disturbance. Furthermore, the course will illustrate how this ecological knowledge is used along with socioeconomic information to develop and implement effective restoration projects in both terrestrial and aquatic ecosystems. Cross-listed with NRM 456 and SOIL 456. Dual-listing: RNG 656, NRM 656 and SOIL 656.

RNG 458. Grazing Ecology and Rangeland Management. 3 Credits.

Examination of the ecological principles that underpin interactions between herbivores and their environment and how to apply this knowledge to livestock grazing management in rangeland systems. Specific focus will be on how to achieve production and conservation outcomes. Prereq: RNG 136. Dual-listing: RNG 658.

RNG 462. Natural Resource and Rangeland Planning. 3 Credits.

Capstone experience for School of Natural Resources Sciences majors: students use advanced planning tools and different management strategies to demonstrate integrated knowledge in managing public and private natural resources. Prereq: at least senior standing and must be a Natural Resources Management, Range Science or Soil Science major. Cross-listed with NRM and SOIL. {Also offered for graduate credit - see RNG 662.}.

RNG 491. Seminar. 1-5 Credits.**RNG 492. Global Practicum: Study Abroad. 1-15 Credits.**

Pre-Arranged study at accredited foreign institutions (study abroad), domestic institutions (National Student Exchange) or on approved study abroad programs. Pre-requisite: Sophomore standing and prior approval by International Student and Study Abroad Services and major department. Graded 'P' or 'F' (Undergraduate), or 'S' or 'U' (Graduate).

RNG 494. Individual Study. 1-5 Credits.**RNG 496. Field Experience. 1-15 Credits.****RNG 650. Range Plants. 3 Credits.**

Identification, distribution, and forage value of important U.S. range plants. 1 lecture, 2 two-hour laboratories. {Also offered for undergraduate credit - see RNG 450.}.

RNG 651. Fire Ecology and Rangeland Management. 3 Credits.

Provide historical and contemporary evidence of fire as an ecological process that has shaped the biophysical, ecological, and socio-ecological systems humans experience. Emphasis on fire and conservation of rangeland systems and understanding fire application for management objectives. Dual-listing: RNG 451.

RNG 652. Managing Natural and Rangeland Resources using GIS. 3 Credits.

The application of Geographic Information Systems to managing natural and rangeland resources will be investigated. Different natural and rangeland resource datasets, analysis methods, and software packages will be utilized. Cross-listed with NRM 652 and SOIL 652. Dual-listing: RNG 452.

RNG 653. Rangeland Resources Watershed Management. 3 Credits.

Study of the management of physical/biological settings and processes along with human activities on water and watersheds considering preventative and restorative strategies in a rangeland setting. Cross-listed with NRM 653. {Also offered for undergraduate credit - see RNG 453.}.

RNG 654. Wetland Resources Management. 3 Credits.

Principles of wetland systems, wetland management, wetland functions, wetland assessment, and wetland improvement. {Also offered for undergraduate credit - see RNG 454.}.

RNG 655. Ecology and Management of Woody Plant Encroachment in Rangelands. 2 Credits.

Examination of woody plant encroachment as a global phenomenon in rangeland systems. Specific focus will be on the social-ecological drivers of woody encroachment, impacts on rangeland ecosystem services, and management approaches from the past to present. Dual-listing: RNG 455.

RNG 656. Ecological Restoration. 3 Credits.

This course reviews ecological concepts inherent to ecosystem structure and function, including plant, soil, and animal ecology, and ecosystem response to disturbance. Furthermore, the course will illustrate how this ecological knowledge is used along with socioeconomic information to develop and implement effective restoration projects in both terrestrial and aquatic ecosystems. Cross-listed with NRM 656 and SOIL 656. Dual-listing: RNG 456.

RNG 658. Grazing Ecology and Rangeland Management. 3 Credits.

Examination of the ecological principles that underpin interactions between herbivores and their environment and how to apply this knowledge to livestock grazing management in rangeland systems. Specific focus will be on how to achieve production and conservation outcomes. Dual-listing: RNG 458.

RNG 662. Natural Resources and Rangeland Planning. 3 Credits.

Capstone experience for School of Natural Resources Sciences majors: students use advanced planning tools and different management strategies to demonstrate integrated knowledge in managing public and private natural resources. Cross-listed with NRM and SOIL. {Also offered for undergraduate credit - see RNG 462.}.

RNG 695. Field Experience. 1-15 Credits.**RNG 717. Aquatic Vascular Plants. 3 Credits.**

Identification of major aquatic vascular plants in the Northern Great Plains, utilization of major plant identification keys for the region, and descriptions of ecological roles of species for utilization in assessment, monitoring, and delineation. 1 lecture, 2 two-hour laboratories. F (odd years).

RNG 749. Applied Global Change Ecology. 3 Credits.

Discussion driven course that emphasizes current peer-review literature investigating the influence of human-driven global changes on natural resources. The class will include topics ranging from climate change to energy expansion and assisted colonization.

RNG 765. Analysis Of Ecosystems. 3 Credits.

Introduction to advanced statistical techniques to evaluate plant communities, plant-animal interactions, and plant-soil relationships. Emphasis on multivariate analysis. 2 lectures, 1 two-hour laboratory. S (even years).

RNG 775. Rangeland Ecology and Management Certificate Capstone. 1 Credit.

This capstone course provides a culminating experience for students completing the certificate in Rangeland Ecology and Management. Students will reflect on their academic and professional growth, align their learning with industry and professional standards, and create a portfolio showcasing their best work from the program. The course emphasizes synthesis, self-assessment, and professional communication to prepare students for the next steps in their careers.

RNG 790. Graduate Seminar. 1-5 Credits.

RNG 791. Temporary/Trial Topics. 1-5 Credits.

RNG 792. Graduate Teaching Experience. 1-6 Credits.

RNG 793. Individual Study/Tutorial. 1-5 Credits.

RNG 794. Practicum/Internship. 1-8 Credits.

RNG 795. Field Experience. 1-15 Credits.

RNG 796. Special Topics. 1-5 Credits.

RNG 797. Master's Paper. 1-3 Credits.

RNG 798. Master's Thesis. 1-10 Credits.

RNG 892. Graduate Teaching Experience. 1-6 Credits.

RNG 898. Continuing Enrollment. 1-9 Credits.

For graduate students who have completed all necessary credits of course work including thesis (798) and dissertation (899) on their approved Plan of Study, but who have not yet completed and submitted their thesis or dissertation. This course does not count towards the credit requirements for the degree and is not financial aid eligible. Department consent required to enroll.

RNG 899. Doctoral Dissertation. 1-15 Credits.