ARNR - Animal & Range
Natural Res

ARNR 507. Research Methods. 1 Credit. (1 Sem; 5 cr max) F,S
PREREQUISITE: Graduate standing. Application of scientific method and research
techniques, including design of experiments and use of appropriate statistical
procedures.

ARNR 508. Rangeland Ecological Theory and Application. 3 Credits. (3 Lec) F
alternate years, to be offered odd years.
PREREQUISITE: Graduate standing. In this course students will explore the scientific
literature and ecological basis for rangeland management practices and will develop
an ecological awareness to support critical evaluation of and solution building for
ecological problems on arid and semi-arid landscapes.

ARNR 520. Nutrient Metabolism. 3 Credits. (3 Lec) F alternate years, to be offered
odd years.
PREREQUISITE: ANSC 320, and either CHMY 123 or BCH 380 or consent of
instructor. Energy and protein utilization, emphasis on how energy and protein
requirements are determined.

ARNR 521. Adv Ruminant Nutrition. 3 Credits. (2 Lec, 1 Lab) F alternate years, to be
offered every year.
PREREQUISITE: ANSC 320 or consent of instructor. Physiological and
microbiology aspects of ruminant digestion and their influence on the metabolism of
extraluminal tissues.

ARNR 523. Adv Physiology of Reproduction. 3 Credits. (3 Lec) S alternate years, to be
offered odd years.
PREREQUISITE: BIOC 412, BCH 380, ANSC 321 or consent of
instructor. Study of the basic concepts of reproductive processes in mammals with special emphasis on
the application of recent techniques in solving reproductive problems associated with
fertility and infertility.

ARNR 524. Adv Animal Breeding. 3 Credits. (3 Lec) S alternate years, to be offered
every year.
PREREQUISITE: ANSC 322. Quantitative and molecular genetics applied to
the improvement of animals. Study of relationships among relatives, methods of
estimating genetic parameters, application of crossbreeding systems and selection
techniques, and the application of molecular biology to understand the basis of
economically important traits in livestock.

ARNR 525. Muscle Growth & Biology. 3 Credits. (3 Lec) S alternate years, to be
offered every year.
PREREQUISITE: BCH 380 AND BIOC 160. Growth and development of muscle,
muscle structure and how growth is controlled by hormones and DNA will be studied.
The impact of growth manipulation on the final product, meat, will also be evaluated.

ARNR 529. Yellowstone Wildlife Habitat Ecology. 2 Credits. (2 Lec) Su
PREREQUISITE: WILD 426 OR WILD 428 or equivalent. This course will describe
the native communities of the internationally prominent northern Yellowstone winter
range for wild ungulates. The ecology of many organisms, both plant and animal will
be studied. Plant identification skills will be incorporated with an emphasis on
the recognition of the Yellowstone northern range’s flora and its importance as wildlife
habitat. Ecosystem interrelationships will form the basis for understanding the ecology
of the range and interpreting the consequences of management alternatives.

ARNR 541. Range Ecophysiology. 3 Credits. (3 Lec) S alternate years, to be offered
every year.
PREREQUISITE: NRSM 240 or BIOC 370 or BIOC 433. Lectures and selected
readings on the response of range plants and animals to daily and seasonal changes in
their environment, including physiology, animal behavior, and plant population
biology.

ARNR 543. Riparian Process & Function. 3 Credits. (3 Lec) S alternate years, to be
offered odd years.
PREREQUISITE: NRSM 455, BIOC 370 and ERTH 432. This course involves an in
deepth investigation of the geomorphological physical and biological parameters unique
to riparian areas of the Northern Rocky Mountains and Great Plains. Emphasis will
be placed on how these parameters interact to create the biotic communities associated
with riparian areas.

ARNR 544. Advanced Grazing Management and Ecology. 3 Credits. (3 Lec) S
alternate years, to be offered odd years.
PREREQUISITE: NRSM 240 or NRSM 350 or NRSM 351 or BIOC 370. Review
of management principles for livestock grazing rangelands and their ecological
relationships. Study design and scientific results will be examined to critically review
information.