# GRASSLAND STUDIES (GRAS)

## GRAS 240 Forage Crop and Pasture Management
**Crosslisted with:** AGRO 240, RNGE 240  
**Prerequisites:** AGRO/HORT 131 or BIOS 101 or LIFE 120  
**Description:** Principles basic to the establishment, management, and utilization of forage crops and pastures. Plant identification and selection, seeding, fertilization, irrigation, forage quality and utilization, hay and silage preservation, and grazing management. The role of forages and ranges in developing a sustainable agriculture.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC  
**Offered:** FALL/SPR  
**Prerequisite for:** AGRO 340, RNGE 340, GRAS 340; AGRO 445, AGRO 845, ASCI 451, ASCI 851, RNGE 445

## GRAS 242 North American Wildland Plants
**Crosslisted with:** AGRO 242, HORT 242, RNGE 242  
**Prerequisites:** Permission.  
**Notes:** AGRO/RNGE 240 recommended.  
**Description:** Identification and description of two-hundred important wildland plants of North America. Characteristics of these plants evaluated in terms of management implications.  
**Credit Hours:** 1  
**Max credits per semester:** 1  
**Max credits per degree:** 4  
**Format:** LEC  
**Offered:** FALL/SPR

## GRAS 244 Great Plains Ecosystem
**Crosslisted with:** AGRO 440, AGRO 840, NRES 840, RNGE 440  
**Prerequisites:** Junior standing.  
**Notes:** BIOS 101 and 101L, or equivalent, recommended.  
**Description:** Characteristics of Great Plains ecosystems, interrelationships of ecological factors and processes, and their application in the management of grasslands. Interactions of fire, vegetation, grazing animals and wildlife.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC  
**Offered:** SPRING

## GRAS 340 Range Management and Improvement
**Crosslisted with:** AGRO 340, RNGE 340  
**Prerequisites:** AGRO 240.  
**Description:** The principles of range management within the ecosystem framework. Range improvement practices and grazing systems; plant control using biological, chemical and mechanical factors; prescribed burning; range seeding; range fertilization; and the integration of range with other forage resources.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC  
**Offered:** SPRING  
**Prerequisite for:** AGRO 445, AGRO 845, ASCI 451, ASCI 851, RNGE 445

## GRAS 342 Wildland Plants
**Crosslisted with:** AGRO 342, RNGE 342  
**Prerequisites:** AGRO 242, HORT 242, RNGE 242  
**Notes:** AGRO/RNGE 240 recommended.  
**Description:** Wildland plants that are important to grassland and shrubland ecosystem management and production. Distribution, utilitarian, classification, identification (including identification by vegetative parts), uses by Native Americans, and recognition of grasses, forbs, shrubs, exotic and wetland plants.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC  
**Offered:** FALL

## GRAS 344 Ecosystem Monitoring and Assessment
**Crosslisted with:** AGRO 444, AGRO 844, NRES 844, RNGE 444  
**Prerequisites:** Junior standing.  
**Notes:** NRES 220 or equivalent, recommended.  
**Description:** Measurement and monitoring of the important vegetation and environmental factors used to develop management guidelines in grasslands, savannas, woodlands, and wetlands. Emphasis on using ecosystem monitoring protocols for assessment of wildlife habitat, fuels management for wild-land fire, livestock production, and watershed function. Requires field sampling and travel to local field sites.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC  
**Offered:** FALL

## GRAS 440 Internship Experience in Grazing Livestock Systems
**Prerequisites:** Junior standing, Grazing Livestock Systems major and permission  
**Description:** A structured practical experience under the supervision of a professional in grazing livestock systems.  
**Credit Hours:** 1-3  
**Min credits per semester:** 1  
**Max credits per semester:** 3  
**Max credits per degree:** 4  
**Format:** FLD  
**Prerequisite for:** ASCI 482, AECN 482

## GRAS 441 Perennial Plant Function, Growth, and Development
**Crosslisted with:** AGRO 441, AGRO 841, HORT 441, HORT 841, RNGE 441  
**Prerequisites:** AGRO 325 or equivalent.  
**Description:** Principles of crop physiology and developmental morphology in relation to function, growth, development, and survival of perennial forage, range, and turf plants. The relationship of physiology and morphological development on plant use and management.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC  
**Offered:** SPRING

## GRAS 444 Ecosystem Monitoring and Assessment
**Crosslisted with:** AGRO 444, AGRO 844, NRES 844, RNGE 444  
**Prerequisites:** Junior standing.  
**Notes:** NRES 220 or equivalent, recommended.  
**Description:** Measurement and monitoring of the important vegetation and environmental factors used to develop management guidelines in grasslands, savannas, woodlands, and wetlands. Emphasis on using ecosystem monitoring protocols for assessment of wildlife habitat, fuels management for wild-land fire, livestock production, and watershed function. Requires field sampling and travel to local field sites.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC  
**Offered:** FALL

## GRAS 449 Internship Experience in Grazing Livestock Systems
**Prerequisites:** Junior standing, Grazing Livestock Systems major and permission  
**Description:** A structured practical experience under the supervision of a professional in grazing livestock systems.  
**Credit Hours:** 1-3  
**Min credits per semester:** 1  
**Max credits per semester:** 3  
**Max credits per degree:** 4  
**Format:** FLD  
**Prerequisite for:** ASCI 482, AECN 482
GRAS 495 Grasslands Seminar
Crosslisted with: AGRO 495, ENTO 495, HORT 495, NRES 495, RNGE 495, SOIL 495
Prerequisites: Junior standing.
Description: Topic varies and deals with different aspects of forage and/or range and/or livestock, turf and/or landscape grasses, natural habitats, and wetlands.
Credit Hours: 1-2
Min credits per semester: 1
Max credits per semester: 2
Max credits per degree: 4
Format: LEC

GRAS 496 Independent Study
Prerequisites: Permission and advance approval of contract.
Credit Hours: 1-5
Min credits per semester: 1
Max credits per semester: 5
Max credits per degree: 5
Format: IND