GRAZING LIVESTOCK SYSTEMS

Description
Website: http://gls.unl.edu

- For students whose career interests involve the production of livestock utilizing harvested forages, pasture, and range as the principal feed resources.
- Careers include managers of livestock farms or ranches and public or private sector positions that assist in the management, education and support of grazing livestock decision making.
- Students study principles of forage and range sciences, animal sciences, and management economics.
- Students also learn through seminars, capstone experiences and a planned internship.
- Integration of disciplines is emphasized in developing production systems that will optimize economic returns consistent with management objectives, resource availability, and environmental health.
- Flexibility allows specialization in ruminant livestock, forage and range management, or economics, while preserving the systems orientation.

Other

Scholarships and Financial Aid
In addition to other scholarships a student might receive, the Grazing Livestock Systems program awards scholarships annually to qualifying new and current GLS students, based primarily on academic performance. For more information on these scholarships, contact the Center for Grassland Studies, 402-472-4101, grassland@unl.edu.

Academic Advising
Students are assigned a faculty advisor after admission into their program. The advisor serves as a resource regarding the degree, academic plans and progress, and career options. Students are encouraged to regularly consult with their advisor, especially before registering for classes.

College Requirements

College Admission
Requirements for admission into the College of Agricultural Sciences and Natural Resources (CASNR) are consistent with general University admission requirements (one unit equals one high school year): 4 units of English, 4 units of mathematics, 3 units of natural sciences, 3 units of social studies, and 2 units of foreign language. Students must also meet performance requirements (ACT composite of 20 or higher OR combined SAT score of 950 or higher OR rank in the top one-half of graduating class; transfer students must have a 2.0 (on a 4.0 scale) cumulative grade point average and 2.0 on the most recent term of attendance. For students entering the PGA Golf Management degree program, a certified golf handicap of 12 or better (e.g., USGA handicap card) or written ability (MS Word file) equivalent to a 12 or better handicap by a PGA professional or high school golf coach is required. For more information, please visit: http://pgm.unl.edu/requirements.

Admission Deficiencies/Removal of Deficiencies
Students who are admitted to CASNR with core course deficiencies must remove these deficiencies within the first 30 credit hours at UNL, or within the first calendar year at UNL, whichever takes longer, excluding foreign languages. Students have up to 60 credit hours to remove foreign language deficiencies. College-level course work taken to remove deficiencies may be used to meet degree requirements in CASNR.

Deficiencies in the required entrance subjects can be removed by completion of specified courses in the University or by correspondence.

The Office of Admissions, Alexander Building (south entrance), City Campus, provides information to new students on how deficiencies can be removed.

College Degree Requirements

Curriculum Requirements
The curriculum requirements of the College consist of three areas: ACE (Achievement-Centered Education); College of Agricultural Sciences and Natural Resources Core; and Degree Program requirements and electives. All three areas of the College Curriculum Requirements are incorporated within the description of the Major/Degree Program sections of the catalog. The individual major/degree program listings of classes insures that a student will meet the minimum curriculum requirements of the College.

Foreign Languages/Language Requirement
Two units of a foreign language are required. This requirement is usually met with two years of high school language.

Minimum Hours Required for Graduation
The College grants the bachelors degree in programs associated with agricultural sciences, natural resources and related programs. Students working toward a degree must earn at least 120 semester hours of credit. A minimum cumulative grade point average of C (2.0 on a 4.0 scale) must be maintained throughout the course of studies and is required for graduation.

Grade Rules

Removal of C-, D and F Grades
Only the most recent letter grade received in a given course will be used in computing a student's cumulative grade point average if the student has completed the course more than once and previously received a grade or grades below C in that course.

The previous grade (or grades) will not be used in the computation of the cumulative grade point average, but it will remain a part of the academic record and will appear on any transcript.

A student can remove from his/her cumulative average a course grade of C, D+, D, D- or F if the student repeats the same course at the University of Nebraska and receives a grade other than P (pass), I (incomplete), N (no pass), W (withdrawn), or NR (no report). If a course is no longer being offered, it is not eligible for the revised grade point average computation process.

For complete procedures and regulations, see the Office of the University Registrar website at http://www.unl.edu/regrec/course-repeats.

Pass/No Pass
Students in CASNR may take any course offered on a Pass/No Pass basis within the 24-hour limitation established by the Faculty Senate. However, a department may specify that the Pass/No Pass status of its
courses be limited to non-majors or may choose to offer some courses for letter grades only.

GPA Requirements
A minimum cumulative grade point average of C (2.0 on a 4.0 scale) must be maintained throughout the course of studies and is required for graduation.

Transfer Credit Rules
To be considered for admission, a transfer student, Nebraska resident or nonresident, must have an accumulated average of C (2.0 on a 4.0 scale) and a minimum C average in the last semester of attendance at another college. Transfer students who have completed less than 12 credit hours of college study must submit either ACT or SAT scores.

Ordinarily, credits earned at an accredited college are accepted by the University. The College, however, will evaluate all hours submitted on an application for transfer and reserves the right to accept or reject any of them. Sixty is the maximum number of hours UNL will accept on transfer from a two-year college. Ninety is the maximum number of hours UNL will accept from a four-year college. Transfer credit in the degree program must be approved by the degree program advisor on a Request for Substitution Form to meet specific course requirements, group requirements, or course level requirements in the major. At least 9 hours in the major field, including the capstone course, must be completed at UNL regardless of the number of hours transferred.

The College will accept no more than 10 semester hours of C, D+, D and D- grades from other schools. The C, D+, D, and D- grades can only be applied to free electives. This policy does not apply to the transfer of grades from UNO or UNK to UNL.

Joint Academic Transfer Programs
The College of Agricultural Sciences and Natural Resources has agreements with many institutions to support joint academic programs. The transfer programs include dual degree programs and cooperative degree programs. Dual degree programs offer students the opportunity to receive a degree from a participating institution and also to complete requirements for a bachelor of science degree in CASNR. Cooperative programs result in a single degree from either UNL or the cooperating institution.

Dual Degree Programs
A to B Programs
The A to B Program, a joint academic program offered by the CASNR and participating community colleges, allows students to complete the first two years of a degree program at the participating community college and continue their education and study in a degree program leading toward a bachelor of science degree.

The A to B Program provides a basic knowledge plus specialized course work. Students transfer into CASNR with junior standing.

Depending on the community college, students enrolled in the A to B Program may complete the requirements for an associate of science at the community college, transfer to UNL, and work toward a bachelor of science degree.

Participating community colleges include:

- Central Community College
- Metropolitan Community College
- Mid-Plains Community College
- Nebraska College of Technical Agriculture
- Northeast Community College
- Southeast Community College
- Western Nebraska Community College

3+2 Programs
Two specialized degree programs in animal science and veterinary science are offered jointly with an accredited college or school of veterinary medicine. These two programs permit CASNR animal science or veterinary science students to receive a bachelor of science degree from UNL with a degree in animal science or veterinary science after successfully completing two years of the professional curriculum in veterinary medicine at an accredited veterinary school. Students who successfully complete the 3+2 Program, must complete the “Application for Degree” form and provide transcripts to the Credentials Clerk, Office of the University Registrar, 107 Canfield Administration Building, UNL.

Students should discuss these degree programs with their academic advisor.

Cooperative Degree Programs
Academic credit from UNL and a cooperating institution is applied towards a four-year degree from either UNL (UNL degree-granting program) or the cooperating institution (non UNL degree-granting program). All have approved programs of study.

UNL Degree-Granting Programs
A UNL degree-granting program is designed to provide students the opportunity to complete a two-year program of study at one of the four-year institutions listed below, transfer to CASNR and complete the requirements for a bachelor of science degree.

Chadron State College. Chadron State College offers a 2+2 program leading to a grassland ecology and management degree program and a transfer program leading to a Bachelor of Science in Agricultural Education in the teaching option.

Wayne State College. Wayne State College offers a 3+1 program leading to a Bachelor of Science in Plant Biology in the ecology and management option.

University of Nebraska at Kearney. Transfer programs are available for students pursuing degree programs leading to a bachelor of science degree.

University of Nebraska at Omaha. The University of Nebraska at Omaha (UNO) cooperates with CASNR in providing four-semester pre-agricultural sciences, pre-natural resources, pre-food science and technology, pre-horticulture and pre-turfgrass and landscape management transfer programs.

A student enrolled in these programs may transfer all satisfactorily completed academic credits identified in the suggested program of study, and enter CASNR to study toward a degree program leading to a bachelor of science degree. The total program would require a minimum of four years or eight semesters (16 credit hours/semester or 120 credit hours).

UNL CASNR faculty teach horticulture and food science and technology courses at UNO to assist an urban population in better understanding the food processing, horticulture, and landscape horticulture industries.

For more information, contact the CASNR Dean's Office, 800-472-8800, ext. 2541.

Non UNL Degree-Granting Programs
The CASNR cooperates with other institutions to provide course work that is applied towards a degree at the cooperating institution. Pre-
professional programs offered by CASNR allow students to complete the first two or three years of a degree program at UNL prior to transferring and completing a degree at the cooperating institution.

**Chadron State College—Range Science.** The 3+1 Program in range science allows Chadron State College students to pursue a range science degree through Chadron State College. Students complete three years of course work at Chadron State College and one year of specialized range science course work (32 credit hours) at CASNR.

**Dordt College (Iowa) – Agricultural Education: Teaching Option.** This program allows students to pursue an Agricultural Education Teaching Option degree leading toward a bachelor of science in agricultural education. Students at Dordt College will complete 90 credit hours in the Agricultural Education: Teaching Option Transfer Program.

**Residency**
Students must complete at least 30 of the total hours for their degree using UNL credits. At least 18 of the 30 credit hours must be in courses offered through CASNR (≥299) including the appropriate ACE 10 degree requirement or an approved ACE 10 substitution offered through another UNL college and excluding independent study regardless of the number of hours transferred. Credit earned during education abroad may be used toward the residency requirement if students register through UNL and participate in prior-approved education abroad programs. UNL open enrollment and summer independent study courses count toward residency.

1 Includes courses taught by CASNR faculty through interdisciplinary prefixes (e.g., LIFE, MBIO, ENVR, SCIL, EAEP, HRTM, ENSC) and CASNR crosslisted courses taught by non-CASNR faculty.

**Online and Distance Education**
There are many opportunities to earn college credit online through the University of Nebraska–Lincoln. Some of these credits may be applicable not only as elective credits, but also toward the fulfillment of the College’s education requirements. Credits earned online may count toward residency. However, certain offerings may not be counted toward scholarship requirements or academic recognition criteria.

**For further information, contact:**
Office of Online and Distance Education
University of Nebraska–Lincoln
305 Brace Labs
Lincoln, NE 68588-0109
402-472-4681
http://online.unl.edu/

**Independent Study Rules**
Students wishing to take part in independent studies must obtain permission; complete and sign a contract form; and furnish copies of the contract to the instructor, advisor, departmental office, and the Dean’s Office. The contract should be completed before registration. Forms are available in 103 Agricultural Hall or online at the CASNR website.

Independent study projects include research, literature review or extension of course work under supervision and evaluation of a departmental faculty member.

Students may only count 12 hours of independent study toward their degrees and no more than 6 hours can be counted during their last 36 hours earned, excluding senior thesis, internships, and courses taught under an independent study number.

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**Other College Degree Requirements**

**Capstone Course Requirement**
A capstone course is required for each CASNR degree program. A capstone course is defined as a course in which students are required to integrate diverse bodies of knowledge to solve a problem or formulate a policy of societal importance.

**ACE Requirements**
All students must fulfill the Achievement Centered Education (ACE) requirements. Information about the ACE program may be viewed at www.ace.unl.

The minimum requirements of CASNR reflect the common core of courses that apply to students pursuing degrees in the college. Students should work with an advisor to satisfy ACE outcomes 1, 2, 3, 4, 6 and 10 with the college requirements.

**Catalog Rule**
Students must fulfill the requirements stated in the catalog for the academic year in which they are first admitted to UNL or when they were first admitted to a Joint Academic Transfer Program. In consultation with advisors, a student may choose to follow a subsequent catalog for any academic year in which they are admitted to and enrolled as a degree-seeking student at UNL in the College of Agricultural Sciences and Natural Resources. Students must complete all degree requirements from a single catalog year. The catalog which a student follows for degree requirements may not be more than 10 years old at the time of graduation.

**Learning Outcomes**

Majors in grazing livestock systems will be able to:

1. Conduct a survey of the range and pasture resources of a livestock operation, including plant identification, range and pasture condition determination, site classification, and degree of plant and pasture utilization.
2. Analyze and interpret the forage, animal, and economic aspects of a ranch unit, including mapping of pastures and physical facilities.
3. Integrate range and pasture improvements such as grazing systems, range seeding, weed control, and hay and supplemental forage management with livestock management such as breeding systems, nutrition, insect, and disease control.
4. Develop a comprehensive management plan including marketing strategies and economic analysis for the ranch unit. Use computer-based decision support tools to develop and evaluate management strategies/systems for livestock enterprises.
5. Critically analyze management systems, integrate a wide range of interrelated inputs and disciplines into a single process or system, and make decisions based on properly-collected information and sound reasoning and communicate them effectively to peers and stakeholders.

**Major Requirements**

**Core Requirements**

**College Integrative Courses**

<table>
<thead>
<tr>
<th>SCIL 101</th>
<th>Science and Decision-Making for a Complex World</th>
<th>3</th>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ASCI 451 / AGRO 445 / RNGE 445</td>
<td>Livestock Management on Range and Pasture (capstone)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Mathematics and Statistics (beyond college algebra) (ACE 3)**

Select 5 credits of the following:

- **MATH 102** Trigonometry
- **MATH 103** College Algebra and Trigonometry
- **MATH 104** Applied Calculus
- **MATH 106** Calculus I
- **STAT 218** Introduction to Statistics

**Communications**

Select one written communication (ACE 1) course of the following:

- **ENGL 150** Writing and Inquiry
- **ENGL 151** Writing and Argument
- **ENGL 254** Writing and Communities
- **JGEN 120** Basic Business Communication
- **JGEN 200** Technical Communication I
- **JGEN 300** Technical Communication II

Select one oral communication (ACE 2) course of the following:

- **ALEC 102** Interpersonal Skills for Leadership
- **COMM 101** Communication in the 21st Century
- **COMM 209** Public Speaking
- **COMM 210** Communicating in Small Groups
- **COMM 215** Visual Communication
- **COMM 283** Interpersonal Communication
- **COMM 286** Business and Professional Communication
- **JGEN 300** Technical Communication II
- **MRKT 257** Sales Communication
- **TMFD 121** Visual Communication and Presentation

Select one communications and interpersonal skills elective course of the following:

Any course from the above listings not used to fulfill the ACE 1 or ACE 2 requirements

- **ALEC 202** Foundations of Leadership Theory and Practice
- **ALEC 207 / ADPR 207** Communicating to Public Audiences
- **ALEC 302** Dynamics of Effective Leadership in Organizations
- **ALEC 305** Presentation Strategies for Agricultural Audiences
- **ALEC 350** Agriculture, the Environment & Science in the Media
- **ALEC 480** Capstone Experience in Agricultural and Environmental Sciences Communication
- **COMM 212** Debate
- **COMM 325** Interviewing
- **JGEN 103** Media Literacy
- **JGEN 120** Basic Business Communication
- **MNGT 311** Leadership, Communication and Teams
- **MNGT 365** Managing Diversity in Organizations

**Natural Sciences**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AGRO 215 / HORT 215 / TLMT 215</td>
<td>Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one CASNR approved life sciences sequence of the following:

- **AGRO 131 / HORT 131** Plant Science and Agronomic Plant Science Laboratory
- **AGRO 132**
- **BIOS 101** General Biology
- **BIOS 101L** and General Biology Laboratory
- **LIFE 120** Fundamentals of Biology I
- **LIFE 120L** and Fundamentals of Biology I laboratory

Select one of the following: (ACE 4)

- **CHEM 105** Chemistry in Context I & CHEM 106 and Chemistry in Context II
- **CHEM 109** General Chemistry I & CHEM 110 and General Chemistry II
- **CHEM 251** and Organic Chemistry I & CHEM 253 and Organic Chemistry I Laboratory

Select one of the following:

- **MSYM 109** Physical Principles in Agriculture and Life Sciences
- **PHYS 141** Elementary General Physics I
- **PHYS 151** Elements of Physics

**Economics, Humanities and Social Sciences**

- **AECN 141** Introduction to the Economics of Agriculture (ACE 6)

Select one course each from ACE outcomes 5, 7, 8, and 9

Credit Hours Subtotal: 56

**Specific Major Requirements**

**Agricultural Sciences**

- **ASCI 100** Fundamentals of Animal Biology and Industry & **ASCI 100L** and Fundamentals of Animal Biology and Industry Laboratory
- **ASCI 240** Anatomy and Physiology of Domestic Animals
- **ASCI 320** Animal Nutrition and Feeding
- **ASCI 330** Animal Breeding
- **ASCI 341** Physiology and Management of Reproduction
- **AGRO 153 / HORT 153 / SOIL 153** Soil Resources
- **AGRO 240 / RNGE 240** Forage Crop and Pasture Management
- **AGRO 245 / NRES 245** Introduction to Grassland Ecology and Management
- **AGRO 340 / RNGE 340** Range Management and Improvement
- **AGRO 440 / RNGE 440 / NRES 440** Great Plains Ecosystem
- **AECN 201** Farm and Ranch Management
- **AECN 235** Introduction to Commodity Marketing

**AECN Electives**
Select one course in two of the following three blocks: 6

**Farm Management & Marketing:**
- AECN 301 Farm Accounting, Analysis, and Tax Management
- AECN 325 / MRKT 325 Marketing of Agricultural Commodities
- AECN 401 Advanced Farm Management and Linear Programming
- AECN 435 Advanced Agricultural Marketing Management

**Agricultural Financial Analysis:**
- AECN 301 Farm Accounting, Analysis, and Tax Management
- AECN 452 Agricultural Finance
- AECN 453 Agricultural and Rural Property Appraisal

**Natural Resources, Policy, & Legal Environment:**
- AECN 256 Legal Aspects in Agriculture
- AECN 265 / NREE 265 Resource and Environmental Economics I
- AECN 345 Policy Issues in Agriculture and Natural Resources
- AECN 357 / NREE 357 Natural Resource and Environmental Law
- AECN 445 / NREE 445 Agricultural and Natural Resource Policy Analysis
- AECN 465 / NREE 465 / WATS 465 Resource and Environmental Economics II

Credit Hours Subtotal: 48

**Internship**
- GRAS 490 Internship Experience in Grazing Livestock Systems (planning) 1
- GRAS 490 Internship Experience in Grazing Livestock Systems 3

Credit Hours Subtotal: 4

**Free Electives**
Select 8-13 credits 8-13

Credit Hours Subtotal: 12

Total Credit Hours 120

If MATH 103 College Algebra and Trigonometry is taken, only 2 credit hours can be counted toward this requirement.

**NOTE:** Students interested in federal employment in range management must take AGRO 442 Wildland Plants/RNGE 442 Wildland Plants and AGRO 444 Ecosystem Monitoring and Assessment/RNGE 444 Ecosystem Monitoring and Assessment.

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**Requirements for Minor Offered by Department**

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>AECN 201</td>
<td>Farm and Ranch Management 4</td>
</tr>
<tr>
<td>AGRO 240 / RNGE 240</td>
<td>Forage Crop and Pasture Management 3</td>
</tr>
</tbody>
</table>

ASC1 250 Animal Management 3
ASC1 451 / AGRO 445 / RNGE 445 Livestock Management on Range and Pasture 3

Select a minimum of 5 hours from the following: 5
- AGRO 340 / RNGE 340 Range Management and Improvement
- AGRO 440 / NRES 440 / RNGE 440 Great Plains Ecosystem
- ASCI 320 Animal Nutrition and Feeding
- ASCI 330 Animal Breeding
- ASCI 455 Beef Cow-Calf Management
- AECN 325 / MRKT 325 Marketing of Agricultural Commodities
- AECN 401 Advanced Farm Management and Linear Programming
- AECN 435 Advanced Agricultural Marketing Management

Credit Hours Subtotal: 18

Total Credit Hours 18

PLEASE NOTE
This document represents a sample 4-year plan for degree completion with this major. Actual course selection and sequence may vary and should be discussed individually with your college or department academic advisor. Advisors also can help you plan other experiences to enrich your undergraduate education such as internships, education abroad, undergraduate research, learning communities, and service learning and community-based learning.

**16 HR TERM 1**

**College Course**
- complete SCIL 101 3hr

SCIL 101 becomes critical to your success in the major if not completed by the second term of enrollment.

**ACE 4 Life Science**
- complete LIFE 120, LIFE 120L 4hr

**College Algebra Reqt**
- complete MATH 102 2hr

MATH 102 becomes critical to your success in the major if not completed by the third term of enrollment.

**ACE 6 Economics**
**Grazing Livestock Systems**

- Complete AECN 141 (3hr)

**16 HR TERM 4**

- ACE 3 Math/Statistics
  - Complete STAT 218 (4hr)

- ACE 5 Humanities
  - Complete 1 from ACE5 (3hr)

- ACE 1 Written Comm
  - Complete 1 from ENGL 150, ENGL 151, ENGL 254, JGEN 120, JGEN 200, JGEN 300 (3hr)

  ENGL 150 is recommended.

- Genetics
  - Complete AGRO 215 (4hr)

- Agronomy/Range/Soils
  - Complete AGRO 245 (3hr)

**15 HR TERM 5**

- ACE 7 Arts
  - Complete 1 from ACE7 (3hr)

- Internship
  - Complete GRAS 490 (1hr)

  GRAS 490 (1 credit hour) becomes critical to your success in the major if not completed by the fifth term of enrollment.

- Animal Science Core
  - Complete ASCI 240, ASCI 330 (3hr)

- Electives
  - Complete AECN 201 (8hr)
15 HR TERM 6
Agronomy/Range/Soils

complete AGRO 340

ACE 8 Ethical Principles

complete 1 from ACE8

Agri Economics Elect

complete 1 from AECN 325, AECN 301, AECN 401, AECN 435, AECN 452, AECN 453, AECN 256, AECN 265, AECN 345, AECN 357, AECN 445, AECN 465

Animal Science Core

complete ASCI 320

Electives

complete Any Course

12 HR TERM 8
ACE 9 Global/Human Divers

complete 1 from ACE9

Agri Economics Elect

complete 1 from AECN 325, AECN 301, AECN 401, AECN 435, AECN 452, AECN 453, AECN 256, AECN 265, AECN 345, AECN 357, AECN 445, AECN 465

Agronomy/Range/Soils

complete AGRO 440

Electives

complete Any Course

16 HR TERM 7
Animal Science Core

complete ASCI 341

ACE 10 Capstone

complete either ASCI 451 or AGRO 445

GRAS 490 (3 credit hours) becomes critical to your success in the major if not completed by the seventh term of enrollment.

Career Information

The following represents a sample of the internships, jobs and graduate school programs that current students and recent graduates have reported.

Jobs of Recent Graduates

• Manager, L&L Farms - Upland NE
• Associate, Farm Credit Services of America - Omaha NE
• Sales and Associate, Leroy Voss - Pioneer Seed & Precision Planting - Bruning NE
• Record Keeping Analyst, Jerry Fullerton - Cody NE
• Elevator Superintendent Trainee, Scoular Grain Company - Venango NE
• Data Management and Seedstock Development, Lone Creek Cattle Company - Lincoln NE
• Cattle Operations Manager, Tri R Farms - Springview NE
• Cattle Health Assistant, Adams Land and Cattle Co. - Broken Bow NE
• Farmer/Rancher, Jagels Farms - Davenport NE
• Senior Sales Associate, Tanker Main Exchange - Oklahoma City OK

Internships
• Intern, Spencer Herefords - Brewster NE
• Pen Rider, Darr Feedlot - Cozad NE
• Intern, UNL Nebraska Ranch Practicum - NE
• Intern, Sandhills Publishing - Lincoln NE
• Range & Forage Science Research Assistant, UNL Range and Forage Science - Lincoln NE
• Research Technician Intern, UNL Animal Science Dept - Lincoln NE
• Intern, Otter Creek Organic Farm - Avoca WI
• Intern, Plum Thicket Farms - Gordon NE
• Intern, Lindskov-Thiel Ranch - Isabel SD

Grad Schools
• M.S. in Animal Science, West Texas A&M - Canyon TX
• Ph.D. Ruminant Nutrition, University of Nebraska - Lincoln - Lincoln NE