Submit original with signatures + 1 copy + electronic copy to UAF Governance. See http://www.uaf.edu/uaegov/faculty/cd for a complete description of the rules governing curriculum & course changes.

TRIAL COURSE OR NEW COURSE PROPOSAL

**SUBMITTED BY:**

<table>
<thead>
<tr>
<th>Department</th>
<th>NRM</th>
<th>Prepared by</th>
<th>SNRAS</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Bret Luick</td>
<td>474-6338</td>
</tr>
<tr>
<td>Email Contact</td>
<td></td>
<td><a href="mailto:bluick@alaska.edu">bluick@alaska.edu</a></td>
<td>Bret Luick</td>
</tr>
</tbody>
</table>

1. **ACTION DESIRED**
   (CHECK ONE):
   - [ ] Trial Course **X**
   - [ ] New Course

2. **COURSE IDENTIFICATION:**
   - Dept: NRM
   - Course #: 394
   - No. of Credits: 3
   - The course content requires a certain amount of background and commitment

3. **PROPOSED COURSE TITLE:**
   - Applied Animal Nutrition in High Latitude Agriculture

4. **To be CROSS LISTED?**
   - YES/NO
   - If yes, Dept:

5. **To be STACKED?**
   - YES/NO
   - If yes, Dept.

6. **FREQUENCY OF OFFERING:**
   - Every Spring
   - Fall, Spring, Summer (Every, or Even-numbered Years, or Odd-numbered Years) or As Demand Warrants

7. **SEMESTER & YEAR OF FIRST OFFERING**
   - (if approved) Spring 2011

8. **COURSE FORMAT:**

   **NOTE:** Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school's curriculum council. Furthermore, any core course compressed to less than six weeks must be approved by the core review committee.

   **(check all that apply)**
   - [ ] 1
   - [ ] 2
   - [ ] 3
   - [ ] 4
   - [ ] 5
   - [X] 6 weeks to full semester

8. **COURSE FORMAT:**

   **Mode of delivery**
   -(specify lecture, field trips, labs, etc)

   **OTHER FORMAT**
   -(specify)

9. **CONTACT HOURS PER WEEK:**

   **Note:** # of credits are based on contact hours. 800 minutes of lecture=1 credit. 2400 minutes of lab in a science course=1 credit. 1600 minutes in non-science lab=1 credit. 2400-4800 minutes of practicum=1 credit. 2400-8000 minutes of internship=1 credit. This must match with the syllabus. See http://www.uaf.edu/uaegov/faculty/cd/credits.html for more information on number of credits.

   **OTHER HOURS**
   -(specify type)

9. **CONTACT HOURS PER WEEK:**

<table>
<thead>
<tr>
<th>3</th>
<th>LECTURE hours/weeks</th>
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<tbody>
<tr>
<td>0</td>
<td>LAB hours/week</td>
</tr>
<tr>
<td>0</td>
<td>PRACTICUM hours/week</td>
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10. **COMPLETE CATALOG DESCRIPTION**
    including dept., number, title and credits (50 words or less, if possible):
    - NRM 394 3+0 Applied Animal Nutrition in High Latitude Agriculture
This course covers the essentials of nutrition theory and practice and contemporary issues in production animals.

11. COURSE CLASSIFICATIONS: (undergraduate courses only. Use approved criteria found on Page 10 & 17 of the manual. If justification is needed, attach on separate sheet.)

   - Humanities [ ]
   - Social Sciences [ ]

Will this course be used to fulfill a requirement for the baccalaureate core? [YES] [NO] [X]

If YES, check which core requirements it could be used to fulfill:
- O = Oral Intensive, Format 6
- W = Writing Intensive, Format 7
- Natural Science, Format 8

12. COURSE REPEATABILITY:

   Is this course repeatable for credit? [YES] [NO] [X]

   Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).

   How many times may the course be repeated for credit? [ ] TIMES

   If the course can be repeated with variable credit, what is the maximum number of credit hours that may be earned for this course? [ ] CREDITS

13. GRADING SYSTEM: Specify only one.

   LETTER: [X] PASS/FAIL: [ ]

14. PREREQUISITES

   BIOL F115X, BIOL F116X NRM 320

   These will be required before the student is allowed to enroll in the course.

   RECOMMENDED

   CHEM F106X

   Classes, etc. that student is strongly encouraged to complete prior to this course.

15. SPECIAL RESTRICTIONS, CONDITIONS

   None

16. PROPOSED COURSE FEES

   Has a memo been submitted through your dean to the Provost & VCAS for fee approval? [YES/NO] [X] No

   $0

17. PREVIOUS HISTORY

   Has the course been offered as special topics or trial course previously? [YES/NO] [X] No

   If yes, give semester, year, course #, etc.: [ ]

18. ESTIMATED IMPACT

   WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

   Minimal impact. Lecture room space.

19. LIBRARY COLLECTIONS

   Have you contacted the library collection development officer (kijensen@alaska.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

   [NO] [YES] [X] texts not currently available at UAF can be provided on hold by the instructor

20. IMPACTS ON PROGRAMS/DEPARTMENTS

   What programs/departments will be affected by this proposed action?

   Include information on the Programs/Departments contacted (e.g., email, memo)
Since the course is not cross listed at this time, the course is not expected to compete for students in other programs.

21. POSITIVE AND NEGATIVE IMPACTS
Please specify positive and negative impacts on other courses, programs and departments resulting from the proposed action.

Negative: Presumably if the course becomes a regular part of the curriculum and becomes cross listed, then competition for students could occur.

Positive: Animal nutrition is a basic course across land grant colleges, sometimes many courses are offered in the subject area: ruminant, non-ruminant, companion animals, digestive physiology, proteins, lipids, carbohydrates, amino acids, energetics and more. This course offers exposure to the wide spectrum of diet related variables important in animal care.

JUSTIFICATION FOR ACTION REQUESTED
The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. Use as much space as needed to fully justify the proposed course.

A knowledge of animal nutrition is essential preparation for students pursuing careers in animal and crop production, veterinary medicine as well as fisheries related work. This course is a practical survey of the dietary needs of production animals and the related physiological underpinnings.

APPROVALS:

Signature, Chair,
Program/Department of:

Date 9/15/2010

Signature, Chair, College/School Curriculum Council for:

Date 9/22-10

Signature, Dean, College/School of:

Date 9/22-10

Signature of Provost (if applicable)
Offerings above the level of approved programs must be approved in advance by the Provost.

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

Signature, Chair, UAF Faculty Senate Curriculum Review Committee

Date
<table>
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<tr>
<th>Signature, Chair,</th>
<th>Date</th>
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<tbody>
<tr>
<td>Program/Department of:</td>
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<td>Signature, Chair, College/School Curriculum Council for:</td>
<td>Date</td>
</tr>
<tr>
<td>Signature, Dean, College/School of:</td>
<td>Date</td>
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</tbody>
</table>
ATTACH COMPLETE SYLLABUS (as part of this application).
Note: The guidelines are online: http://www.ua.gov/faculty/cd/syllabus.html
The department and campus wide curriculum committees will review the syllabus to ensure that each of the items listed below are included. If items are missing or unclear, the proposed course change will be denied.

SYLLABUS CHECKLIST FOR ALL UAF COURSES
During the first week of class, instructors will distribute a course syllabus. Although modifications may be made throughout the semester, this document will contain the following information (as applicable to the discipline):

1. **Course information:**
   - ☑ Title, ☑ number, ☑ credits, ☑ prerequisites, ☑ location, ☑ meeting time (make sure that contact hours are in line with credits).

2. **Instructor (and if applicable, Teaching Assistant) information:**
   - ☑ Name, ☑ office location, ☑ office hours, ☑ telephone, ☑ email address.

3. **Course readings/materials:**
   - ☑ Course textbook title, ☑ author, ☑ edition/publisher.
   - ☑ Supplementary readings (indicate whether ☑ required or ☑ recommended) and ☑ any supplies required.

4. **Course description:**
   - ☑ Content of the course and how it fits into the broader curriculum;
   - ☑ Expected proficiencies required to undertake the course, if applicable.
   - ☑ Inclusion of catalog description is strongly recommended, and ☑ Description in syllabus must be consistent with catalog course description.

5. ☑ Course Goals (general), and (see #6)

6. ☑ Student Learning Outcomes (more specific)

7. **Instructional methods:**
   - ☑ Describe the teaching techniques (e.g., lecture, case study, small group discussion, private instruction, studio instruction, values clarification, games, journal writing, use of Blackboard, audio/video conferencing, etc.).

8. **Course calendar:**
   - ☑ A schedule of class topics and assignments must be included. **Be specific** so that it is clear that the instructor has thought this through and will not be making it up on the fly (e.g., it is not adequate to say “lab”. Instead, give each lab a title that describes its content). You may call the outline Tentative or Work in Progress to allow for modifications during the semester.

9. **Course policies:**
   - ☑ Specify course rules, including your policies on attendance, tardiness, class participation, make-up exams, and plagiarism/academic integrity.

10. **Evaluation:**
    - ☑ Specify how students will be evaluated, ☑ what factors will be included, ☑ their relative value, and ☑ how they will be tabulated into grades (on a curve, absolute scores, etc.)

11. **Support Services:**
    - ☑ Describe the student support services such as tutoring (local and/or regional) appropriate for the course.

12. **Disabilities Services:**
    - The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials.
    - ☑ State that you will work with the Office of Disabilities Services (208 WHIT, 474-5655) to provide reasonable accommodation to students with disabilities.”
SNRAS High Latitude Agriculture

NRM 394 A trial course in Applied Animal Nutrition.

Syllabus

Course Title: NRM 394: Applied Animal Nutrition in High Latitude Agriculture. 3 (3+0) credits. Trial Course

Instructor: Bret Luick, AHRB, UAF 907-474-6338, Office hours 2-4p and by appointment, as well as directly after class each week. Email: bluick@alaska.edu

Meeting time: Spring semester 2-5p Tuesdays

Text: No textbook is specified for this course, although several classic, standard and contemporary texts may be useful which students may choose to purchase independently. Several references will be on hold, including: Fire of Life, Max Kleiber, Applied Animal Nutrition, Contemporary Issues in Animal Agriculture and Comparative Animal Nutrition and Metabolism, all by Peter Cheeke; Animal Nutrition, Loosli et al.

Course description: Introduction to ruminant and non-ruminant nutrition, including energetics, macro- and micro-nutrients, digestion, growth, feed efficiency and lactation. Animal nutrition will be discussed in the context of societal issues each week, including feeds in competition with human food, feed additives, grazing and rangeland issues, industrialization and food safety and quality, bioethics, biotechnology and sustainable resource utilization and animal production systems.

Course goals: In general, students will be aware of the fundamental principles of animal nutrition. More specifically, students will be conversant on energetics, macro- and micro-nutrients, animal digestion and nutritional needs on a species basis. Secondarily, students will be aware of the societal issues associated with animal production.

Instructional technique: Class meets once per week for 3 hours. Lecture, with case studies and discussion. Instructor notes and power point presentations will be available to students prior to lecture.

Prerequisites: BIOL F115X, BIOL F116X, NRM 320.

Course policies: Students are expected to attend lecture, participate in discussions and follow UAF academic policies regarding personal conduct and
academic integrity. Make-up exams will be allowed on a needs basis.

<table>
<thead>
<tr>
<th>Exam</th>
<th>Points</th>
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<tbody>
<tr>
<td>Mid term exam I</td>
<td>100</td>
</tr>
<tr>
<td>Mid term exam II</td>
<td>100</td>
</tr>
<tr>
<td>Mid term exam III</td>
<td>100</td>
</tr>
<tr>
<td>Mid term exam IV</td>
<td>100</td>
</tr>
<tr>
<td>Final exam</td>
<td>150</td>
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<tr>
<td><strong>Subtotal</strong></td>
<td><strong>550</strong></td>
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<tr>
<td>Term Project assignment</td>
<td></td>
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<tr>
<td>Paper Selection</td>
<td>20</td>
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<tr>
<td>Written Paper</td>
<td>60</td>
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<tr>
<td><strong>Sub total</strong></td>
<td><strong>80</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>630</strong></td>
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Final course grades will be assigned on the following basis:

- 97%   = A+
- 92 - 96.9% = A
- 90 - 91.9% = A- (567)
- 87 - 89.9% = B+
- 82 - 86.9% = B
- 80 - 81.9% = B- (504)
- 77 - 79.9% = C+
- 72 - 76.9% = C
- 70 - 71.1% = C- (441)
- Etc.

An additional 60 points may be added at the instructor’s discretion for contribution to class discussion. Examinations will include 4 midterms, each worth 100 points. A comprehensive final will be offered, worth 150 points, and which substitutes for the lowest mid-term score, provided it improves the student’s total points.

Office hours are offered to help students get the most from the course. This may include discussion of lecture materials, resolving examination answers, and so forth, according to the needs of students.

Under the requirements of the UAF Disabilities Services, reasonable accommodations will be provided to students with disabilities.

**Course calendar:**
Spring Semester 2011
First day of instruction Thursday, Jan. 20
Session

1. Science of Nutrition
   1. Oxygen, Energy, Vitamins, Minerals
   2. World, US & Alaska livestock production
   3. Starvation

2. Body composition and water
   1. Tritiated water dilution
   2. Compartments
   3. Water gain & loss
   4. Kjeldahl analysis
   5. Organ systems

3. Digestion
   1. Markers & compartmental analysis
   2. Anatomy
   3. Animal feedstuffs

4. Exam I & Animals & human welfare

5. Energetics
   1. Calorimetry
   2. Energy balance
   3. Locomotion
   4. Scaling

6. Macronutrients:
   1. Protein & nitrogen balance
   2. Lipids
   3. Carbohydrates

7. Micronutrients:
   1. Feeding experiments

8. Exam II & Environmental impact of animal production

9. Growth & Lactation
   1. Heat increment of feeding
   2. Body composition in development
   3. Compensatory growth
   4. Feed efficiency & mass balance

10. Anti- & pro-nutritional factors
    1. Natural toxicants
    2. Imbalances
3. Protein quality
4. Probiotics
5. Resiliency: health & disease challenges

11. Laboratory animals
   1. dietary formulation
   2. diets for experimental animals
      1. Rat, mouse, gerbil, guinea pig, hamster, vole, fish

12. Exam III & Human & animal competition, biotechnology

13. Non-ruminants livestock & pets
   1. Swine
   2. Horse
   3. Avians
   4. Rabbits
   5. Dogs
   6. Cats
   7. Fur bearers
   8. Wild & exotics

14. Ruminants
   1. Microbial digestion
   2. Anatomy
   3. Feeding considerations
   4. Wild & exotics

15. Exam IV & Livestock integration & sustainability

16. Comprehensive Final Exam