ANIMAL NUTRITION LAB
11:067:331
Fall, 2018

Where: All Sections: 104 Foran Hall

When: Section 1 - Monday, 1st & 2nd period (9:15 AM - 12:15 PM) – Dushyant Kshatriya (w/ Aditi Badrinath)
Section 2 - Monday, 4th & 5th period (2:15 - 5:15 PM) – Eli Berger (Victoria Cassagnol)
Section 3 - Tuesday, 1st & 2nd period (9:15 AM - 12:15 PM) – Dushyant Kshatriya (w/ Leena Roy)
Section 4 - Tuesday, 3rd & 4th period (12:35 - 3:35 PM) – Suzanne Booker (w/ Ashly Kurian)
Section 5 – Tuesday, 5th & 6th period (3:55 AM – 6:55 PM) – Qiaoqiao Zhu (w/ Samantha Kern, Kiara Londono)

Text: Recommended - Basic Animal Nutrition and Feeding, by Pond, Church, Pond & Schoknecht. 5th edition (2005), John Wiley. Other readings as assigned in class.

Course web page: Animal Nutrition Lab material will be distributed via Sakai (https://sakai.rutgers.edu).

Grading: Course grading will be based on the following criteria:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>In-class assignments</td>
<td>30%</td>
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<tr>
<td>Quizzes</td>
<td>15%</td>
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<tr>
<td>Class participation</td>
<td>5%</td>
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<tr>
<td>Draft lab report sections</td>
<td>5%</td>
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<tr>
<td>Final version lab report</td>
<td>15%</td>
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<td>Lab practical</td>
<td>30%</td>
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Due to the nature of the in-class assignments, make-ups will not be allowed.

Instructor:
Dr. Barry Jesse 213C Bartlett Hall Mon, 10:30-12:00; Thurs, 2:15-4:00, or By Appointment (848) 932-9095 barry.jesse@sebs.rutgers.edu

Teaching Assistants:

Suzanne Booker 328 Foran Hall By appointment suzanne.booker@rutgers.edu
Eli Berger Endocrine Research Building By appointment gsb78@scarletmail.rutgers.edu
Dushyant Kshatriya 109C Bartlett Hall By appointment dsk118@scarletmail.rutgers.edu
Jennifer Weinert 213 Bartle Hall By appointment jrw187@scarletmail.rutgers.edu
Qiaoqiao Zhu 326 Foran Hall By appointment qiaoqiao.zhu@rutgers.edu

Course Learning Goals: By the end of the course you will have:
1) learned how to identify the major feeds used in animal diet formulation. (PLG 2)
2) learned how to apply basic nutrition principles necessary for a successful feeding trial (PLG 2)
3) Learned how to determine, the nutrient requirements of animals in different physiological states. (PLG 2)
4) Formulate balanced rations for animals in different physiological states (PLG 2)

Undergraduate Teaching Assistants:
Several Undergraduate TAs will be assisting with this course. They are assigned to a specific section for the semester to assist the graduate TA in the conduct of that section. If you are interested in doing this in the future, this is an opportunity for you to get some teaching experience, and add another bit of eye-catching background information to your resume. In addition, you enroll for 1.5 credits in 11:067:411 Studies in Animal Science that also count towards your experience-based education requirement.

To participate as an Undergrad TA for Animal Nutrition Lab in the future, you must have:

- Grades of B or better in BOTH Animal Nutrition lecture and lab.
- A cumulative GPA of around 3.000 or higher.
- A letter of support from your graduate TA recommending you for the position.
You must also be able to work your class schedule around one of the Animal Nutrition Lab sections. If you are interested in doing this, please ask your graduate TA to provide a recommendation to me by the time that spring classes start. Students who are selected will be notified prior to preregistration for the following fall semester so that they can adjust their class schedule accordingly.

**Schedule of Classes:**

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<th>Week</th>
<th>Topic</th>
<th>Schedule</th>
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| 1    | Broiler Growth Trial – Comparison of Commercial Broiler and Heirloom Chicken Breeds | **Sept 10**<sup>th</sup>  
1) Discussion of growth trial principles  
2) Discussion of specifics of this experiment  
3) In Class Assignment - Placement of chicks on experimental diets  
4) Students have daily feeding responsibility for the next 4 weeks |
| 2    | Turning Plants Into Feeds | **Sept 17**<sup>th</sup>  
1) Discussion of plant properties important for animal feeds  
2) Experiment – Set up lab silos to determine role of forage source on microbial fermentation  
3) In Class Assignment - Feed identification; Use of NRC Nutrient Composition and Requirement Tables  
4) Quiz  
5) Draft of Growth Trial Lab Report – Methods due |
| 3    | Digestion and Digestive Tracts | **Sept 24**<sup>th</sup>  
1) Comparative anatomy of digestive systems  
2) Student dissection of a gastrointestinal tract  
3) Quiz |
| 4    | Turning Plants Into Feeds Reprise | **Oct 1**<sup>st</sup>  
1) Learn basic lab techniques – Use of pipetters and generation of assay standard curves  
2) Determination of pH and water soluble carbohydrate content of pre- and post-fermented corn silage  
3) Quiz  
4) Draft of Growth Trial Lab Report – Introduction due |
| 5    | Growth Trial Reprise | **Oct 8**<sup>th</sup>  
1) Data summarization  
2) Experimental problems  
3) Interpretation of results  
4) Discussion of data presentation; computer graphics  
5) Quiz |
| 6    | Ruminant Digestion | **Oct 15**<sup>th</sup>  
1) Discussion of in vivo/in vitro experimental techniques  
2) Visit the fistulated cow  
3) Quiz |
| 7    | Swine Nutrition | **Oct 24**<sup>th</sup>  
1) Discussion of swine production systems and feeding principles  
2) Introduction to ration balancing  
3) In Class Assignment – Ration balancing problem set (calculator)  
4) Quiz  
5) Draft of Growth Trial Lab Report - Results due |
| 8    | Equine Nutrition | **Oct 29**<sup>th</sup>  
1) Discussion of equine feeding principles  
2) In Class Assignment - Introduction to computer-based ration balancing  
3) Quiz  
4) Draft of Growth Trial Lab Report – Discussion due |
| 9    | Ruminant Nutrition | **Nov 5**<sup>th</sup>  
1) Discussion of dairy cattle and sheep production systems and feeding principles  
2) In Class Assignment – Ration balancing problem sets (computer-based)  
3) Quiz  
4) Draft of Growth Trial Lab Report – Abstract / Title due |
| 10   | Companion Animal Nutrition | **Nov 12**<sup>th</sup>  
1) Discussion of the pet food industry  
2) Understanding the nutrition label  
3) In Class Assignment – Ration balancing problem set  
4) Quiz |
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<th>Week 11</th>
<th>Wildlife &amp; Exotic Animal Nutrition; Review</th>
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<tr>
<td>Nov 26th</td>
<td>1) Discussion of the nutrition of wild and exotic animals</td>
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<td>2) Quiz</td>
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<td>3) Final version of Growth Trial Lab Report due</td>
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<tr>
<th>Week 12</th>
<th>Laboratory Practical Exam</th>
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