

Rumen Microbiology

An online graduate course by: Dr. T. G. Nagaraja

Graduate Credit/Tuition: 3 Hours / \$1350.00

Course Description:

This is a 3 credit-hours course intended for graduate students (MS or PhD) interested in learning about microbial populations of the rumen of cattle and sheep and their role in fermentative digestion. The course will be most relevant to students in the Ruminant Nutrition Graduate Program. However, students who have enrolled in the past have come from such programs as Monogastric Nutrition, Microbiology, Grain Science, Range Management, Animal Physiology, and Production Animal Medicine. The course is designed to teach microbial ecology in relation to function and dysfunction of the rumen. Lectures will deal with characteristics of ruminal microorganisms (bacteria, protozoa, fungi, and bacteriophages), anaerobiosis and its consequences, interactions among ruminal microorganisms, techniques to study ruminal microorganisms, and detailed discussion on microbial involvements in carbohydrate, nitrogen, and lipid fermentation, methanogenesis and acetogenesis in the rumen. The course will be taught twice a week and each lecture will be 1 hour and 15 minutes duration. Prior courses in General Biochemistry and Rumen Metabolism or Ruminant Nutrition will be beneficial.



Course Instructor:

Dr. T. G. Nagaraja is a University Distinguished Professor in the Department of Diagnostic Medicine/Pathobiology, College of Veterinary Medicine at Kansas State University. He has been teaching graduate courses on the rumen (Rumen Metabolism and Rumen Microbiology) for the past 25 years. He is a Rumen Microbiologist and his research interest is in the area of anaerobic bacteriology of the gastrointestinal tract of animals, particularly the rumen of cattle. His research has focused on the role of microbes in rumen function and dysfunction, particularly in animals fed high-grain diets. His research contributions involve the following: 1. Pathogenic mechanism of *Fusobacterium necrophorum* in liver abscesses in cattle. 2. Evaluation of antimicrobial feed additives. 3. Involvement of *Clostridium perfringens* and *Sarcina ventriculi* in abomasal bloat in calves. 4. Role of ciliated protozoa in starch and lactic acid fermentation in the rumen. He has mentored 16 Ph. D and 15 M. S. students and several post docs and visiting scientists. His research has resulted in four US patents and one of which has lead to the development of a vaccine for the control of liver abscesses. He has authored or coauthored several book chapters, review papers, symposia proceedings and peer-reviewed publications (<http://www.vet.k-state.edu/depts/dmp/personnel/faculty/nagaraja.htm>)

Questions?

If you have questions regarding the Rumen Microbiology Course, please contact T.G. Nagaraja, tnagaraj@vet.ksu.edu



If you have questions regarding the enrollment process, please contact Linda or Marci at VMCE@vet.ksu.edu

Rumen Microbiology

To register:

1) If you are not a current K-State student, and would like to enroll in the graduate class, Rumen Microbiology; click on this link, for the K-State Graduate Non-Degree Seeking Admissions Application:

<https://eis.dce.ksu.edu/CourseReg/graduate/OpenPersonalInfo.do?degreePlan=2085vm>

Complete the form and submit online. You will also be asked to submit a transcript to verify your graduate status.

2) The application process will take about 2-3 days and then you will receive an email which will tell you that your application has been processed, will assign you a university student number, and explain how to set up a K-State eID and password. The K-State eID and password are needed to be able to access the online course, DMP925 and the student registration system. The eID matches a K-State email address that the university will use to send you all notices about your enrollment at K-State. (Example using Jane Smith: the eID is "jsmith" and the K-State email address is jsmith@ksu.edu or jsmith@k-state.edu NOTE: ksu and k-state are interchangeable)

You can access your K-State email via webmail at: <https://webmail.ksu.edu/>

3) Once your eID has been verified, you will then be eligible to register for the Spring 2009 Rumen Microbiology course. Registration opens on October 27, 2008. Link for enrollment is:

<https://isis.k-state.edu/psp/ISIS/?cmd=login&languageCd=ENG&>

Steps to follow after clicking on the link on or after October 27, 2008:

1) "Student Information System" asks for your eID and password to enter the enrollment section.

2) Click on: Class Search/Browse Catalog Institution which is "Kansas State University"; Term is Spring 2009;

Course number: 925

Course Career: Graduate

Check Show Open

Click on Search

3) Select Section: ZA-LEC(15934)

Rest of the form can be completed on or after October 27, 2008.

4) Once you have successfully enrolled in the course, you will be billed electronically via your K-State eID and can make your payment through iSIS.

5) For the class, you will need Internet access and an email address. To test whether your computer is properly configured to access K-State Online courses, be sure to run through the Readiness Test before signing in: <http://public.online.ksu.edu/support/readiness/>

