Course Syllabus

ANFS 436/636

IMMUNOLOGY OF DOMESTICATED ANIMALS

INSTRUCTOR:

Dr. Alexander Bekele-Yitbarek,
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Office hours: following class and by appointment

Teaching Assistant: TBA

COURSE TIME AND LOCATION: MWF, 8:00 – 8:55 AM, In-person,

132 Townsend Hall

TEXTBOOK: No textbook is required for this class as this is a primary literature-based course. Recent reviews for sections will be uploaded in the Files section for this class.

ADDITIONAL INFORMATION: Additional information will be primary research articles, and handouts provided by the instructors.

UNIVERSITY AND DEPARTMENTAL LEARNING GOALS:

Aspects of this course directly address all (5) general education and all (4) departmental learning goals.

University General Education Goals

1. Read critically, analyze arguments and information, and engage in constructive ideation.
2. Communicate effectively in writing, orally, and through creative expression.
3. Work collaboratively and independently within and across a variety of cultural contexts and a spectrum of differences.
4. Critically evaluate the ethical implications of what they say and do.
5. Reason quantitatively, computationally, and scientifically.

Departmental Learning Goals

1. Students will demonstrate oral communication skills important for communicating scientific ideas.
2. Students will demonstrate written communication skills important for communicating scientific ideas.
3. Students will use critical thinking and reasoning, skeptical inquiry and scientific approach to solve problems.
4. Students will demonstrate knowledge of the major core concepts in the animal and food sciences.

COURSE LEARNING GOALS: This course is an introduction to the practical study of immunology and immune mechanisms, particularly as these apply across domesticated animals (chickens, cows, goats, pigs, etc.). The student will be introduced to innate and acquired immune responses, immune modulatory drugs, vaccines as well as immunodeficiencies and immune pathologies. After having this course, a student will:

(1) Understand key elements of innate barrier functions, innate sensing and signaling.

(2) Understand the manipulation and patterning of immune responses by soluble mediators (chemokines, cytokines, prostaglandins, etc.).

(3) Be able to access and understand information from primary literature articles focused on immune functions.

(4) Understand vaccine responses, the effects of immunodeficiency on overall health, and the mechanism of several important immunopathologies.

COURSE FORMAT: The course will be comprised of lectures, surveys, process-oriented guided-inquiry learning exercises (POGIL), student presentations, and problem-based learning (PBL)-based discussion of current articles. Canvas-based web material (ANSC436/636 – Immunology of Domestic Animals) accompanies the lecture and a multimedia, group discussion, and active participation format will be used for delivering information. In addition, materials will be supplied in a course GoogleDocs folder for uploading of presentation materials, sign-up for presentation topics, and for primary literature presentations.

COURSE REQUIREMENTS: This course requires active class participation, the submission of ***one written synthesis paper will be required for undergraduate students (ANFS 436)***, and ***two synthesis papers will be required for those taking the course at the graduate level (2 -3 pages/paper)***. Papers will be succinct synopses of (2) journal articles on a particular immune function, process, immune intervention, or pathogen-host immune interaction. Additionally, students are each required to make a short presentation on particular methods or immune-associated proteins (chemokines, cytokines, interferons, important transcription factors, etc.). Students will also be responsible for participation in journal article discussions on primary research articles using a joint problem-based learning (PBL) approach. Specific requirements for these assignments are provided as separate documents. In addition, each student must submit a question and respond to two questions on PackBack (see below).

PACKBACK: At no cost, the community-building web-platform PackBack is being provided for this class. This is used to initiate discussions among the class members and provide a platform for higher-order questioning. See Packback FAQ in the Course Information folder of the Files section of Canvas.

GRADING: Grading will be based on participation in PBL-based paper discussions, hourly exams, topic presentations, and information sheets, (1) ANFS436 or (2) ANFS636 synthesis research papers, and one take-home final exam based on a research paper. In addition, 10% of your grade will be determined by your submission of questions and responses to questions within PackBack. Again, see PackBack FAQ in the Course Information folder of the Files section of Canvas.

ACADEMIC HONESTY: The Academic Honesty policy of the University of Delaware will be strictly observed for all work turned in for credit. In particular, no "cutting and pasting" from published (including website) sources. All uses of published materials must be adequately cited.