INTRODUCTION TO YOUR COURSE IN VETERINARY GROSS ANATOMY
(Structural Adaptations to Function—VBMS601)

Course Director: Barbara S. Grandstaff, Ph.D.
Telephone: 215-898-8891
E-mail: grandsta@vet.upenn.edu (Please feel free to contact me during the summer with questions.)

1. OBJECTIVES:

The major aim of the Anatomy course is to help you learn how the bodies of selected species important to veterinary medicine -- dogs, cats, horses, ruminants (goats and cattle), and birds -- are constructed. This knowledge will be the foundation for your future study of physiology, pathology, radiology, physical diagnosis. It will be of particular importance in your study of medicine and surgery. We don’t have time to dissect all the species you will encounter as a veterinarian, but we do not need to. Nature is organized and lawful, letting us successfully extrapolate the knowledge we gain from dissecting one species to the anatomy of other species. Our approach to the course -- embodied in its official name, Structural Adaptations to Function – makes use of the anatomical similarity between species. Learning how a particular structure varies to support differences in the behavior and function of the different animals we dissect should help you develop insights into what lies beneath the skin of species we do not dissect.

You cannot possibly learn all the anatomical information you will use in your veterinary career during this course, nor can you remember it all after only one exposure to anatomy. It is therefore important to learn how to identify structures by reading descriptions in your texts rather than by simply matching your dissection to idealized diagrams in the texts. You will need this ability later (when you no longer have anatomy teachers to ask for help) in order to learn new surgical approaches by reading their descriptions in veterinary journals.

2. CONDUCT OF THE COURSE:

Most of your time in Anatomy will be spent in the laboratory dissecting your own specimens, although we will provide demonstration dissections (prosections) of some structures. Laboratories are mandatory. Dissection is a team effort; your absence would negatively affect the progress of everyone in your dissection group. Attendance may be taken at any time during the semester. Inexcusable absences will lead to additional written assignments that will affect your grade. You will be working in groups of four (or occasionally 3) students. Your Orientation, at the end of August, will give you time to meet your classmates and to form dissection groups.

The Anatomy lecture series will stress comparative and functional aspects of particular organ systems or regions of the body. Clinical relevance of the things you study in Anatomy will be presented in another course, Introduction to Clinical Veterinary Medicine (VMED600). An optional trip to the Philadelphia Zoo will introduce you to exotic animal anatomy on the hoof, claw, or wing.

3. BOOKS

Dyce, Sack and Wensing’s Textbook of Veterinary Anatomy by Singh (5th ed.) (DSW) is required. You will find this book is also helpful when studying for your board examinations during your fourth year, and after graduation as a practicing veterinarian. We expect you to read all of the general chapters, which cover body systems, as well as the chapters on the animals you dissect in lab. That expectation will be manifest in the examinations. If you have never taken an anatomy course you should study this book over the summer (really!). Read at least the first chapter; reading all of the general chapters will be extremely helpful. The Guide to the Dissection of the Dog by Evans and deLahunta (8th ed.) is also required. This guide is clearly written, with clear drawings that illustrate important aspects of canine anatomy. You may use an earlier edition, but you will find the page numbers and figures differ between editions. Everyone should have access to Miller’s Anatomy of the Dog by Evans and deLahunta, 4th ed (the 3rd ed by Evans is also acceptable). This book has excellent illustrations and descriptions, and should be in the library of any small animal veterinarian. Lab copies of this text will be in the locker boxes assigned to each laboratory group. Use it whenever you need a more detailed anatomical description than is found in the dissection guide.
The large animal dissections can seem somewhat confusing at times since we do not have the luxury of dissecting as many animals in this section of the course. There will be more students working on each cadaver, and you will often be working with isolated limbs or viscera. The important structures are well covered in your dissection guides. Each region you dissect is also clearly described in DSW. You will find that reading DSW before you begin dissection of each body region or organ system (to get an overview of that area or system) is very helpful.

During the large animal part of the course each dissection group will study both the horse and the ruminant. You will need both Rooney’s Guide to the Dissection of the Horse, 7th ed, by Orsini and Sack, and Habel’s Guide to the Dissection of Domestic Ruminants, by Orsini and Morrison, for this part of the course. Both texts are required. We will dissect the goat as a representative ruminant. The smaller size of the goat allows a more lucid dissection than the cow, and there are few clinically important differences between these two ruminants. Those differences that are deemed significant to your veterinary careers will be demonstrated using prosected material.

You can purchase most of the books mentioned above through Amazon or another online bookstore; directly from the publisher; or you can ask your local bookstore to special-order them for you. We will provide you with a way to purchase the most recent edition of Habel’s Guide to the Dissection of Domestic Ruminants in October. More information concerning the large animal books will be provided to you in the future.

During the chicken dissection DSW will be supplemented with handouts. Birds: Their Structure and Function by A. S. King and J. McLelland is a thorough reference on avian anatomy that can be found in our library. Copies of McLelland’s Color Atlas of Avian Anatomy will be made available during your laboratory dissection of the chicken.

Photographic atlases (by Ashdown and Done) are available for the dog, horse, and ruminants. Each atlas will be of lifelong use to anyone who has a particular interest in that specific species.

Another useful book is deLahunta and Habel’s Applied Veterinary Anatomy. It has very clear discussions of important anatomical relationships, particularly those of clinical relevance, as well as clear directions for studying anatomy on live animals. It would be useful throughout your careers and may also be helpful in preparing for state and national board exams. There are also English translations of the German series by Nickel, Schummer and Seiferle. Volume 1, on the locomotor system, has many pages on the anatomy of the musculoskeletal system. Volume 2, on the viscera, has many beautiful illustrations. The old American standby, Sisson and Grossman’s Anatomy of the Domestic Animals, is another useful book. Unfortunately, all of these books are now out of print. Most of them will be available in the locker box assigned to your dissection group. Others are in our library.

Suggested books to read for enjoyment this summer are: The Knife Man by Wendy Moore, Stiff, by Mary Roach and Your Inner Fish by Neil Shubin.

4. SUPPLIES YOU WILL NEED FOR THE COURSE

Instruments: A great number and variety of dissection instruments are available. Required instruments for this course are listed below. These can be found in certain commercial kits. You can buy an approved and inexpensive dissection kit through Dolby’s Bookstore; you will be able to pick the kit up during Orientation. This kit will contain:

1. A pair of rat-toothed tissue forceps, approximately 5” long, with handles transversely ridged to prevent slipping.
2. A metal scalpel handle (#4) with a large supply of blades (#s 21, 22). You will need to get additional blades: 20-25 spare #21 or #22 blades should be enough. The cutting edge of the blade should be slightly convex, and the point should be well tapered. Scalpels must be kept sharp at all times; therefore, change blades frequently. CAUTION: Be extremely careful when changing blades – for obvious reasons.
3. A blunt metal probe (seeker), consisting of a rigid 5” steel shaft about 1/4” in diameter with blunt, slightly bent tip. Pointed needle-like probes and abruptly-hooked probes should not be used.

While they are not required, a pair of small (4½”) straight, fine-pointed dissection scissors are a useful ‘extra’. They are sold on-line for ~$6 (from sources such as Carolina Biological Supply) if you decide to add them to your dissection kit.

Clothing: A white laboratory coat or coveralls (during the large animal section) MUST be worn during all laboratory sessions. Lab coats and lab coat laundry service will be provided to you for the Anatomy course. These coats are for use only in Anatomy: you must supply your own lab coat for all other courses.

Personal protection: You will need to provide disposable examination gloves and waterproof, over-the-shoe boots for use in the anatomy lab. Tingley boots are recommended: you will use these boots again in your New Bolton classes.

- You may not store anything (except your boots and the lab coats we provide) in the anatomy laboratory.
- No personal items may be left in your group locker boxes. There simply isn’t enough room for everyone’s stuff.