

DEPARTMENT OF NATURAL SCIENCES

VERTEBRATE ANATOMY AND PHYSIOLOGY I  
SCB 208

COURSE INFORMATION

3 credits, 4 hours: 2 lecture and 2 lab

Course Coordinator: Dr. Boris Zakharov  
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Section:  
Instructor: Dr. Boris Zakharov  
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Office Hours:  
Tuesday, 2:30 p.m. – 4:30 p.m.  
Thursday, 3:00 p.m. – 4:30 p.m.

### **Course Description.**

This course is a laboratory-based. It stresses major concepts of vertebrate anatomy and physiology in order familiarize students with the form, structure, and function of the vertebrate body, especially domestic animals. Scientific method of thinking and the experimental approach will be stressed. The topics studied in this course include a survey of all vertebrate species, and then an in depth evaluation of the anatomy and physiology of domestic mammals and birds. In this course the anatomy and physiology of the integumentary, skeletal, muscular, and endocrine systems will be covered along with the role of homeostatic mechanisms on animal health.

### **Policy on Academic Integrity.**

VERTEBRATE ANATOMY AND PHYSIOLOGY I (SCB-208) will be conducted in compliance with La Guardia Community College's Academic Integrity Policy regarding cheating on examinations and quizzes.

If a student is suspected of academic misconduct or dishonesty (such as cheating, bribery, unauthorized photography, or plagiarism) the instructor will complete the academic integrity complaint form. The following steps will then subsequently occur:

- The faculty member meets with the student charged with the violation; shows him/her the completed Complaint Form, which indicates the faculty member's sanction (either an "F" on the paper, quiz or exam involved: or an "F" in the course). The instructor asks the student to check one of the three options printed on the form. The student may select "I do not challenge the accusation and accept the sanctions" or "I challenge the accusation and wish for the matter to be referred to the Chief Administrator for further review" or "I do not wish to make any statement at this time and I am aware that the sanction will be upheld without further review for appeal after fifteen days of receipt of this notice".
  
- Form, with the evidence attached, is then signed by the student and by the faculty member and sent to the Chairperson of the department. The student should be advised that signing of the document is not considered an admission of guilt but only an understanding of the allegations and the possible sanctions filed against them.
  
- Copy of the form is given to the student and the faculty member retains a copy for his/her files.
  
- The Chairperson determines whether the matter has been resolved or not; checks the appropriate line on the complaint form; signs the form; files a copy, together with copies of the supporting evidence in the department's files; and sends a copy with the supporting evidence to the Academic Integrity Officer (AIO) in C-317.
  
- In case if the alleged violation is discovered after the class has met for the final time in the semester, the instructor notifies the student by e-mail and certified postal mail, requesting a meeting. If the student does not respond, that is so noted on the complaint form and the form

with supporting documentation is sent to the department Chairperson, who also attempts to contact the student. If the student does not respond, the form and documents, including documentation of the attempts to contact the student are sent to the AIO.

· If the student checks, “I do not wish to make any statement at this time,” or if the student refuses to sign the form at all, or if the student refuses to meet with the professor, the complaint form and attached documents are filed in the department and are sent to the AIO, who calls the student to a meeting and then determines an appropriate course of action, as described above. In cases in which the student fails to appear at the required meeting within one week of notification, the faculty sanction shall apply without benefit of student appeal.

· The AIO functions in these processes as the representative of the Vice President of the Division of Student Affairs. The AIO promptly notifies the Chairperson of receipt of the complaint form, of the determination made by either the Academic Standing Committee or the Student-Faculty Disciplinary Committee and of the inclusion of the student’s name in the decision’s data base of students who admit violations or who are determined to be guilty of violations. The AIO will review the data base to identify repeat offenders and to impose appropriate disciplinary sanctions.

· In case when the faculty sanction allows the student to complete work necessary for passing the course, the student is allowed to do so. When the faculty sanction is failure for the course and the student requests a hearing or chooses not to make a statement, the student remains in the course until the matter is resolved. If the matter is not resolved by the end of the term, the professor gives the student a grade that incorporates the proposed sanction, with the possibility of revision when the matter is resolved.

### **COURSE CONDUCT**

Cell phones and beepers are to be turned **off** during class. If there is an extreme emergency, please inform the instructor at the beginning of class, and set the instrument to vibrate. Texting during class is prohibited.

**DO NOT ARRIVE LATE!!**

It is rude to your classmates and disruptive to the class for students to arrive late. Lateness will affect your course grade.

The student is strongly encouraged to keep up with the lecture and laboratory material, as there is a large volume of information to assimilate. You are urged to seek assistance if and as soon as you feel that you are having difficulty, rather than waiting until examination dates are imminent. The professor’s office hours will be announced in class; other appointments can be made if needed.

## Grading Procedures and Criteria for VERTEBRATE ANATOMY AND PHYSIOLOGY I

The final grade in SCB-208 is determined by the sum of the lecture and laboratory, written assignments. The lecture composes 60% and the laboratory 40% of the final grade, with the written assignments (counted as a part of the Lecture grade) 10% respectively.

| Lecture Exams 60% of the Final Grade | Laboratory Exams 40% of the Final Grade |
|--------------------------------------|---|
| 10 Lecture Quizzes 20%               | 2 Written Exams 20%                     |
| 2 Lecture Exams 30%                  | 2 Practical Exams 20%                   |
| 2 Written Assignments 10%            |   |

\*Practical exams are based on the identification of laboratory materials displayed at stations. Written exams may include short answers, fill-ins, diagrams and essays. Attendance is mandatory for all labs. It is the student's responsibility to make-up missed labs. There are no make-ups for laboratory practical exams and the student must take the exam the week it is offered during the semester.

### Final Grades

|                |                |                |
|----------------|----------------|----------------|
| 92.5-100 = A   | 76.5-79.4 = C+ | 59.5-62.4 = D- |
| 89.5-92.4 = A- | 72.5-76.4 = C  | 0-59.4 = F     |
| 86.5-89.4 = B+ | 69.5-72.4 = C- |                |
| 82.5-86.4 = B  | 66.5-69.4 = D+ |                |
| 79.5-82.4 = B- | 62.5-66.4 = D  |                |

### SCB-208 Information Sheet

Note that there is a strict **no food, no drink, no smoking and no open toed shoe policy** in the laboratory. Students who fail to comply with these rules may not participate in the laboratory. **Attendance is a requirement** for this class. Instructors are required to keep official records of attendance. The maximum number of unexcused absences is limited to 15% of the total number of class hours. Absences are counted from the first day of class even if they are a result of late registration or change of program.

Classes will meet in accordance to the Academic Calendar which may be obtained from the College's web site. Classes may not be cancelled due to inclement weather. Check for announcements on the college's website or CUNYfirst.

Refer to the College Handbook for the rights and responsibilities of students found on the college's web site.

The Grading Policy for these courses are noted above. Repeat, "R", grades are not given in this course and Incompletes, "IN", are issued only under very restricted circumstances. In order to receive an Incomplete, a student must be passing the course and be able to document why he/she is unable to complete the course work during the semester. Both the student and the instructor must complete and sign an Incomplete Form and list the exams that must be completed before a grade is issued. Students have six months to complete the missing exams; otherwise the incomplete is automatically converted to an F grade. An Incomplete does not provide a student with an opportunity to retake exams. All prior grades are retained and added into the calculation of the final grade. Note that the process for an incomplete must be initiated by the student.

# LECTURE OUTLINE

**Lecture Text (required):**

Clinical Anatomy and Physiology for Veterinary Technicians. Thomas Colville, Joanna M. Bassert. Mosby Elsevier Publishing, 2015 (Third Edition). ISBN: 978-0-323-22793-3.

| Week/Session | Topic  | Assigned Reading   |
|--------------|--|--|
| 1            | Introduction to Anatomy and Physiology.<br>Survey of Vertebrates.        | Text book: <b>Ch. 1:</b> 1-10.<br>Lab-book: <b>Ch. 1:</b> 1-23.<br>Additional Power Point                          |
| 2            | Chemistry of life. Cell structure and function.<br>Quiz 1 (on Lecture 1) | Text book: <b>Ch. 2:</b> 11-44; <b>Ch. 3:</b> 45-71; <b>Ch. 4:</b> 72-101.   |
| 3            | Tissues. Integumentary System.<br>Quiz 2 (on Lecture 2)                  | Text book: <b>Ch. 5:</b> 102-146;<br><b>Ch. 6:</b> 147-169.<br>Lab-book: <b>Ch. 4:</b> 59-74; <b>Ch. 5:</b> 75-99. |
| 4            | Bones, cartilage, and Skeletal System.<br>Quiz 3 (on Lecture 3)          | Text book: <b>Ch. 7:</b> 170-209.<br>Power Point   |
| 5            | Skeletal System and Joints.<br>Quiz 4 (on Lecture 4)                     | Text book: <b>Ch. 7:</b> 170-209.<br>Lab-book: <b>Ch. 6:</b> 100-150.  |
| 6            | Midterm (weeks 1-5). Introduction to muscles and Muscular System.        | Text book: <b>Ch. 8:</b> 210-222.<br>Lab-book: <b>Ch. 7:</b> 151-154.  |
| 7            | Skeletal Muscles.<br>Quiz 5 (on Lecture 6)                               | Text book: <b>Ch. 8:</b> 222-225<br>Power Point  |
| 8            | Skeletal Muscles (continued).<br>Quiz 6 (on Lecture 7)                   | Text book: <b>Ch. 8:</b> 210-225<br>Power Point  |
| 9            | Cardiac and Smooth muscles.<br>Quiz 7 (on Lecture 8)                     | Text book: <b>Ch. 8:</b> 210-225<br>Power Point  |
| 10           | Introduction to endocrine system. Hormones.<br>Quiz 8 (on Lecture 9)     | Text book: <b>Ch. 11:</b> 273-282<br>Power Point   |
| 11           | Regulation of Endocrine System Activity.<br>Quiz 9 (on Lecture 10)       | Text book: <b>Ch. 11:</b> 282-291<br>Power Point   |
| 12           | Endocrine System (continued). Review.<br>Quiz 10 (on Lecture 11)         | Text book: <b>Ch. 11:</b> 273-291<br>Lab-book: <b>Ch. 10:</b> 263-286.   |
| 13           | Final Exam (weeks 6-12)  |  |

**Note:** Beginning from the session 2, there will be a short (10-12 questions) Quiz at the beginning of every session. Every Quiz will cover the topics of the previous Lecture. Every question costs 1 point. Thus, at the end of the semester the total sum of all questions from all quizzes will be about 100 points. That will be your final grade for the Lecture Quizzes. Because these Quizzes will be implemented at the beginning of every session, please do not come late to the class. Otherwise, you may lost the quiz and, as a result, your quizzes points. The Midterm and Final Exams are not cumulative. The Midterm Exam questions will cover topics of sessions 1-5, and Final Exam questions will cover topics of sessions 6-12.

## LABORATORY OUTLINE

**Laboratory Text (required):**

Laboratory Manual for Clinical Anatomy and Physiology for Veterinary Technicians. Thomas Colville, Joanna M. Bassert, Mosby Elsevier Publishing, 2015 (Third Edition). ISBN: 9780323294751.

| Week | Lab Topic   | Manual Pages  |
|------|---|---|
| 1    | Microscope. Tissues and Integumentary System.   | Textbook: <b>Ch. 5:</b> 102-146;<br><b>Ch. 6:</b> 147-169.<br>Lab-book: <b>Ch. 4:</b> 59-74; <b>Ch. 5:</b> 75-99. |
| 2    | Introduction to the skeleton. Cranium.  | Textbook: <b>Ch. 7:</b> 170-204.<br>Lab-book: <b>Ch. 6:</b> 100-120.  |
| 3    | Cranium and vertebral column.   | Textbook: <b>Ch. 7:</b> 170-204.<br>Lab-book: <b>Ch. 6:</b> 100-120.  |
| 4    | Bones of pectoral girdle, and forelimbs.  | Textbook: <b>Ch. 7:</b> 170-204.<br>Lab-book: <b>Ch. 6:</b> 121-128.  |
| 5    | Bones of the pelvis and hind limbs. Review.<br><b>Lab Written Exam #1 (based on Sessions 1-4)</b> | Textbook: <b>Ch. 7:</b> 170-204.<br>Lab-book: <b>Ch. 6:</b> 129-150.  |
| 6    | Bones Review  | Lab-book: <b>Ch. 6:</b> 100-150.  |
| 7    | <b>LAB MIDTERM PRACTICAL EXAM (based on Weeks 1-5)</b><br>Muscular System of Mink                 | Lab-book: <b>Ch. 7:</b> 152-176.  |
| 8    | Muscular System of Mink (continued)   | Lab-book: <b>Ch. 7:</b> 176-192.  |
| 9    | Muscular System of Mink (continued)   | Lab-book: <b>Ch. 7:</b> 192-205.  |
| 10   | <b>Lab Written Exam #2 (based on Weeks 5-8)</b><br>Muscular System of Bird and Rat.               | Handout materials.  |
| 11   | Review of Muscular System.  | Lab-book: <b>Ch. 7:</b> 151-205.  |
| 12   | <b>LAB FINAL PRACTICAL EXAM (based on Weeks 6-11)</b>   |   |

**Note:** Bring the Laboratory Manual to every Lab class. You will need it to be able to complete Lab session. To the beginning of the Session 7, the Dissection Kit must be purchased and brought to each laboratory session. Students should to read the laboratory handouts prior to entering the laboratory. Shoes with open tows and slippers do not allowed in the Laboratory

Room. Practical Exams required a special preparation from Laboratory Staff. They are conducted by Clocks and students who will come late may miss the Exam. Nobody will arrange this Exam personally for you at other time. Thus, please, come in time to the Lab, especially at the Practical Exam day.

**Laboratory attendance** is mandatory. Excessive absences will impact negatively on your final grade. Completion of laboratory assignments (including lab reports or research papers) and individual effort in the laboratory will be considered in the laboratory portion of the final grade.

## **VERTEBRATE ANATOMY AND PHYSIOLOGY – SCB 208** **COURSE OBJECTIVES**

### **Session 1 – Introduction to Anatomy and Physiology. Survey of Vertebrates.**

- a. Definitions of the terms “Anatomy” and “Physiology”.
- b. Hierarchy of levels of the body organization and function.
- c. Concept of homeostasis. Negative and Positive Feedbacks.
- d. Basic Anatomical terminology: planes of the body, position of body parts, and directions.
- e. Outline the general characteristics of vertebrates.

### **Session 2 – Chemistry of life. Cell structure and function.**

- a. Definition of organic and inorganic molecules
- b. Description of four major types of organic molecules
- c. Carbohydrates: their structure and function in organism
- d. Lipids: triglycerides, cholesterol and steroids, phospholipids and cellular membranes
- e. Proteins: structure and role in organism, enzymes, and transport proteins
- f. Nucleic acids: structure, role in life, chromosomes.
- g. Cellular theory of life organization
- h. Plasma membrane: structure and function. Osmosis. Transport across membrane. Pumps (Sodium-Potassium pump)
- i. Cell-to-cell junctions
- j. Nucleus
- k. Endoplasmic reticulum.
- l. Ribosomes
- m. Golgi apparatus
- n. Lysosomes.
- o. Mitochondria

### **Session 3 – Tissues. Integumentary System.**

- a. Definition of Tissue. Four major Tissue types.
- b. Epithelial Tissue: classification of epithelial tissues and their functions.
- c. Connective Tissue: classification of connective tissues and their functions.
- d. Muscular Tissue: classification of muscular tissues and their functions.

- e. Nervous Tissue: organization and major role.
- f. Outline the organization of Integumentary System.
- g. Epidermis.
- h. Dermis.
- i. Accessory organs: hairs, claws, nails, horns, hoofs, and glands.

#### **Session 4 – Bones, cartilage, and Skeletal System.**

- a. List and describe the major types of bones.
- b. Explain the major characteristics of the gross and microscopic anatomy of bone.
- c. Describe the difference between compact and cancellous bone.
- d. Describe normal bone development, and contrast it with bone remodeling and repair.
- e. Mechanism of bone tissue homeostasis.
- f. Factors that affect normal bone development, growth and repair.
- g. Form and function: Comparative analysis of horse and ruminant (cow) skeletons.
- h. Form and function: Bones for fly (avian skeleton).

#### **Session 5 – Skeletal System and Joints.**

- a. Cartilage tissue.
- b. Describe normal cartilage development, and how it differs from bone development.
- c. Explain the difference between axial and appendicular skeleton.
- d. Classification of joints.
- e. Description of synovial joints: their organization and classification.
- f. Classification of movements.

#### **Session 6 – Midterm (weeks 1-5). Introduction to Muscular System.**

- a. Midterm Exam – 50 min.
- b. Break – 10 min.
- c. Major functions of muscular system
- d. Differentiate skeletal, smooth, and cardiac muscle in a histologic sense.
- e. Embryonic origin of muscles.
- f. Skeletal muscle construction.

#### **Session 7 – Skeletal Muscles.**

- a. Neuromuscular junction
- b. Nervous impulse and muscular contraction coupling
- c. Sliding filament model of muscle contraction and relaxation
- d. Energy sources and oxygen debt.
- e. Fast and slow twitch muscle fibers.
- f. Summation and recruitment of motor units.

#### **Session 8 – Skeletal Muscles (continued).**

- a. Definitions of prime mover, antagonist, and synergist.
- b. Orientation of muscle fibers and muscles classification.
- c. Isotonic and isometric contractions.



- d. Proprioceptors and regulation of muscle activity.
- e. Muscle atrophy and muscle tone. Stay apparatus.
- f. Outline muscle homeostasis.
- g. Difference between locomotion and flight.

### **Session 9 – Cardiac and Smooth muscles.**

- a. Description of smooth muscles: their organization, classification, and function.
- b. Cardiac muscle: construction and function.

### **Session 10 – Introduction to endocrine system. Hormones.**

- a. Outline organization and function of Endocrine System.
- b. Definition of endocrine and exocrine glands.
- c. Comparison of Nervous and Endocrine Systems.
- d. Relations between Nervous and Endocrine Systems.
- e. What is a signaling molecule?
- f. Classification of hormones.
- g. Non-steroid hormones: structure and function.
- h. Hormone and its receptor.
- i. Steroid hormones and intracellular receptors.

### **Session 11 – Regulation of Endocrine System Activity.**

- a. Control of hormonal production.
- b. Hypothalamus.
- c. Pituitary gland.
- d. Hypothalamic - pituitary axis.

### **Session 12 – Endocrine System (continued). Review.**

- a. Thyroid gland.
- b. Parathyroid glands.
- c. Pancreas.
- d. Adrenal glands.
- e. Ovary and testes.
- f. Pineal gland.
- g. Review.

### **Session 13 – LECTURE FINAL EXAM**

## **LABORATORY GUIDELINES**

### **LABORATORY I - Microscope. Tissues and Integumentary system.**

Laboratory Specimens:

Microscopic slides of different types of tissues.

- a. Students will learn to work with microscope.

- b. Students will study different types of tissues: epithelial, connective, muscular, and nervous tissues.

## **Laboratory II - Introduction to the skeleton. Cranium.**

Laboratory Specimens:

Cat skeletons.

- a. Student will distinguish areas of bone from areas of cartilage.
- b. Students will learn to distinguish between compact and cancellous bones.
- c. Student will distinguish long, flat, and irregular bones.
- d. Students will study structure of the long bone: medullary cavity, epiphysis, and diaphysis.
- e. Student will be able to distinguish the terms: process, foramen, condyle, and ramus.
- f. Student will be able to identify bones of the skull and teeth (incisors, canines, premolars, molars), cranial sutures, and hyoid apparatus.

## **Laboratory III – Cranium and vertebral column.**

Laboratory Specimens:

Cat skeletons.

- a. Students continue study bones of skull.
- b. Students will learn to identify the following:  
Parts of the vertebra. Atlas. Axis (and Dens). Cervical spine. Thoracic spine.  
Lumbar spine. Caudal spine.
- c. Students will study bones of sternum: Costal cartilage. Manubrium, sternum, and xiphoid process of sternum.

## **Laboratory IV - Bones of the spine and forelimb.**

Laboratory Specimens:

Cat, dog, and bird skeletons.

- a. Students will learn to identify the following:
- b. Scapula – including spine, acromion, metacromion, coracoid process, glenoid fossa, supraspinous fossa, infraspinous fossa, and subscapular fossa.
- c. Humerus – including head, greater and lesser tuberosity, bicipital groove, anatomical and surgical neck, supracondylar foramen, lateral and medial epicondyles, capitulum, trochlea, radial fossa, coronoid fossa, olecranon fossa, and deltoid tuberosity.
- d. Radius – including head, neck, radial tuberosity, styloid process.
- e. Ulna – including olecranon, trochlear notch, coronoid process, styloid process.
- f. Carpus. Metacarpals (know their numbering as well!). Proximal, middle, and distal phalanges.
- g. Comparative skeletal anatomy of mammals and birds with the emphasis on adaptations to flight and run.

## **Laboratory V - Bones of the pelvis and hind limbs. Review.**

- 1) **Lab Written Exam #1 (based on Sessions 1-4) – 45 min.**
- 2) Laboratory Specimens:

Cat, dog, and pigeon skeletons, models of horse and ruminant extremities:

- a. Pelvis – including ilium, iliac crest, iliac spines, iliac wings, ischium, sciatic notch, ischial tuberosity, pubis, acetabulum, obturator foramen, pubic symphysis.
- b. Femur – including head, greater trochanter, fovea capitis, anatomical and surgical necks, lesser trochanter, medial and lateral epicondyles, medial and lateral condyles, patellar trochlea, intercondylar fossa, and patella.
- c. Tibia – including lateral and medial condyles, intercondylar eminence, tibial tuberosity, tibial crest, medial malleolus.
- d. Fibula – including head and lateral malleolus.
- e. Tarsus – including calcaneus, talus (astragalus), navicular, and cuboid bones.
- f. Metatarsals and phalanges as in thoracic limb.
- g. Student will be able to identify major joints (atlanto-occipital, scapulohumeral, coxofemoral, humeroradial, femorotibial).
- h. Students have to be able to identify and describe differences in legs construction among mink, horse, cow, and sheep.
- i. Navicular 3<sup>rd</sup>, Phalanx (Coffin bone) 2<sup>nd</sup>, Middle phalanx (Short Pastern) 1<sup>st</sup>, Proximal phalanx (Long Pastern), and vestigial remnants of 2<sup>nd</sup> and 3<sup>rd</sup> metacarpals (Splint bones) of horses.

## **Laboratory VI – Review Bones and Skeletal System.**

- 1) Laboratory Specimens:

Cat, dog, and pigeon skeletons, models of horse and ruminant extremities.

## **Laboratory VII - LAB MIDTERM PRACTICAL EXAM (based on Weeks 1-5)**

### **Introduction to Muscular System**

- 1) **LAB MIDTERM PRACTICAL EXAM (based on Weeks 1-5) – 1 hour.**
- 2) **Introduction to Muscular System**

Laboratory Specimens:

Models of Skeletal, Cardiac, and Smooth muscles. Mink.

- a. Describe different types of muscle cells: their structure and function.
- b. Introduce students to the rules and requirements during the dissecting animal.
- c. Show students how to dissect mink to study mink's superficial muscles.

### **Laboratory VIII - Muscular System of Mink (continued).**

Laboratory Specimens:

Mink specimens:

- a. Students continue dissection and study mink muscles. At this class they already have to know: Latissimus dorsi, Spino-, Acromio-, and Clavo-trapezius muscles,

Spino-, Clavo-, and Acromio- Deltoid muscles, Supraspinatus, Infraspinatus, Triceps brachii, Brachialis, Brachioradialis, Extensor muscles of brachium, and Flexor muscles of brachium.

### **Laboratory IX - Muscular System of Mink (continued).**

Laboratory Specimens:

Mink specimens

- a. At this class students have to be able to identify: Gluteofemoral, Medial gluteal, Tensor fascia latae, Biceps femoris, Sartorius, Semimembranosus, Semitendinosus, Gracilis, Adductor femoris magnus, Adductor femoris longus, Vastus lateralis, Gastrocnemius, Tibialis anterior, Calcaneal tendon.

### **Laboratory X - Muscular System of Bird and Rat.**

1) **Lab Written Exam #2 (based on Weeks 5-8)** – 45 min.

2) Laboratory Specimens:

Mink specimen, Bird specimen or Bird and Rat diagrams of muscles.

- a. Students have to finish dissecting mink. They already have to be able to identify: Masseter muscle; Serratus dorsalis and ventralis, Sternocleidomastoid muscles, Sternohyoid muscles, Pectoantibrachialis, Pectoralis major, Pectoralis minor, Xyphihumeralis, External intercostals, Internal intercostals, Linea alba, External abdominal oblique, Internal abdominal oblique, Transverse abdominal, Rectus abdominis, Gluteus maximus, Pectineus, Iliopsoas, Tensor fasciae latae, Vastus medialis, Vastus lateralis, Vastus intermedius, Rectus femoris, Soleus, Flexor digitorum longus, Extensor digitorum longus.
- b. Students compare dissected or diagrams of Rat and Bird muscles with those of Mink. Discussion of found differences.

### **Laboratory XI - Review of Muscular System.**

Laboratory Specimens:

Mink Specimen. Comparative Bird and Rat specimen or diagrams.

- a. Review of muscles.
- b. Discussion of final exam and answers to students' questions.

### **Laboratory XII - LAB FINAL PRACTICAL EXAM (based on Weeks 6-11)**

- a. **Final exam (weeks 8-11)** – 1 hour.

### **University Resources**

#### Disabilities Act:

If you have a physical, psychological or learning disability which may interfere with your ability to complete assignments, then please contact Disabled Student Services (DSS),

Room M-102 / 718-482-5279. They will review your concerns and determine with you, what accommodations are necessary and appropriate. All documentation of and information regarding disabilities is confidential. **You must register with the Disabilities Office to receive special accommodations.**

The Writing Center:

The Writing Center, Room B-200, offers tutoring in writing skills and assistance on individual papers, both for this class and others. The Center is open Monday-Friday from 9:15am-9:00pm.

The Counseling Center:

The Counseling Center offers a variety of services designed to enhance students' academic, career and personal development. Among the services offered are:

1. Education planning
2. Career Counseling
3. Personal Counseling (i.e., family issues, anxiety, depression, etc.)
4. Academic Advisement

Services are free to LAGCC students, and the Counseling Center is located in B-100 and can be reached at 718-482-5250.

College regulations regarding cheating will be strictly enforced. The policy on academic integrity is available at the following address:

<http://library.laguardia.edu/files/pdf/academicintegritypolicy.pdf>