**Anatomy & Physiology I (BIOL 2301) **

**Credit:** 3 semester credit hours (3 hours lecture)

**Prerequisite/Co-requisite:** Passed the Reading/Writing Sections of current LIT entrance exams or any other accepted test. Co-requisite is BIOL 2101.

# Course Description

Biol 2301 - Anatomy and Physiology I is the first part of a two course sequence. It is a study of the structure and function of the human body including cells, tissues and organs of the following systems: integumentary, skeletal, muscular, nervous and special senses. Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis.

# Textbooks and Materials

1. You will complete written assignments in this spiral workbook:

The Anatomy Assignment, Level 1, 2nd edition, author Stephanie

Lanoue ISBN: 978-1-4652-5101-5.

1. Optional purchase: *Anatomy & Physiology* by E. Marieb, current edition carried in bookstore. For supplemental reference.
2. Eight #882 scantrons and regular (non-mechanical) #2 pencils with sturdy erasers.
3. Calendar for recording assignment due dates, tests, projects, etc.
4. Notebook with pocket (three-ring for binding class notes)
5. Pens, colored pencils and/or highlighters of various colors
6. Materials necessary to create a visual aid for a group project/ presentation such as a USB (Flash)drive
7. Computer internet access to class website: <http://lanoue.webstarts.com> ; print notes and bring to class
8. Access to the Internet (to print class PowerPoints), MSWord and PowerPoint software

**Objectives**

**Course Objectives**

Upon completion of this course, the student will be able to:

1. Use anatomical terminology to identify and describe locations of major organs of each

system covered.

2. Explain interrelationships among molecular, cellular, tissue, and organ functions in

each system.

3. Describe the interdependency and interactions of the systems.

4. Explain contributions of organs and systems to the maintenance of homeostasis.

5. Identify causes and effects of homeostatic imbalances.

6. Describe modern technology and tools used to study anatomy and physiology.

**Core Outcomes (from State of Texas; Everyone Must Demonstrate proficiency)**

1. Critical Thinking Skills: To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. Communication Skills: To include effective development, interpretation and expression of ideas through written, oral, and visual communication
3. Empirical & Quantitative Skills: To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusion
4. Teamwork: To include the ability to connect choices, actions, and consequences to ethical decision-making
5. Personal Responsibility: To include ability to connect choices, actions and consequences to ethical decision-making

**Course Outline**

I. Human Body Intro

A. Homeostasis

1. Problem-solving scenario

2. Body system and examples

B. Regional and Descriptive Terms that describe the human body

1.Correct anatomical position

2. Practice and diagramming

C. Planes of the Body

1. Demonstration of planes using paper

2. Interpretation of x-ray, CT scans and MRI images

II. Cells

A. Structures

1. Organelles within an animal cell

2. Features of the plasma membrane

3. Cytoskeleton components

B. Functions

1. Physiology of the organelles

2. Physiology of the plasma membrane

3.Physiology of the cytoskeleton components

C. Mitosis

1. Stages

2. Special terminology

3. Cancer – mitosis gone wrong

III. Tissues

A. Main types of epithelial tissue

1. 3 basic types

2. Characteristics of each

B. Other tissues of the body

1. Pseduostratified

2.Stratified tissues

IV. Integumentary System

A. Skin

1. Layers of the epidermis and specialized cells within those layers

2. Dermis and its components

3. Hypodermis

B. Appendages

1. Hair

2. Nails

V. Bones and Skeletal System

A. Basic Shapes of Bones

1. How to classify bones

2. Practice activity

B. Bone Markings

1. 18 different bone markings

2. Practice activity

3. Location on skeleton

VI. The Skeleton

A. Bones of the axial skeleton

1. Skull

2. Ribs and vertebrae

3. Pelvis

B. Bones of the appendicular skeleton

1. Arms, wrists and hands

2. Legs, ankles and feet

C. Joints

D. Synovial joints

1. Characteristics

2. Synovial fluid

E. Other joints

1. Hinge

2. Pivotal

3.Saddle

4. Ball-n-socket, etc.

F. Movements of Joints

1. Class demonstration

2. Practice activity

VII. Muscles and Muscle Tissue

A. Introduction

1. Physics behind muscle movement

2. 3 basic types of muscle

B. Characteristics of Muscle Tissue

1. striations of skeletal muscle

2. specialized branching of cardiac muscle

C. Related muscle terms

VIII. Muscular System

A. Major muscles (anterior)

B. Major muscles (posterior)

IX. Fundamentals of the Nervous System

A. Neurons

1. Anatomy of the neuron

2. Physiology of the neuron

B. Neuroglia and supporting cells of the nervous system

1. Einstein’s brain versus most humans; latest research findings

2. 6 types of neuroglia and their locations and characteristics

C. Central Nervous System

1. Structures of the Brain

2. All the parts of the brain, their locations

3. Distinguishing characteristics

4. Functions

5. Physiology

6. Hormones related to certain structures

D. Peripheral Nervous System

1. Structures

2. cranial nerves

3. thoracic nerves

4. lumbar nerves

5. Functions

6. Physiology

7. Reaction times/ reflex

**Grading Scale (add all your points on each assignment/ test) = 1000 pts**

|  |  |
| --- | --- |
| A | = 900 – 1000 points |
| B | = 800 – 899 points |
| C | = 700 – 799 points |
| D | = 600 – 699 points |
| F | = 599 points or less |

**Course Evaluation (How You Are Graded)**

Grades will be calculated according to the following criteria:

1. 4 major Exams(best 3 are recorded and only 3 are recorded for everyone)

If you must be absent on the day of a major exam, that will be your dropped test grade for the semester. There are no make-up exams. You are only allowed to miss 1 test per semester (NO EXCEPTIONS). Everyone in Biol 2301 must take the fourth test which is the Final Exam for the course. The Final Exam grade is, however, eligible as a dropped grade (but it must be taken – NO EXCEPTIONS).

Exam 1- 50 question test. (Chapters 1, 3-4) = 200 points (20% of total grade)

Exam 2- 50 question test. (Chapters 5-7) = 200 points (20% of total grade)

Exam 3- 50 question test. (Chapters 8-9) = 200 points (20% of total grade)

Exam 4 – Final Exam. 100 question test. (all chapters - comprehensive questions from Chapters 1-10) = 200 points (20% of total grade). All BIOL 2301 students MUST take the Final Exam.

Summary of Grades:

3 Major Test Grades (best 3out of 4 tests go in grade book) = 200 pts each for a

(Total of 600 pts or 60%)

1 group research project with PowerPoint Presentation = 200pts (20%)

1 paper = 50pts (5%)

4 quizzes (will keep best 3) = 50 pts each total 150 pts (15%)

**1000 pts possible/Class**

**Course Policies**

1. **NO OUTSIDE PHONE CALLS OR TEXTING IN CLASS.**

***NOTE: at times, the instructor will grant permission to use cell phone***

***Technology or other technology during the class to research scientific***

***information on Google only.***

1. **Late work is discouraged.** A standard deduction of 10 points per day applies. After one week from the due date, an automatic zero will be assigned.

*NOTE: If you are unable to be present the day of your group’s presentation,*

*the highest grade that you will earn will be ½ of the group’s total grade. The*

*physical presentation to the class is 50% of the project. Since this is a “live”*

*presentation,* ***there is no makeup****.*

1. **Final Grade at Semester’s End.** Final grades are non-negotiable. The grade you earn equals the grade you receive. Please note there are limited opportunities to earn extra credit in this course so do not ask for additional opportunities at the end of the semester.
2. **Personal Disposition and Behavior in Class** – you are now in a higher

education environment. This is not the 13th year of high school. College

typically requires new behaviors such as increased study time in order to

be successful.

**5. Discipline Policy.** Please be engaged and courteous in the classroom.Side

conversations, excessive talking in class, passing written notes to another

classmate, chatting on cell phones or text messaging, loud yawning, and

gum popping/clicking when chewing is considered disruptive behavior.

The instructor reserves the right to ask you to leave the classroom.

The instructor also reserves the right not to allow you back in the class if you

continue with further disruptive behavior.

NOTE: Participation in class discussions is highly encouraged. In a

large class setting, it may be helpful to gain the instructor’s attention (as well as other

class members) by raising your hand before interjecting a question or comment.

Demonstrate leadership qualities by initiating study groups with fellow classmates,

distributing contact information to fellow group members so that others may contact

you, being prepared for class by having class notes printed out and bound, reading

assignments and/or practice activities completed ahead of time, etc.

Understand that in the medical/ dental profession, people skills are very important - it is

never too early to start practicing your ‘bedside’ (‘chair side’/ ‘table side’/ ‘stretcher

side’) manner with other people! Please show courtesy and respect to others. Be

supportive and tolerant of others where possible.

**6. No food or Drinks in Class**. Per LIT, no food or drinks in the Multi-Purpose Building

classrooms.

**7. Attendance Policy.** Roll will be taken daily. Be sure to initial the roll each and every

class period. NOTE: You are **NOT** allowed to initial/sign roll for another student.

Students with perfect attendance (**no absences whatsoever whether**

**excused or unexused**) will be awarded 10 points to your semester

average. This is 10 points in a 1000 point system. *NOTE: This does not mean*

*you can miss your regularly schedule class and catch another one of my*

*classes at a different time! It means PERFECT attendance!*

YOU ARE NOT ALLOWED TO ATTEND CLASS IF YOU ARE DROPPED FOR

NON-PAYMENT! (NO EXCEPTIONS)

You are expected to be present at class times. *(NOTE: Absences place you*

*at an academic disadvantage because it is difficult to learn from just class*

*notes).* Absences should be reserved for severe illness, hospitalization, and

funerals.

a. **Class Arrival Time:**

Please be prompt! You are expected to be in your seat, on time, when roll is

taken. Do not make coming in late a habit or noticeable pattern. If you do find

yourself in the position of arriving late due to unavoidable circumstances,

enter the classroom with the **least** amount of disruption possible.

**b.** Summary of Class Arrival Time

4 tardies = 1 absence **(Enforced!)**

**On test days, the instructor reserves the right not to administer a test to**

**a student who arrives more than 15 minutes late.**

c. **Class Departure Time:**

You are required to stay the entire length of each lecture class unless

dismissed, as a class, by the instructor.

Please do not ask to “leave class early” for doctor’s appointments, picking up

children from day care/ school, etc. Pre-arrange for these things ahead of

time. You are expected to be in class the entire time.

d. **Missing Class:**

If you miss a general class day, I typically do not need to know why.

However, it is your responsibility to obtain missed lecture notes from the

course videos on the course website. Please do not ask me for

missed notes.

**e. Missing Tests:**

Only 1 test may be excused/dropped per semester (NO EXCEPTIONS!) **NO**

**TEST MAKE-UPS!**

1. **Drop/Add/Withdraw.** It is the student’s responsibility to make sure you are

officially enrolled or dropped from this course. If at any point, you decide to drop the class, it is your responsibility to officially drop (i.e., using proper administrative offices/ paperwork). Any student who stops attending class and does not officially drop the course will be given an “F” as the semester grade.

**Disabilities Statement**

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit her office located in the Cecil Beeson Building, room 116B.

**Course Schedule (Tentative)**

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| |  |  |  | | --- | --- | --- | | **Week** | **Topic/ Action Items** | **References/ Reminders** | | **1**  1/16 | Go over syllabus ; Start Ch 1 | Watch videos on Ch 1 on class website  Complete your Ch 1 questions in your spiral workbook  Study course syllabus and prepare for next week’s quiz 1 | | **2**  1/22 | **Quiz 1** – **over Class Syllabus**; finish Ch 1 and start 3 Cells  Next class **Quiz 2 Regions of the Body** then finish Ch 3 | **Reminders: Bring scantrons for quizzes this week**  Watch Ch 3 Cells videos on course website  Complete Ch 3 questions in workbook | | **3**  1/29 | Start Ch 4  Next class finish Ch 4 then go over Group Presentation Assignment | Find Group Presentation info on: Class website (lanoue.webstarts.com) > Assignments > Group Presentation  Finish questions Ch 4 in workbook  **Prepare for Next week Exam 1** | | **4**  2/5 | **EXAM 1** on scantron (Ch 1, 3 – 4)  Next class begin Ch 5 | **Test Review is found on class website: lanoue.webstarts.com > Get Class Notes > scroll under all Powerpoints > Exam Review**  **Reminder: Bring scantron for Exam and your completed Ch 1 in workbook for +10 extra credit**  **Prepare your papers for next week! Assignment found on class website>**  **Assignments > Reading > Writing** | | **5**  2/12 | Finish Ch 5 - **Papers Due**  Next class begin Ch 6 |  | | **6**  2/19 | Finish Ch 6  Next class **Quiz 3 over Ch 6 Bone Markings** on scantron then **Group Meeting #1** during class | Finish all question in workbook over Ch 6 and watch videos  Study Bone markings and Bring scantron for quiz this week | | **7**  2/26 | Ch 7 Part 1  Next class Ch 7 Part 2 | Class website – watch Ch 7 videos  Complete questions over Ch 7 in workbook | | **8**  3/5 | Ch 7 part 3  **Next class Exam** 2 (Ch 5 – 7) on scantron | Class website Link  Review for Exam 3. Review Guide is found on class website > Get Class Notes > scroll under all Powerpoints . Exam Review | | 3/12 – 3/16 | SPRING BREAK | No Classes | | **9**  3/19 | Ch 8  Next class Ch 9 Part 1 Muscles | Class website watch Ch 8 and Ch 9 videos  Finish these chapters in your workbook | | **10**  3/26 | Ch 9 Part 2 Muscles  Next class **Quiz 4 Muscles** then **Group Meeting #2** during class | Class website  **Prepare for Muscle Quiz; bring scantron!**  Prepare for next week’s exam | | **11**  4/2 | **Exam 3 (Ch 8-9)**  Next class Ch 10, Part 1 | **Bring scantron!**  Watch Ch 10 Videos | | **12**  4/9 | Ch 10, Part 2  Next class Ch 10, part 3 | Finish up spiral workbooks! They are due soon during Final exam! | | **13**  4/16 | Ch 10, Part 4  Next class, **Group Meeting #3** during class time | Class website | | **14**  4/23 | **Group Presentation Week**  (Every Group Presents, No Exceptions) | Instructions on Website under Assignments link.  Your group will turn in: one copy of powerpoint, one Self Evaluation Point Sheet with middle column completed and one Meeting Log. Be ready! Hand to me before your present. | | **15**  4/30 | **Final Exams** (Exam 4) – everyone taking their Final Exam this week | **Bring scantron and bring workbooks (they are due during Final Exam, no exception!)** | | **16**  5/7 | Class finished | No more classes | |

**Contact Information**

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Office: MPC 204, D

**Office Hours:**

Mon – Thurs 10:15 – 10:50am

Fri \*by appointment only

**NOTE: Do not email me through Black Board. I will receive emails**

**only at** [**salanoue@lit.edu**](mailto:salanoue@lit.edu)