

MISSISSIPPI VALLEY STATE UNIVERSITY
DEPARTMENT OF NATURAL SCIENCES
BIOLOGY 301
ANATOMY
COURSE SYLLABUS

Instructor: Dr. Rachel Venn Beecham

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Class Days: MWF (Lecture) 10-10:50
R (Labs) 8-10:40 & R 1-3:40

Office Location: STB 2257
Office Phone: 662-254-3377

Office Hours: MWF 8:00-10:00 a.m.; and 11:00-1:00 p.m.,
W 2:00-3:00 pm
R 10:30-11:00 am 12:00-1:00 pm
Other by Appointment

Required Text: Shier, David, Jackie Butler and Ricki Lewis. Thirteenth Edition 2013. Hole's Anatomy & Physiology, The McGraw-Hill Companies, Inc., New York, New York.

Laboratory Manual: Martin. 2010. Laboratory Manual for Human Anatomy and Physiology

Connect code with Learn Smart Labs

Credit Hours: 4

Prerequisites: BI 111: CH 111-112

I. Course Description:

This course is design to introduce the students to the anatomy and physiology of the human body including cell structure, body chemistry, organ systems and their relation to the function of the body. (4 credit hours)

II. Purpose

Employing Mississippi Valley State University's Holistic Transformer Model (HTM), BI 301 contributes to the education and training of Holistic Transformers who are: (a) Scholars who continually strive to understand theoretical and knowledge based associate with Science and Technology instruction in secondary school classrooms; (b) Life long learners who build upon their scholarly knowledge and understanding throughout their careers; (c) Reflective thinkers who examine the nature and success of their instructional practices and the progress of their students; and (d) Facilitators who foster the enjoyment of literature in their public school students, and stimulate their pupil's natural desire to learn and use the skills related to scientific inquiry and application to every day life. Holistic Transformers are those that are scholars who continually strive to understand the workings of nature, life long learners who build upon accreting knowledge and understanding, reflective thinkers who ruminate on the marvels and intricacies of nature at large, and facilitator who stimulate the natural curiosity of others-particularly public school students. In doing so, BI 301 develops the skills and scientific background required of teachers of students in the public schools by building upon prior knowledge and skills developed in preceding course work presented by the Department of Sciences and Environmental Health, and by the College of Education.

This course is also structured to provide science education majors with knowledge and skills that will effectively enable them to teach science content, process skills, develop and use appropriate science attitudes while conducting scientific investigations and master problems solving skills. Through hands on inquiries, role play, and teaching assigned lessons in class settings, this course will enhance the department of Natural Science and Environmental Health produce **Teachers as Scholars, Teachers s Reflective Thinkers, Teachers as Facilitators, and Teachers as Life Long Learners.**

III. Course Overview:

This course (BI 301), prepares the student to structure and interpret the concepts, ideas, and relationships in science that is needed to advance students learning in the area of licensure as defined by state and national standards developed by the teacher education community (NSTA, MSTA, and NSES). This course review benchmarks for science literacy (AAAS) and National Science Education Standards (NRC) which review what scientist, philosophers of science, historians of science, and science educators believe reflect the nature of science.

IV. Course Rationale:

Understanding the human body probably began with our earliest ancestors. Anatomy and physiology is the study of the structure and function of the human body parts. Most science educators would agree that the purpose of science instruction is not to create philosophers or historians of science but to educate individuals who can make valid judgements on the value of knowledge created by science and other ways of knowing. It is important that students be aware that scientific knowledge is tentative, empirically based, culturally embedded, and necessarily incorporates subjectivity, creativity, and inference.

To develop an effective secondary school science teacher the candidate must (1) become familiar with problems and concerns associated with a science teacher's attempts to implement inquiry based science program, demonstrate many instructional strategies and techniques that engage students in finding out (3) determine when the lecture method should be used during science instruction and how to prepare for and present an effective lecture (4) explain how technology is related to science and society and (5) reflect on important considerations for dealing with controversial issues and personal values in the classroom. The National Science Education Standards (NRC, 1996) identifies the study of issues relating science, technology and societal needs and values in a developmentally appropriate way as an essential part of any effort to teach the nature of science.

V. Course Requirements

The textbook and laboratory manual are required. Attendance is required. Homework and assignments are due by 9:00 am Friday morning. No late submissions will be accepted. If you are experiencing difficulty with the material, please bring this to my attention before the end of the semester or before you fail the test. It is your responsibility to ask for clarification on assignments and requirements. It is your responsibility to hold yourself accountable for your own performance. Poor study habits plus failure to complete reading assignments = poor performance. Students must have a copy of this syllabus in their possession during each class meeting and may be required to produce this syllabus at any time without notice.

Course Outcomes and Learning Objectives

The following course objectives are established to meet the minimal standards of BI 301. These objectives are understood to be reflective of, but not limited to, those performances advocated by the state and national standards.

Outcome I: Students will demonstrate subject matter content and professional knowledge that will distinguish the teacher candidate as Teacher as Scholar.

A. Objectives - Knowledge

1. To demonstrate knowledge of the structure and function of the human body by engaging in investigative and experimental activities. (Mississippi Science Framework) (NSTA 1.0, 6.0)
2. To demonstrate knowledge of homeostatic mechanisms as related to the human body by constructing models and participating in investigative and experimental activities. (Mississippi Science Framework) (NSTA 4.0, 6.0)
3. To demonstrate knowledge of levels of organisms of the human body by utilizing various devices, methods, and approaches to explain ideas. (Mississippi Science Framework) (NSTA 6.0)

4. To demonstrate knowledge of the eleven organ systems of the human body by engaging in investigative and experimental activities. (NSTA 1.0, 6.0)
(Mississippi Science Framework)

Outcome II: Candidates will understand how students learn science and use this understanding to create learning experiences that are meaningful to students thus Teacher as Facilitators.

B. Objective - Knowledge

5. To develop models which illustrate water, electrolyte, and acid-base balance of the human body by using technology and curricular materials and resource. (Mississippi Science Framework) (NSTA 1.0, 6.0)
6. To develop theories which explain the evolution of the structure and function of the human body by using technological resources and materials. (NSTA 3.0)

Outcome III. Students will creatively implement strategies to teach content, measure the results, and reflect on the experiences in order to make changes, thus, demonstrating Teacher as Reflective Thinker.

C. Objective - Skills

7. Cultivate thoughtful, probing inquiry and discussion. (NSTA 3.0)
8. Raise awareness of the underlying logic of the presentations and the use of inductive and deductive reasoning. (NSTA 3.0)
9. Provide models, exercises and demonstrations that enhance the understanding of natural principles and that illustrate safe laboratory techniques and practices. (NSTA 8.0)

Outcome IV: Students will demonstrate attitudes, habits, and behaviors representative of Teacher as Life Long Learner.

D. Objective - Disposition

10. To build on the teacher's current science understanding, ability, and attitudes (NSTA 10.1.2) and (INTASC)
11. To encourage and support teachers in efforts to collaborate (NSTA 10.1.1.b) and (INTASC).
12. To believe that all students can learn science (INTASC 2,3)

VI. Outline of Course Content

A. Introduction to Human Anatomy and Physiology

1. Levels of Organization
2. Organization of the Human Body

B. Chemical Basis of Life

1. Structure of Matter
2. Chemical Constituent of Cells

C. Cells

1. Composite Cell
2. Movement Through Cell Membranes
3. The Cell Cycle

D. Cell Metabolism

1. Metabolic Reactions

2. Control of Metabolic Reactions
3. Energy for Metabolic Reactions
4. Metabolic Pathways
5. Nucleic Acids and Proteins

E. Tissues

1. Epithelial Tissues
2. Connective Tissues
3. Muscle Tissues
4. Nervous Tissues

F. Skin and the Integumentary System

1. Skin and Tissues
2. Accessory Organs of the Skin
3. Regulating of Body Temperature
4. Healing Wounds
5. Common Skin Disorders

G. Skeletal System

1. Bone Structure
2. Bone Development
3. Bone Function
4. Skeletal Organization
5. Skull
6. Vertebral Column
7. Thoracic Cage
8. Pectoral Girdle
9. Upper Limbs
10. Pelvic Girdle
11. Lower Limbs
12. Joints

H. Reproductive Systems

1. Male system
2. Female system
3. Pregnancy
4. Growth
5. Development
6. Genetics

VII. Learning Activities

- A. Participate in Class Discussion
- B. Participation cooperative learning groups
- C. Set up and conduct science investigations and experiments

- D. Write Scientific reports
- E. Dissect cow hearts, sheep brain, and sheep eyes to illustrate the similarities and differences between human and selected organs.
- F. Use the computer to participate in instructional activities, research materials and information, and construct data models.

VIII. Methods of Assessing Objectives/Grading

<u>Test/Assignments</u>	<u>Points</u>	<u>Total Points</u>	<u>Grading Scale</u>	
			90-100%	A
Exams (5)	100 pts	500 pts	80-89.9%	B
Final Exam (Cummulative)	200 pts	200 pts	70-79.9%	C
Assignments	50 pts	50 pts	60-69.9%	D
Lab Practicals (1)	100 pts	100 pts	Below 60%	F
Lab Notebook/Assignments	50 pts	50 pts		
Connect Assignments (8)	12.5 pts	100 pts		
Total		1000 pts		

IX. MAKE-UP WORK POLICY:

No make-up tests will be given except in cases of an immediate family member’s death or grave personal illness. A valid excuse slip should be submitted upon return to class. **If you are a member of a University team (athletic or otherwise) and you have a scheduled event, tests and quizzes should be taken before you leave.** All other make-up tests must be taken **NO LATER THAN THE SECOND CLASS MEETING** after each test date. If tests are not made up within the allotted time, the grade will become a zero (Usually within the same week of the exam). **NO EXCEPTION.** The ten highest grades on quizzes will be counted and the rest will be dropped.

X. Plagiarism Policy

Plagiarism is scholarly theft when students don’t acknowledged the use of a secondary source. Any written or oral presentation in which the writer or speaker does not distinguish clearly between original and borrowed material constitute plagiarism. Because students, as Scholar, Facilitator, Reflective Thinker and Life Long Learners frequently use concepts and facts developed by others scholars, plagiarism is not the mere use of another’s facts and ideas, it is grossly unethical. It is plagiarism when students present work of others as if it were their own.

Plagiarism is a serious offense and any act of plagiarism may lead to a failing grade on the paper and in the course, as well as other disciplinary actions.

XI. Attendance Policy

(See Class Attendance Policy from the Mississippi Valley State Catalog). One hundred percent (100%) **PUNCTUAL** class attendance is expected of all students in all scheduled classes and activities. Instructor will keep attendance records and any absence for which a student does not provide written official excuse is counted as an unexcused absence. Students must understand that **EVEN WITH AN OFFICIAL EXCUSE OF ABSENCE, THEY (STUDENTS) ARE RESPONSIBLE FOR WORK REQUIRED DURING THEIR ABSENCE. YOU MUST BE PREPARED FOR TESTS OR QUIZES UPON YOUR RETURN.**

OFFICE HOURS: Office hours are posted on my door and on this syllabus. Any other office visits should be by appointment only. It is a good policy to drop by the office to discuss your progress and to clarify any lingering questions about the material or to process any difficulties in class. Come to the office during posted office hours.

XII. ACADEMIC INTEGRITY: Full responsibility is placed on the student for the content and integrity of all academic work submitted in the form of assignments, papers, quizzes, and examinations. Copying

another person's work or portions of it is a violation of academic integrity and will be handled according to Mississippi Valley State University policy. **Cheating of any kind is absolutely NOT allowed. Students caught cheating run the risk of failing the class for the entire semester. Suspension or removal from the school is also possible (p 83 Student Handbook).**

GRADE APPEALS: Any student who believes s/he has been graded unfairly, even after talking with me, may appeal that grade by following the procedures set out by the University in the Student Handbook. It is your responsibility to prove that you deserve a higher grade. Keep all copies of your work.

XIII. PROPER LAB ATTIRE: I require students to wear closed-toe shoes and recommend that students wear clothes that can be destroyed to lab. I also strongly recommend that you purchase latex gloves. You must also wear a lab coat.

XIII. STUDENTS WITH DISABILITIES: Mississippi Valley State University is committed to providing reasonable accommodations for students with a documented disability. If you feel you are eligible to receive accommodations for a covered disability (medical, physical, psychiatric, learning, vision, hearing, etc.) and would like to request it for this course, you must be registered with the Services for Students with Disabilities (SSD) program administered by University College. It is recommended that you visit the Disabilities Office located inside the EMAP Computer Lab in the Technical Education (IT) Building to register for the program at the beginning of each semester. For more information or to schedule an appointment, please contact Mr. Billy Benson, Jr. via phone or email at 662-254-3005 or billy.benson@mvsu.edu. Students who need special accommodations are encouraged to see me after class or in my office by appointment, so we can discuss your situation confidentially. Please bring your memo from the Program for Students with Disabilities to me as soon as possible.

DIVERSITY POLICY: All students, regardless of religious affiliation, race, color, nationality, creed or sexual orientation must feel safe within this space. Please conduct all discussions with regard to the right to human dignity and respect for all individuals.

Before entering class, your cell phones and pagers must be turned off/silent. No phone equipment should be visible on your person. If you leave this class to answer your cell phone, you will be graded as absent for the entire class.

Any student engaging in non-productive or threatening behavior or behavior considered by the instructor to be disruptive to the learning environment will be removed from the classroom.

XV. Bibliography

1. AAAS (American Association for the Advancement of Science). 1993. Benchmarks for Science Literacy. New York: Oxford University Press.
2. AAAS (American Association for the Advancement of Science). 1989. Science for All Americans. New York: Oxford University Press.
3. National Commission on Excellence in Education. 1983. A Nation at Risk: The Imperative for Educational Reform. Washington, DC: U.S. Government Printing Office.
4. NCTM (National Council of Teachers of Mathematics). 1989. Curriculum and Evaluation Standards for School Mathematics. Reston, VA: NCTM.
5. NRC (National Research Council). 1989. Everybody Counts: A Report to the Nation of the Future of Mathematics Education. Washington, DC: National Academy Press.
6. NSTA (National Science Teachers Association). 1992. Scope, Sequence and Coordination of Secondary School Science. Vol.1. The Content Core: A Guide for Curriculum Developers. Washington, DC: NSTA.
7. SCANS (Secretary's Commission on Achieving Necessary Skills). 1991. What Work Requires of Schools. Washington, DC: U.S. Government Printing Office.

1. UNDERSTANDING HUMAN ANATOMY AND PHYSIOLOGY. Sylvia Mader. McGraw Hill Publisher, 2004

2. <http://www.mhhe.com/catalogs/0072935170.mhtml>

3. <http://www.mhhe.com/catalogs/0072438142.mhtml>

4. <http://www.mhhe.com/catalogs/0697387933.mhtml>

5. <http://www.mhhe.com/catalogs/0072438916.mhtml>

6. <http://www.mhhe.com/catalogs/0072429038.mhtml>

GENERAL COURSE GOALS:

1. To develop an understanding of writing as a tool for learning course material.
2. To discuss some historical and current perspectives in physiology.
3. To present biological aspects of nature of life.
4. To characterize distinguishing elements of animal cells, tissues, and organs.
5. To discuss the biology of human organs systems and their components.
6. To present aspects of biology of the human organs and their tissues.
7. To identify structures within the human body.
8. To illustrate, with examples, some differentiating structural & functional aspects of the major organ systems.
9. To present aspects of biology of anatomy, cells, mitosis, and cellular respiration
10. To present the biology, structure & function of the tissues, and the integumentary and skeletal systems.

MATRIX: LINKAGE OF THE HTM AND GENERAL COURSE GOALS

GENERAL	<i>HTM</i>	<i>HTM</i>	<i>HTM</i>	<i>HTM</i>
Course Goals	Scholar	Facilitator	Reflective Thinker	Life-Long Learner
#1		*	*	*
#2			*	*
#3		*	*	*
#4	*	*		*
#5		*		*
#6	*		*	*
#7	*			*
#8	*	*	*	*
#9	*	*	*	*
#10	*	*	*	*

Syllabus subject to change at any point at the discretion of professor. This syllabus does not constitute a contract with the University. It contains guidelines. The instructor reserves the right to make changes as necessary.