Human Anatomy and Physiology I
Syllabus
Biology 220 (3 cr) Online Summer 2012
Class Prerequisite: none

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You are welcome to call us any time if there is a situation requiring an immediate solution. If it is possible, please call during the office hours shown on the course home page. Check the home page for our location as we will be available at different locations at different times. We do not have or use voicemail since we are available extended hours. If you cannot reach us by phone because of hour or our availability, please email us, including a phone number and when you can be reached and we'll reach you as soon as we can.

It is important that we communicate with you about the course, and about your life situations which have an impact on your participation in it. It is recommended that you use the email account provided to you as an online Mayville State University student, rather than changing that communication tool in your personal profile in the Moodle system. Mayville State University does not recommend use of another email address or the forwarding of email to a personal email account, as this practice may compromise the security of your identity and personal information. If you find that you receive frequent emails which do not pertain to you, there are steps shown in the MASU DSO 100 - Distance Student Orientation course Outline page which can help to eliminate some of the incoming messages and manage those that you do in fact want to receive.

I. Course Description:
BIOL 220 ANATOMY AND PHYSIOLOGY I (CCN) 3 S.H.
Three hours lecture per week. The study of the anatomy and physiology of the human body will be studied as an integrated topic. This is the first course of a two course sequence. Topics which will be considered include cellular anatomy and metabolism, the organization of cells into tissues, and the integumentary, skeletal and joint, muscular, nervous, and somatic and special senses. BIOL 111 or BIOL 150 or equivalent and CHEM 121 are recommended. Spring on campus; Fall, Spring, Summer online.

II. Purpose/Detailed Description of the Course:
During this semester, we will consider the increasing levels of complexity of the human body, beginning with the basic structure of atoms, and progressing to molecules and molecular processes; how the molecules are organized to form cellular organelles, how the organelles function together to form the smallest living unit – the cell; organization of cells into tissues which combine to form organs. We will begin our study of organ systems with the integumentary, skeletal, muscular, nervous and sensory systems.
The topics covered by the course are listed below. The required assignments are listed, but there are also other optional activities such as practice quizzes of terminology and identification and crossword puzzles.

Course Content:
Ch 1 Introduction to Human Anatomy and Physiology

- **Topics:** Introduction, Anatomy and Physiology, Levels of Organization, Characteristics of Life, Maintenance of Life, Organizations of the Human Body, Life-Span Changes, Anatomical Terminology
- **Assignments:** Study Guide, Chapter Mastery Quiz.

Ch 2 Chemical Basis of Life
- **Topics:** Structure of Matter, Chemical Constituents of Cells
- **Assignments:** Study Guide, Chapter Mastery Quiz , linked animations

Ch 3 Cells
- **Topics:** A Composite Cell, Movements Into and Out of the Cell, The Cell Cycle, Control of Cell Division, Stem and Progenitor Cells
- **Assignments:** Study Guide, Chapter Mastery Quiz, linked animations

First Exam Ch 1, 2, 3

Ch 4 Cellular Metabolism
- **Topics:** Metabolic Processes, Control of Metabolic Reactions, Cellular Respiration, Nucleic Acids and Protein Synthesis, Changes in Genetic Information
- **Assignments:** Study Guide, Chapter Mastery Quiz, linked animations

Ch 5 Tissues
- **Topics:** Epithelial Tissues, Connective Tissues, Muscle Tissues, Nervous Tissues, Types of Membranes
- **Assignments:** Study Guide, Chapter Mastery Quiz

- **Ch 6 Skin and the Integumentary System**
- **Topics:** Skin and Tissues, Accessory Organs of the Skin, Regulation of Body Temperature, Skin Color, Healing of Wounds and Burns, Life-Span Changes.
- **Assignments:** Study Guide, Chapter Mastery Quiz

Second Exam Ch 4, 5, 6

Ch 7 Skeletal System
- **Topics:** Bone Structure, Bone Development, Bone Function, Skeletal Organization, Skull, Vertebral Column, Thoracic Cage, Pectoral Girdle, Upper Limb, Pelvic Girdle, Lower Limb, Life-Span Changes
- **Assignments:** Study Guide, Chapter Mastery Quiz

Ch 8 Joints of the Skeletal System
- **Topics:** Classification of Joints, General Structure of a Synovial Joint, Types of Synovial Joints, Types of Joint Movements, Examples of Synovial Joints, Life-Span Changes
- **Assignments:** Study Guide, Chapter Mastery Quiz

Ch 9 Muscular System
- **Topics:** Structure of a Skeletal Muscle, Skeletal Muscle Contraction, Muscular Responses, Smooth Muscles, Cardiac Muscle, Skeletal Muscle Actions, Major Skeletal Muscles, Life-Span Changes
- **Assignments:** Study Guide, Chapter Mastery Quiz, Interactive Physiology CD, linked animations

Third Exam Ch 7, 8, 9

Ch 10 Nervous System I

- **Topics:** General Functions of the Nervous System, Classification of Neurons and Neuroglial Cells**,** Cell Membrane Potential, Synapses, Impulse Processing
- **Assignments:** Study Guide, Chapter Mastery Quiz, Interactive Physiology CD, linked animations

Ch 11 Nervous System II

- **Topics:** Meninges, Ventricles and Cerebral Spinal Fluid, Spinal Cord, Brain, Peripheral Nervous System, Autonomic Nervous System, Life Changes
- **Assignments:** Study Guide, Chapter Mastery Quiz, inked animations, Interactive Physiology CD.

Ch 12 Somatic and Special Senses

- **Topics:** Receptors and Sensations, Somatic Senses, Special Senses, Life-Span Changes
- **Assignments:** Study Guide, Chapter Mastery Quiz, linked animations

Comprehensive Final Exam: 50 % of the exam covers Chapters 1-9, 50% of the exam covers Chapters 10-12.

III. Goals and Objectives (Student Learning Outcomes):

Unit 1 Levels of Organization Chapters 1-4: Students who have completed this unit should be able to:

- understand the scope of studies in anatomy and physiology and be able to use and understand descriptive anatomical and directional terminology.
- explain the basic concept of homeostasis and how homeostatic mechanisms apply to body systems.
- describe the different molecules of which the body is composed, the processes which form those molecules, and the release and use of energy from nutrients.
- identify cellular structures and explain their respective function

Unit 2 Support and Movement Chapters 5-8: Students who have completed this unit should be able to:

- describe the basic tissues of the body and their location and explain their functions.
- identify and describe the major gross and microscopic anatomical components of the integumentary system and describe the functions of the system.
- identify and describe the major gross and microscopic anatomical components of the skeletal system and explain their functional roles in osteogenesis, repair, and body movement.
- identify and describe the major gross and microscopic anatomical components of the muscular system and explain their functional roles in body movement, maintenance of posture, and heat production.

Unit 3 Integration and Coordination Chapters 9-12: Students who have completed this unit should be able to:

- identify and describe the major gross and microscopic anatomical components of the nervous system and explain their functional roles in communication, control, and integration.
- identify and describe the major gross and microscopic anatomical components of the eye and ear and explain their functional roles in vision, hearing and equilibrium. Students should

also be able to identify and locate the receptors responsible for olfaction and gustation and briefly describe the physiology of smell and taste.

IV. Program Outcomes

The institutional student learning outcomes (SLOs) for a biology major addressed in this course are:

SLO #1: Students will acquire a content knowledge base in the traditional biology core commensurate with career goals.

SLO #2: Students will communicate scientific information both orally and in writing.

of biological problems (including experiential component). .

SLO #5: Students will integrate technology appropriate to their major into their work products.

V. Materials Required

- **Text:** Hole's Human Anatomy and Physiology 12th or 13th Ed.; Shier, Butler, & Lewis, McGraw-Hill Publishing
- **Interactive physiology CD: The A.D.A.M. 10-module interactive physiology CD is required** and is available from the University Bookstore, It will be shown in the Course Materials area. It will provide the basis for a number of questions in the examinations.

- **You should order the text and interactive physiology CD <u>as soon as</u> you register for the course. (**www.mayvillestatebookstore.com, 800-437-4104 ext 34823)

We will utilize the Moodle learning management system at (http://lms.ndus.edu/course/view.php?id=51) to distribute study guides, and other printed materials. Moodle will also be used to administer chapter mastery quizzes, exams, and practice quizzes. **Note**: If you have Word on your computer, you should be able to work on the documents with no difficulty. If you use another word-processing program which does not have the translator for Word documents, the instructor will attempt to provide you with the documents in a form which you can use. As a student, you are eligible to purchase the Microsoft Office Suite (Educational Version) for approximately $120 for a PC and $150 for a MacIntosh. (It's REALLY worth the price!) We will utilize Moodle to electronically distribute study guides, laboratory procedures and other printed materials. Microsoft Works can also be used. One other good option is to download the OpenOffice suite (http://www.openoffice.org) , which is **free** and very similar to Office.

VI. Instructional Strategies: The following instructional strategies will be employed to help you learn the material.

- Direct instruction
- Indirect instruction
- Interactive instruction
- Experimental learning
- Guided and independent study
- Chapter Quizzes
- Practice Quizzes
- Inquiry approach
- Simulations
- Questioning skills
- Downloaded animations
- Application
- Crossword puzzles

VII. Learning Experiences:

Our study of Human Anatomy and Physiology involves a number of different types of learning activities including required study guides, chapter mastery quizzes, which are done at your computer wherever you are able to work and submitted online and exams, which you are to take at a professional office; school, college or university, library, or other business or public institution. There are no requirements for on-campus visits. Recommended supplementary activities including practice quizzes, and crossword puzzles are also provided.

The course material is divided into four segments or quarters; chapters 1-3, 4-6, 7-9, and 10-12. Assignments and quizzes for the first three segments or quarters will be due on the exam date of that quarter. If you are taking one Anatomy and Physiology lecture course during the semester or session, your goal should be to complete an average of three chapters each two weeks for this course. This will allow a bit of flexibility at the end of the course. This will mean completion of the study guides and chapter mastery quizzes, the appropriate exams, and if you are also taking the lab course, the labs activities associated with the chapters. Some chapters are relatively short and can be mastered in a short time, while others will present some significant challenges. You'll also need to allow for review time prior to completing the examinations. It is important to work on the material for shorter periods on a daily basis rather than to do a single "cramming" exercise once per week. You will learn much more of the material, do better on the exams, and retain more of the material for use in your work career and personal life.

Study Guides

The first activity in each chapter to be completed is a written study guide (SG) in a Microsoft Word format which is downloaded from the course home page. This is an open book activity. There are a number of activities associated with the SG intended to assist you in your understanding of the material. The study guides consist of three different areas. They are:

- A short summary or introduction to the chapters in the text.
- A list of the major learning objectives for the chapter.
- A series of questions will help you learn essential materials and will give you the opportunity to demonstrate your understanding of concepts or principles addressed in the chapter.

When you've completed the study guide and are satisfied that answers provided are correct, you'll submit it to us using the submission boxes (SG1 Dropbox, etc). The Study Guides are to be completed as individual work. The study guides are equal to 20% of the total grade.

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Chapter Mastery Quizzes:

When you've submitted the study guide, a chapter mastery quiz (CMQ) is next. It is also an open-book activity, in which you may use any resources available to determine the correct answers. Remember, however, that the CMQs as well as the SGs are based on the materials required for the course; the text, the quick links found in course materials, and the Interactive Physiology CD. There are a few assignments when other resources, such as a web search, are specifically required for an assignment. When the CMQ is submitted, the computer will grade the quiz and give you a score. You will be able to determine which questions are incorrect or partially correct by looking at the points awarded for each question, except for matching questions, which will inform you of how many of the items were correct and how many of the answers were incorrect. It will not give you the correct answer. You may then study the material further and retake the quiz. A total of three attempts may be made on each quiz. The answers to any short answer/essay questions must be "manually" graded by an instructor and your score will not reflect the points earned in these section until they have been. All components of the CMQs are to be completed as individual work. They form 20% of the total grade.

You are not required to complete all available attempts of every assignment. Completing as many of them as you are able to will however help you learn the material, review the material for exams and

provide the highest score possible towards your course grade. You receive the highest grade earned on an attempt on a chapter mastery quiz, not an average grade of attempts made.

Proctored objective Examinations:
Four proctored examinations are required in this course.
Prerequisites: In order to take an exam, you must complete at least one attempt of every required course activity found in the pertinent chapter topic areas. In this course you should achieve a grade of 75% or above for Study Guides and a grade of 60% or above for Chapter Mastery Quizzes. If you have difficulty in achieving these percentages in a specific activity, **please contact an instructor for assistance** prior to completing your last available attempt for that activity.
Exams will consist of multiple-choice, matching, or other types of objective questions which will be available by logging into the website at http://lms.ndus.edu/course/view.php?id=51 with your computer. Some of the multiple choice questions will include diagrams with which you will demonstrate your acquired knowledge of human anatomy. Your proctor will be sent the passwords for each exam. These exams are **not** open-book/open notes exams. They are closed book and intended to be taken in the same way as any normal "on-campus" exams in which your only resource is your personal learning. The computer server will send the exam to your location for you to complete **online** and submit. It will grade the exam and allow you to view your score immediately.
The three exams plus a comprehensive final exam will be available to you when you are ready for them, *having submitted the prerequisite study guides and chapter mastery quizzes* The exam scores constitute 60% of your total grade.

Note: You will need to arrange for a proctor for your exams. Your proctor needs to be established with the Distance Education Office at MSU as soon as possible in the semester, preferably by the third week of class, so that your proctor is in place when you need to take your first exam, preventing a crisis from developing. It takes time to locate and establish a qualified proctor so start this process immediately. Information about proctors and proctored exams is available on the Outline page of the MASU DSO 100 – Distance Student Orientation course, which you are enrolled in as an online student. Proctors must be present for the entire duration of all Exams. Passwords will not be provided to a student outside of the monitored exam setting. **All questions about proctors and exam locations should be addressed to Office of Extended Learning** at 1-800-437-4104 ext: 34667.

Students are expected to:

- Begin immediately to locate a qualified individual willing and able to proctor your exams, and establish this proctor with the Office of Extended Learning by the third week of the semester. You will submit the proctor application online to the Office of Extended Learning and submit a copy of this completed form in a word document to the Proctor Application drop box near the top of the course home topics page.
- Read each chapter prior to completion of the assignments for that chapter.
- Complete assignments in the order in which they are listed in the course schedule whenever possible, i.e. complete SG 1 and CMQ 1 prior to starting Chapter 2 activities, and take exam 1 as soon as possible after completing the prerequisite activities. View and use animations in the study guides to help to complete the pertinent questions in the study guide.
- Use the suggested target dates in the course schedule to remain current with your assignments.
- Submit coursework including exams by the designated due dates.
- **Complete at least one valid attempt for each required assignment in the found in the chapter topic areas before taking the exam covers the material in that chapter**. You should achieve a minimum grade of 75% for Study Guides and a minimum grade of 60% for Chapter Mastery Quizzes. If you have difficulty in achieving these percentages in a specific

activity, please **contact an instructor for assistance** prior to completing your last available attempt for that activity.

- Contact your proctor early to schedule each exam date, assuring that you can take it by its due date.

VIII. Expectations:

- Students should contact course instructors by phone or email about questions and concerns about course material and functioning using the information found in the upper right corner of the course home page.
- Course work should be completed and submitted on the designated dates found on the Course Schedule accessed near the top of the course home topics page.
- Students should contact an instructor promptly about an unexpected and unpreventable event, which significantly affects the students participation in the course, preventing the submission of coursework, including exams, by scheduled due dates.
- Some coursework is auto-graded providing immediate feedback. Items needing to be manually graded will routinely be graded within one workweek excluding holidays. Comment areas of corrected coursework and emails will be used to provide additional feedback on some assignments. Students will be requested to contact an instructor by email or phone at times to improve student learning or clear up instructor questions, assuring that the student will receive the credit earned on an assignment.
- Instructors will use the Announcements forum to communicate course information and changes.

IX. Schedule of completion:

A detailed list of assignments with the recommended completion Target Dates and required Due Dates is available on the course home page in the "Calendar" block. It is recommended that you complete the chapters in sequence, i.e. all of Chapter 1's activities before beginning Chapter 2's activities, when possible. **One attempt with a passing grade must be completed for all required assignments listed before a proctored exam, prior to taking that proctored exam. The exam will not be visible until you have scored at least 75% on the CMQs.**

X. Evaluation/grading:

Your grades will be based upon the following four types of activities. The number of points that are possible during each activity vary greatly. However, each type of activity is worth a distinct percentage of the total grade for the course (see C below). Within the activity types, the value of the individual activities varies, based primarily upon the significance of the material and the amount of effort required to complete it. The values of each activity are shown in the grade book of the website.

A. Study Guides and Chapter Mastery Quizzes:

Written Study Guides are distributed via the course website. These are to be completed and returned digitally in the drop-box. They will be reviewed for completion and grades entered in the Study Guide portion of the grade book. The written study guides are the primary instrument which you will be using to learn the material. When you've completed the study guide, you may then proceed to the Chapter Mastery Quiz (CMQ). You may take the chapter mastery quiz up to three times, with the best score being recorded. If the quiz has fill-in-the-blank or short answer/essay questions it's a good idea to wait until we've checked the quiz "manually" for errors by the automatic correction system before you take it again. You will be able to see your answers, and whether or not they're correct, except for matching questions which will inform you of how many of the items were correct and how many were incorrect. The correct answers will not be given. These study guides make up 20% of your course grade and chapter mastery quizzes make up another 20% of your grade.

B. Exams and Final Exam

Proctored Examinations:

Four examinations will be given during the course. The first exam will be provided when you have completed the introductory material, an introduction to chemistry, and cell structure. The second exam will cover material associated with cellular metabolism, tissues, and the integumentary system. The third exam will cover the skeletal and joint system and the muscular system. The final, which is cumulative, is described below.

These objective exams will consist of multiple-choice questions, matching, drop-down lists, or fill-in-the-blank questions which will be available through the Moodle website at http://lms.ndus.edu/course/view.php?id=51 . Some of the matching questions will include diagrams where you will demonstrate your acquired knowledge of human anatomy. The questions will be based upon material found within the text, and on materials found in the study guides, chapter mastery quizzes, and interactive physiology CD.

Passwords which will allow you access to the exams will be sent to the proctor you have established through the Office of Extended Learning. All exams may be cumulative, and will contain questions related to the material which you've covered. **Student are to submit at least one valid attempt for all assignments scheduled for completion prior to the exam before taking that exam.**

Final Exam: Approximately half of the material in the final will be devoted to topics related to the nervous system and the somatic and special senses as found in Chapters 10, 11, and 12. The remainder will be taken from all other materials examined during the course. The final exam will consist of questions covering all material studied during the semester in Chapters 1-12. It will probably have 150 questions.

The exam category makes up 60% of your total grade. Exams 1-3 each make up 23% of the exam grade and the final exam makes up 31% of the exam category grade.

C. Final Grade: Final course grades will be assigned based upon qualitative and quantitative work. Qualitative: the amount of effort you put forth (see Instructional Strategies). You must satisfactorily complete the lab reports and study guides as indicated. Quantitative: the number of points which you earn compared to the number possible. Your grades will be based upon the study guides (20%) and chapter mastery quizzes (20%), and examinations (60%). The scores for each of the assignments has been individually weighted to correspond to their complexity and difficulty. Your individual scores will be visible in the grades area. In order to get an "A", you should achieve an overall percentage of 85%, and to get a "B", 75% overall. A grade of "C" requires 65%.and a D 55% of the available points.

XI. Important Student Information

Important student information can be found on the Moodle page for this course under the "Important Student Information" link.

- English Proficiency and Other Academic Concerns
- Students with Disabilities
- Academic Honesty
- Emergency Notification
- Continuity of Academic Instruction for a Pandemic or Emergency
- Family Educational Rights and Privacy Act of 1974 (FERPA)