

Bios 493 Your Body in Health and Disease

Instructor: Dr. C. Hubbard

Class Times: Tues. 6:00 PM – 9:00 PM

Room: NIU Naperville campus

Text Book: Human Biology. Michael D. Johnson, 3rd Edition.

This course is designed to give you a basic understanding of how the human body works. The subject is of interest to most people since we all have a body. The topic becomes even more interesting when our bodies fail to work the way they should. We want to understand what the problem is and whether we, or the doctor, can fix it. Hopefully this course will help you to understand these issues and more.

The following is a list of topics in the order that they will be covered. This is essentially the same list that is found in your book with some modifications. The length of time spent on each topic may vary so dates are not included.

Chapter	Topic	Pages to Read
2	The Chemistry of Living Things. a. Water b. pH (acids/bases) c. The Carbon Molecule d. Carbohydrates – carbs, the bread of life e. Lipids – Fats are good in the right places f. Proteins, enzymes can run your body and a. wash your clothes. g. When proteins go bad – Prions and genetic diseases h. Nucleic acids, DNA/RNA	29-47
3	Structure and Function of Cells a. Plasma membrane b. How stuff gets through the membrane c. The nucleus d. Ribosomes e. Golgi f. Vesicles g. Mitochondria h. Fat/glycogen i. Cytoskeleton j. A brief overview of how the cell uses energy	52-73
17	Cell Reproduction and Differentiation. a. DNA structure, replication and repair	389-404

- b. DNA to RNA to protein
- c. mitosis
- d. Meiosis
- e. Cloning

Examination #1 100 points

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| 4 | <ul style="list-style-type: none"> From Cells to Organ Systems a. Introduction to systems' b. Basic tissue types c. Epithelia + cell to cell contact d. Connective tissues e. bone f. cartilage g. blood h. adipose tissue i. Muscle tissue j. Nerves k. Organ systems l. Skin m. Stem cells and cloning | 77-92, 94 |
| 5 | <ul style="list-style-type: none"> The Skeletal System a. Bone and cartilage growth and development b. The axial skeleton c. The appendicular skeleton d. Joints e. Osteoporosis, arthritis, fractures | 100-114 |
| 6. | <ul style="list-style-type: none"> The Muscular System a. The 3 Muscle types b. How muscle contracts c. Cardiac and smooth muscle d. Exercise training e. Steroid use, muscular dystrophy | 118-126 |
| 7 | <ul style="list-style-type: none"> Blood a. Blood components b. Blood cell types, red cells, white cells c. Blood clotting, hemophilia d. Blood types e. Anemia, Leukemia, multiple myeloma | 138-152 |

8. Heart and Blood Vessels 156-176
- a. Blood vessels and transport. Arteries, veins, capillaries
 - b. The heart and how it works. EKGs
 - c. Heart problems – arrhythmia, fibrillation, coronary artery disease, heart attacks, hypertension.

Examination #2 100 points

9. The immune system 180-210
- a. Why have an immune system?
 - b. The lymphatic system and bodies 3 defenses
 - c. Cells of the immune system
 - d. Tissue typing
 - e. Immunization
 - f. Allergies
 - g. Autoimmune diseases
 - h. AIDS
10. The Respiratory system 215-233
- a. The lungs and air passages, more that a lot of air
 - b. Control of lung function and gas exchange
 - c. Asthma, emphysema, brochitits, pleurisy, smoking, CF
- 11 The Nervous system 236-262
- a. Parts of the nervous system
 - b. How the neuron works - action potentials, the synapse and neurotransmitters.
 - c. Information transfer and integration
 - d. PNS control
 - b. The autonomic nervous system
 - c. The brain and spinal cord.
 - d. Trauma to the nervous system, what you can fix and what you can't. Alzheimers, Parkinsons's
13. The Endocrine System 290-308
- a. What is an endocrine gland?
 - b. What is a hormone?
 - c. Hormone types
 - e. How hormones work.
 - f. Brain hormones
 - g. Pancreas hormones
 - h. Adrenal hormones
 - i. Thyroid gland
 - j. Calcium control

- k. Hormone diseases: growth hormone disorders, hypo, hyperthyroidism, diabetes, Addisons and Cushings disease,

Examination #3 100 points

- 14 The Digestive system 313-337
 - a. Overview of the digestive system- what does it do?
 - b. A run down the digestive tract from the mouth to the anus.
 - c. What happens to the food you eat in the digestive tract.
 - d. Ulcers, gastroesophageal reflux disease (GERDS), weight control (diet of the month), diverticulosis, polyps, hepatitis.

- 15 The Urinary System 341-357
 - a. Components of the urinary system
 - b. The kidney and how it works.
 - c. The Kidney is an endocrine organ too. Renin, aldosterone, ADH and blood pressure.
 - d. Kidney failure, renal dialysis

- 16. Reproduction 364-380
 - a. Female reproductive system
 - b. Male reproductive system
 - c. Pregnancy and birth control
 - d. In Vitro fertilization

- 18. Cancer 409-422
 - a. What is Cancer?
 - b. What causes cancer?
 - c. Cancer treatments
 - d. Common types of cancers

- 20 DNA Technology and genetic engineering 444-456
 - a. DNA structure, sequence and modification
 - b. DNA fingerprinting
 - c. Transgenic plants and animals

Examination #4 100 points

General Course Grading Policy

Examinations - Four examinations will be given throughout the course. Each examination worth 100 points. A research paper will also be assigned during the course that is also worth 100 points. The final grade for the course will be based on the percentage of correct examination and research paper points obtained by the student divided by the total possible number of points (500 points). No curve will be applied to grading in this course. Letter grades will be assigned on the following percentage basis:

A = 85-100%
B = 75 - 84 %
C = 65 - 74 %
D = 50 - 64%

Policy regarding examinations:

No attendance is taken for class during this course. The choice to attend class is yours to make. However, if you choose not to attend class you are still responsible for all written and lecture material presented during the course. If do you choose to attend a class, please arrive to class on time. In addition, if you attend class you are expected to remain until the end of class. Leaving in the middle of a class without notifying the instructor of the reason prior to the start of a class will result in loss of five points from the final grade for each incident.

All questions concerning points and grades for a given examination must be settled by the end of the third school day following the day that the examination is returned to the student. After this time period, the grade will become permanent.

Other than clerical or mathematical errors, students who wish to challenge an answer given on an examination that differs from the graded answer must do so in writing. The student may cite references from any published text to justify their response, however, personal notes and recollections from lecture are not acceptable.

Absence from examination will be excused only by 24 hr. **PRIOR** notification of the instructor. Exceptions to this rule included illness verified by a medical doctor or family or personal emergency in which case the instructor must be notified as soon as possible.