**Biology 121 – Human Anatomy and Physiology I**
**Course Syllabus**
**Fall 2003**

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**Faculty Information**: Dr. Nitya Jacob, *Office*: Room 104, Pierce Hall; *Phone*: 770-784-8346
*Office Hours*: TTh 9:30-10:30 AM or by appointment at other times
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**Lecture:** MWF 10:40-11:30 AM, Room 101, Pierce Hall
**Laboratory:** Monday 2:00-5:00 PM, Room 123, Pierce Hall

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**Required Textbooks**: **1)** *Fundamentals of Anatomy and Physiology*, by F. H. Martini. 2001. Fifth Edition. Prentice Hall Inc.
**2)** Lab Text: *Human Anatomy and Physiology Lab Manual*, Cat version, by Elaine N. Marieb. 2003. Seventh edition. Benjamin / Cummings Publishing Co., Inc.

**Required lab tools:** Dissection Kit. Available in the bookstore.

**Optional Lab Text:** *A Guide to Anatomy and Physiology Lab* by T. G. Rust. Southwest Educational Ent.

**Course objectives:** In Biology 121, you will learn about the physical features of the human body (anatomy) and the mechanisms that allow these physical parts to function (physiology). The human body is divided into eleven organ systems. Biology 121 is the first installment of a two-part course that explores each individual organ system. This semester you are expected to understand the integumentary, skeletal, muscular, and nervous systems. For the body to function as a whole, tissues and cells are responsible for specific activities. Therefore each organ system will be examined on both macroscopic and microscopic levels. You will be expected to learn anatomical terminology and to identify structures on specimens. You will apply your knowledge of normal human body function to understand the basis of various human diseases. Maintaining homeostasis is crucial for human body function. Throughout this course, you will comprehend the biological condition of homeostasis and its effect on the body. You will be encouraged to think critically about the information that you learn in this course.

**Biology 121 - Lecture Schedule, Fall 2003**
**Dr. Nitya Jacob**

| Date | Topic | Assigned Reading |
|---|---|---|
| W, Aug 27 | Introduction | |
| | Organization of the human body | Chapter 1 |
| F, Aug 29 | Homeostasis and body function | Chapter 1 |
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| M, Sep 1 | LABOR DAY - no class | |
| W, Sep. 3 | Chemical molecules in the body | Chapter 2 |
| F, Sep 5 | Cell structure and duplication | Chapter 3 |
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| M, Sep 8 | Cancer | Chapter 3 |
| W, Sep 10 | Tissue organization | Chapter 4 |
| F, Sep 12 | Integument– epidermis and dermis | Chapter 5 |
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| *M, Sep 15* | Integument – hair, nails and glands | Chapter 5 |
| | *(AJN article review #1 due)* | |
| W, Sep 17 | Integument – injury and aging | Chapter 5 |
| F, Sep 19 | Bones – structure and histology | Chapter 6 |
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| M, Sep 22 | Bones - development and growth | Chapter 6 |
| **TUES, Sep 23** | **EXAM I – 8:00-9:30 AM** | **(Chapters 1-5)** |
| W, Sep 24 | Bones - functional properties | Chapter 6 |
| F, Sep 26 | Axial Skeleton - Skull | Chapter 7 |
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| M, Sep 29 | Axial Skeleton – vertebral column | Chapter 7 |
| W, Oct 1 | Axial Skeleton – thoracic cage | Chapter 7 |
| F, Oct 3 | Appendicular Skeleton – upper limbs | Chapter 8 |
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| M, Oct 6 | Appendicular Skeleton – lower limbs | Chapter 8 |
| W, Oct 8 | Joints and function | Chapter 9 |
| F, Oct 10 | Articulations and movement | Chapter 9 |
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| M, Oct 13 | FALL BREAK – no class | |
| W, Oct 15 | Skeletal muscle tissue, mechanism of function | Chapter 10 |
| *F, Oct 17* | Cardiac and smooth muscles | Chapter 10 |
| | *(AJN article review #2 due)* | |
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| M, Oct 20 | Organization of skeletal muscles | Chapter 11 |
| **TUES, Oct 21** | **EXAM II – 8:00-9:30 AM** | **(Chapters 6-9)** |
| W, Oct. 22 | Axial and appendicular muscles | Chapter 11 |
| F, Oct 24 | Neurons and electrical potential | Chapter 12 |

**Biology 121 - Lecture Schedule (continued)**

| Date | Topic | Assigned Reading |
|---|---|---|
| M, Oct 27 | Processing of nerve potentials | Chapter 12 |
| W, Oct 29 | Spinal cord and spinal nerves | Chapter 13 |
| F, Oct 31 | Reflexes | Chapter 13 |
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| M, Nov 3 | The Brain – organization | Chapter 14 |
| W, Nov 5 | The Brain – cerebrum | Chapter 14 |
| *F, Nov 7* | The Brain – diencephalon, mesencephalon<br>*(AJN article review #3 due)* | Chapter 14 |
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| M, Nov 10 | The Brain – medulla oblongata | Chapter 14 |
| W, Nov 12 | The Brain – review of cranial nerve functions | Chapter 14 |
| F, Nov 14 | Neurons – sensory and motor pathways | Chapter 15 |
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| M, Nov 17 | Neurons – higher order functions | Chapter 15 |
| W, Nov. 19 | Neurons – age-related diseases | Chapter 15 |
| **THURS, Nov 20** | **EXAM III – 8:00-9:30 AM** | **(Chapters 10-13)** |
| F, Nov 21 | Special senses - receptors | Chapter 17 |
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| M, Nov 24 | Special senses - olfaction | Chapter 17 |
| W, Nov 26 | THANKSGIVING BREAK – no class | |
| F, Nov 28 | THANKSGIVING BREAK - no class | |
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| M, Dec 1 | Special senses – vision and equilibrium | Chapter 17 |
| *W, Dec 3* | Autonomic nervous system<br>*(AJN article review #4 due)* | Chapter 16 |
| F, Dec 5 | Autonomic nervous system | Chapter 16 |
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| M, Dec 8 | Review – putting the pieces back together again | |
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| **Wed, Dec 17** | **FINAL EXAMINATION 9:00AM – 12:00 PM** | |

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***Syllabus continues on next page***

**Biology 121 - Laboratory Schedule, Fall 2002**
**Dr. Nitya Jacob**

| Date | Topic | Lab Exercise / Reading |
|---|---|---|
| Sep 1 | LABOR DAY | No lab |
| Sep 8 | Getting comfortable with anatomy, Using microscopes, *Dissection kit required* | Exercises 1, 2, 3 |
| Sep 15 | Cells and cellular transport | Exercises 4, 5A |
| Sep 22 | Tissues and integumentary system | Exercises 6A, 7, 8 |
| Sep 29 | Osseous tissue and bones, Axial skeleton, Medical imaging | Exercises 9, 10 |
| **Oct 6** | **LAB PRACTICAL EXAM I** | |
| Oct 13 | FALL BREAK | No lab |
| Oct 20 | Appendicular skeleton, Articulations, *Dissection kit required* | Exercises 11, 12, 13 |
| Oct 27 | Muscles - gross anatomy *Dissection kit required* | Exercises 14, 15 Dissection Ex 1 (pg 709) |
| Nov 3 | Muscles – gross anatomy *Dissection kit required* | Exercises 14, 15 Dissection Ex 1 (pg 709) |
| **Nov 10** | **LAB PRACTICAL EXAM II** | |
| Nov 17 | Brain and cranial nerves *Dissection kit required* | Exercises 17, 19, 21 |
| Nov 24 | Sensory reception, olfaction, taste *Dissection kit required* | Exercises 22, 23, 26 |
| Dec 1 | Vision, hearing, equilibrium *Dissection kit required* | Exercises 24, 25 |
| **Dec 8** | **LAB PRACTICAL FINAL EXAM** | |

******Please bring all texts (Martini, Marieb and Rust) to the laboratory. We will use them for photographs and illustrations while observing specimens.******

**Honor Code:** Regulations of the Honor Code apply to all work for credit in this course, including lecture and lab examinations. Please pledge all of your work with your signature to indicate that you have followed the rules of the Honor Code.

**Attendance:** Attached to this syllabus is the Biology Department Absence Policy. Please read through this handout carefully for conditions on absences in lecture and lab. Unexcused absences, tardiness or a failure to follow the procedures outlined in the handout will result in a reduction in your grade. Any questions about absences should be raised immediately.

**Lecture Examinations:** There will be three lecture exams, held on the dates specified in the syllabus. Lecture exams cover the topics indicated, which include textbook readings, lecture notes and concepts learned in lab. The final exam is cumulative. The best way to prepare for these examinations is to have a good set of lecture notes, mark textbook figures and repeatedly review the material. I highly recommend that you organize weekly study groups with your classmates.

**Laboratory:** In the laboratory, you will spend a lot of time identifying macroscopic and microscopic anatomical structures. It is in your best interest to be attentive during lab and ask questions. There are two laboratory exams and a laboratory final exam. To be fully prepared for the lab exams, I strongly advise you to return to the lab every week outside of lab time to review the materials. The lab will be accessible to you Mon-Fri from 8:00 AM – 5:00 PM, except for Wednesday and the day before a lab exam.

**Dissection:** Since this is an anatomy course, lab exercises will involve dissection of preserved specimens. Extensive dissection of cats will be performed to study the muscular system. Sheep brains and eyes will be dissected to study the nervous system. Each student will be expected to participate in the dissections. This course is not ideal for persons that are uncomfortable with performing dissections.

**Written assignments:** At the beginning of the semester you will be given a list of four articles from the *American Journal of Nursing (AJN)*. You are required to find each article in the library via online resources or from a print copy of the journal. Please make a copy of the article, read it thoroughly and write a short review. You will be provided with guidelines for writing the review. Please turn in each review and a copy of the article on the specific date indicated in the lecture schedule.

**LearnLink Class Conference:** A class conference labeled "Jacob 121 / 122" has been set up for this course on LearnLink. Please use the conference regularly to communicate with each other and to ask questions. I will use this conference to correspond with you about items we may have missed in class. The syllabus and weekly lab instructions will also be posted under the Biology 121 / 122 conference – check the folders.

**Class Participation:** I would like to encourage everyone to be actively involved in the classroom. Your participation will help you learn the subject matter. Please pay attention during lecture and write down questions that come up in your mind. You will receive credit for class participation.

**Office Hours:** Every student is encouraged to meet with me in person about any concerns or questions that may arise during the semester. I have scheduled specific office hours but if these times are not suitable for you, please do not hesitate to make an appointment with me for a different time.

**Evaluation:** The point distribution given below will be used to evaluate your performance in Biology 121.

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|---|---|
| Lecture Exams (3) | 300 points |
| Lab Practical Exams (3) | 150 points |
| AJN article reviews (4) | 40 points |
| Class Participation | 20 points |
| Final Exam | 150 points |
| Total | 660 points |

Your letter grade will be determined on the standard scale of:

| | |
|---|---|
| 90-100 % | A |
| 80-89 % | B |
| 70-79 % | C |
| 60-69 % | D |
| <60 | F |

Plus and minus grades will be given.

*Reminder:* A minimum grade of C- in this course is required for pre-nursing students.