ANATOMY AND PHYSIOLOGY OF THE SPEECH MECHANISM CDCS 221

An image of the respiratory system shows the mechanics of breathing.

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Office Hours: **MW 11:30-12:30; T 12:00-1:00 or by appointment**

Exams: **Exam #1 – 2/20/08; Exam #2 – 3/19/08;**
Exam #3 – 4/16/08; Final Exam -5/9/08 - 8:00-11:00 am

Prerequisites **Student must be a declared major in Communicative Disorders & Sciences**

Course Description:

Anatomy is the study of the structure of organisms and the relationships of their parts. Physiology is a specialized discipline of biology which is concerned with the functions of living organisms. Speech is a dominant and unique human behaviour, and the physiological processes underlying normal speech production need to be understood if one is to understand disordered speech production. This course focuses on the major

anatomical structures and physiological systems that support speech production. Specific emphasis is placed on the unique neuromuscular adaptations and species-specific behaviours associated with speech production. This course is designed to be consistent with the principle that academic and clinical education should provide students with learning experiences that will orient them to provide service in an effective, ethical, legal, and safe manner. Additionally, this course has been designed to ensure that students demonstrate required knowledge and ability as outlined in the ASHA Standards for the Certification of Clinical Competence in Speech-Language Pathology.

Course Outline:

I. Introduction and Orientation

- **A. anatomical and physiological definitions**
- **B. anatomical nomenclature**
- **C. anatomical terms and planes of reference**

II. Cytology, Tissues, Muscles, and Nerves

- **A. cell morphology and chemistry**
- **B. tissue differentiation**
- **C. muscle actions and electromyography**
- **D. nerve action potentials**
- **E. overview of human embryology and methods of investigation**

III. The Respiratory/Pulmonary System

- **A. skeletal and supporting framework**
- **B. respiratory musculature supporting speech**
- **C. overview of breathing for life support**
- **D. overview of breathing for speech production**
- **E. development of the respiratory system [birth to adulthood]**

IV. The Laryngeal System

- **A. Cartilaginous supporting framework**
- **B. intrinsic and extrinsic laryngeal muscles**
- **C. the vocal folds**
- **D. theory of phonation**
- **E. laryngeal development (emphasis on pubertal period)**

V. The Articulatory System

- **A. skeletal and supporting framework**
- **B. muscles of the tongue**
- **C. muscles of the pharynx**
- **D. the velopharyngeal mechanism**
- **E. overview of articulatory dynamics**
- **F. developmental changes the articulatory system**

VI. The Central Nervous System

- **A. morphology of the cerebral cortex and brain stem**
- **B. the spinal column**
- **C. cranial nerves**
- **D. action potentials**

Text:

The required text for this course is Seikel, J.A., King, D. W., and Drumright, D. G. (2005). Anatomy and Physiology for Speech and Language, Thompson Publishing. Also, I have complied reference material from more advanced sources. I will refer you to these additional sources when the specific topics are covered in class.

Grading:

There will be four multiple choice type examinations. All examinations are equally weighted. The numeric to letter-grade conversion is as follows:

A	**95 - 100**	**C+**	**77 - 79**
A-	**90 - 94**	**C**	**73 - 76**
B+	**87 - 89**	**C-**	**70 - 72**
B	**83 - 86**	**D**	**60 - 69**
B-	**80 - 82**	**E**	**< 60**

At the completion of this course, students will be able to:

A. Define anatomical terminology
B. Explain anatomical planes of reference
C. Describe basic cell morphology and chemistry
D. Summarize embryologic development of the face and palate
E. Explain nerve action potentials and muscle contraction
F. Describe the skeletal support and musculature of the respiratory system
G. Describe quiet and speech breathing processes
H. Explain the development of the respiratory system
I. Describe the cartilaginous support and musculature of the laryngeal system
J. Explain the theory of phonation
K. Explain the development of the laryngeal system
L. Describe the skeletal support of the articulatory system
M. Describe the muscles of the face, tongue and velopharyngeal system
N. Explain developmental changes of the articulatory system
O. Describe the general morphology of the cerebral cortex and brain stem

***The above objectives comply with ASHA Standard* III.B.**

Formative and Summative Experiences:

To enhance learning based on student input, this course contains both formative and summative experiences. Formative experiences shall include 1) designated question periods at the beginning of each class, and 2) the invitation to students to submit written questions prior to each midterm for possible inclusion in that exam. Summative experiences shall include all exams.

Students With Special Needs

SUNY Geneseo will make reasonable accommodations for persons with documented physical, emotional or learning disabilities. Students should consult with the Director in the Office of Disability Services (Tabitha Buggie-Hunt, 105D Erwin, tbuggieh@geneseo.edu) and their individual faculty regarding any needed accommodations as early as possible in the semester.