

COMMUNICATION SCIENCES AND DISORDERS 4800/6800
Neurobiology of Communication
FALL 2008

INSTRUCTOR: Patrick Finn, Ph.D.

OFFICE: Aderhold 514

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I used to think that my brain was my most important organ. But then I thought: Wait a minute, who's telling me that? - Emo Philips

COURSE DESCRIPTION: The purpose of this course is to introduce the student to the basic anatomy and physiology of the nervous system relative to its role in human communication.

LEARNER GOALS:

1. Recognize and identify basic anatomical structures of the central and peripheral nervous systems related to speech production.
2. Describe the basic functions of the central and peripheral nervous systems related to speech production.
3. Identify how problems with these systems might contribute to communication disorders.

REQUIRED TEXT:

Bhatnagar, S. C. (2008). *Neuroscience for the study of communicative disorders (3rd ed.)*. Baltimore, MD: Lippincott, Williams, & Wilkins.

TOPICS AND READINGS:

Week:	Topic	Readings:
Aug. 18 (1)	<ul style="list-style-type: none"> • Review course syllabus • Getting oriented: Basic principles of neuroscience 	<ul style="list-style-type: none"> • Course Syllabus • Ch. 1
Aug. 25 (2)	<ul style="list-style-type: none"> • The grand tour: An overview of the nervous system 	<ul style="list-style-type: none"> • Ch. 2, 3
Sept. 1 (3)	<ul style="list-style-type: none"> • Studying the brain: Methods of investigation 	<ul style="list-style-type: none"> • Ch. 20
Sept. 8 (4)	<ul style="list-style-type: none"> • Building a brain: Development of the nervous system 	<ul style="list-style-type: none"> • Ch. 4
Sept. 15 (5)	<ul style="list-style-type: none"> • Building a brain: Basic physiology of nerve cells 	<ul style="list-style-type: none"> • Ch. 5
Sept. 22 (6)	<ul style="list-style-type: none"> • Keeping the brain going: Cerebrovascular system • Exam 1 	<ul style="list-style-type: none"> • Ch. 17
Sept. 29 (7)	<ul style="list-style-type: none"> • Monitoring the body: Somatosensory system 	<ul style="list-style-type: none"> • Ch. 7
Oct. 6 (8)	<ul style="list-style-type: none"> • Input & output: Spinal cord & spinal nerves 	<ul style="list-style-type: none"> • Ch. 11
Oct. 13 (9)	<ul style="list-style-type: none"> • More input & output: Cranial nerves 	<ul style="list-style-type: none"> • Ch. 15
Oct. 20 (10)	<ul style="list-style-type: none"> • Motor control: Brainstem & Cerebellum 	<ul style="list-style-type: none"> • Ch. 13, 12
Oct. 27 (11)	<ul style="list-style-type: none"> • More motor control: Basal Ganglia • Guest Lecture 	<ul style="list-style-type: none"> • Ch. 13
Nov. 3 (12)	<ul style="list-style-type: none"> • The hub: Thalamus • Exam 2 	<ul style="list-style-type: none"> • Ch. 6
Nov. 5 (13)	<ul style="list-style-type: none"> • Even more motor control: Motor cortex 	<ul style="list-style-type: none"> • Ch. 14
Nov. 10 (14)	<ul style="list-style-type: none"> • What's in the background: ANS & the limbic system 	<ul style="list-style-type: none"> • Ch. 16
Nov. 17.(15)	<ul style="list-style-type: none"> • Speech processing: Central auditory system 	<ul style="list-style-type: none"> • Ch. 9
Nov. 24 (16)	<ul style="list-style-type: none"> • Thanksgiving Break 	
Dec. 1 (17)	<ul style="list-style-type: none"> • Master processor: Cerebral cortex & mental functions 	<ul style="list-style-type: none"> • Ch. 19
Dec. 8 (18)	<ul style="list-style-type: none"> • No Class 	End of semester
Dec. 11	<ul style="list-style-type: none"> • Final Exam 	

TEACHING STATEMENT: This course is an introduction to basic knowledge about the neurobiology of communication. It is important to appreciate that the nervous system is a single, highly integrated system. However, it is difficult to discuss and understand it in that light. Therefore, the only practical way to look at it is to divide it into single systems, which is often awkward because one system is inevitably related, anatomically or functionally, to another system. As a result, the material for this course can be challenging. At the same time, the nervous system is probably one of the most fascinating topics in human biology. Our knowledge of the brain is especially dynamic because scientists continue to uncover its mysteries at a breathtaking pace. As the instructor, I will provide you with as many opportunities as I reasonably can to help you meet the challenges of learning this material. But, I also hope to give you some sense of the excitement that emerges as we look inside our brains and discover ourselves. Study hard and you will be rewarded with a deeper appreciation of the nervous system and how it works.

COURSE EVALUATION AND DATES:

Assignment	Percent Final Grade	Date
Exam 1	21%	Sept. 25
Exam 2	23%	Nov. 6
Exam 3 (Final)	25%	Dec. 11 (12-3 pm)
Journal Summary	6%	Oct. 30
Topic Summary	16%	Dec. 2
WebCT Quizzes	9%	TBA
Graduate Assignment	P/F	Nov. 20

COURSE REQUIREMENTS:

EXAMS/QUIZZES: Exams and quizzes will consist of various question formats: multiple choice, true/false, matching, short answer, and picture labeling. Exams will be in class. The final exam will be cumulative, but the focus will be on material covered since the last exam. Quizzes will usually be once every two weeks on WebCT. Quizzes will be unmonitored and accessible on-line for 24 hours, with an average duration of about 20 minutes.

SPELLING POLICY: Spelling of all terms must be correct on WebCT quizzes in order to receive full points. For written exams and papers, 1 point will be deducted for every 2 errors, up to 4 points maximum.

JOURNAL SUMMARY: The purpose of the journal summary is to provide you with an opportunity to become more familiar with the neuroscience research literature, apply some of the material that you have learned in class, and to summarize a research article in your own words.

Students with last names beginning with **A-LE** will summarize:

Shafto, M. A., Burke, D. M., Stamatakis, E. A., Tam, P. P., & Tyler, L. K. (2007). On the tip-of-the-tongue: neural correlates of increased word-finding failures in normal aging. *Journal of Cognitive Neuroscience, 19*, 2060-2070.

Students with last names beginning with **LI-Z** will summarize:

Van Berkum, J. J., van den Brink, D., Tesink, C. M., Kos, M., & Hagoort, P. (2008). The neural integration of speaker and message. *Journal of Cognitive Neuroscience, 20*, 580-591.

Papers are available via links at the WebCT site or the E-Journal collection of the UGA Library.

Your paper should include the following information:

- What did the authors study?
- Why did they study this?
- How did the authors study this?
- What did they learn that was previously unknown?

Your paper should NOT include:

- Title of the article in the text
- Identify where the research was conducted, unless essential
- First names of authors in the text

Your summary must be typed and 1.5 line-spaced with 1-inch margins, using Times New Roman font style, and 12-point font size. It must be 1-page in length, no longer, no exceptions. Type your name in the upper left corner of the header space.

Writing a 1-page journal summary is more challenging than you think. Therefore, editing guidelines will be posted at WebCT to help you construct a well-written, concise summary. The grading rubric will be posted at WebCT as well.

TOPIC SUMMARY: The purpose of the topic summary paper is to briefly examine an assigned topic area that is related to the neurobiology of communication disorders.

Students with last names beginning with **A-LE** will write a paper concerning the neurological basis of post-concussion syndrome.

Students with last names beginning with **LI-Z** will write a 3-page paper concerning the neurological basis of stuttering.

The Curriculum Materials Librarian, Carla Wilson Buss, will guest lecture on October 30th in Aderhold 228 during regular class time, in order to help you develop the library search skills necessary for this paper.

Each paper must have a single focus within the assigned topic. For example, do not attempt to cover normal behavior, disordered behavior, anatomical issues, and physiological problems, all in one paper.

The paper must be typed, 1.5 line-spaced, 1-inch margins, Times New Roman font style, and 12-point font size. Text of your paper must be 3-pages in length, no longer, no exceptions. Type your name and the title of your paper in the upper left corner of the header space.

Your paper must use a minimum of 3 peer-reviewed citations as the basis for your report. Peer-reviewed citations will typically include journal articles. This does not include books, unpublished reports, or website citations – if these are cited, they will not count towards the 3-citation minimum. The reference list, which does not count as part of the 3-page limit, should follow the text.

Text citations and the reference list must meet American Psychological Association's (APA) 5th edition formatting requirements. Some basic examples of this format are available at the UGA Library website (see below). If you use EndNote or RefWorks software, they will automatically format your reference list using APA format. I will include additional examples of APA format at WebCT.

For the most complete information about APA format, consult the APA manuals available in the Reference section of the Main Library, Curriculum Materials Library, SLC Reading Room, and Science Library:

American Psychological Association (Ed.). (2001). *Publication manual of the American Psychological Association (5th ed.)*. Washington, DC: American Psychological Association.

American Psychological Association (Ed.). (2007). *APA style guide to electronic references*. Washington, DC: American Psychological Association.

UGA Library links for basic APA guidelines (Note: the examples of *Reference Citations in Text* are limited and incomplete.): <http://www.libs.uga.edu/ref/apastyle.html>

UGA Library link for EndNote software: <http://www.libs.uga.edu/liaison/endnote/endnote.html>

UGA Library link for RefWorks software: <http://www.libs.uga.edu/liaison/endnote/endnote.html#RefWorks>

Details on how to organize this paper, plus the grading rubric, will be posted at WebCT.

GRADUATE ASSIGNMENT (GRADUATE STUDENTS ONLY): Graduate students must complete this assignment to satisfy graduate school requirements for this course. Address the following question: Describe how your knowledge of the neurobiology of communication might assist you in your future clinical responsibilities as a speech-language pathologist. The paper must be typed, 1.5 line-spaced, 1-inch margins, Times New Roman font style, and 12-point font size. Text must be 2-pages in length, no longer, no exceptions. Type your name in the upper left corner of the header space. The reference list, if necessary, does not count as part of the 2-page limit.

ASHA STANDARDS: Content of this course partially satisfies Standards III-B, III-C, III-D.

CLASS POLICIES:

Determination of Class Grades

A = 95-100 = Excellent

A- = 90-94.9

B+ = 85-89.9 = Good

B = 80-84.9

B- = 75-79.9 = Satisfactory

C+ = 70-74.9

C = 65-69.9 = Passing

C- = 60-64.9 = Failing

D = 50-59.9

F = 0-49.9

Due Dates: All assignments are due on time on the due date, unless otherwise noted. Late assignments are penalized 2 points per day past the due time and date.

Make-up Exams/Quizzes: Exams/Quizzes will not be rescheduled, with the exception of medical issues. A physician's note must be provided. Any other reasons for missing a scheduled exam/quiz must be strongly compelling and convincing. Supporting documentation, if available, must be provided. Make up exams will be more difficult than originally scheduled exams. Make-up quizzes will be completed at my office.

Attendance Policy: Regular attendance is expected, but will not be monitored. However, it is usually obvious who attends class and who does not. Students who attend class on a regular basis usually perform better than those who do not. If you are missing class because of illness or some other legitimate reason, you should let me know.

Classroom Etiquette: Punctuality: Arrive to class on time. Lateness is disruptive to me and your classmates. Cell phones: Turn OFF your cell phone. Ringtones during class are intrusive. Laptops: I would prefer you did not use laptops to take notes in class. Laptops often introduce temptations to engage in behavior that is unrelated to class, and it will usually be obvious to me, and even more so to nearby classmates, when you do this. If you must use them to take class notes, please check with me first.

PowerPoint Slides: My PowerPoint class presentations are unavailable to students. You might believe otherwise, but most students learn the material better when they write the information for themselves. I will provide sufficient class time for you to take notes.

Academic Honesty: This is an important University of Georgia academic policy. I completely support it and I take it seriously. So should you.

All academic work must meet the standards contained in "A Culture of Honesty." Each student is responsible to inform themselves about those standards before performing any academic work.

Please see this link: <http://www.uga.edu/honesty/>

Special Needs and Accommodations: Any student who does not understand or accept the contents of this syllabus or who has a disability or condition that compromises his/her ability to complete course requirements must notify me in writing within 2 weeks of receiving the syllabus. Students with disabilities who may require academic adjustments and/or reasonable accommodations in order to participate in course activities or meet course requirements must register with the Disability Resource Center (DRC). If you qualify for services through DRC, bring your letter of accommodations to me as soon as possible.

Final Note: *The syllabus is a general plan for the course; reasonable exceptions will be announced to the class, when necessary.*

My own brain is to me the most unaccountable of machinery - always buzzing, humming, soaring, roaring, diving, and then buried in mud. And why? What's this passion for? - Virginia Woolf