

# Principles of Communication Neuroscience

CMSD 6800 / 4800

Fall 2006

**FACULTY:** Rebecca Shisler Marshall, Ph.D., room 570F

**TIME/PLACE:** Tues & Thurs, 3:30-4:45pm , 581 Aderhold

**OFFICE HOURS:** Tues & Thurs, 11:00-12:00, and by appointment

**PHONE:** 583-0737 **EMAIL:** rshisler@uga.edu

## COURSE DESCRIPTION:

CMSD 6800 / 4800 is a lecture-style course designed to provide select 4th year undergraduate majors and 1st year graduate students in CSD with a basic yet thorough understanding of the current principles in molecular through systems neuroscience related to normal neuromuscular control and somatosensation and complex cognitive function. Select disorders will also be discussed to highlight the effects of breakdowns in normal speech and language processing.

**COURSE OBJECTIVES:** Upon completion of this course, you will demonstrate the following knowledge and skills to address the academic standards for the Program of Communication Sciences and Disorders and the Standards for the Certificate of Clinical Competence in Speech-Language pathology by the American Speech-language-Hearing Association ([http://www.asha.org/slp\\_standards\\_new.htm](http://www.asha.org/slp_standards_new.htm)):

Objective/Learning Outcome	ASHA Standard
1) Demonstrate the ability to comprehend, conceptualize, and integrate the basic underlying principles of neuroanatomy and neurophysiology.	III-A
2) Demonstrate comprehension & correct use of standard neuroscience terminology.	III-A
3) Demonstrate the ability to memorize, visually identify, and verbally describe the location and function of all neuroanatomical areas and systems, along with their substructures.	III-B
4) Appreciate the 3-D structure of the nervous system and how different areas of the nervous system are related to one another from an anatomical and physiological standpoint.	III-A
5) Demonstrate the ability to analyze, synthesize, and evaluate the importance of relationships that exist among motor and sensory systems.	III-B
6) Appreciate and explain the comparative diversity of human neuroanatomy and neurophysiology as it pertains to speech and language in different species, age group populations, and genders and across populations with differing levels of health, trauma, disease, or disorder.	III-B
7) Be able to relate and integrate your knowledge of normal neuroanatomy and neurophysiology to appreciate and explain the pathophysiology of speech and non-speech disorders due to brain injury, and certain progressive disease processes.	III-C

## WebCT & LISTSERVS

- WWW: Open your preferred web browser and go to the following URL: <https://webct.uga.edu/> . You must have a “UGA MyID” to access WebCT. For those students who do not have a “UGA MyID” yet, you can quickly create one at: <http://www.uga.edu/myid>.
- Listserv: Check your e-mail frequently for class announcements from our course listserv. ([neurospeech-](#)

**TEXTS & SUPPLIES:**

1. Bhatnagar, S. (2002). **Neuroscience for the Study of Communicative Disorders** (2nd Edition). Lippincott, Williams & Wilkins.
  2. OTHER READINGS: Purves, D., Augustine, G.J., Fitzpatrick, D., Katz, L.C., LaMantia, A., McNamara, J.O., & Williams, S. M. (2004). *Neuroscience* (3rd ed.). Sunderland, Massachusetts: Sinauer Associates, Inc. (**YOU DO NOT NEED TO PURCHASE THIS TEXTBOOK**).
  3. **Highly Recommended:** a medical dictionary of your choice (Tabers, Stedmans, etc).
  4. Internet connectivity and e-mail access.
  5. Lecture outlines will be available for you to download from our course website on WebCT.
- The purpose of these outlines is to provide you some help in following the lecture and improving your real-time comprehension of the material.
  - Outlines will generally be available the evening before a scheduled lecture or lecture series.
  - **A word of advice:** The lecture outlines constitute a useful aide (hopefully) for lectures and are not a substitute for your class attendance.
  - The outlines are just that, ...“outlines”. **They do not contain anywhere near all of the material (lecture or graphics) presented in class.**

**ATTENDANCE:**

Students are expected to attend all classes unless prior arrangements have been made. It is common courtesy to inform the professor that you will not attend class. If you fail to attend two or more classes, your final grade will be affected. More than two absences will be dealt with on a case-by-case basis. Additionally, students are also expected to be on time for class.

**GRADING & COURSE REQUIREMENTS:**

Evaluation is based on points. One quiz, two exams, one paper, one homework assignment, and an observation must be completed. Total of the class is 100 points, so you always know how many points you must complete to reach your “goal” grade.

4 Pop Quizzes	= 20 (multiple choice, T/F, short answer)
2 Exams	= 40 (multiple choice, T/F, short answer, essay)
1 Final	= 25 (multiple choice, T/F, short answer, essay)
<u>2 research essays</u>	<u>= 15 (2, 1 page research essays on a given topic; graded on content, form and style)</u>
	= 100 points

**\*\*IMPORTANT\*\*** Exams will be given on WebCT during this class, so please familiarize yourself with the website. A practice “quiz” is available on WebCT for you to become comfortable with the system. The practice “quiz” does not count toward your grade. Please see me if you have any questions prior to the first quiz. After taking a quiz/exam, do not try to see your grade in the same computer room where others are taking the quiz.

<b>EVALUATION:</b>	90 and up	A
	87-89.99	B+
	80-86.99	B
	77-79.99	C+
	70-76.99	C
	60-69.99	D

### *Grading & Assessment Procedures*

#### **Neuroanatomy Pop Quizzes** (20 points out of 100)

- Four pop quizzes will be given in class during the semester. Each quiz will be worth 5 points. The purpose of these pop quizzes is to make sure you are staying up and current with the neuroanatomy assigned from your textbook and the handouts. Each quiz will be approximately 15 minutes long, and objective in format.
- **Exams** (65 points out of 100)
- A total of **TWO** exams (each worth 20 points) and a **Final** (25 points) will be administered during the semester. All exams will typically include the following types of questions; multiple choice, fill-ins, matching, true-false, labeling figures, and some simple figure or flowchart drawing. Essay questions are my preferred mode of questioning and may likely constitute a significant proportion of an exam. You will have the full class period to complete the exam. Exam questions will be derived from lectures, outlines, textbook readings, and any other outside readings that are assigned.
- BTW, My general answer to the most often asked question, “*What’s on the exam?*” ...is usually, ... “*Everything*”.
  - Because communication neuroscience is so interactive and complex, all the information we do in class is equally important, but in different ways and to differing degrees.
  - This course is VERY additive in that your understanding of new concepts depends strongly on your understanding and retention of past material.
- You have to know it all to be able to understand the dynamics of the nervous system.

#### **Research Essays** (15 points out of 100) [ASHA standard V-A]

- All students will write **two 1 page (single spaced) research essays** during the second half of the semester (after Mid October). Each essay will be worth 7.5 points.
- The essay topics will be assigned as we go along during class and will correspond with current and past lecture/reading material.
- The essays will require integration and critical evaluation of the topic question. Each essay must be completed individually. No collaborative efforts are allowed.
- You are free to use any scholarly research journal in the allied-health, medical-neurology, and neuroscience domain as a reference, as well as authored textbooks and reviews.
  - However, you may **NOT** use any generic websites, e-journals (unless the e-journal is directly associated with a peer-reviewed print research journal), internet newsgroups, or listserv discussions as a reference.
  - If you are unsure whether a website or internet resource is legit, just ask me...I’d be happy to give you advice.

- Feel free to consult with me as you collect journal articles or books too, ...just to make sure you're on the right track.
- **An important source for scientific journal references can be found on Medline or PubMed, using typical keyword search strategies.**
  - <http://www.ncbi.nlm.nih.gov/PubMed/>
- **Research Central @ the UGA Libraries is a new resource that is available to all students. It provides a gateway to research resources**
  - <http://www.libs.uga.edu/researchcentral/>
- **Due Dates:** Essays will typically be due two weeks after they are assigned, but this is flexible and negotiable. Please submit your paper as a hardcopy to my office.
- **Formatting:** The body of the essay must **NOT be more than 1 page (single-sided and single spaced)**. References may be single spaced and placed on a separate page. Papers must be word-processed and proofed carefully before submission. Use 10 or 12 pt font. Format using 1" margins. Please place your ID number in the top right corner. Do not place your name anywhere on your essay. I plan to grade and evaluate these essays blindly. References are to be in APA format.
- **Evaluation:**
  - Did the writer defend their position using the appropriate research literature or course material effectively? Does the writer demonstrate an understanding of the topic? Were the writer's points clearly stated and supported by their references? Was the content accurate, integrative, and critically evaluated? (6 points)
  - Did the paper flow in a logical and organized manner? Was it well constructed in terms of grammar, spelling, presentation, punctuation, etc? Did the paper adhere to APA form? (1.5 points)

### Topic Schedule, Readings, & Figures

- Topic coverage is flexible and strongly influenced by the pace of the class. Changes in the format and pace of the course during the semester are up to the discretion of the instructor.
- The course syllabus is only a **general plan** for the semester and deviations announced to the class by the instructor (either verbally, through listserv e-mails and/or through postings on the course website) may be necessary as the semester progresses.
- Consult the course website **frequently** for updates and/or announcements
- Specific pages to read and figures to learn for each chapter from Bhatnagar (2002) will be posted on the course website, announced in class, and/or posted on the class listserv.
- Outside readings or graphics may be found on reserve in OIT (2nd Floor Aderhold) or will be on WebCT to print.

## COURSE OUTLINE:

### TOPIC

### READINGS

Neuroanatomy and gross structure of the human nervous system

Ch. 1 & 2

Basics of cellular and molecular neurobiology.

Ch. 1 & 2 (*cont.*)

Sensory transduction.	Ch. 5 p.125-132 p. 135-138 (Neurotransmitters) Pinel, Ch 4 (WebCT)
Perception and somatosensation.	Ch. 7
EXAM 1	
Primary somatosensory systems.	Reading #2 (cont. Ch. 7)
Principles of neuromuscular control of movement.	(cont.)
Primary descending motor control pathways.	Ch. 11 & 14
Cerebellar systems and regulation of movement.	Ch. 12
<i>Fall Break 10/26 - 10/27</i>	
Cerebellar systems and regulation of movement (cont.)	Ch. 12 (cont.)
EXAM 2	
The Basal Nuclei and the initiation of movement.	Ch. 13
Brainstem & Cranial Nerve systems.	Ch. 9 (Begin "Inner Ear" p. 198-205) & Ch. 15
Central Auditory System	
<i>ASHA (11/16-11/18)</i>	
<i>Thanksgiving Break (11/22 - 11/24)</i>	
Central Auditory System. (cont.)	
Basic neural substrate of complex cognitive functions	Purves Ch. 25, 26, & 30
<i>Reading Day (12/7)</i>	
<b>FINAL EXAM- December 14</b>	

**\*\* The course syllabus is a general plan for the course;  
deviations announced to the class by the instructor may be necessary.\*\***

### **Web-Sites for help and information**

CMSD Home Page: <http://www.coe.uga.edu/csse/csd/index.html>  
Login to WebCT: <https://webct.uga.edu/>  
Student Resources for WebCT: <https://webct.uga.edu/www/student.html>  
Browsers configuration information: <http://webct.uga.edu/www/helplets/browser/>  
WebCT Student FAQ: <http://webct.uga.edu/www/student/guide/>  
Student Electronic Services: <http://www.uga.edu/ses/>  
Division of Academic Assistance: <http://www.uga.edu/daa/>  
Important Dates for Students: <http://www.reg.uga.edu/or.nsf/public/acalendar>  
UGA Libraries: <http://www.libs.uga.edu/>  
Research Central @ UGA: <http://www.libs.uga.edu/researchcentral/>  
University Computing and Networking Services: <http://www.uga.edu/ucns/>  
Computer Lab Sites @ UGA: <http://www.uga.edu/ucns/sites/>  
Lastly, it's important to have fun and play too: <http://www.uga.edu/recsports/>

### **POLICIES:**

- Those students with documented special needs, please meet with me prior to the end of August so that we can discuss any course of action that may be necessary.
- A grade of C or better is required in order for this course to count toward your completion of a graduate degree in Communication Sciences. For undergraduates, this course is an elective.
- Midpoint withdrawal deadline is Friday, October 9th.
- There are no extra-credit assignments provided, even if your final course score is .5 points away from a breakpoint on the grading scale.
- I recognize that it is difficult to be .5 points shy of the next highest grade, but please do not ask for any final grade adjustments. In all fairness to everyone enrolled, ....what I do for one person, I must do for all.
- Attendance at all lectures is expected from everyone.
- You are responsible for obtaining copies of any class notes or handouts that are presented and distributed.
- Pop quizzes can not be made up if missed under any circumstances, except in cases of sudden and severe illness. The illness must be documented and acceptance of the excuse is at the discretion of the instructor (see policy below for general details).
- Finally, please be sure to turn off the ringers on your cell phones. Instead, program your cells for vibration mode.

### **ILLNESS AND ABSENCE POLICY FOR EXAMS:**

- At the discretion of the instructor, make up exams will be given in cases of documented illnesses and/or emergencies. Documentation must be in the form of an excuse slip or written note from the Health Center or your personal physician, respectively.
- In case you are ill or have an emergency, please let me know your status within 48 hours after the missed exam date by e-mail or in person. Please, do not leave a voice message on my phone. I'm really bad about checking voice mail.
- Any notification after the 48 hour period will not be accepted and you will not be able to make up the missed exam. Please don't let this happen.
- Make up exams will also be provided for students who observe religious holidays.

- To make up an exam, you must inform me of your absence 48 hours *prior* to the exam date. We can arrange a mutually agreeable time for your make up.
- If you inform me of your religious observance after the exam though, you will not be allowed to make up the exam unless you have a tremendously good excuse.
- Accepting this excuse and providing a makeup exam is up to the discretion of the instructor.

### **MY EXPECTATIONS OF YOU:**

- To be independent thinkers and to be able to participate in a discussion... this is what graduate school is all about!
- Always remember the phrase “Isn’t Nature Wonderful?” ...view what you are learning from a bright-eyed perspective.
- I expect you to analyze, synthesize, evaluate, and integrate information given to you in class and in the readings (as well as from other classes).
- Challenge yourself to fit the pieces of each class together into your ‘CMSD knowledge base’.
- Ask questions. Sometimes I don’t know the answer, but someone else might...or it might spur you on to find out the answer yourself.
- To give your best to this class and your chosen field of study.

### **SUGGESTIONS:**

- Develop study groups to help quiz each other and fill-in pieces of information from lecture or the readings that you may have missed.
- Draw lots of your own pictures and flow charts.
- Make up your own analogies and real-world examples to help you remember the material as you study. (These tend to stick with you for the long haul)
- Relate new information as much as possible to something you’ve already learned.
- Pace yourselves by trying to study your neuroanatomy a little everyday in order to keep the terms fresh in your mind (Trust me, it will be very difficult to cram all this neuroanatomy the night before a quiz or exam –Believe me!).
- Review past material and notes before tackling new information. This course is VERY additive in that your understanding of new concepts depends strongly on your understanding of past material.
- **Last, (but not least), if your having trouble with the content, get help from me, the GA or one of you classmates ASAP! Please, don’t wait!**
- Feel free to drop-in and visit with me or the GA during posted office hours in order to ask questions, seek tutoring, or discuss any concerns regarding the class. Questions via e-mail are also very much welcomed. If you cannot attend any of the posted office hours, other meeting times may be scheduled with the instructor by appointment only.

### **EVERYTHING ELSE:**

The information regarding academic honesty is for your information and education. It is **not** meant to accuse or scare you but rather to inform you. According to the University of Georgia: “All academic work must meet the standards contained in ‘A Culture of Honesty.’ Students are responsible for informing themselves about those standards before performing any academic work.”

The University of Georgia (the University) seeks to promote and ensure academic honesty and personal integrity among students and other members of the University community. A policy on academic honesty has been developed to serve these goals. Academic honesty is defined broadly and simply -- the performance of all academic work without cheating, lying, stealing, or receiving assistance from any other person or using any source of information not appropriately authorized or attributed. Academic

honesty is vital to the very fabric and integrity of the University. All students must comply with an appropriate and sound academic honesty policy and code of honest behavior. All members of the University community are responsible for and involved in bringing about an honest university, and all must work together to ensure the success of the policy and code of behavior. All members of the University community are responsible for knowing and understanding the policy on academic honesty. The statement on policy and procedures will be made readily available to all students and faculty to ensure understanding of the academic honesty system and its proper functioning. The entire University Community works together to operate the academic honesty system. Where suspected violations of the academic honesty policy occur, appropriate procedures are designed to protect the academic process and integrity while ensuring due process. The academic honesty system is an academic process, not a court of law.

The University of Georgia's Policy on Academic Honesty will be **STRICTLY** followed for this course. In summary, all students are responsible for maintaining the highest standards of honesty and integrity in every phase of their academics. The penalties for academic dishonesty are severe and *ignorance is not an acceptable defense*. All students are responsible for informing themselves about UGA's academic honesty standards before performing any academic work. You can familiarize yourself with the UGA Academic Honesty Policy by referring to the following web page for details: <http://www.uga.edu/honesty/> and [http://www.uga.edu/honesty/ahpd/culture\\_honesty.htm](http://www.uga.edu/honesty/ahpd/culture_honesty.htm)

As recommended by *UGA's Office of Vice President for Instruction*, a few examples of academic dishonesty specific to this course are offered:

- Using references or detailed information from the internet without properly crediting or citing original authorship and passing this information off as your own original work.
- Working collaboratively with other students to develop and write the research essay. In other words, two or more students working together to come up with a single argument that each person then uses for their own paper.
- Purchasing pre-completed papers from the internet and passing them off as your own original work.
- Knowingly ignoring someone else's dishonesty by not reporting the transgression.
- Please refer to your current student bulletin and the Fall 2006 Schedule of Classes for details about drop/add, course withdrawal policies and procedures, and any other general UGA academic policies.

***\*\*\*I know this is a ton of information and I hope you read through this thoroughly...it is given to help you succeed in this course and in graduate school in general.\*\*\****

***Good Luck!***