# Nsci2001: Human Neuroanatomy

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# Meet Sarah Scott

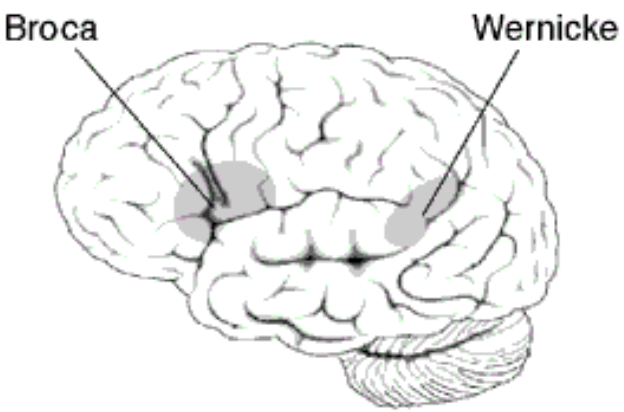
http://www.youtube.com/watch?v=1aplTvEQ6ew

# Meet Sarah Scott

Sarah has Broca's aphasia following a stroke:

- She lost blood supply to a part of the left side of her brain called Broca's area.

- What do we learn about the brain from Sarah?



## Course Content

This course will provide a broad introduction to the nervous system with an emphasis on the human nervous system. The course will introduce the structure and function of neurons, the major anatomical parts of the nervous system and the main functional systems.

This is a biology course.

Students will be expected to learn scientific terminology.

## Course Outcome

It is expected that upon completion of the course students will have a greater understanding of how the nervous system is involved in most functions and activities of the body.

Students will gain an appreciation for how different functional systems interact to influence complex processes, such as the relationship between exercise and learning and memory.

Students will be able to hold a substantive discussion with a physician regarding a medical condition involving the nervous system.

## Say hi to your instructors!

- Dr. Steven McLoon
- Dr.  Angela Nietz
- Ms. Chloe Cable (soon to be Dr.)

## Course Sequence

- General anatomy & physiology of the nervous system
- Sensory (input) systems
- Motor (output) systems
- Integrative systems and function

## Course Format

- We will use a flipped course format.
  - What is a flipped format?
  - Why are we using this format?
  - Do you have to come to class? …no!
  - What if you are a deadbeat?

## Course Website: URL

- http://mcloonlab.neuroscience.umn.edu/2001/index.htm

## Course Website: Navigation

- Syllabus
- Schedule
  - ↳with links to a Resource Page for each lecture
- Lectures (videos)
- Office Hours
- Directory

## Resource Page for Most Lectures

- Links to the lecture slides (PDFs)
- Links to the recorded lecture videos
- Recommended pages to read in:
  - *Essential Neuroscience* by Siegel & Sapru
  - *Essentials of the Human Brain* by Nolte
- Links to the class worksheets (PDFs)
- Links to online resources (mostly YouTube videos)

## Recommended Textbooks

- *Essential Neuroscience* by Siegel & Sapru
  - closely follows the course sequence
  - much more information than you will need to learn
  - figures are very good
  - text is very dry reading

- *Essentials of the Human Brain* by Nolte
  - much more concise
  - figures are clear
  - text has some gaps in the information

# Help

Dr. McLoon will meet with you…

- at coffee hour as per the ‘office hour’ schedule posted on the website – time and place will vary, usually at a coffee shop.
- in his office (Jackson Hall 4-158) by appointment.
- or will answer questions sent to him by email (mcloons@umn.edu).

Some weeks, the other instructors will hold office hours …

- as listed in the office hour page on the website.

## Examinations

- Eight quizzes, three midterm exams and a final exam will be given. (see course schedule)
- All quizzes and exams will be multiple choice.
- Final exam will be cumulative.
- Old exams are available on the course website (links on schedule page for each exam).
- Extra time will be available for anyone who needs it. (You can start midterm exams at 12:50pm.)

## A Missed Exam

- Missed examinations with a valid and verified excuse can be made up by taking an oral & written exam with an instructor within one week of the regularly scheduled exam.

- Unless you can prove that you were admitted to the hospital, you are allowed no more than one make-up exam during the course.

- Contact Dr. McLoon as soon as possible to schedule a make-up exam.

## A Missed Quiz

- There are no make up quizzes.
- Everyone will be given full credit for one quiz whether or not you took it.

# Grades

A to F determined approximately as follows:

- ~15% quizzes
- ~50% midterm exams
- ~35% for the final exam

- Grades will be curved with the median centered on a ‘B’

- ‘Courtesy Cs’ will not be given

## Cheating

- You know what it is, and it will not be tolerated!!!
- Cheating will result in an ‘F’ grade for the course.

## How can I learn everything?

Learning neuroanatomy is much like learning a new language. For most students, learning a new language requires daily study, typically one to two hours a day … everyday.

## How can I learn everything?

- **Study regularly… do not depend on cramming.**

  There is too much material to hope to learn it at one time. Cramming does not lead to long-term memory.

- **Repetition, repetition and repetition… did I mention repetition?**

  Neural connections are strengthened by repeated activation.

- **Turn off ALL distractions when you study… yes, music, TV, email, phone and facebook.**

  Numerous studies have shown this to be true.

## How can I learn everything?

- **Take handwritten notes during lecture.**

  A recent study showed that students who took handwritten notes during lecture had better recall of the material than those who took notes on a computer or who just listened.

- **Review the most difficult material just before going to bed**.

  The transfer of short-term memory to long-term memory takes place during sleep.

- **Get a full night sleep every night… really!**

  Again, the transfer of short-term memory to long-term memory takes place during sleep. [A recent study showed that blocking REM sleep in mice prevented memory consolidation (Boyce et al., 2016, *Science* 352:812).]

## How can I learn everything?

- **Exercise regularly.**

  Cell division in the dentate gyrus of the hippocampus is required for certain types of long-term memory, and exercise increases cell division in this region and improves memory.

- **Eat a balanced diet.**

  The brain requires energy and a full complement of basic molecules to function and build neural circuits;  these can only come from a balanced diet.

- **Shoot your television!**

  If you normally watch 2 hours of television per night, then dropping television would give you an additional 14 hours per week.

## How can I learn everything?

- **Active learning wins… do not just reread notes!**
  - Come to class.
  - Do the worksheets.
  - Draw pictures from memory.
  - Take the old exams.
  - Write your own exam.
  - Discuss the material with others!!!!!!

**… You need to practice recalling the information.**