<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Days/Times</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor Boyle</td>
<td><a href="mailto:mboyle@ucsd.edu">mboyle@ucsd.edu</a></td>
<td>Friday, 2-4 pm</td>
<td>CSB 130</td>
</tr>
<tr>
<td>Tiffany</td>
<td><a href="mailto:tchokry@ucsd.edu">tchokry@ucsd.edu</a></td>
<td>Tuesday, 12-1 pm</td>
<td>CSB 114</td>
</tr>
<tr>
<td>Bora</td>
<td><a href="mailto:bmutluog@ucsd.edu">bmutluog@ucsd.edu</a></td>
<td>Wednesday 4-5 pm</td>
<td>PC Jamba Juice</td>
</tr>
<tr>
<td>Jon</td>
<td><a href="mailto:jahern@ucsd.edu">jahern@ucsd.edu</a></td>
<td>Tuesday, 2-3pm</td>
<td>CSB 114</td>
</tr>
<tr>
<td>Bryan</td>
<td><a href="mailto:blt010@ucsd.edu">blt010@ucsd.edu</a></td>
<td>Thursday, 1-2pm</td>
<td>Sequoyah 142</td>
</tr>
<tr>
<td>Corey</td>
<td><a href="mailto:yiz329@ucsd.edu">yiz329@ucsd.edu</a></td>
<td>Wednesday, 1-2pm</td>
<td>CSB 231</td>
</tr>
<tr>
<td>Meri</td>
<td><a href="mailto:myedigar@ucsd.edu">myedigar@ucsd.edu</a></td>
<td>Tuesday, 12:30 - 1:30 pm</td>
<td>PC 4th Floor</td>
</tr>
<tr>
<td>Ilmaa</td>
<td><a href="mailto:ilhaque@ucsd.edu">ilhaque@ucsd.edu</a></td>
<td>Monday, 4-5:30pm*</td>
<td>Audrey’s Cafe</td>
</tr>
<tr>
<td>Ana</td>
<td><a href="mailto:achkhaid@ucsd.edu">achkhaid@ucsd.edu</a></td>
<td>Wednesday, 12-1pm</td>
<td>CSB 215</td>
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Important Information

- **Midterm 1**
  - Midterm 1 is on **Tuesday February 4th** (Week 5)

- **Extra Credit**
  - EC quizzes are based on assigned readings
    - Taken on Canvas
    - This week reading is on Dr. Ben Bergen - What Profanity Teaches Us About Ourselves.
    - Next week’s EC quiz will be the DAY AFTER your midterm!
Last Week’s Topics

- Lecture 5 | Dr. Boyle: Split Brain and Social Cognition
- Lecture 6 | Dr. Seana Coulson: Laterality of the Brain.
Review Questions (1 of 3)

1. What is a seizure?
   - Where do they normally happen?
   - What are the types of seizures?
   - What are the treatments for chronic seizures?

2. What are the different lobes of the brain and what functions are they associated with?

3. How is vision processed throughout the brain?
Review Questions (2 of 3)

4. What are the different planes used to display the brain?
   ○ What is ipsilateral and contralateral?

5. What is the cortex? What is a sulcus and a gyrus?
   ○ What are the central and lateral sulci? Why are they notable?

6. What is the corpus callosum? What is a corpus callosotomy procedure?
   ○ What impacts does cause
   ○ How does it display lateralization of functions?
Review Questions (3 of 3)

7. What is lateralization?
8. What is a Wada test?
9. What is the Wernicke’s-Geschwind model?
10. What is Broca’s Aphasia?
11. What is Wernicke’s Aphasia?
12. What is Conduction Aphasia?
13. What is acalculia?
What is a seizure?

Two types of seizure:

- **Partial seizure** often originate in the Medial Temporal Lobe which includes the hippocampus, a very active part of the brain that often is the first region that affected by Alzheimer’s Disease. High activity around this area can spark a seizure.

- **Generalized seizure** can cover a large part of the brain and spread out from one side of a brain to the other side.

Seizure happens when the neurons are overactivated in a certain region and the brain is “on fire”.

All Ques.
What are the different lobes of the brain and what functions are they associated with?

- **Frontal Lobe:**
  Decision making, higher cognition, motor coordination and personality

- **Temporal Lobe:**
  Process auditory information, may play a role in short term memory and emotional responses

- **Parietal Lobe:**
  Sensory processes, attention, language

- **Occipital Lobe:**
  Vision (visual processing area)
How is vision processed through the brain?

- Vision is a **contralateral process**
- Light enters the eye → Optic Nerve → Optic Chiasm → LGN → V1 (in occipital lobe)
What are the different planes used to display the brain? (1 of 2)

- **Dorsal**
  - Toward the back
  - Away from the stomach

- **Ventral**
  - Toward the stomach

- **Rostal**
  - The anterior (front) aspect of the head

- **Caudal**
  - The posterior (back) of the head
What are the different planes used to display the brain? (2 of 2)

- **Horizontal**
  - Divide the brain region into top and bottom side

- **Coronal / Frontal**
  - Divide the brain into front and back sides

- **Sagittal**
  - Divide the right and left sides of the brain into two equal parts

- **Ipsilateral**: On the same side of the body
- **Contralateral**: On the opposite side of the body

All Ques.
What are the central and lateral sulci? (2 of 2)

- **Central Sulcus:**
  - Prominent sulcus that runs down the middle of the lateral surface of the brain.
  - Divides the frontal and parietal lobes.

- **Lateral Sulcus:**
  - Prominent sulcus that divides the frontal and parietal lobes from the temporal lobe.
What is the corpus callosum? (1 of 2)

- The superhighway of neurons connecting the halves of the brain (two cerebral hemispheres)
- Contains over 200 millions axons
- For split brain patients, this is the area that are severed and will *not* grow back together
What is the cortex? What is a sulcus and a gyrus? (1 of 2)

- The cortex is the wrinkly, outermost part of the brain
  - It is two millimeters thick and has an area of 1.5 square meters
- A sulcus is a groove (a valley) that is found in the cortex
- A gyrus is ridge (a hill) that is found in the cortex
- Both sulcus and gyrus serve to increase the surface area of the cortex
What is a corpus callosotomy procedure? (2 of 2)

- An operation that involves cutting/transecting the corpus callosum
- Performed on patients with severe seizures (Grand mal seizures)
  - The result from this procedure doesn’t completely stop the seizure but does cause it to be less severe
What is lateralization?

- One side of the brain is more crucial for a given function and/or more efficient at the underlying computational tasks.
- There can be strongly lateralized and weakly lateralized functions in the brain.
What is a Wada test?

• Used to determine the lateralization of brain functions in a patient
• Uses sodium amytal to effectively shut off one side of the brain, by injecting it into one of the hemispheres
• Shuts down language/memory function in one hemisphere to evaluate the other hemisphere
What is the Wernicke’s-Geschwind model?

- Early theory of speech that integrated the roles of Broca’s and Wernicke’s Area
- **Broca’s Area** stores motor representation of speech
- **Wernicke’s Area** stores auditory representation of sounds
- These two area are connected by the Arcuate Fasciculus
What is Broca’s Aphasia?

- Result from damage to **Broca’s area** which is located in the frontal lobe and liked to speech production.
- People who suffer from Broca’s Aphasia **stutter**, **omit some words** and **cannot produce a whole sentence**.

Real Example of Broca’s Aphasia
What is Wernicke’s Aphasia?

- Result from damage to Wernicke’s Area which is located in the temporal lobe on the left side of the brain and linked to speech comprehension.
- People who suffer from Wernicke's Aphasia can talk fluently but with meaningless sentences (lack of content and incomprehensive).

Real Example of Wernicke’s Aphasia
What is Conduction Aphasia?

- Result from damage to Arcuate fasciculus which is a bundle of axons that connects Broca's area and Wernicke's area in the brain.

- People who suffer from Conduction Aphasia can talk fluently and have good speech comprehension but poor speech repetition.

Real Example of Conduction Aphasia
What is Acalculia?

- An impairment where people struggle to do basic math, such as adding, subtracting, dividing, or multiplying.

- Typically is the result from damage to left Angular Gyrus which is located in the parietal lobe and linked to complex language functions.

Quiz Time
Quiz Time!

- No talking, signaling, or communicating of any kind.
- Put away your books, notes, computers, phones, etc.
- Pen or pencil is okay (just make sure it’s a black pen and you press hard with a pencil).
- Write your name in the “Name” box, write and circle in your PID, and sign the academic integrity agreement.
- Bubble in this section
- Please have your student ID out when you turn in your quiz!
Write and circle in your PID

Write down your name here

Bubble in the current section

Sign and date here

Bubble in the answers