<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Day</th>
<th>Time</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</td>
<td>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</td>
<td>12:30-1:30pm</td>
<td>PC Theatre Lobby</td>
</tr>
<tr>
<td>Bora</td>
<td><a href="mailto:bmutluog@ucsd.edu">bmutluog@ucsd.edu</a></td>
<td>Wednesday</td>
<td>4-5 pm</td>
<td>Geisel 2W Data GIS</td>
</tr>
<tr>
<td>Jon</td>
<td><a href="mailto:jahern@ucsd.edu">jahern@ucsd.edu</a></td>
<td>Tuesday</td>
<td>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</td>
<td>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</td>
<td>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</td>
<td>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</td>
<td>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</td>
<td>12-1pm</td>
<td>CSB 215</td>
</tr>
</tbody>
</table>
Important Information

- Fill out your CAPES
  - We want your constructive feedback
  - If 3/4ths of the class fills it out, we will have a TA led Midterm 3 Review Session
  - Interesting article on CAPE biases

- Midterm 3 is next Thursday

- NO SECTION NEXT WEEK
  - Come to a Monday or Wednesday section
  - Quiz I is online, don’t forget to take it
Last Week’s Topics

- Lecture 13 | Dr. V. S. Ramachandran - The Brain and Soul
Review Question (1 of 2)

1. What is the Penfield Map and what brain area is it associated with?
2. What is the homunculus?
3. What are phantom limbs?
   ○ What is a possible therapy for phantom limbs?
4. What is RSD?
5. What are mirror neurons?
6. What is qualia?
7. What is synesthesia?
   ○ What are the different types of synesthesia discussed in class?
   ○ What are some tests for synesthesia?
What is the Penfield Map and what brain area is it associated with?

It’s a **map of the sensory and motor cortices of the brain** that developed by Wilder Penfield in his attempt to treat epilepsy.

- He stimulated the brain with electrical probes while the patients were conscious on the operating table and observed their responses.

- Since the electrical impulses would temporarily turn on, or off, a function of the brain, Penfield was able to develop a map of brain function.
What is the homunculus?

- Latin for “little man”
- It depicts why human looks like if our body parts grew in proportion to the amount that we sensed with them
What are phantom limbs?

Phantom Limbs is the sensation, whether painful or otherwise, that an amputated or missing limb is still attached

- One possible explanation is that since the brain representation of body parts are continuous (Penfield Map), *the sensory input from one part of the body invades the cortical territory of the amputated body part*
- Thus, there’s a reorganization of the brain map that is not only topographically organized, but also modality specific (respond to heat & cold)
What is a possible therapy for phantom limbs?

- **Mirror Visual Feedback Therapy** uses a mirror to introduce the patient to visual information to treat phantom pain.
- Fools the brain into thinking that the phantom limb is moving.
- [Phantom Limb Video](#)
What is RSD?

- **RSD (Reflex Sympathetic Dystrophy Syndrome)** is a disorder that causes lasting pain, usually following after a heart attack, injury, or stroke.

- Is not a direct result of an injury
What are mirror neurons?

- **Mirror Neurons** are neurons located in the premotor cortex that fire when observing an action being performed.
- If you were to get poked by a needle you would feel pain but you would not feel pain when observing a person being poked due to signal inhibition of the mirror neuron.
What is qualia?

- Qualia is the individuals experience in regards to sensory stimuli.
  - How do we know we are all sensing and perceiving the same thing?

- Example from lecture:
  - How we perceive three-dimensional calendar
  - The experience of and determined intensity of pain
What is synesthesia? What are the different types of synesthesia discussed in class?

Synesthesia is a condition where one sense is perceived as if by one or more additional senses such as sight

- **Projector Synesthesia**: See colors, forms, or shapes when stimulated
- **Associative Synesthesia**: Feel a very strong connection between the stimulus and the sense that it triggers

- **What are some tests for synesthesia?**
Types of Synesthesia

- **Grapheme-color Synesthesia**: A form of synesthesia in which an individual's perception of numbers and letters is associated with color.

- **Calendar Synesthesia**: A form of synesthesia where individuals can clearly visualize an elaborate calendar in front of them.

- **Mirror Touch Synesthesia**: A form of synesthesia where an individual can feel a sensation that they observe another person doing.
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