Unit homework – to be completed at the end of each unit (neuroscience, engineering, sensory systems, motor systems, end of course)

Your report should include the following sections:

1. Design experiment

Choose any one topic we covered this unit, and design an experiment to test something related to it. This experiment should result in answering a question about the brain or body (not designing a device or system!). Include:

Question – what do you hope to learn?

Hypothesis – what do you expect you will find?

Methods – how would you carry out this experiment? Would you test on humans, animals, cells, computer models? How is this safe and ethical?

Expected outcome – what will the experiment show? This is different from hypothesis in that it is more about the data you would collect than the higher-level question you are answering.

~250 words (1 long or 2 short paragraphs)

2. Design device

Choose any one other topic, or use the same topic as in question 1. Design a neural engineering device or system related to it. This should result in a design for a specific device or system. Include:

The reason the device would be used – why would a person need this device, and why would they choose it as a treatment option?

What it does – what is the outcome for the user?

What parts of the nervous system it would interact with – be specific.

Major hardware or software components – what pieces would you need to design if you were actually building this?

Subject protections or other relevant ethics (such as access, cost, or maintenance)

Limitations of the device

~250 words (1 long or 2 short paragraphs)

3. Question from unit

Describe one thing from this unit you wish we had covered in more detail, or that you are still confused about, or that we did not cover and you wish we had. Be specific.

~50 words

4. Explanation to classmate

Explain any one concept we learned about to someone who watched the previous units of the class, but not this one. Assume they were present in class the prior week. Be specific and detailed – they should learn from your explanation, not just know the name of something to look up.

~250 words (1 long or 2 short paragraphs)

References

If you used any references besides what we covered in class, list them here