

**Welcome to Neuropsychology!**  
**1<sup>st</sup> Semester – 2018-2019**

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**COURSE DESCRIPTION**

Neuropsychology is a science class that attempts to build a coherent model of the mind. We will explore the anatomy of the brain and how anatomy affects behavior. In addition, we will explore common human pathologies of the brain and the effect these pathologies have on behavior. We will investigate the science of human actions and emotions through controlled experimentation, as well as exploring the principles of conditioning and psychology.

This course explores the following **essential question**:

**\*Why do people act the way they do?**

**UNITS OF STUDY-**

<b>Unit of Study</b>	<b>Essential Question</b>	<b>Unit Objectives</b>	<b>CCLS</b>	<b>Materials/ Resources</b>	<b>Major Assessments (Formative and Summative)</b>
<b>Unit 1-</b> Introduction to the Nervous System	*How is the human nervous system organized?	<i>1.1 I can explain the purpose of the nervous system (DOK 1)</i> <i>1.2 I can compare and contrast the central nervous system with the peripheral nervous system (DOK 2)</i> <i>1.3 I can compare and contrast the parasympathetic nervous</i>	WHST 4 RST 5	-Use of Plickers to take student surveys	Formatives:  *Quiz #1-Intro to Nervous System

		<i>system with the sympathetic nervous system (DOK 2)</i>			
<b>Unit 2-The Meninges</b>	*How do we decide the best way to ensure our safety?	<p><i>2.1 I can explain how the tissues of the brain are studied (DOK 1)</i></p> <p><i>2.2 I can memorize the structure and the function of the meninges (DOK 1)</i></p> <p><i>2.3 I can predict what may happen if the meninges is not working properly (DOK 2)</i></p> <p><i>2.4 I can explain the blood-brain barrier and how it's related to pathologies of the meninges (DOK 2-3)</i></p>	RST 4,5 WHST 4,5,9	<p>-Video:"Dissecting Brains", created by Martha Henson in conjunction with the Multiple Sclerosis Society and the Parkinson's UK Tissue Bank at Imperial College (posted on welcomecollection.org)</p> <p>-Article: "The meninges and common pathology: Understanding the anatomy can lead to prompt identification of serious pathology" by Wolley and O'Donnell</p>	<p>Formatives:</p> <p>*Quiz #2</p> <p>*Neurological Disease Project</p> <p>Notes:</p> <p>*We will be using the Question Formulation Technique to come up with a research question</p> <p>*This question will be the focus of your research. You will then answer the question by writing a three-paragraph essay, designing a presentation, or leading a class discussion</p>
<b>Unit 3-The Brain Stem</b>	*How should medical science prioritize researching of disabilities?	<p><i>3.1 - I can list the parts of the brain stem (DOK 1)</i></p> <p><i>3.2 - I can summarize the function of the medulla (DOK 2)</i></p> <p><i>3.3 - I can develop a logical inference explaining why pathologies of the medulla are often fatal (DOK 3)</i></p> <p><i>3.4 - I can summarize the function of the pons (DOK 2)</i></p> <p><i>3.5 - I can explain how pathologies of the pons are related to its function (DOK 3)</i></p>	RST 7,9 WHST 9	<p>-Video clip-"The Water Boy"</p> <p>-Video-"Rem Sleep", Discovery Science</p> <p>-Video clip-Sleep Disorders</p> <p>-Video clip-Cerebellar disorders-Ataxia</p> <p>-Video clip-Ataxia in mice-from the HHMI</p> <p>-Video clip-"See-saw nystagmus" edited by C.N Chua</p>	<p>Formatives:</p> <p>*Quiz #3</p> <p>Summatives:</p> <p>*<a href="#">Exam #1 (Units 1-3)</a></p> <p>Notes:</p> <p>*We will be using the Question Formulation Technique to come up with research question</p>

		<p>3.6- <i>I can predict the function of the cerebellum based on its pathologies (DOK 3)</i></p> <p>3.7- <i>I can summarize the function of the mesencephalon (DOK 2)</i></p> <p>3.8- <i>I can explain how the pathologies of the mesencephalon are related to its function (DOK 3)</i></p>		<p>-Video clip-Dysarthria</p> <p>-Video clip-Loss of motor control in cat</p>	<p>*This question will be the focus of your research. You will then answer the question by writing a three-paragraph essay, designing a presentation, or leading a class discussion</p>
<p><b>Unit 4-</b> The PBAT Experiment</p>	<p>*What do effective problem solvers do when they get stuck?</p>	<p>4.1 <i>I can explain the requirements and the purpose of the science PBAT (DOK 1-2)</i></p> <p>4.2 <i>I can use interpersonal skills to form a cohesive group for my PBAT (DOK 4)</i></p> <p>4.3 <i>I can create a scientific question for my experiment (DOK 3-4)</i></p> <p>4.4 <i>I can distinguish between a good source and a bad source (DOK 2)</i></p> <p>4.5 <i>I can follow an experimental protocol and analyze the results (DOK 3)</i></p> <p>4.6 <i>I can differentiate between random errors and bias in an experiment (DOK 2)</i></p> <p>4.7 <i>I can design an experiment that includes a scientific</i></p>	<p>WHST 8,9 RST 1a,4,5 7-9</p>	<p>-Student work from past years</p> <p>-Samples of various publications-some reliable sources, some unreliable sources</p> <p>-Video-TED Talk: “Science is for Everyone, Kids Included”-Beau Lotto and Amy O’Toole</p>	<p>Formatives:</p> <p>*PBAT Plan for approval</p> <p>Summatives:</p> <p><a href="#">*Reaction Time Project</a></p> <p>Notes:</p> <p>*We will be using the Question Formulation Technique to come up with research question for your PBAT</p> <p>*This question will be the focus of your research. You will then create a hypothesis based on this question, and design an experiment to test the hypothesis.</p>

		<i>question, a hypothesis, variables, and a procedure (DOK 4)</i>			
<b>Unit 5-</b> The PBAT Paper	*How can I justify my scientific claims?	<p><i>5.1 I can explain what MLA format is, and why we use it. (DOK 1)</i></p> <p><i>5.2 I can set the proper margins, font, and spacing for a PBAT paper in MLA format. (DOK 2)</i></p> <p><i>5.3 I can explain how to correctly use MLA in-text citations (DOK 2)</i></p> <p><i>5.4 I can construct a data table and graph that would be outstanding on a PBAT (DOK 2)</i></p>	RST 1-9 WHST 1-9	-Student work from past years	*PBAT paper 1st draft
<b>Unit 6-</b> The Basal Ganglia	*What are the consequences of using machines to do our work?	<p><i>6.1 - I can list the parts of the basal ganglia (DOK 1)</i></p> <p><i>6.2 - I can summarize the function of the basal ganglia (DOK 2)</i></p> <p><i>6.3 - I can explain how pathologies of the basal ganglia are related to its function (DOK 3)</i></p>	RST 7,9 WHST 9	<p>-Video clip-Huntington's Disease</p> <p>-Video clip-Hemiballismus</p> <p>-Video clip-Robotic arm</p>	<p>Formatives:</p> <p>*Quiz #4</p>
<b>Unit 7-</b> The Diencephalon	*How do we determine the strength of scientific claims?	<p><i>7.1- I can summarize the function of the thalamus (DOK 2)</i></p> <p><i>7.2- I can explain how pathologies of the thalamus are related to its function (DOK 3)</i></p> <p><i>7.3- I can explain the purpose of glands and hormones (DOK 1)</i></p>	RST 7,9 WHST 9	<p>-Video clip-Hemianopia</p> <p>-Video clip-Human growth hormone</p> <p>-Advertisement-HGH Supplements</p> <p>-Video-The Role of ADH in water absorption</p>	<p>Formatives:</p> <p>*Quiz #5</p> <p>*Vocab Study Guide</p> <p>Summatives:</p>

		<p>7.4- I can summarize the function of the hormones produced by the pituitary gland (DOK 2)</p> <p>7.5- I can explain how pathologies of the pituitary gland are related to its function (DOK 2)</p> <p>7.6- I can explain the factors that affect the function of the hypothalamus (DOK 2-3)</p>		<p>-Video:-Ted Talk-Paul Zak-Oxytocin and Morality</p>	<p>*<a href="#">Exam #2 (Units 6 and 7)</a></p>
<p><b>Unit 8- Limbic System</b></p>	<p>*Why do we have emotions?</p>	<p>8.1- I can summarize the function of the amygdala (DOK 2)</p> <p>8.2- I can explain how pathologies of the amygdala are related to its function (DOK 3)</p> <p>8.3- I can summarize the function of the hippocampus by explaining the different types of memory and how they are related to the hippocampus (DOK 2)</p> <p>8.4- I can explain how pathologies of the hippocampus are related to its function (DOK 2)</p>	<p>RST 7,9 WHST 9</p>	<p>-Video clip-Prosopagnosia</p> <p>-Video clip-Capgras Delusion</p> <p>-Video-Clive Wearing - The man with no short-term memory</p> <p>-Article:The Man with No Memory-modified from materials provided from Tufts University</p>	<p>Formatives:</p> <p>*Quiz #6</p> <p>Summatives:</p> <p>*<a href="#">H.M. Case Study</a></p> <p>*QFT</p>
<p><b>Unit-9 Cerebrum</b></p>	<p>*How does the cerebrum work to inform our second by second decisions?</p>	<p>9.1- I can summarize the function of the four parts of the cerebrum we are studying (DOK 1)</p> <p>9.2- I can summarize the function of the Broca's area, the dorsolateral cortex, and the orbitofrontal cortex (DOK 1)</p>	<p>RST 7,9 WHST 9</p>	<p>-Video clip-Wernicke's Aphasia</p> <p>-Video clip-Broca's aphasia</p>	<p>Formatives:</p> <p>*Quiz #7</p> <p>Summatives:</p> <p>*<a href="#">Memento Paper</a></p>

		<p>9.3- <i>I can compare and contrast Broca's aphasia and Wernicke's aphasia (DOK 2)</i></p> <p>9.4- <i>I can summarize the functions of the temporal lobe (DOK 2)</i></p> <p>9.5- <i>I can summarize the function of the occipital lobe (DOK 1)</i></p>			*QFT
<b>Unit 10-</b> Intro to Neurons and the Sodium/Potassium Pump	*How can we best measure what we cannot directly see?	<p>10.1-<i>I can summarize the importance of Golgi staining in the discovery of neurons by Cajal (DOK 1)</i></p> <p>10.2-<i>I can explain the function of the parts of a neuron (DOK 1-2)</i></p> <p>10.3-<i>I can explain what causes the movement of substances across concentration and electrical gradients (DOK 2-3)</i></p> <p>10.4-<i>I can explain what is meant by the resting membrane potential of a neuron</i></p> <p>10.5-<i>I can explain how the sodium/potassium pump maintains a resting membrane potential of -70mV (DOK 3)</i></p>	RST 7,9 WHST 9	<p>-Video clip-reflex arc</p> <p>-Video-Khan Academy-The Anatomy of a Neuron</p> <p>-Video-Khan Academy-The sodium/potassium pump</p> <p>-Animation from Brain U-The Action Potential-by Jane Dubinsky</p>	*Quiz #8

### Due Dates for Science PBAT

10/19 - PBAT Plan Approval Due (signed by me)

11/5 – 1st Draft of PBAT Due: Introduction and Background Sections

11/12 - 2nd Draft of PBAT Due: Materials List, Procedure, Experimental Design Sections

11/19 – 3rd Draft of PBAT Due: Results/Data and Analysis Sections Due

11/26 – 4th Draft of PBAT Due: Conclusion and Works Cited Sections Due  
12/3 - 5th Draft of PBAT Due: All sections completed and revised  
12/5 - DEPARTMENT PBAT READS (the department will be reading your completed paper)  
12/12 - Revised PBAT from Department reads Due  
12/19 – 1<sup>st</sup> Draft of Presentation Due  
1/2 - Presentation Final Due  
1/9 - ALL MATERIALS DUE FOR PRESENTATIONS  
End of January - Final PBAT Presentations

**FHS COMMON GRADING POLICY:**

40% Learning Activities  
30% Formative Assessments  
30% Summative Assessments

You will receive THREE classwork points a day if the following is true:

- 1-Arrive on time and complete the Do Now (1 pt.)
- 2-Stay on task the entire time (2 pts.)

**\*YOU CAN NEVER MAKE UP A DO NOW OR CLASSWORK POINTS.** If you are late or absent to class, you lose the chance receive full credit. If your absence is excused, you will not lose the credit, but you will also not be given credit.

**Late to Class**

If you are with an adult and going to be late to class, ensure the adult writes you a pass. If you are late for no good reason come in and get to work. You will lose the appropriate amount of classwork points based on how late you are. Don't waste more learning time racing around the school trying to find some adult to write you a pass.

## **PROGRESS REPORTS**

You can check your grade anytime online at [www.pupilpath.com](http://www.pupilpath.com). See Danny for your access code to see your grades.

## **CLASS RULES**

- Respect
- Think deeply

## **CELL PHONES**

*Schoolwide Policy:* Cell phones are allowed in the school building but must be locked in your lockers. If your cell phone is out, we will either keep it until:

- a.) The end of the class period then give it back to you before you leave
- b.) The end of the day then give it back to you when you come get it from one of us at the end of the day
- c.) Turn the cell phone into the admin office/dean office.

## **Uniform (Hats, hoodies, and collared shirts, especially)**

You are expected to follow the school uniform policy in this class.

If you walk into the room with a hat on or a hoodie on, you will be asked to remove it. **THIS IS YOUR WARNING. THERE IS NO OTHER WARNING.** You have the option of giving me your hoodie and I will store it for you to the end of the day, or I will call Courtney or a member of admin to come and take it from you.

If your shirt or pants are out of uniform, (for example, your shirt does not have a collar), you will be sent to the admin office to receive an appropriate uniform then return to class in appropriate uniform.

