BIOLOGICAL PSYCHOLOGY

Week 1 – Anatomy of the Nervous System

Divisions of the nervous system:

Central nervous system**:**

- Comprises of the brain and the spinal cord
- Integrates and coordinates all incoming neural information and initiates messages sent to different parts of the body
- Spinal cord enables the brain to communicate with the rest of the body by conveying messages:
    - From the brain to the peripheral nervous system
    - From the peripheral nervous system to the brain
- Spinal cord is segmented:
    - Upper section – communication between the brain and the upper half of the body
    - Lower section – communication between the brain and the lower half of the body (eg; legs)
- Has no direct contact with the outside world

Peripheral nervous system (PNS):

- Communicates information from the body's organs, glands and muscles to the CNS, including information from the outside world (eg; temperature) and from the inside world (eg; aches & pains) *via sensory neurons*
- To communicate information from the CNS to the body's organs, glands and muscles *via motor neurons*
- Consists of all the nerves outside the CNS
- Thus, the PNS enables communication between the CNS and all other parts of the body
- Composed of two divisions:
    - Somatic nervous system (interacts with the external environment)
    - Autonomic nervous system (regulates the body's internal environment)
- Most nerves from the peripheral nervous system project from the spinal cord, but there are 12 pairs of exceptions
    - These are the 12 pairs of cranial nerves that project from the brain
    - The cranial nerves can include purely sensory nerves such as olfactory nerves and the optic nerves
    - However, most contain both sensory and motor fibres such as the vagus nerve (longest cranial nerves)

Autonomic nervous system:

A division of the PNS that controls involuntary functions of our internal muscles, organs and glands (such as heart rate and breathing rate)

- Activities controlled by the ANS are mostly automatic, and generally operate independently of the brain (although are influenced by the brain)
- Most of the actions of the ANS are not within our conscious control (eg; digestion), however we can attain voluntary control over some (e; heartbeat and breathing rate at certain times)