FAQ About Psych

Can laboratory experiments illuminate everyday life?
-Laboratory environment intended to be a simple simulation of the real world
-Aim isn't to test specific behaviours, but to test more general theoretical principles

Does behaviour depend on one's culture and gender?
-Yes, they effect our specific behaviours
-But, the general underlying processes are the same

Why do psychologists study animals, and what ethical guidelines safeguard human and animal research participants?
-Humans are complex, but we are still similar to animals, and many of our basic processes are the same
-There are psych associations that have regulations that ensure the comfort and safety of research participants, and also ethic committees that approve psychological experiments

Is psychology free of value judgements?
-It is not value free, we all have our own values that influence us
-choice of words, choice of study topic reflect our values
-Applications of psychology also include hidden values (advice, self-help)

A. Why do we need psychological science?

Limits of intuition
-we can't always trust our intuition, esp. in learning about our world

2) Limits of common sense

-common sense doesn't make new knowledge, it develops from knowledge
-thus can't be used to learn something new
-hind-sight bias (once we know the facts, we tend to believe we could've predicted the outcome)

3) Overconfidence

-we are more sure of our knowledge than we are accurate
-even experts can be overconfident and wrong too

4) Illusory Correlation

-we tend to see a relationship between variables when there isn't
-these correlations can affect how we act/feel
-we're more likely to remember events that support our correlation and disregard events that don't

5) Perceiving order in random events

-we're uncomfortable with uncertainty, so we look for patterns and rules that don't exist

B. The scientific attitude (smart critical thinking)

-curiosity (hunger for knowledge)
-open-mindedness (look from perspectives different from yours)
-skepticism (look/assess evidence)
-awareness of our biases (assumptions must be considered to see true picture)
-humility (others have good ideas too)

C. The scientific method

Observation (casual becomes systematic observation)
Theory (organize observations, an attempt at explaining observations)
Hypothesis testing (take idea out of hypothesis, scientifically test it) (must have operational definition, precise statement explaining how variables are measured)
Replication (must redo study and you can be more confident if results are similar)
Generate/Refine (generate new questions or refine theories/questions)

A Descriptive Research

Purpose: Observe, describe what is observed

1) Case Study
-Very detailed investigation of one person or group
-Advantages:
    most in-depth research
    allow us to keep record of rare studies
    learning info about humans
-Disadvantages:
    research bias (see what you want to see)
    sample is small (can't generalize to population)

2) Survey (can be DR or CR)
-Questionnaires/Interviews
-Interested in specific population, not possible to survey all so only a sample is used, the info is then generalized to population
-In order for survey to be reliable/generalizable there must be a representative sample (characteristics of a sample closely reflect that of population)
-In order to get representative sample, researchers use random sampling (every population member has an equal chance), chance is only thing that determines sample
-Advantages:
    cheap, easy
    can include people who don't usually do scientific studies (?)
-Disadvantages:
    wording of question/characteristics of interviewer can affect answers recieved

3) Naturalistic Observation
-Researcher goes into real world, conducts research in relevant environment
(bullying:school)(monkey:forest)
-Observer, doesn't interfere
-Advantages:
    real behaviour, real world
    may notice things you wouldn't notice in lab
-Disadvantages:
    researcher bias (record to eliminate bias)
    researcher presence can affect behaviour

B Correlational Research

Purpose: To determine if there is a reliable and systematic relationship between two or more variables
Questions Asked
-Do they co-vary?
(if one variable appears/changes, does the other one change?)
-If they change, in what direction do they go?
positive correlation (change in same direction) negative correlation (opposite)
-To what extent?
how strong is relationship between variables (look at correlation coefficient)
"r" -1<_r<_1 +1 (positive) -1 (negative)
larger magnitude = stronger correlation, 0 = no correlation
-Advantages:
    excellent 1st step before expensive experiment
    great when no other option
    let's you describe/predict
    can take precautions and prevent bad things
-Disadvantages;
    can never infer causality (experimental research is only thing that can infer causality)

C Experimental Research
-Only research that lets you infer a causal relationship
because you can manipulate independent variable, and also have control over other variables (know & unknown)
-Researcher creates two levels of independent variable (two groups, one exposed to IV called experimental group. One not exposed to IV, called control group)

Independent Variable: Variable that causes a change in another variable
Dependent Variable: Variable that is changed by IV

Control all other IVs
-This is a MUST
-b/c if left uncontrolled, you can't be sure that change in DV is due to IV you're manipulating

Confounding (control) variables: IVs that we don't care to study, but must be controlled
Known IVs: IVs that are scientifically proven to affect the DV, must be controlled
Unknown IVs: IVs that aren't known to affect the DV, but could. Control by using random assignment (each subject has same chance of being in experimental/control group)

Placebo effect: (placebo=inert substance/therapy that has no therapeutic value) Effect itself is that we feel better after placebo treatment, just bc we believe the treatment will help
Subject bias: What subject knows/doesn't know can affect results, control by doing a blind study (don't tell them about specifics of study)
Researcher bias: Researcher's knowledge can affect results, control for both biases with a double-blind study, both subject+researcher aren't told specifics
Statistical Reasoning

Descriptive Statistics
Purpose: Allows organization/summarization and description of data in a clear concise way (think of biased graphs)

Measures of Central Tendency
-DS that give an idea of the typical score of the data set
Mean: Takes every score into account, the mathematical average. Be cautious bc it is easily affected by outliers (t-swift) example
Median: Score that falls in middle of scores ordered lowest to highest (50th percentile). Median is insensitive, not easily affected by outliers, be cautious bc it only considers one number
Mode: Most common score in distribution, be cautious bc most frequent score isn't necessarily most typical

Measures of Variability
-DS that gives idea of the typical variation in a data set
Range: Difference between highest and lowest scores, be careful bc range may be affected by outliers
Standard Deviation: Takes all scores into consideration (average difference / deviation from mean), the closer scores cluster to mean, smaller the variability and standard deviation

Inferential Statistics
Purpose: Helps researcher draw conclusions from data (inferring), generalize from sample to population, answers question: are my results statistically significant or only due to chance?
If statistically significant, you can make a conclusion

-Results are SS when probability they are due to chance is small

(use “p value” to look at the probability of chance, p value varies btwn 0-1)
(if 0, prob of due to chance is 0%, if 1 then prob of due to chance is 100%)
(generally, results are SS if P<_5 (5% or less)

Tools of Study

1) Clinical Observation
-oldest method, clinician just observes the brain (ex as it ages, gets injured)

2) Brain Manipulation
-researcher interferes with brain function (manipulates) and then observes results
surgical manipulation (ex lobotomy)
chemical manipulation (inject chem, observe)
electrical manipulation (electrodes deliver current, then observe)
magnetic manipulation (expose to magnetic field, then observe)
optogenetics (genetically engineer neurons to respond to light, then use light to manipulate brain then observe (used only on animals)
sonogenetics (use soundwaves to manipulate brains)

3) EEG
-put electrodes on skull, pick up electrical activity of brain (shows what brain is doing)

4) Neuroimaging Techniques
-CAT scan (uses x-rays to take images of brain, doesn’t tell what brain is doing)
-MRI (exposed to magnetic field, tissue emits electromagnetic signals which machine turns into image (doesn’t tell what brain is doing)
-PET scan (tracks consumption of glucose by looking at radioactive glucose put into body, to see brain activity, more glucose consumption = more brain activity)
-fMRI (functional) (exposed to magnetic field, tracks flow of blood/O2to see brain activity (more active areas need more blood/O2
-DSI (gives info about connections btwn neurons

Tour of Brain

Lower brain structures
-Brainstem: starts where spinal cord ends, relay station, info coming/leaving brain goes through it, begins info analysis, info entering brainstem crosses over to the other side of brain (left body -> right body), it’s a life centre has structures that are important for living (heartbeat, breathing, etc) reticular formation (arousal, consciousness, sleep)

-Thalamus: In centre of brain, relay, sensory (not smell) info is sent here, it then relays this info to higher areas of the brain, also sends high info to low areas, filters info also (ignores non-important stimuli) it regulates attention/arousal/motivation

-Cerebellum: Controls balance/posture, voluntary movements and muscle tone, responsible for acquiring automatic motor skills
½ of neurons in brain but 1/10th of brain volume
these neurons make more connections
cerebellum is linked with higher order stuff (thinking/memory/language)
Very sensitive to effects of alcohol

Limbic system
-younger than brain stem but still relatively old
-linked with many functions (learning, memory, emotion, etc)
-Amygdala: production of emotions, recognize facial emotions, emotional memories, detects threatening stimuli (even if not conscious of it)
-Hypothalamus:
controls essential survival systems
    controls drives (hunger, sex)
controls homeostasis (internal balance)
controls endocrine system
controls autonomic system
linked with pleasure centres
reward deficiency syndrome: people who use drugs/overeat have underactive pleasure centres (some research support)

Cerebral cortex
-Youngest structure, higher mental function function
-⅓ is visible, rest is "hiding" in folds, folds allow for "more brain in less skull"
-Exists as two hemispheres (right and left)
    left: receives info from right side of body, controls right side
    right: receives info from left side of body, controls left side
-Each hemisphere consists of 4 lobes (frontal, parietal, temporal, occipital)
-Each lobe has two areas (primary and association)

Primary Areas
-P. areas are found in each lobe, linked with the processing of motor/sensory info
    -p visual cortex: located in the occipital lobes (processes visual info)
    -p sensory cortex (aka p somatosensory cortex) located in parietal lobes, arcing from one
ear to the other, receiving info from skin muscles joints, processes tough/pain info
    -p motor cortex located in frontal lobes, arcing from one ear to other, controlling voluntary
movement - right part of motor cortex receives left side info, vice versa also true - each body part is represented in the motor cortex, adjacent body parts are serviced by adjacent brain areas - actual size of a body part is not proportional to brain area size

Association Areas
-Association areas are in each lobe and are linked with higher mental functioning
-Also involved with processing of complex motor/sensory information
-Examples of functions linked to the association areas:

Frontal: attention, planning, abstract thinking, aspects of memory/personality/language, impulse control, decision making, emotions

Temporal: aspects of language/memory, facial recognition, music, “god spot”

Parietal: nonverbal thinking (math/spatial), sense of space

Occipital: processing of complex visual info

Keep in mind that the brain’s lobes work in tandem to produce complex human behaviors and mental processes.

Glial Cells
-Outnumber neurons, provide neurons with insulation (makes myelin sheath),
-protection/nutrition, clean up after neurons
-More important than previously thought, involved with vital function, as important as neurons and essential for the formation/health functioning of synapses
-Associated with higher intelligence, possibly even creativity

Brain Organization
-Brain plasticity: brain physically changes with experience throughout life
-Functional plasticity: brain can shift functions from a damaged area to a non-damaged area, can also shift functions based on experience (foot-orgasm) example
-Structural plasticity: as a result of experience, area of brain can increase/decrease in size
-Neurogenesis: formation of new neurons after birth (possible)
-Functional asymmetry: Two hemispheres have similar jobs, but are different

they work together to produce behaviour, emotion, etc

“left brain right brain” portrayed in media is wrong

left assoc. with verbal, right with non-verbal

Split Brain Patients
-Pts that have had corpus callosum (bundle of nerves connected hemispheres) cut to control seizures
-They feel as though they have two brains disagreeing with eachother
-We have a right visual field and LVF (doesn’t mean left eye/right eye)
normal brain: when info goes to only one hemisphere from a VF, other hemisphere will know about it
split brain: when info goes to only one hemisphere from a VF. other hemisphere doesn’t know about it

-Can still pick up object with left side of body, because right hemisphere “sees” it but can’t verbalize it

Spinal Cord
-Information highway, all info going from body to brain (or vice versa) has to go through it
-If damaged, everything below it can’t receive/send info

Rhythmic Movements (swimming, walking)
-pattern generators: neurons in spinal cord that produce/control rhythmic movements, based on orders from brain
-Good b/c brain doesn’t have to consciously think about it

Reflexes
-unlearned, involuntary behaviour
-Essential for survival, bc don’t have to wait for brain to process, spinal cord moves it quickly
-Ex: hand on hot stove = info to sensory nerve = interneuron in spinal cord makes decision = info to effector, pulls hand away = info goes to brain for pain

The Nervous System

Function/Structure
-It’s a communication network (receives environmental info, analyzes organizes integrates, uses info to send instructions to body)
-CNS: divided into brain/spinal cord -PNS: All neurons/nerves outside CNS
-NS generates conscious experience (aware of ourselves and our environment)

Neurons
A. Basic function/structure

-Basic unit of communication in NS

3 Types
-Sensory neuron (receives info from environment through senses, sends info to CNS)
-Interneuron (only in CNS, only communicate with other neurons, most abundant, most complicated job, analyze/organize/integrate, creates behaviour based on info)
-Motor neuron (receives info from interneurons, and then sends signals to muscles, etc)

-Dendrite (receives info from other neuron)
-Important organelles in cell body, plus nucleus
-Axon (carries and delivers message)

-Myelin Sheath (provides insulation, speeds up info transfer)
-Axon Terminal (releases neurotransmitters)

Synapse
-Space between neurons, where they communicate
-Synaptic cleft/gap: Small space between neurons

B. Communication
Neuron at Rest
Inside: more - ions, net negative (-70mV=polarized)
Outside: more + ions, net positive
-Even at rest, receives messages from other neurons, which change the ion concentration
-Two messages it can receive
(inhibtory -> don't fire, changes conc. of ions, makes neuron more negative, "hyperpolarized" less likely to fire)
(excitatory -> fire, changes ion conc. makes neuron more positive, "depolarized" more likely to fire)
-Neuron will fire at -50/-55mV (threshold potential)
-Action potential=nerve impulse (is all-or-none, either neuron fires or not) (when neuron fires, the action potentials always have the same strength)

-impulse does not shoot straight like a hun
-like domino, one action potential causes the next one, which causes the next one etc

Communication between Neurons
-Neurotransmitter: chemical produced by neurons for interneuron communication ("words" of neuron)
-Synaptic vesicles: sacs that contain neurotransmitters
-Receptors: structures on postsynaptic neurons, neurotransmitter attaches to them
-Presynaptic neuron fires, AP travels to axon terminal, synaptic vesicle attaches to membrane, bursts and then releases neurotransmitters which cross synapse, causes postsynaptic neuron to fire
-NT can be re-uptaken (taken back by postsynaptic neuron) or degraded (enzyme)
-NT must be removed because it will continually deliver its message if it stays (overexcite/overinhibit)

C. Neurotransmitters
-Chemicals produced by neurons and used for communication
-Healthy levels of NTs, essential
-Dopamine: "pleasure molecule" linked with mood/motor function/motivation
healthy levels = good mood, good motor function, derive pleasure from activity
high levels = schizophrenia
low levels = parkinson's disease

Acetylcholine (ACh)
-Enables muscle action, learning/memory
Dopamine
-Influences movement, learning, attention, emotion
Serotonin
-Affects mood, hunger, sleep, arousal
Norepinephrine
-Helps control alertness/arousal
Gamma-aminobutyric acid (GABA)
-Major inhibitor
Gutamate
-Major excitatory, involved with memory

D. How drugs affect the Brain
-Some drugs affect function at synapse
3 Levels:
1) Interfere with presynaptic neuron (enhance/reduce NT release)
2) Effect activity in cleft (enhance/reduce reuptake or degradation)
3) Interfere with postsynaptic neuron
    locks+blocks attach to receptor, sends no message but blocks off receptor to NT
    locks+mimics attach to receptor, sends message like NT
    locks+enhance/diminish attach to receptor, but allows NT to attach also, can then enhance or diminish NT activity

-Drugs can be two main types:
    agonist: enhances NT activity
    antagonist: reduces NT activity

-Look at 3 levels, ask if agonist or antagonist

Peripheral Nervous System

-Connects body to CNS
-Main function is to send info from body to CNS
-Consists of all neurons/nerves outside CNS
-Two divisions, somatic and autonomic

Somatic NS
-Sensory function
Collects info from environment, sends to CNS
Uses sensory neurons
-Motor function

Gets info from CNS, gives info to skeletal muscles
Uses muscles neurons

Autonomic NS
-Controls glands, organs, visceral (smooth) muscles
-Has two divisions
sympathetic NS (arouses/energizes body, prepares body to flight/fight)
parasympathetic NS (calms body down, conserves energy and helps body to repair itself

The Endocrine System
-Communication network, collection of glands that release hormones in bloodstream
-Hormones are chemical messengers
-Three classes:
control homeostasis (ex insulin)
reproductive (ex estrogen, testosterone)
stress (ex cortisol, epinephrine) (beneficial short term, not good when around long term)

NS with ES
-Distinct systems, do different things, but affect each other
-NS controls ES, but ES affects NS still (including brain)

Pituitary Gland
-“Boss” of glands, controlled by hypothalamus
-Hormones are important to psychology b/c they affect behaviour (think de-testoroned rooster ex

Sensation

Musts of Sensation
-Detection (must be able to detect physical, no detect=no sense) (our senses are limited)
-Transduction (things detected must be translated in “language” brain can understand)
-Transmission (neural info must be transmitted to brain)

-Sensory receptors: found on highly specialized cells, detect/transduce/transmit
-Sensation is a “bottom-up process” (ex when looking at face, we take in the curves and lines to make the full picture, like baking a cake)

Measuring the Senses
1) Psychophysics: Scientific study of how the characteristics of the physical world translates into sensation

2) Absolute Threshold: Minimum amount of physical energy that must be there to be detected (50% of the time)
3) Difference Threshold (JND): Must be able to detect changes in physical energy (ex shower temp changes) (important for survival), minimum change in energy for it to be detected 50% of the time
4) Weber's Law: For a person to perceive a difference, two stimuli must differ by a constant proportion (not a constant amount) (ex: two lights must differ in intensity by 8%)
5) Signal Detection Theory: Our ability to detect physical energy is affected by many factors (beliefs, knowledge, emotions, health, assumptions)
6) Subliminal Stimulation: Stimuli below your absolute threshold for conscious awareness, an unnoticed image/word can reach your visual cortex and briefly prime your response to a late question

Sensory Adaptation
-When we are exposed repeatedly to a harmless stimulus, our senses will respond less to the stimulus
-Attention is limited, sensory adaptation important for survival, so we can pay attention to important dangers
-Valuable for a world where there are so many stimuli (NS would crash otherwise)
-Circumventing S.A: sometimes body stops SA from adapting to some things (strong pain, eyes make tiny movements to stop adaptation)

Basics of Perception
-Brain takes sensory info, analyzes/organizes/integrates/interprets
-Making meaning of info
-Perception is a top-down process
    we use knowledge/experience/beliefs to interpret info
-Possible to have sensation without perception
    prosopagnosia: can see normally, but can't recognize faces at all
-Possible to have perception without sensation
    hallucinations, schizophrenia

Influences on Perception
1) Perceptual set: Tendency to respond to a stimulus in a specific way, comes from past experiences/beliefs
2) Context determines how we perceive something
3) States of being: Influences how we interpret stimuli in situations
    when happy, we see the world differently than when sad

Vision
-Stimulus for vision is light (EM radiation)
    travels in a wave, part of electromagnetic spectrum
    tiny part of spectrum that we see is "visible light"

wavelengths are physical characteristic that turns into psychological characteristic colour
colour doesn't exist in real word, it's created by brain
amplitude is height of wave, physical characteristic turns into psychological characteristic of brightness

The Eye
-In order to see, light must enter eye
travels through eye structures until retina (neural tissue)
retina has photoreceptors

Retina Structure
From inner to outermost layer:
-Rods+cones (detect light)
-Bipolar cells (receive info from R+C)
-Ganglion cells (receive info from Bi cells)
their axons make up the optic nerve
-Optic nerve sends info to brain

-Where optic nerve leaves eye, is called "blindspot"
-B/C no sensory receptors here, so it can't detect light

-Fovea responsible for "Highest visual acuity"

Rods/Cones
-Photoreceptors

Rods
Cones
Shape
-Stick cylinder
-Cone
Amount
-More
-Less
Function
-Sensitive to low light, black/white, better at detecting motion
-Needs lots of light, detects colour and fine detail
Location
-None in fovea, found in periphery
-Highly concentrated in fovea
Connection to Bi Cell

-Several rods per bi cell
-One cone per bi cell

Visual Info Processing
1) Retina
-Ganglion cells start to analyze info

2) Visual Cortex
-Has feature detectors (highly specialized cell)
-They respond to only one stimulus (ex vertical line)

3) Parietal and Temporal Lobes
-Parietal: “Where pathway”
data processed so that object can be located in space
if damaged, can’t located things
-Temporal: “What pathway”
can see what it is you are looking at
if damaged, can’t identify object
4) Parallel Processing
-Serial processing: step by step processing (conscious mind)
-Unconscious uses parallel processing (multiple jobs done at same time)
ex: colour, movement, shape, texture, depth at same time

Colour Vision
-Young-Helmholtz theory (trichromatic theory)
-Since we only need 3 primary light colours to make all colours, we only have 3 types of cones
-Each cone can respond to many different light colours, but is maximally responsive to one colour
-Brain watches to see which cones are responding and to what extent, determines colour from this

insert diagram here

Opponent-Process Theory
-Hering found Y-H theory to be limited in some ways (ex: complementary afterimage, continue to perceive even if it’s not there, complementary being the opposite colour, not explain by Y-H)
-Proposed that we have four cones RGBY
-3 Antagonistic colour systems: RG, BY, BW
-Ex: RG system responds to red and green light, but responds in opposing ways (if excited by red, inhibited by green)
Brain watches all 3 systems, sees whats excited/inhibited and in what combination/to what extent

Modern View
-Both theories are important for explaining colour vision
-Trichromatic theory = 3 cone types in retina
-Opp. theory = ganglion cells in retina, neurons in brain process info in accordance with opp. theory

Visual Perception
How does brain organize visual info? (Gestalt Psychology)
-Brain organizes info into a gestalt (a form; a whole)
    We see a whole person, not just a collection of parts
    Whole can exceed sum of parts (brain creates cube from green arrows)

The Perceiving Brain
-Doesn't passively receive info, actively creates world
-Puts in its own judgements etc

Form Perception
-Figure & Ground: brain organizes info into figure/ground
    figure is focus of attention, ground is background
    constantly switching as we look around
    if info not organized like this, would be hard to focus on anything
-Grouping, some of the rules:
    proximity (objects close to eachother will appear as single unit)
    similarity (physically similar objects appear as single unit)
    continuity (elements that flow in same direction, continuing a pattern will be seen as single unit)
connectedness (elements connected to eachother will be seen as single unit)
closure (elements missing, brain fills in blanks)

Depth Perception
-ability to tell how far/close an object is (can see in 3-D)
-Innate or learned? (partly innate, ex visual cliff experiment)
-Experience important for proper depth perception

-Brain uses 2 types of cues to process depth:

Binocular cues (info from both eyes used)
-convergence (how much eyes must rotate inward to focus) (higher convergence=closer object)
-Retinal disparity (distance between eyes, each eye gets slightly different image) (higher the retinal disparity, closer the object)

Monocular cues (info from one eye used)
-Relative size (ex: two objects we know to be same size, larger one appears closer)
-Interposition (objects that block other objects appear closer)
-Relative clarity (clearer an object an object looks, closer it looks)
-Texture gradient (rougher, coarser, more detailed texture looks closer)
-Relative height (objects higher in visual field appear to be farther away)
-Relative motion “motion paralax” (when we move, stationary objects appear to move, close objects move in opposite direction and fast, far objects appear to move in same direction and slow) fixation point is where this changes
-Linear perspective (parallel lines appear to merge, objects close to point appear to be far away)
-Light and shadow (objects that are more lit appear closer)
-Motion perception (brain assumes: if image on retina is getting larger, object is getting closer)
    stroboscopic movement: movie is a series of still images that brain puts together as motion
phi phenomenon (group of lights, turned on/off in rapid succession, creates movement perceived by brain

Perceptual Constancy
-Allows us to have a stable view of the world
-Our tendency to perceive the shape, size, colour of an object as remaining the same (even if lighting, angle, closeness change)

Lightness Constancy
-Tendency to perceive an object as being white, black, grey, in spite of lighting changes

Relative Luminance
-Explains lightness/colour constancy
-When brain assesses light coming off an object, it compares it to other objects in environment

Size-Distance
-For brain, size and distance are “intertwined”
-Uses size info to determine distance and vice versa

Perceptual Interpretation
A. Sensory Deprivation and Restored Vision
-if sight returned at 25
    colour, figure/ground perception is good
    motion perception is ok
    depth, shape, facial perception is bad
-Critical period: Period during development where certain things must happen, otherwise perception doesn’t develop properly (vision is 0-6 years)

Look up other critical periods in textbook

B. Perceptual Adaptation (In vision)
-People given vision distorting goggles
    for a while, they can't function
    after a few days, they adapt easily (brain adapts)
-Ability of brain to adapt/adjust to a world that has been artificially changed

1st midterm material ends here?

Audition (Hearing)
The Stimulus
-Soundwaves
    voice disturbs air molecules, bump into each other as a wave
    soundwave is interpreted by brain as words
-Frequency (distance between peaks) (measured in hertz)
    physical becomes psychological experience of pitch
-Amplitude (height of wave) (measured in decibels)
    physical becomes psychological experience of loudness
-Complexity (how many different frequencies)
    physical becomes psychological experience of timbre (tone)

The Ear
-Outer Ear
    Pinna (catches+funnels sound waves)
-Middle Ear
    Sound waves travel in auditory canal
-Inner Ear
    They cause vibrations in the oval window, causing pressure waves in cochlear fluid in cochlea (which vibrates basilar membrane in cochlea) causes hair cells (cilia) on B.M to activate and start firing (sensory receptors) info goes to auditory nerve, then brain

Detecting Loudness
-Louder the sound, more hair cells will fire

How do we perceive pitch?
-Place Theory
    sound waves of different frequencies will activate different areas of BM (high freq activates start of BM, opposite for low freq
-Frequency Theory
    freq of soundwave influences rate of hair cell firing (higher freq = more firing) (1hz = 1AP/s)
however, hair cells can only fire 1000AP/s, however we can perceive higher freqs
-Volley Principle

groups of hair cells team up, firing one after another (if freq is 3000hz, then 3 cells needed)

Modern: Place theory explains how we perceive high frequencies sounds,
Frequency Theory explains how we perceive low freq sounds
All three together explains everything

Locating Sound
-Important for survival
-Brain monitors both ears, looks for:
time of arrival of sound wave and loudness
ear that is closer to source will receive sound earlier and louder
if it hits both ears at same time, we can cock head

Hearing Loss / Deaf Culture
-2 Types of Hearing loss

Sensorineural (HS)
-Physical damage to parts of ear involved with sensory/transport of info to brain
-Treat with cochlear implant

Conduction (HS)
-Damage to structure involved with transportation+amplification of soundwave
-Treat with digital hearing aid (amplifies soft sounds, don't touch loud sounds, called compression)

Go through each ear structure, ask what type of hearing loss would result if it was damaged

Other Senses
Touch
-Skin is organ, can also collect essential info
(touch, temperature, pain, pressure)
-Called cutaneous senses
-Sensory receptors in skin, 4 types:
itch, pain, pressure, temp (warm/cold)
how do we feel other sensations?
receptors work together,
ex: intense heat activates warm and cold receptors
must know other combos from textbook

-Touch is important for survival
-Premature babies who are touched, will grow quicker
-Touch releases endorphins that relax nervous system

Pain
-We have nociceptors (pain receptors) all over body
-Pain essential for survival also

Motivation and Work

Motivational Concepts
-Forces that energize/direct behaviour

Instincts Theory
-Instincts: innate, unlearning patterns of behaviour
-Instincts energize/direct behaviour
-When a specific stimulus is present, instincts kick in
-Can't explain all behaviours with instincts though
Drives & Incentives Theories
-Drive theories: we have basic needs (drink/eat etc), when they aren't met, there is an adversive state of tension within us that we want to get rid of
Motivates us to go and fulfill need
-Incentive theories: In the external environment, there are stimuli that we are attracted to (we want to acquire/accomplish) (ex: money) motivates us to do stuff
-Arousal theories: Motivated to maintain an optimal level of arousal (attention) too low = boring
too high = tense/anxiety
Both extremes are uncomfortable

Hierarchy of Motives (Maslow)
-We have physiological and psychological needs
-Both types motivate us
-There is a hierarchy of needs, some must be met before others

Physiological needs (eat, drink)
Safety needs (shelter, no danger in environment)
Love needs (connections with others)
Self-esteem needs (feeling that you matter,you're important)
Self-actualization (living up to our potential, pursue inner talent)
(6. self-transcendence needs: use our gifts in order to help others self-actualize)

All of these theories together help us to understand human behaviour.

Hunger
Physiology of Hunger
-Stomach
empty - linked with hungry feeling

full - can still be hungry
remove stomach - still hungry (more to hunger than just stomach)

-Hormones
regulate feelings of hunger/eating behaviours
hunger promoting hormones: low glucose, high ghrelin, high orexin
hunger suppressing hormones: high PYY, high CCK, high leptin
leptin released by fat cells, more fat = more leptin, tells brain there is fat, brain takes steps to reduce fat

-Brain
Hypothalamus: Linked with hunger
if lateral part is stimulated, animal will eat and eat
if ventral part is stimulated, animal will not eat

Set-point weight
-Theory, brain has a weight range that it prefers/favors
-Brain/body try to stay in range

Settling-point weight
-Weight settles at a point where there is equilibrium between calories in/out
-If balance shifted, weight changes

Basal Metabolic Rate (BMR)
-Bodies spend energy to keep basic system going (circulation, heart beat)
-BMR: Energy spent to keep basic functions going while at rest

The Psychology of Hunger
-What we eat is influenced by culture

Obesity
-Eating disorder
-US: 68% of population, ⅓ of children
-Canada: 58% of population
-Worldwide increase
-Need fat on body to function properly, but too much is unhealthy (higher risk for early death)
-How does it happen?
-Genes involved
-Physiology of fat cells (less metabolically active compared to muscle, you have them forever, when you lose weight they are emptying rather than disappearing)
-Set point
-extreme low-cal diet leads to brain trying to hold onto all calories
-When you don't sleep well, more likely to gain weight
-Stress
-Abundance of food, big portions, high fat/sodium

-Ignorance (of caloric content of food)

-Unit bias (tendency to consider a single “unit” of food as the right amount to eat) (ex: small banana vs. large banana, both single unit, we consider both units to be right amount to eat, but one has more calories

-Technology leads to an increase in sedentary behaviour

-Sluggish pleasure pathways (proposed theory): obese have reduced dopamine activity, food is like drugs and releases dopamine, are they born with this reduction? or shaped by habit?

-Weight loss

Reduce caloric intake (but not too much)

Exercise

Sexual Motivation

Study of Sexual Behaviour

-Havelock Ellis

Experienced nocturnal emissions

Tried to figure out why it was happening

Medical knowledge at time said it was indicative of insanity

Became depressed, decided to record his descent into insanity

Didn’t become insane, decided to devote life to study of sexualiyu

Promoted women as sexual beings

-Kinsey

Couldn’t describe human sexual activity

Did many surveys of people to gain knowledge of this

-Masters and Jhonson

Had people perform sexual activity in lab

Measured HR, BP, respiration, got idea of what was happening in body during sex

Physiology of Sex

The Sexual Response Cycle

-Excitement phase

Genital areas engorged with blood

Lubricate secreted

-Plateau phase

Breathing, pulse, BP continue to increase

-Orgasm phase

Muscle contractions all over body

Further increases in breathing, pulse, BP

-Resolution phase

Male enters refractory period

Genital areas release accumulated blood

Sexual Disorders

-Persistent problems
-Premature ejaculation
-Erectile dysfunction
-Orgasmic disorder (cannot attain orgasm)
-Sexual disorders like this often found in young women, older men
-Healthy sexual life is beneficial to life

Hormones & Sexual Behaviour
-Menstrual cycle influences women's sexual behaviour, however they are not bound to it like some animals
-Testosterone
    Healthy levels of it are important for healthy levels of desire in men and women
-Hypothalamus: Linked/associated with sexual drives

Psychology of Sex

External Stimuli
-Both men and women respond to external stimuli

Imagined Stimuli
-Both men and women fantasize, aroused by fantasy

Adolescent Sexuality
-Teen pregnancy (contributing factors)
    Minimal communication about birth control
    Guilt related to sexual activity
    Alcohol use
Mass media norms of unprotected promiscuity
-STIs
“Phantom” sex partners
Protection (condom) failure
-Predictors of sexual restraint
High intelligence
Religious engagement
Father Presence
Participation in service learning programs

Sexual Orientation
-Heterosexual: attracted to opposite sex
-Homosexual: attracted to same sex
    found all over world
    3-4% of world
-Bisexual: attracted to both sexs

found all over world
less than 1% of population

Erotic Plasticity
-Higher the EP, the more likely sexuality is to be affected by education, religion, culture etc
-Higher EP, sexuality is more flexible
-Women generally have a higher EP

Environmental causes of Homosexuality?
-Mother (overprotective or absent): No effect
-Father (aggressive or absent): No effect
-Opposite sex (hate them?): No effect
-Hormones currently in blood: No effect
-Sexual abuse: No effect
-Modelling (raised by gay parents): No effect
-By default (no opposite sex around): No effect

-Background of hetero/homo people are generally similar

Biological causes of Homosexuality?
-Genes
Identical twins more likely to be same in sexual orientation than fraternal twins (indicated genetic component)
Can manipulate genes of fruit flies, changing their orientation
-Pre-natal hormones
Something causes hormonal abnormalities in womb, changing sexual orientation
-Fraternal birth order
Higher number of older brothers a man has, higher probability that he will be gay
1st 4%, 2nd 5%, etc…
-Brain
Part of hypothalamus linked with sexual behaviour is larger in hetero men than gay men
Chicken egg problem: Is this difference caused by their sexual behaviour, or does this difference cause the behaviour
Cerebral asymmetry: gay women + straight men generally have a larger right hemisphere
gay men + straight women hemispheres are more equal in size
This change happens in womb or shortly after birth, indicating that brain is creating sexual orientation
-Amygdala connections
In general, brains of gay men more like straight women
brains of gay women more like straight men
This also happens in womb or close to birth

All of these “causes” point to the idea that sexual orientation is something that people are born with, rather than environmental or choice

Animal Kingdom
-1,500 animal species studied, homosexuality exists in all of them
-More homosexuality = more peace in species?

Sexual Prejudice
-Homosexuals have higher rates of suicide and depression than the general population

Sex and Human Values
-Tend to associate sex with “dirtiness” and “badness” yet it is ultimately important to the continuance of life
-Sex is a profoundly social act

The Need to Belong
-Psychological need that is important
-To be loved/appreciated by others, to have connections
-Born with this need
-Advantages: When we’re loved/valued, we are physically healthier and more motivated
-Disadvantages: We may do things we don’t want to do in order to avoid rejection and to belong
-Rejection in brain: Anterior cingulate cortex (ACC, linked with physical pain) is also linked with emotional pain from rejection

Motivation at Work
-When we work, it can satisfy multiple needs:
    Money (for material)
    Work can become part of identity
    Sense of competence (important for psychological well-being)
    Find meaning/purpose in work
    Belonging (work community)
-Look at it as:
    Job to pay bills
    Career (advancing)
    Calling (work at something we are passionate about)
-Achievement motivation
    People with strong desire to excel
    Compete with themselves/others
-Grit

People who are passionate for a long-term goal
Not deterred by obstacles, challenges

-Flow (developed by Dr. Csikzentmaly)
Observed people passionate about their work
Enter state of “flow”
Lose track of time/space
Work with high level of creativity/productivity
Work relaxed, happier/more satisfied

Industrial-Organisational Psych
-Scientifically study human behaviour in workplace
-Apply psych principles in workplace

Two types of Industrial-Organisational Psych:

1) Personal Psychology
-Hiring/training/evaluation of employees
-Harnessing strengths:
Do a job autopsy (what are all tasks linked with a job)
Identify qualities needed to do tasks
Build profile of perfect person for job
-Interviews
-Good predictor of performance?
-Unstructured (interviewer controls whole thing) (they pick based on gut feeling): poor predictor of job performance
-Simulated work situation: better predictor
-Administering tests: aptitude
-Structured interview (questions picked based on skills needed, everyone asked in same order, interviewer doesn’t pick): very good predictor
-Performance Appraisals
-Be objective as possible
-Avoid bias:
-Halo error (boss likes some job unrelated part of you, likes all of you in positive light)
-Horn error (opposite of halo)
-Leniency & Severity error (some bosses lenient or severe to everyone)
-Recency error (ignore past events, only consider recent events)
-360° feedback (you evaluate you, colleagues evaluate you, boss e’s you, subordinates e you)
2) Organisational Psych
-Interested in keeping employees engaged/satisfied
-Interested in what makes a good leader, and how to teach it
-Companies are more successful if they have engaged employees

-Good leader: focus on strengths rather than weaknesses, sets specific realistic goals, uses implementation intention (when, where, how or goal is figured out before hand) , progress report
-Good leader knows what leadership style to use in a situation:
-Task leadership: take full control, make all decisions (micromanage everything)
-Social leadership: include employees in decision making, then step back and let them work (not micromanaging but still watching), make good teams
-Transformational Leadership: clear vision of what they want, good at rallying employees around vision so that they want it too, intrinsically) best type of leader, companies successful with this

Emotions
-3 components of emotions:
    physiological arousal (faster HR, etc)
    behavioural component (run away, etc)
    subjective experience (conscious experience of emotion)

-Emotions are essential for survival (fear keeps us safe) (helps with adaptation)
-They influence/affect behaviours
-Can be maladaptive (too much sadness/fear is bad)
-Can describe our emotions two dimensions:
    Valence (how pleasant/unpleasant the emotion is)
    Arousal (how arousing the emotion is)

Theories of Emotion (How do the three components fit together?)

James-Langa Theory
-Common sense: see a snake, feel afraid, run away (subjective experience comes first, followed by the others)
-JL disagrees: see snake (HR increases), run away, then afraid (PA and BC first, then SE) in this theory, SE depends on the other two

Canon-Bard Theories
-See a snake, all three components come into play simultaneously + independently

Shacter's Theory (2 factor theory)
-In order to feel emotion: there must be PA
-Different emotions have similar PA
-Emotion we feel depends on the "cognitive label" we put on the PA, do this by looking for situational cues
-Spillover effect
    -PA created by situation 1 is going is going to transfer into situation 2, thus strengthening the emotional experience created by situation 2

-ex: at home, relaxed, sister comes to bug you and you're less likely to get upset
vs. watching scary movie, sister comes to bug, arousal transfers, get upset

Cognition & Emotions
-What comes first: cognition or emotion?

Cognitive Therapy
-If you are sad/anxious, it's because of the way you're interpreting your situation
-Zajone (researcher) agrees with cognitive therapy, however there are times where we feel first, think later
-Lazarus (researcher) disagrees with Zajone, he says that we always interpret/assess first, then feel,
if we are feeling first, it's because the brain is already subconsciously interpreting

Embodied Emotion

Emotions and ANS
-ANS is the system that regulates the emotional experience of the body

Physiology of Specific Emotions
-According to JL/Shacter theories, PA is very similar across emotions
-Modern view:
There are some similarities of PA between emotions
But there are also differences of PA
(anger increases body temp, fear lowers body temp)
(high levels of R frontal lobe activity = negative emotions)

Expressed Emotion
-Express emotions with face/body language
-Non-verbal communication (essential for survival)
-Nature intended for us to use non-verbal communication
Skin on face attached to many muscles, not like that on other parts of body
Facial expressions are innate & universal (babies smile/frown, so can blind kids)
(different cultures have same facial expressions)

Detecting & Computing Emotions
get gist from textbook

Role of Culture
-Culture plays an important role in non-verbal communication even though facial expressions are universal

-Culture determines how much is expressed and when
(middle finger, thumbs up in greece is like middle finger)
(“come here” motion is offensive in Phillipines)

Gender
-No significant differences between men + women for emotions
-Same emotions, same intensity
-Socialized differently, women allowed to express more

Effects of facial Expressions
-Facial expressions can create/enhance emotions (fake it till you make it)
-Feeling angry, force a smile, feel happier
-These ideas tend to support JL theory

Experienced Emotion

Fear
-Adaptive (gazelle afraid of lion, saves its life)
-Dysfunctional (fear can stop you from living a full life)
-Deadly (fear leading to war)
-Learned (through classical conditioning) -> little albert
(through operant conditioning) -> fork in socket
(through observation)
-Biologically prepared to learn some fears easier than others
-Common fears (heights, spiders, snakes) have survival value
-There is a genetic component to fear
-Amygdala important for emotions like fear

Anger
-Can be adaptive/maladaptive (anger can lead to action, good changes) (but breaking things is bad)
-Catharsis hypothesis: must let out anger with aggressive actions/fantasy (hitting pillow)
helpful in short-term
long-term, is bad because it reinforces these negative emotions
-What makes us angry?
(feel that someone did something bad intentionally)

Happiness
-When we’re happy, we’re healthier and better people
-Positive psychology (study of true emotions/subjective wellbeing)
How satisfied with life are we?
How happy?
-Feel-good do-good phenomenon (when we are happy, we tend to be kinder and help others)

-Adaptation-level principle (our tendency to use our recent experiences to judge new stimuli) (ex: homeless person values $100 much more than a billionaire)
-Relative deprivation principle (when we compare ourselves to other people doing better than us, we can become depressed)
-Money: certain level of money increases happiness, but past that part it does not

Memory
Studying Memory
-3 components of memory:
encoding (acquiring the info)
storage (store what you have encoded, maintain/retain)
retrieval (getting the info from storage)
-Memory can be adaptive/maladaptive
Adaptive: need it for survival
Maladaptive: Trauma leading to PTSD
-Explicit memory (declarative): memory we are conscious of
-Implicit memory: memory without awareness, we aren't consciously retrieving but it still affects behaviour
-Procedural memory: memory of skills that we have gradually acquired and is automatic (ride a bike, etc)
-Measuring memory
Recall: asked to remember something without a cue
Recognition: Asked to remember something for later, figure out later what is the correct info in a given group
Relearning: how long does it take to relearn something you learned in the past

Building Info (encoding)
-2 major ways to encode:
Automatic Processing (don't put any effort into acquiring information) (what you are for dinner)
Effortful Processing (exert effort, -time/energy- to acquire info)

Types of Effortful Processing
-Rehearsal
Ebbinghaus -> first person to scientifically study memory
Made some nonsense syllables
Would randomly choose, then study
Then tested on how many he could remember
Rehearsal improved his memory
-Elaborative processing
In depth processing, understanding, ask questions, relate new info to already known info
Ebbinghaus said it takes 1/10 of time to study something if you understand first

-Chunking
    Break info into manageable/meaningful chunks
    ex: acronyms
-Mnemonic Devices
    Any strategy/technique that enhances memory

Encoding Effects
-Spacing effect (it is better to spread out study sessions of same material than it is to do them back to back)
-Testing effect (the more we are tested on studied info, the better we remember it)
-Self-reference effect (info associated with ourselves is better remembered) (create a story about you and concept)
-Visual imagery (things you can associate with a visual image will be better remembered)
-Organizational processing (organized info (in a hierarchy, etc) is more easily remembered)

Storage
Sensory memory (info collected by senses)
-Holds onto this info for a very brief time
-According to researchers, every sense has sensory memory associated with it
Ex:
-Iconic memory (sensory memory linked with visual system) (lasts from .25-.5 of a second)
-Echoic memory (sensory memory linked with auditory system) (lasts from 3-4 seconds)

Short-term memory (linked with working memory, memory currently being used)
-Whatever is in your mind right now
-Capacity is ~7 items (+/- 2)
-Capacity of working memory seems to be linked with intelligence
-Duration: longer than sensory, max is ~20 seconds
(peterson & peterson study: gave people three constants to remember, then quizzed)

Long-term memory
-When we retain info for extended periods of time
-Capacity: believed to be limitless
-Long-term potentiation: results from learning and memory, neurons involved will change structurally and functionally, leading to an increase in firing potential of neuron (synapses are stronger)

Stress and Memory
-If stress is acute, memory formation is enhanced (meet a bear, remember forever)
-Intense acute stress can interfere with retrieval of an old memory (stress during an exam)

-Flashbulb memory: very vivid memories formed because of stress hormones (due to the event being traumatic, unusual, meaningful)
-Vivid does not mean accurate
-Chronic stress
Stress hormones bad when constantly present, hippocampus (linked with memory) greatly affected

Where is long-term memory located in brain?
-Karl lashley (scientist) studied this question
-Couldn't locate a specific area, no matter what part of cortex he removed, LT memory still existed
-Concluded that it does not reside in one spot, many different areas must be involved
-Modern theory:
Frontal lobes linked with explicit memory
Cerebellum linked with info learned through classical conditioning
Hippocampus linked with newly formed explicit memories
Amygdala linked with emotion-associated memories
Basal ganglia linked with procedural memory

Retrieval
-Getting info out of storage from long-term memory
-Retrieval cue: cue that enhances/facilitates retrieval process
-Priming: exposure to specific info in memory can activate other memories, enhances and facilitates the retrieval of similar memories (saying "black" primes "white" because they are related)
-The serial position effect: when exposed to verbal info, we are likely to better remember the first + last part than the middle
-Recency effect: when given verbal info and then immediately asked to state it, the most recent part is best remembered
-Primacy effect: given verbal info, then some time passes before being asked to state it, the 1st part is best remembered
-Both effects are part of serial positioning

-Retrieval is enhanced if the circumstances at the moment of retrieval are similar to the circumstances at the moment of encoding
ex:
-context effect: retrieval is enhanced if at the moment of retrieval you are in a similar context to the moment of recording (ie exam in same room as lectures = higher marks)

Moods and Memories
-State-dependent memory
Retrieval enhanced if at moment of retrieval mood is similar to mood at time of encoding

-Mood-congruent memory
Mood we're in influences the kind of memories we retrieve (happy mood -> happy memories)

Forgetting
-Normal process, but there can be medical reasons too
(ex: alzheimers destroys brain and memory)
-Amnesia (loss of memory due to brain trauma: tumor, surgery, blunt)
    -Retrograde amnesia: after event that caused amnesia, person has trouble remembering the past (stuff right before trauma)
    -Anterograde amnesia: after event that caused amnesia, person has trouble making new memories
    -Infantile amnesia: inability to remember much of first four years of life (researchers believe
-Henry Molaison (had severe epilepsy, had most of his hippocampus and amygdala removed, could no longer form new memories)
(explicit memory more affected than implicit)

-How fast do we forget?
    Much of what we forget occurs early on
    Once "forgetting" levels off, whatever is left will remain for a long time
    (Ebbinghaus forgetting curve)
    If you've learned it well, it takes longer to forget

5 Key Forgetting Theories
-Motivated forgetting (motivated to forget because it's troubling)
    Can be suppressed (consciously done)
    Or repressed (unconsciously done)
-Decay theory
    Without rehearsal, the info deteriorates over time
-Retrieval Failure
    Can't get the info out of storage
-Interference
    Pieces of info in memory interfere with each other
    Retro interference (new info interferes with retrieval of old info)
    Proactive interference (old info interferes with retrieval of new info)
-Encoding failure
    Failed to properly encode in the first place

Memory Construction
-Human memory does not function like a video recorder, it doesn't store a perfect copy
-With time, details of memory change (things added/removed/exaggerated)
-This editing happens unconsciously
-Multiple factors affect construction of memories, like beliefs, expectations, and new info

-like a clay, it is shaped

Elizabeth Loftus
-Best known researcher in memory construction
-Did studies on “misinformation effect” (exposure to past-event misinformation can change and distort the original event)
-Possible to “remember” something that didn’t happen (a false memory)
-Imagination effect: if we imagine something over and over, we can believe it as truth (can use this to create a false memory)

Schema
-Does past info affect memory creation?
-Schema: mental model of something (ex: a clown) as we think it should be (clown has makeup, red nose)
-This can influence our memory construction

Source Amnesia
-When we can’t remember or misattribute the source of our info

Discerning True and False memories
-It is very difficult, false memories can be vivid and are often linked with emotions

Children’s Eyewitness Recall
-In the 80s/90s, sexual abuse of children reports skyrocketed
-Many were false, due to “leading questions” posed by investigators,
these questions repeated over and over created false memories

Repressed or constructed memories of abuse
-90s, new therapy made to retrieve repressed memories of abuse
-Based on theory that these traumatic memories are always repressed, these memories must be explored for the person to be normal functioning
-Therapy involved guided imagery, this created horrible memories
-Lead to “memory wars” between psychologists
Are these memories constructed or not?
-Now, most researchers believe that highly traumatic events are more likely to be remembered than forgotten

Improving Memory
-Study repeatedly
-Make the material meaningful (apply concepts to own life, write notes in own words)
-Activate retrieval cues (recreate state of original encoding)
-Use mnemonic devices
-Minimize interference

-Sleep more
-Test your own knowledge

Prologue: History of Psychology
-Has been a science for 136 years
-But the questions and topics are as old as humanity

Early Greeks
-Wrote about sleep, dreams, memory, sensation, cognition
-Nature vs. nurture
    Inborn vs. experience/learning
-Plato believed that some knowledge/ideas are inborn
-Aristotle believed that we are born a blank state

European Philosophers
-Descartes
    Interactive dualism: Mind and body are two distinct entities, but they do interact to form emotion/behaviour

1879
-Psychology was born as a science
-Born in Germany, birthed by W. Wundt
    insisted that psychology be separate
    established the first pysch lab/journal

Structuralism
-First school of psychological though
-Founded by Wundt's student, Titchener
-Study of consciouness
-Trying to identify the basic elements of consciouness
-Used introspection

Functionalism
-Another school of thought around this time
-Focus on the adaptive value of conscious thoughts/emotions (ex: what purpose does anger serve?)
-Founded by William James (father of psych in US)

Early 1900s
-Two forces began to emerge:

-Psychoanalysis, founded by Freud
    Focus is on unconscious mind, Freud believed that unresolved childhood problems are

pushed into unconscious, shaping the adult
    Developed psycholoanalysis as a therapy to delve into the unconscious
-Behaviourism
    Rejected introspection and study of unconscious
    Preferred to study behaviour

-These forces dominated for ~50 years, but there was a revolution by two other groups:

-Humanists
    Thought there was more to humans than Freud and behaviour
    They thought of free choice, free will, self actualization
    Mazlow

-Cognitive Psychology
    Wanted to bring back the study of mental processes
    Decision making, planning, etc

Today
-Multiple perspectives rather than schools of though
-Each perspective covers psychology from a different view, we need all of them to have a full picture of psychology
-Study table in text:
Perspectives of Psychology
Neuroscience
-How body and brain enable emotions/memories/sensory experience
-might study brain circuits that cause us to be “red in the face”
Evolutionary
-How the natural selection of traits has promoted the survival of genes
-might study how anger facilitated the survival of our ancestors dreams
Behaviour Genetics
-How our genes and our environment influence our individual differences
-might study how heredity and experience influence our individual differences in temperament
Psychodynamic
How behaviour springs from unconscious drives and conflicts
-might view an outburst as an outlet for unconscious hostility
Behavioural
-How we learn observable responses
-might attempt to determine which external stimuli trigger angry responses or aggresive acts
Cognitive
-How we encode, process, store and retrieve information
-might study how our interpretation of a situation affects our situation, an how our anger affects thinking
Social-cultural

-How behaviour and thinking vary across situations and cultures
-might explore how expressions of anger vary across cultural contexts

-We now use a biopsychosocial approach
ex: studying depression, look at serotonin+genes, but also look at thoughts and social factors (like poverty)

Ch 3: Extra Pages

Dual Processing
-How the brain processes info, on two levels
-Conscious processing (aware), unconscious processing (unaware)
-ex: Henry Molaison's unconscious processing still worked well

Blindsight
-TN, a doctor who had two strokes
-Both parts of his primary visual cortext were destroyed
-He is completely blind, one of only own person with this condition
-Has blindsight, he is consciously blind, but can unconsciously detect visual stimuli
-Walked down hallway with obstacles he was unaware of, unconsciously avoided them
-Can detect shapes, movement, etc

Attention
-It's a limited resource, can't really multitask
-Selective attention: so much info, so you focus on one stimulus while disregarding others
-Causes inattentional blindness (focused on one stimulus such that others aren't percieved, even if they're obvious)
-ex: change blindness (being blind to changes in a stimulus)
choice blindness (being blind about choices/preferences)

Audition (Hearing)
The Stimulus
-Soundwaves
voice disturbs air molecules, bump into each other as a wave
soundwave is interpreted by brain as words
-Frequency (distance between peaks) (measured in hertz)
physical becomes psychological experience of pitch
-Amplitude (height of wave) (measured in decibels)
physical becomes psychological experience of loudness

-Complexity (how many different frequencies)
physical becomes psychological experience of timbre (tone)

The Ear
-Outer Ear
Pinna (catches+funnels sound waves)
-Middle Ear
Sound waves travel in auditory canal
-Inner Ear
They cause vibrations in the oval window, causing pressure waves in cochlear fluid in cochlea (which vibrates basilar membrane in cochlea) causes hair cells (cilia) on B.M to activate and start firing (sensory receptors) info goes to auditory nerve, then brain

Detecting Loudness
-Louder the sound, more hair cells will fire

How do we perceive pitch?
-Place Theory
sound waves of different frequencies will activate different areas of BM (high freq activates start of BM, opposite for low freq
-Frequency Theory
freq of soundwave influences rate of hair cell firing (higher freq = more firing) (1hz = 1AP/s)
however, hair cells can only fire 1000AP/s, however we can perceive higher freqs
-Volley Principle
groups of hair cells team up, firing one after another (if freq is 3000hz, then 3 cells needed)

Modern: Place theory explains how we perceive high frequencies sounds,
Frequency Theory explains how we perceive low freq sounds
All three together explains everything

Locating Sound
-Important for survival
-Brain monitors both ears, looks for:
time of arrival of sound wave and loudness
ear that is closer to source will receive sound earlier and louder
if it hits both ears at same time, we can cock head

Hearing Loss / Deaf Culture
-2 Types of Hearing loss

Sensorineural (HS)

-Physical damage to parts of ear involved with sensory/transport of info to brain
-Treat with cochlear implant

Conduction (HS)
-Damage to structure involved with transportation+amplification of soundwave
-Treat with digital hearing aid (amplifies soft sounds, don't touch loud sounds, called compression)

Go through each ear structure, ask what type of hearing loss would result if it was damaged

Other Senses
Touch
-Skin is organ, can also collect essential info
(touch, temperature, pain, pressure)
-Called cutaneous senses
-Sensory receptors in skin, 4 types:
    itch, pain, pressure, temp (warm/cold)
    how do we feel other sensations?
    receptors work together,
    ex: intense heat activates warm and cold receptors
must know other combos from textbook

-Touch is important for survival
-Premature babies who are touched, will grow quicker
-Touch releases endorphins that relax nervous system

Pain
-We have nociceptors (pain receptors) all over body
-Pain essential for survival also

Consciousness & Two Track Mind

page 85-92 (final exam, not 2nd midterm)

page 92-109 (10 questions for 2nd midterm)

Sleep
-State of unconsciousness, yet perceptual window is still open (can still detect and interpret things happening in environment)

Circadian Rhythm
-Internal biological clock that synchronizes with 24 hour day/night cycle

-Includes cycles of temperature (rises in morning, peaks during day, dips in afternoon) and alertness (thinking/memory peak during day) that change throughout the day
-Age affects circadian rhythm:
younger people tend to have performance increasing across day (best at night)
older people generally better in morning, performance declines as day goes on

Sleep Stages
-Sleep exists on a 90 minute cycle of four stages
-Alpha waves: brainwaves of a relaxed, awake state
1) non-REM sleep (NREM-1)
slowed breathing, irregular brain waves
may experience hallucinations (sudden jerk, fall)
can be easily awoken
2) NREM-2
20 minutes
has sleep spindles: bursts of rapid/rhythmic brain activity
3) NREM-3
30 min deep sleep, hard to awaken
delta waves: large slow brain waves
4) REM Sleep (paradoxical sleep)
ascend from “deep dive”
10 min, brain waves become rapid and saw-toothed like NREM-1
HR rises, breathing rapid/irregular
eyes dart around in momentary bursts of activity, accompanied by dream
brain motor cortex active, but brainstem blocks the messages, leaving body paralyzed
hard to awaken
-As night goes on, NREM-3 sleep shortens and disappears, REM and NREM-2 get longer
-Rem rebound: tendency for REM sleep to increase following REM sleep deprivation

Things That Affect Sleep Patterns
-Amount of sleep needed to function normally varies from person to person
-Generally, newborns need much more sleep while adults don’t
-Culture influence on sleep patterns (advent of electrical lighting, shift work, social diversions have decreased the average sleep we get in North America)
-Sleep hormone melatonin (promotes sleep) is regulated by light exposure, less light = more melatonin, thus artificial light can delay sleep
-Light activates light-sensitive retinal proteins, they trigger signals to brains SCN (suprachiasmatic nucleus) in hypothalamus, SCN causes pineal gland to reduce melatonin production

Why do we sleep?
-Protects
Ancestors better off in caves during the night, out of harm’s way

-Recuperate
helps repair brain tissue
pruning or weakening unused neural connections
-Memory
    Memory is consolidated, (strengthens)
-Creative Thinking
    Complete night's sleep gives boost to thinking/learning
    People who work on problem and then sleep on it can more insightfully solve it later
-Growth
    During deep sleep, pituitary gland releases growth hormone
    Essential for muscle development

Sleep Deprivation/Disorder

Effects of Sleep Loss
-Drained of energy/wellbeing
-"Sleep debt" accumulates, brain keeps accurate track of it for two weeks
    doesn't need to be paid off 1:1 but can't be paid off in one session
-Dissatisfaction with personal life more likely
-Increases ghrelin (hunger promoting hormone) decreases leptin (hunger suppressing hormone)
-More vulnerable to viral infections (and cancer?)
-Slow reaction time, increased visual attention error

Sleep Disorders
-Insomnia: persistent problem in falling or staying asleep
-Quick fixes (sleeping pills/alcohol) don't work, often aggravate the problem
and they can also lead to tolerance, best thing is to improve sleep habits
-Narcolepsy: sudden overwhelming sleepiness, leads to brief period of REM sleep
    Genetic link
-Sleep apnea: stoppage of breathing during sleep
        don't breath for about a minute
        oxygen deprivation prompts them to briefly wake up to snort in air
        decreases sleep quality, leads to fatigue/depression
        associated with obesity
-Night terrors: episode where pt can walk around, talk, doubled HR/breathing, appear terrified
        mostly in children
        not nightmares, usually occurs in NREM-3
-Sleepwalking (NREM-3)/sleep talking (any): walking around, or garbled talking
mostly in children again
genetic link
usually harmless
possible linked to fact that children have longest NREM-3 stage?

Dreams
-vivid, emotional, bizarre, can confuse them with reality
-common themes, oftentimes dream can correspond with events of previous day
-sensory stimuli from outside environment can be incorporated into dream

Why do we Dream?
-To satisfy our latent desires (freud -wish fulfillment)
    Express normally unacceptable feelings
    Lacks scientific support
-To file away memories (information-processing)
    Sort out day's events, consolidate memories
    Why dream about things we haven't experienced?
-To develop and preserve neural pathways (physiological function)
    Brain stimulation can help preserve neural pathways
    Why do we experience meaningful dreams?
-To make sense of neural static (neural activation)
    Triggers neural activity that evokes random visual memories, woven into stories
    Brain is weaving stories, tells us something about dreamer
-Reflect cognitive development
    Dream content shows knowledge and understanding
    Does not address neuroscience of dreams

Hypnosis
-Hypnosis: Social interaction between hypnotist/subject
-Used as entertainment, but there is more to it
-Stage 1: Induction ("you are getting sleepy")
-Stage 2: Suggestion (makes suggestions to subjects that affect perceptions/motivation/emotion)

Post-hypnotic suggestion:
    Suggestion made during hypnosis that is carried out after session

Post-hypnotic amnesia:
    After subject leaves session, they forget something specific

Fact or Fiction
-Most people are moderately hypnotizable
-few are very hypnotizable
-few are not hypnotizable
-hypnotizability is a "stable trait"
    there is a genetic component (cMOT gene)
-No link between hypnotizability and gullibility, imagination
    related to becoming very absorbed

-Expectations of hypnosis can affect how much you are hypnotized

Are they puppeting them?
    They are not controlling them, subject has to cooperate
Sleep-like state?
    Nothing like sleep, they are awake
Lose touch with surroundings?
    No, they are aware
Unique state?
    Some of what happens in hypnosis can happen elsewhere
    We don't know if hypnosis is a unique state
Make you stronger/more talented?
    No, but can improve concentration
Immoral/criminal acts?
    No, you can't make them do absolute criminal acts
    However immoral acts may happen in lab, b/c of its legitimate context (figure of authority)
Age regression?
    No, they are "playing the role" of a child
    They still think/emote as an adult
Memory
    Does not enhance subjects memory ability
    Could create false memories
    Hypnosis is not admissible in court
Hypnotic Analgesia?
    Can have pain-killing effect, very potent
    ACC area of brain activates when brain feels pain
    When hypnotized, there is less activity in ACC
-Therapeutic?
    Works to help with warts, asthma, chemotherapy, stuttering, nightmares
    Hypnosis+psychotherapy: helps with obesity, insomnia, anxiety, hypertension, No evidence that it helps for smoking, drug addiction, immune system
-Have to be relaxed?
    No, could be even running
-Those who are under hypnosis, are they imagining/faking?
    They are not imagining (supported by brain images)
    Some people do fake, but a lot don't

The Nature of Hypnosis
1st Theory: Dissociation
-Hilgard
-Under hypnosis, mind/consciousness splits into two distinct streams of consciousness
-One stream is under hypnosis (hypnotic experience)

-Other stream has normal consciousness, and is aware of everything happening, doesn't communicate with hypnosis stream (called "hidden observer")

2nd Theory: Socio-Cognitive Theories
-There is nothing special about hypnosis
-It's not a special state of being
-Nothing happening other than normal social processes happening (compliance, social influence, roleplay)

Drugs & Consciousness
-Psychoactive drugs: interfere with functioning of the brain (change perception, cognition, emotion)
-Produce effects on synapse level (look back at ch. 2)
-Most "street drugs" affect the activity of dopamine (reward pathways) (ie cocaine=much higher dopamine)

Addiction
-Acquired brain disease
-Person feels driven to take drugs in spite of serious consequences

Tolerance
-Continued use of drugs brings tolerance
-Need to take higher and higher doses of drug to get same effect
-Occurs because of neuroadaptation (brain changes b/c drugs) (functionally : could stop making a certain neurotransmitter) (structurally: open or shut neuroreceptors)
-Body adapts too (ex: liver for alcohol)

Withdrawal
-When drug users stop taking the drugs, they experience withdrawal symptoms: could have pain, headache, death, seizure
-Happens b/c they are dependent on drug
-Need the drug to function normally
-Psychological dependence: they are emotionally attached to the drug

Expectations
-Natives (in US) during ceremony use peyote:
positive experience for them (religious awe)
other people take it and have horrible experiences

Heaven to Hell
-Drugs at beginning = euphoric happiness
-Continued use = leads to hell

Depressants
-Depress/reduce the activity of nervous system

Alcohol
-Depressant at low and high doses
-Frontal lobes control impulse
-Alcohol depresses frontal lobe activity, reduces impulse control

Effects
Low dose: Relaxing, decreased tension, decreased inhibition, impairs concentration, slows reflexes, reduces coordination, impairs judgement
Medium dose: Further impairment of judgement, slurred speech, drowsiness
High dose: Vomitting, breathing difficulty, unconsciouness, coma, death
Other effects: Affects memory, reduces self awareness

FAS (Fetal Alcohol Syndrome)
-Mothers drank alcohol whilst pregnant
-facial/limb deformity, cognitive impairments, heart issues
Organ Damage
-Liver, heart, stomach, affected
Brain
-Cortex, cerebellum affected
-Brainstem affected (it can get so depressed that breathing stops)
-Shrinks brain, kills neurons (in larger doses) (shrinks frontal lobes/hippocampus)
Neurotransmitters
-GABA agonist
-Glutamate antagonist
-Dopamine/endorphin agonist

Barbiturates & Tranquilizers
-Decrease activity in areas of brain linked with arousal, alertness
-Decrease activity in breathing areas
-Produces effect by agonizing GABA
-Lethal additive effect with depressants in combination

Opiates
-Depressant effect on brain
-“Narcotics” can be man-made or from nature
-Morphine, heroin, oxycontin, opium
-Produce effects by mimicking endorphins (brain’s natural painkillers)
-GABA antagonists, dopamine agonists
-Euphoria to Hell (bc brain stops making endorphins)
-Lethal additive effect with depressants

Stimulants
-Drugs that increase NS activity
-Increases: heart rate, breathing, blood pressure, dilates pupils

Caffeine
-Increased alertness and wakefulness
-High doses: anxiety, restlessness, insomnia, uncomfortable withdrawal

Methamphetamine
-Triggers dopamine release
-Heightened energy and euphoria
-Irritability, insomnia, hypertension, seizures, social isolation, depression
-Over time, methamphetamine can reduce baseline dopamine levels, leaving the user with depressed functioning

Smoking
-Strong correlation between mental illness and smoking
-Second-hand smoke
-Third-hand smoke (smoke sticking to surfaces, still releases carcinogens)
-Pregnancy (very bad to smoke during pregnancy)
-Smoking damages DNA (leading to cancer)
-Nicotine in cigarettes is highly addictive
-Nicotine has a dual effect on brain (if feeling sluggish, excites) (anxious, calms down)

Cocaine
-High levels energy, confidence, very addictive
-Affects norepinephrine, serotonin, dopamine, blocks their reuptake
-15-30 min before crash
-Continued use brings chronic permanent depression
-Formication: User feels there are bugs under skin, pick at skin until serious injury
-Psychotic episodes: violence/aggression
-Convulsions leading to death (affects function of heart)

Ecstasy (MDMA)
-Developed in 1914 as appetite therapy
-Stimulant + Hallucinogen
-Effects dopamine (blocks reuptake), norepinephrine (blocks reuptake), serotonin (increases release, blocks reuptake)

Short-term effects
-Euphoria, Energy, Connectedness
-Increased temperature

-Paranoia, Nausea, Confusion
-Vomiting, convulsions, cardiac arrest, death,
-Serotonin depletion leads to crash (depression)
Long-term effects
-Sleep, cognitive impairment, weaker immune system, depression, hostility
-Impulsiveness, persistent anxiety, loss of ability (heat), heart
-Increased risk for Parkinson's disease
-Damage to serotonin producing neurons

Hallucinogens
-Psychedelics, mind-manifesting, mind-expanding
-Distort perceptions/thinking more than other types

LSD
-Synthetic drug, invented by Hoffman 1938
-Effects: unpredictable, vary from one person to another, good trips and bad trips
    some feel chills, tremors, others feel increased heart rate
    emotional extremes
    distorts perceptions, sensations (hear colours, taste sound), thinking
    Near death experience (out of body)
    Not sure how it works (linked with serotonin?)

Marijuana
-Mild hallucinogenic effects
-Relaxes, disinhibits, euphoric high
-impairs motor coordination, perceptual skills, reaction time
-Stays in body for longer time than alcohol
-Can intensify feelings of anxiety
-Medical applications for pain killing and nausea

Influences on Drug Use
-Genetic component to addiction (less/more likely to get addicted)
    CREB gene, makes CREB protein (low levels = anxiety, more drug use)
    CREB increases with music, etc
-Types of drug used
-Method of administration
    Inhaling/injecting goes quickly to brain, more likely to get addicted
-Age: younger = more likely to be addicted
-Gender: Men more likely to be addicted
-Psychosocial factors
    Major transitions (divorce, death)
    Culture
    Community

Mental Illness
Peers
Loneliness
Family

Prevention of Addiction
-Maximise protective factors:
treat children with respect
learn self-esteem
sense of purpose
healthy pleasurable activities
managing emotions (not suppress)
good peers
education

Near Death Experiences
-Clinically dead, but revived
-Go through tunnel of light, see dead relatives and religious figures, bliss
-Is this life after death?
They have cotard syndrome, they believe they are dead but they aren't close
-Out of body can happen while sleeping, not unique to NDE, can happen from temporo-parietal junction
-Idea of dead relatives can come from brainstem
-Positive bliss: can happen with drugs, not unique to NDE, endorphins released near death and serotonin very high close to death
-Tunnel of light occurs due to oxygen deprivation
-Basically, the dying brain creates a NDE

Ch. 7 Learning

Learning: a change in behaviour as a result of experience, relatively permanent

- Allows us to adapt + flexible
- Who we are is shaped by learning
- Can be a force for evil or good
- Hope with learning, can change things

1) Classical Conditioning

-Conditioning: learning to form associations, 2 types
-We learn to associate two events/stimuli (one event announces arrival of other)
-Adaptive: we know the other event will happen so we prepare
-Ex: lightning announces thunder
-Sexual fetishism linked with classical conditioning

Pavlov's experiments

-Pavlov, physiologist who contributed to psychology
-Was studying saliva with dogs
-Gave them meat, and they salivated
-Dogs would later salivate when they saw him (psychic secretions)
-The dogs associated him with food

Experiment

Food (unconditioned stimulus) -> salivation (unconditioned response)

Bell (neutral stimulus) -> No salivation

Bell + Food -> Salivation (repeat this step many times)

Bell (conditional stimulus) -> Salivation (conditioned response)

2) Higher Order Conditioning

-Once we have classically conditioned (dog is salivating to bell)
-We train the dog to salivate at sight of Red triangle
-Food (US) + Bell (CS) + Triangle (NS) -> Salivation (repeat many times)
-Triangle (CS) -> Salivation (CR)

-The process described above is called acquisition (how the dog learns to salivate at bell sound)

Factors affecting acquisition

-Frequency of presentation (higher freq, better acquisition)
-Timing (give dog food immediately after bell, might not learn association otherwise)
-Order (CS first, then US)

Extinction
-Train dog to stop salivating at bell sound (“reverse acquisition”)
Bell -> No food (repeat many times)

Spontaneous Recovery
-After extinction has taken place, dog could start salivating at bell sound without training

Generalization (of stimulus)
ex: Dog bites you -> afraid of all dogs
Train with specific bell -> Dog responds to other bells
Can be adaptive, which is good (car crossing, colour adaptation)
Can be maladaptive (girl was attacked by black man, now afraid of all black men)

Discrimination
-Dog salivates only when exposed to specific bell that trained him

Updating Pavlov’s understanding
Cognitive Processes
Disregarded by Pavlov (we don’t need to know what the dog thinks)
Challenged by modern researchers, cognitive processes important to classical conditioning, dog didn’t just learn association he learned to expect food based on bell
Animals are constantly assessing info, learns responses based on predictive power and reliability of stimulus

ex: Tone -> Shock 65x
Tone -> Light -> 15x
(tone has higher predictive power than light)

Biological Limitations
-Pavlov believed classical conditioning could teach anything
-Modern researchers believe that it can teach a lot of things, but nature puts limits on what we can learn

ex in rats:
Sound + radiation -> Nausea (many times)
Sound -> No nausea
-Could not associate nausea with the neutral stimulus

water + radiation -> nausea
water -> nausea
-Association works here, because drinking is already linked with nausea (“feeling so sick, must have been something I ate”)

Pavlov's legacy
-Gave us classical conditioning
    Humans can learn through classical conditioning
-Showed that you can objectively study complex psychology, like learning
-Influence John Watson
    Early 1900s, method of research was introspection (looked at own mind)
    Watson believed that only observable behaviours should be studied, but didn't have an objective method until he read Pavlov's work
His school of thought "behaviourism" dominated field of psych 1920-1960

Application of Classical Conditioning
-Animals kill livestock, farmer kills animals
-How to save animals and livestock?
-Kill one lamb, put non-lethal poison in lam
-Wolves learn to associate lamb with pain, don't attack livestock anymore
-Use classical conditioning with advertisement too

3) Operant Conditioning

Skinner's Experiments
-Skinner, psych researcher coined term "operant conditioning"
-In classical conditioning, we associate two events (stimulus triggers behaviour)
-Respondent behaviour: responding to a stimulus

-In operant conditioning, we associate a behaviour with its consequence (study hard -> get A+)
-In both classical & operant response=behaviour
-Operant behaviour: We're doing the behaviour
-Law of effect: behaviours are shaped/controlled by their consequence
    If a behaviour leads to a positive consequence, it's more likely to repeat

Principles of reinforcement
-Reinforcer
    A consequence that makes the behaviour more likely to repeat
    Positive reinforcer -> consequence where something desirable is added
    Negative reinforcer -> consequence where something undesirable is removed

-ex: Do exercise -> build muscle (positive reinforcement)
  Do exercise -> lose weight (negative reinforcement)
-Primary reinforcer
Reinforcer that is naturally rewarding, no learning required, b/c it satisfies basic needs (food, etc)
-Conditioned Reinforcer
We learn to find these naturally rewarding

ex: money, a baby doesn't find money rewarding
-Immediate Reinforcer
Do behaviour, reward is immediate
-Delayed Reinforcer
Do behaviour, reward takes time

Schedules of Reinforcement
-How often do behaviours need to be reinforced
-Continuous reinforcement: Every time behaviour happens, it is reinforced,
Easy to teach new behaviour but is easily extinct (removed)
-Intermittent (partial) reinforcement: Desired behaviour is sometimes reinforced, sometimes not, more resistant to extinction
-Ratio: based on # of behaviours/responses
Fixed Ratio: Specific # of behaviours must occur for it to be reinforced
(produces high rate of response with breaks in between)
Variable Ratio: # of behaviours that have to occur is variable
(produces high rate of responses with little breaks at all)

-Interval: time-based
Fixed interval: specific amount of time has to pass before reinforcement
(behaviour still has to happen) (work hard for short time)
Variable interval: amount of time before reinforcement is variable
(works easily over long period)

Punishment
-Consequence that makes a behaviour less likely to repeat
Positive punishment: Consequence where unpleasant thing is added
Negative punishment: Consequence where something desirable is removed
-Side effects (when punishment is harsh/unpredictable)
Suppression: undesirable behaviour hidden from observer
Aggression: If punishment is aggressive, subject more likely to be aggressive later
Fear/Avoidance
Helplessness: Give up on life

Does not guide one towards more desirable behaviour.

Shaping behaviour
-Reinforcing successively closer approximation of a behaviour until the correct behaviour is displayed

Modern view of Skinner

Cognition & Operant Conditioning

-According to Skinner, cognitive processes are not necessary to understand human behaviour
-Modern psych disagrees, thoughts/feelings/beliefs affect behaviour
-Latent learning: Learning from experience without reinforcement, and not demonstrating the knowledge until there is incentive to do it
-Cognitive map (“map” generated in head of mice as they explore a maze)

Intrinsic Behaviour
-Skinner says behaviour is strictly controlled by reinforcement and punishment
-Intrinsic motivation challenges this, we desire to do things because it’s within us, (interested in a hobby), no reinforcement needed
-extrinsic motivation: we do something to get something

Insight Learning
-Happens without reinforcement/punishment
-Within our own mind, we understand something
-Ex: chimp solves problem having never seen it before

Biological Predispositions
-Skinner: as long as you follow rules of operant conditioning, you can teach anything
-No, nature puts limits on what we can learn
-Look at examples in text
(animals)

Learning by Observation
-Researcher: Bandura
-We observed other humans behaviours, look at what is being reinforced/punished, and we adjust our behaviour accordingly (imitate behaviour that is reinforced)
-We are biologically prepared to observe/imitate (we can do this from a very young age)

Mirror Neurons
-Found all over brain, including motor cortex
-Activate when we watch someone doing something, when we do something, and when we infer that they are doing something
-Linked with compassion, learning, etc

Advantages/Disadvantages of learning by observation
-ADV: Speeds up learning process
-DIS: Can learn bad behaviours

Aggression
-Does aggression in media affect aggression in real life?
    Cause-effect relationship
    How? Imitation of media

Bobo doll (children watched adult attack doll and get rewarded)
Increases aggressive thoughts
Desensitization to violence