Module 1

Gingerich (Astronomer) states that there is nothing more complex to us than our brain

Psychology is a science that seeks to answer questions about us all—how and why we think, feel, and act as we do

In December 1879 at Germany's University of Leipzig **Wilhelm Wundt** created an experiment where they observed that when asked to press a button as soon as they heard a ball drop it took 1/10 second, but when asked to press when they were consciously aware of perceiving the sounds it took 2/10 seconds (it takes longer to be aware of one's awareness)—first psychology lab

Two early schools (1900-1920):

Structuralism: Wundt's student *Titchener* aimed to discover the mind's structure using introspection (report elements of their experience as their senses were stimulated). Unreliable because it required smart verbal people and results varied.

Functionalism: William *James* considered WHY things do what they do. Using Darwin's theories he assumed that senses developed because they were adapted. James admitted Mary Calkins into his graduate seminar and all the boys dropped out so he tutored her alone. She graduated with a Ph.D. but they refused to give it to her. She was the first American Psychological Association's female president.

Pre 1920 definition: science of mental life.

1920-1960:

Behaviorism is the view that psychology should be an objective science that studies behaviours without reference to mental processes. American psychologists *Watson and Skinner* redefined it as the scientific study of observable behaviour since science is rooted in observation and you can't observe a sensation, feeling or a thought, you must record behaviour. Today psychologists do not agree with the part about no reference to mental processes.

Freudian psychology: emphasized how our unconscious thought processes and our emotional responses to childhood experiences affect our behaviour.

In the 1960s:

Humanistic psychology: *Rogers and Maslow* believed in humanistic psychology, which drew attention to how environmental influences can nurture/limit our potential and the importance of having our needs for love and acceptance satisfied.

Cognitive Revolution: Against the humanistic psychologist, led the field back to interest in mental processes. Cognitive psychology explores how we perceive, process, and remember information.

Today we define psychology as: the science of behaviour (anything an organism does) and mental processes (internal subjective experiences we infer from our behaviour).

Nature-nurture issue is ancient (biggest historic issue in psychology). Plato assumed that we inherit character and intelligence and that certain ideas are inborn, but Aristotle believe that there is nothing in the mind that does not first come in from the external word senses. The current belief is that nurture works on what nature endows. Every psychological event is simultaneously a biological event.

Darwin proposed natural selection: the principle that the traits contributing to reproduction and survival will most likely be passed on.

Basic research: pure science that aims to increase the scientific knowledge base

Applied research: scientific study that aims to solve practical problems

There are a ton of different subfields in psychology (hospital, counseling, clinical, community etc.)

Biological psychologists: explore link between brain and mind

Developmental psychologist: study-changing abilities as we age

Cognitive psychologist: how we perceive, think and solve problems

Personality psychologist: investigate persistent traits

Social psychologist: how we view and affect one another

Community psychologists: works to create social and physical environments that are healthy for all

Clinical psychology: studies, assesses and treats people with psychological disorders but usually does not provide medical therapy

Psychiatrists: medical doctors licensed to prescribe drugs ad otherwise treat physical causes of psychological disorders

Best way to study: SQ3R—Survey, Question, Read, Retrieve, Review

Testing effect enhanced memory after retrieving rather than simply reading information.

Cognitive Neuroscience: interdisciplinary study of brain activity link with cognition

Levels of analysis: different complementary views, from biology to to social-cultural for analyzing something

Biopsychosocial approach: integrated approach that incorporates biological, psychological, and social-cultural levels of analysis (look at all contributors which provides a more complete view than if you just examined one perspective)

Module 2&3

People greatly overestimate their lie detection accuracy, their eyewitness recollections, their interview assessments, their risk predictions, and their stock-picking talents—You are the easiest person to fool

Why can we not rely solely on intuition and common sense? Our intuition is coloured by biases

1. Hindsight bias: Tendency to believe after learning an outcome, that one would have foreseen it (I knew it all along)
2. Judgmental overconfidence—I totally could have done that
3. Tendency to perceive patterns in random events
4. Single case

Scientific approach:

1. Curiosity: a passion to explore and understand
2. Skepticism—need to put things to the test
3. Humility: need to be aware that we may be wrong and need to be open to new perspectives

Critical thinking: Thinking that does not blindly accept arguments and conclusions—examines assumptions, evaluates evidence, and assessed conclusions. It helps clear our biases. The scientific approach contributes to critical thinking.

Experimenter intends the **lab to be a simplified reality**—they need to control certain features. The experiment is not meant to re-create the exact behaviours of everyday life but to test theoretical principles (ie. Test to see if someone will push a button to deliver a shock to someone else can test aggression—it is the **resulting principles, not the specific findings that help explain everyday behaviours**)

Often psychological studies are done on the **WEIRD** culture (Western, Educated, Industrialised, Rich, Democratic). Culture (the enduring behaviours ideas, attitudes, values, and traditions shared by a group of people and transmitted through generations) affect behaviour. Therefore behaviour somewhat depends on culture and gender but we all share some biological heritage that has the same underlying processes that guide us—**even when specific attitudes and behaviours vary by gender and culture, the underlying processes are much the same.**

Many psychologists study **animals** because we ARE animals. We can use simple sea slug nervous systems to learn about our own. This brings up ethical questions—some animals have benefitted from the research performed on them.

American Psychological Association's ethics code: (universities also have safeguards)

1. Obtain informed consent where participants are told enough to enable them to choose if they want to participate
2. Protect participants from harm and discomfort
3. Keep information confidential and debrief people (explain the study)

Psychology is not value free—you need to be careful about wording because it can change A LOT and show our values (one country's enhanced interrogation techniques is another's torture). Values affect what w stufy, how we study it, and how we interpret results.

Scientific Method:

Observation

Hypothesis: testable prediction

Data collection/analysis:

Theory: explanation using an integrated set of principles that *organizes* observations and *predicts* behaviours or events. A good theory produces testable predictions (hypotheses).

To check their biases, psychologists report their research with precise operation definitions of procedures and concepts (statement of the operations used to refine research variables)—this allows the experiment to be replicated.

We can test hypotheses using:

1. Descriptive methods: describe behaviours
    a. Case studies—single observation can suggest fruitful ideas and do not allow us to learn about general principles
    b. Naturalistic observation (watch)—does not explain, just describes behaviour (ie. Observe tool-making in chimps)—offers snapshots but does not control factors that may influence behaviours,
    c. Surveys—looks at many cases less in depth. Need to be careful of wording, and need to have a representative sample that represents the entire population (all cases). Seek a random sample (fairly represents a population because each member has an equal chance of inclusion).
2. Correlational methods: associate different factors to find correlation (measure of extent to which two factors vary together). Correlational coefficient is a statistical index of the relationship between 2 things (-1 to +1) it helps us to see the extent to which to things relate. Scatterplots can be very revealing—positive correlation

is positive slope, negative is negative slope. Correlation DOES NOT prove causation, it indicates only the possibility (does not specify cause and effect, no manipulation)

3. Experimental methods: Experiment: a research method where an investigator manipulates independent variables (can vary independently from others) to observe the effect on some behaviour or mental process (dependent variable—can vary depending on what takes place during the experiment). You need an experimental group (exposed to treatment) and controlled group (serves as contrast)—these are randomly assigned to control confounding variables (other factors that can influence the results ie. Age, weight etc). Unlike correlational studies which uncover naturally occurring relationships, and experiment manipulates a factor to determine its cause/effect. Studies are often double-blind (participants and staff don't know if they have placebo or treatment). Placebo effect—experimental results caused by expectations alone (for this reason researchers must control for a possible placebo effect). Experiments are sometimes not feasible because of cost/ethics.

When reading statistics make sure you are skeptical (they can be straight up wrong, or graphs can be manipulated)

Measures of central tendency:

1. Mode: most frequently occurring score
2. Mean: arithmetic average
3. Median: mid-point

Outliers can skew central tendencies.

Averages derived from scores with LOW variability are more reliable than averages based on scores with high variability (if basketball player scores between 13-17 points vs 5-25 points, more confident that will score 15 points in first example)

Range: gap between lowest and highest scores (does not take into account HUGE outliers)

Standard deviation: computed measure of how much scores vary around the MEAN score (gauges if scores are compact or spread out)—typically data is in a normal curve (symmetrical bell-shaped curve—most scores fall near the mean and fewer near the extremes).

An observed difference is reliable when:

1. Representative samples are used
2. Less-variable observations are used (ie basketball player with 13-17 point range)
3. More cases

If averages from two samples are each reliable measures of their respective populations then their difference is likely to be reliable. When the difference is large we have even more confidence that the difference is reliable.

Statistical significance: statistical statement of how likely it is that an obtained result occurred by chance. Some things may be statistically significant but have little practical significance (if IQ scores vary by 1 point, who cares). Therefore statistical significance indicates likelihood that a result will happen by chance but nothing about the importance of the result.

Module 4

You reside in your head—you can have organ transplants but still be you—everything psychological is simultaneously biological.

In the early 1800s, Franz Fall proposed phrenology, the study of bumps on the skull to reveal mental abilities and character traits. It was a hoax—Mark Twain anonymously was labeled as not funny, and then as super funny. However it did draw attention to the **localization of function**—various regions have particular functions.

Biological perspective: concerned with the links between biology and behaviour

Our adaptive brain is wired by experience.

Each system is composed of subsystems which are composed of subsystems etc. (cell→ tissue→ …→ family →community etc. thus we a re Biopsychosocial systems—to understand behaviour we need to study how biological, psychological and social systems interact.

Our nervous system is very similar to other organisms', so we can study them.

Neurons: a nerve cell, the basic building block of the nervous system

- **Cell body:** Cell's life-support centre
- **Dendrite fibres:** bushy, branching extensions that receive messages and conduct impulses toward the cell body (listen, short)
- **Axon:** neuron extension that passes messages through its branches to other neurons/muscles/glands. Terminal branches of axons form junctions with other cells. (speak, can be long)
- **Myelin sheath:** layer of fatty tissue that insulates nerves and speeds impulses (degeneration=MS)
- **Action potential:** neural impulse—brief electrical charge that travels down an axon—range in speed (much slower than computer, and slower in larger animals)

The positive-outside/negative-inside state is called the resting potential. The axon's surface is selectively permeable and when neuron fires, Na+ rushes in which depolarizes the axon section, causing the neighbour's channel to open. During the refractory period, the neuron pumps Na+ back out and can then fire again. The AP can speed up by hopping from one end of myelin to the next.

Most signals are excitatory but some are inhibitory. If excitatory-inhibitory>threshold (minimum intensity) then an AP is triggered.

All or none response: a neuron either fires or not—when you increase a stimulus' strength, more neurons will fire more often but the AP's speed/strength is not affected

Synapse: junction between axon tip of sending neuron and dendrite/cell body of receiving neuron. The tiny gap is called the synaptic gap/cleft.

When AP reaches the end of an axon, it triggers neurotransmitters (chemical messengers) to be released and they cross the gap and bind to receptor sites which unlocks a tiny channel and causes electrically charged ions to flow in either exciting or inhibiting the neuron. The neuron then reuptakes the neurotransmitters.

Morphine binds to receptors and elevates mood—we have endorphins that normally bond there. If we flood or body with opiates then our own neurotransmitter production is surpressed.

Agonist: molecules similar enough to a neurotransmitter that it can bind to its receptor and mimic its effects.

Antagonists: molecules that bind to receptors and block the neurotransmitter's functioning (Botulin blocks Ach)

Nervous system: body's speedy electrochemical communication network (consists of all nerve cells in PNS and CNS)

CNS: brain and spinal cord—decision maker

Peripheral nervous system: Sensory and motor neurons that connect the CNS to the body—gather information and transmit CNS decisions to other body parts

- **Somatic nervous system:** enables voluntary movement of skeletal muscles
- **Autonomic NS:** controls glands/muscles of the internal organs—can be consciously overridden but usually autonomous
  - **Sympathetic:** arouses the body, mobilizing energy in stressful situations (dilate pupil, accelerate HR, inhibit digestion, stimulate glucose release by liver, stimulate secretion of epinephrine/ norepinephrine by adrenal gland, relaxes bladder, stimulate ejaculation in male, sweat)
  - **Parasympathetic:** calms body, conserving energy (constrict pupil, slow HR, stimulates digestion, stimulates gallbladder, contracts bladder, allows blood flow to sex organs)
  - They normally work together to keep a steady internal state

Nerves: bundled axons that form neural cables connecting CNS with muscles/glands/sensory organs

Sensory neurons: carry information from sensory receptors to the brain/spinal cord for processing

Motor neurons: carry instructions from CNS out to the body's muscles

Interneurons: neurons within the brain/spinal cord that communicate internally and intervene between sensory inputs and motor outputs (this is where most of our complexity lies)

Brain's neurons cluster into work groups called neural networks so they can have short, fast connections with one another. The brain learns by modifying certain connections in response to feedback (learning)-- neurons that fire together, wire together
The spinal cord is a 2-way highway—sensory info up, and descending fibres send back motor-control info.
For reflexes, the message gets to an interneuron in the spinal cord and it immediately sends a message through a motor neuron. This is before the brain has even received the pain message (you don't need to have a brain to have a reflex)—paralyzed men can have an erection but won't feel it—an erection is a reflex
Endocrine system: the body's slow chemical communication system—a set of glands that secrete hormones in the bloodstream
Hormones: chemical messengers that are manufactured by endocrine glands, travel through the bloodstream and affect other tissues. Some hormones are identical to neurotransmitters.
The nervous and endocrine systems work together—they both produce molecules that act on receptors elsewhere but endocrine is slow, and more long-lasting (adrenaline can last for a while)
Pituitary gland: most influential gland—it is under the influence of the hypothalamus and regulates growth/controls other endocrine glands
Feedback system: brain→pituitary→other glands→hormones→body and brain

Module 5&6

Brain+ body=mind—we need the hormones and the neurotransmitters

Lesion: Tissue destruction (scientists can cause them purposely to observe the effect, they can also stimulate)

Electroencephalogram: amplified recording of the waves of electrical activity that sweep across the brain's surface—researchers present a stimulus repeatedly and have a computer filter out brain activity unrelated to the stimulus so what remains is the electrical wave evoked by the stimulus.

Positron Emission Tomography Scan: visual display of brain activity that detects where a radioactive form of glucose goes while the brain performs a given task (Active neurons are glucose hogs and form a hotspot)

Magnetic Resonance Imaging: uses magnetic fields and radio waves to produce computer-generated images of soft tissue (aligns spinning atoms then a radio pulse momentarily disorients them and when they return to normal spin they emit signals that provide a detailed picture of soft tissues).

fMRI (functional): reveals blood flow and therefore brain activity by comparing successive MRI scans. Shows brain function.

Older Brain Functions: Occur without any conscious effort—brain processes most info outside of our awareness, we are aware of the results but not of how we construct things.

Brainstem: oldest and innermost region, begins where spinal cord swells slightly after entering the skull. Crossover point where most nerves of the brain connect with the body's opposite side

- **Medulla:** Slight swelling, controls heartbeat and breathing
- **Pons:** Just above medulla, helps coordinate movements (if cut just above medulla and pons cat can still run etc. just not purposely run to get food because no higher thought)

Thalamus: Just above brain stem, pair of egg-shaped structures that act as the brain's sensory switchboard. Receives sensory info except for smell and directs to medulla and cerebellum.

Reticular formation: Finger-shaped network of neurons that extends from spinal cord through the thalamus. Some sensory input flows through it, and it filters incoming stimuli and relays important info to other brain areas. It also enables arousal (if stimulate it, you will wake, if sever it, will end up in coma and die)

Cerebellum: extends from rear of brain stem, enables non-verbal learning and memory. Helps judge time, modulate emotions and discriminate sounds and textures, and helps coordinate voluntary movements.

Limbic system: neural system that is between the oldest and newest brain areas and is associated with emotions and drives

- **Hippocampus:** processes conscious memories
- **Amygdala:** Two lima-bean-sized neural clusters linked to aggression and fear (without it turn mellow, and when stimulate, turn aggressive, and when move this stimulus might cower in fear)
- **Hypothalamus:** below the thalamus, influence hunger, thirst, body temperature, and sexual behaviour—help maintain a steady internal state. Secretes hormones that act as triggers Also contains reward centres (releases dopamine) By rewarding rats, they can control which direction they turn and equip them with a camera. Some researchers believe that addictive disorders may stem reward deficiency syndrome.

Newer Brain Functions: Newer networks within the cerebrum enable our perceiving, thinking, and speaking. Covering the hemispheres is the cerebral cortex, which is the body's ultimate control and info-processing centre. Higher order animals have larger cerebral cortex, which increases adaptability. Wrinkled to increase surface area. Nerve cells are supported by glial cells that support nourish and protect neurons and may also play a role in thinking/learning (Einstein had TONS of glial cells). They also provide insulating myelin. Each hemisphere is divided into four lobes separated by fissures.

- **Frontal lobes:** behind forehead,
  - **Motor cortex:** area at back of frontal lobes that control voluntary movement. By stimulating different areas, it has been mapped (this has opened door for brain-computer interfaces). Implant electrodes, match brain signals with arm movements, and then by thinking the computer could make something happen (called cognitive neural prosthetics)
  - **Association:** judgment, planning, processing of new memories.
  - Phineas Gage: rod goes up through frontal lobes, he is now irritable profane and dishonest—can alter personalities. Can also reduce inhibition,
- **Parietal lobes:** top and rear
  - **Sensory cortex:** front of parietal lobes, parallel and just behind motor cortex. The more sensitive the body region, the larger the sensory cortex area devoted to it (lips way bigger than toes—that why we kiss with our lips).
  - **Association:** mathematical and spatial reasoning
- **Occipital lobes:** back of head
  - **Visual cortex:** receives visual input

Temporal lobes: just above ears

Auditory cortex: auditory input

Association: facial recognition

These areas occupy ¼ of the brain. The rest are called **association areas:** areas not involved in primary motor/ sensory functions, they are involved in higher learning mental functions such as learning, remembering, thinking, and speaking. Stimulating these areas won't produce an observable response. They areas interpret, integrate, and act on sensory info and link it with stored memories. They are found in all four lobes.

Brain is not organized into structures that correspond to our behaviour categories though, includes many different areas.

Plasticity: brain's ability to change, especially during childhood, by reorganizing after damage or by building new pathways based on experience. Severed neurons do not regenerate and some brain functions are pre-assigned to specific areas.

Constraint-induced therapy aims to require brains and improve the dexterity of a brain-damaged child/ adult stroke victim by restraining a fully functioning limb, and forcing the use of the bad limb in order to gradually reprogram the brain.

Blindness/ deafness makes unused brain areas available for other use—blind person reading Braille, the area dedicated to that finger expands as the sense of touch invades the visual cortex. Deaf people have enhanced peripheral vision.

Brain sometimes attempts to produce new brain cells—this process is called neurogenesis. Master stem cells can develop into any type of brain cell, and have been found in the human embryo.

Corpus callosum: large band of neural fibres that connect the two brain hemispheres and carry messages between them. Researchers cut to prevent the spread of seizures.

Split-brain patients: info to right brain can't say it but can point. Info to right can help you choose it (feel out a spoon—they are surprised when they get it, they didn't think they knew because the left-brain is speaking). They can draw two figures at once. Left hemisphere tries to rationalize reactions (improvises—doesn't know why walking but says I'm going to get a Coke).

Info from the left half of your vision goes to right hemisphere and info from right goes to left (which is in charge of speech)

Right Hemisphere: perceptual task, inferences (if given words foot, cry, and glass, will say cut), helps modulate our speech (make the meaning clear—a head vs ahead), helps orchestrate our sense of self

Left Hemisphere: speech, calculations, language (even sign language), literal interpretations of language

Module 11&12

We are each unique but have many similarities: prefer sweet to sour, develop language etc.
Behaviour geneticists: study of the relative power and limits of genetic and environmental influences on behaviour
Environment: every non-genetic influence
46 chromosomes in total, 23 from mom, 23 from dad
Chromosomes: threadlike structures made of DNA molecules that contain the genes
DNA: complex molecule containing the genetic information that makes up the chromosomes
Genes: Biochemical units of heredity that make up the chromosomes; segments of DNA capable of synthesizing a protein. Can either be expressed or inactive—environmental event can turn them on or off.
We are all extremely similar in terms of our DNA
Identical twins come from a single, monozygotic, fertilized egg that splits in two (genetically identical—same genes but not always same number of copies, sometimes have different placentas so different prenatal nourishment).
Fraternal twins develop from separate dizygotic fertilized eggs.
Identical twins treated alike are not psychologically more alike than identical twins treated differently.
Nature versus nurture studies:

1. Controlled home while varying heredity-- Biological versus adopted relatives: biological is more responsible for personality. Parents can affect attitudes, values, manners, faith and politics
2. Controlled genes while varying homes: voice intonations, personality, intelligence, heart rate, fears, all almost identical. Separated identical twins had somewhat less identical personalities than those reared together, but are more alike than separated fraternal twins→ criticisms: often placed in similar homes, similar appearances evoke similar responses

Temperament: a person's characteristic emotional reactivity and intensity. Heredity predisposes it, and the genetic effect appears in physiological differences (if there is an anxious child, they will have a high and variable HR)
Molecular genetics: subfield of biology that studies the molecular structure and function of genes (tries to identify specific genes influencing behaviour). Teams of genes influence traits. Genetic testing can now pinpoint genes that put people at risk for genetically influenced disorders (prevent problems before they happen). This can lead to discrimination though.
Heritability: proportion of variation among individuals that we can attribute to genes. As environments become more similar, heredity as a source of differences becomes more important.
One of our most important traits is our adaptability to our environment (this is what contributes to our fitness, our ability to survive and reproduce)—genes and environment work together, genes can react based on the environment—two identical babies received different care means that they will mature with different personalities.
Environments trigger gene activity, and our genetically influenced traits evoke significant responses in others.
Epigenetics: study of influences on gene expression that occur without a DNA change—study the environmental triggers
Evolutionary psychologists: study of the evolution of behaviour and the mind, using principles of natural selection
Natural selection: principle that, among the range of inherited trait variations, those contributing to increased reproduction and survival will most likely be passed on to succeeding generations.
Nature has selected advantageous variations from the new gene combinations produced at each human conception and the mutations (random errors in gene replication) that sometimes result.
Our behavioural and biological similarities arise from our shared human genome—95% of genetic variation exists WITHIN populations rather than population group differences (if only one population survived there would still be lots of diversity).
Our shared moral instincts survived from when direct-harm doing (pushing someone in front of the bus to save others rather than letting them fall) would be punished.
In some ways we are prepared for a world that no longer exists (sweets and fats were to prepare for famines).
Men and women have adapted in many of the same ways—eat same foods, avoid same predators.
The largest gender difference in sexuality is the likelihood to initiate sexual activity.
Women: must incubate and nurse one infant at a time, attracted to men that would be ideal for long-term mating (older)
Men: Spread genes through other women, attracted to youthful women (many childbearing years to come), ALL ages like women in mid-20s because associated with peak fertility.
Thus, nature selects behaviours that increase the likelihood of sending one's genes into the future.
Key criticisms of evolutionary psychology: start with an effect and work backward (you can always produce an explanation that fits), it might rationalize bad behaviours, we can change our behaviours based on how we are socialized (if socialized to accept causal sex, women might be more likely to have causal sex).

Our genes dictate our overall brain architecture, but experience fills in the details, developing connections and preparing out brain for thought and language and other later experience.
Rats living in more stimulated environment developed a heavier and thicker brain cortex.
After brain maturation provides us with tons of neural connections, our experiences trigger a pruning process. Unused pathways weaken. Therefore as children while excess connections are still on call, it is easier to master some skills. (USE IT OR LOSE IT)
Children are not easily sculpted by parental nurture (shared environmental influences account for less than 10% of children's differences). Youth typically look to their parents when contemplating their future.
We seek to fit in with groups and are influenced by them—will eat the same food as others even if we don't like it..
Selection effect: we seek others than are similar and like-minded.
Culture: enduring behaviours, ideas, attitudes, values, and traditions shared by a group of people and transmitted from one generation to the next.—our great similarity as humans is our capacity for culture. Culture changes FAST. Humans in varied cultures share some basic moral ideas, yet each cultural group has its own norms.
Norms: an understood rule for accepted and expected behaviour. Culture shock occurs when we don't understand the norms.
Individualism: giving priority to one's own goals over group goals and defining one's identity in terms of personal attributes rather than group identifications. Can switch social groups easily, want unique names—maintain your sense of me
Collectivist: giving priority to the goals of one's group (often one's extended family or work group) and defining one's identity accordingly. More polite/ conscious of others' feelings, give credit to the team—you might lose the connections that defined who you are
Cultural neuroscience: studying how neurobiology and cultural traits influence each other
Although there are large differences in culture, personality traits are relatively similar cross-culture.
Gender: the biologically and socially influenced characteristics by which people define mal and female (biological sex helps define gender).
Gender differences—peak in late adolescence and early adulthood

- Men are more aggressive (deliver painful shocks)
- Men are perceived as more dominant, forceful, and independent (more emphasis on power/achievement).
- Boys typically play in large groups with an activity group and little intimate discussion. Girls usually play in smaller groups, where their play is less competitive and more imitative of social relationships.
- Females are more responsive to feedback, and men are more likely to hazard answers to difficult questions (the male answer syndrome).
- Females are more interdependent (rely on others/ socialness)
- Females are interested more in people and less to things.
- Men value freedom and self-reliance and dominate the skeptics.

Nature of our gender:

- **Biology:** Guys act like guys no matter the species. They have 1 X and 1Y chromosome (includes a switch that triggers the testes to develop and produce testosterone—females have some but not as much). This testosterone output starts the development of external male sex organs. During the fourth and fifth prenatal months sex hormones bathe the fetal brain and influence its wiring—there are differences in the structure of the brain.
- **Culture:** Gender is biologically influenced but also socially constructed, what biology initiates, culture accentuates. Gender roles are the behaviours a culture expects of its men and women. Social learning theory (theory that we learn social behaviour by observing and imitating and by being rewarded or punished) assumes that children learn gender identity (our sense of being male or female) by observing and imitating others' gender-linked behaviour and by being rewarded or punished for acting in certain ways (being such a good mommy for your doll). Gender typing: the acquisition of a traditional masculine or feminine role. As children you form concepts that help you make sense of the world, and a gender schema was one of these. They therefore attribute certain things to each gender. Transgender: people whose gender identity or expression differs from that associated with their birth sex.

Genes are all pervasive but not all powerful—you can defy your genetic bent to reproduce. Same for culture.
Occam's razor: the principle that we should prefer the simplest of competing explanations
The Biopsychosocial approach considers all the factors that influence our development: biological (including shared human genome, individual genetic variations, prenatal environment, evolution, genes, hormones, physiology and brains), psychological (including our gene-environment interaction, neurological effect of early experiences, responses evoked by our own temperament& gender, experiences, beliefs, feelings, and expectations), and social-cultural factors (including parental and peer influences, cultural individualism or collectivism, and gender norms).

Module 14

Maturation: biological growth processes that enable orderly changes in behaviour, relatively uninfluenced by experience. It sets the basic course of development, and nurture adjusts it.
Brain development huge in the womb, and then from infancy on brain and mind develop together.
After birth, the branching neural networks allow you to learn—ages 3-6= frontal lobe development, association areas (thinking, memory, and language) are last to develop.
Use-it-or-lose-it pruning process shuts down unused links and strengthens others.
Genes guide motor development—identical twins normally start walking on nearly the same day.
Infantile amnesia: can't remember before the age of 3. From 4-8 you start being able to because hippocampus and frontal lobes mature. Although we consciously can't remember anything we can—tie mobile to foot and baby knows to kick. Can quickly recall childhood language.
Cognition: all the mental activities associated with thinking, knowing, remembering, and communicating. Piaget saw that children often answered really similar wrong answers—children reason differently.
Piaget's core idea is that we build schemas (concept/framework that organized/interprets information) into which we pour our experiences—make sense of things. First we assimilate (interpret in terms of existing schemas), then accommodate (adapt current schemas to incorporate new information)
Piaget's theory:

Age Range	Description of Stage	Developmental phenomena
Birth-2	**Sensorimotor:** experience world through senses and actions. Live in the present (out of sight means doesn't exist). Lack object permanence (by 8 months start to show it). They understand when something crazy (magic) has happened, and respond to greater or smaller mass of objects.	Object permanence, stranger anxiety
2-6 or 7	**Preoperational:** Representing things with words and images, using intuition rather than logical reasoning. Too young to perform mental operations (milk is too much in tall glass but fine in short glass). Lack concept of conservation (quantity remains the same despite changes in shape).	Pretend play, egocentrism
7-11	**Concrete operational:** thinking logically about concrete events; grasping concrete analogies and performing arithmetical operations	Conservation, mathematical transformations (8+4 then 12-4)
12-adulthood	**Formal operational:** abstract reasoning. Can deduce consequences (if this, then that).	Abstract logic, potential for mature moral reasoning

Lots remains of Piaget's theory
Piaget thinks preschool children are **egocentric**—can't perceive things from another's point of view (blocking book).
Theory of mind: people's ideas about their own and others' mental states (little red riding hood knows to run away when discovers grandma is wolf). Preschoolers form this (why someone angry etc.) Don't know that other people don't/do know what they know. People with autism have impaired theory of mind—can't easily infer others' thoughts and feelings
Current researchers believe development is more continuous than Piaget thought, and more advanced (when 3 year old shown model of room with something hidden, can find object in real room).
Lev Vygotsky: children above age 7 think in words and use words to solve problems—rely on inner speech (if say No No when child reaches for cake, they will do the same for themselves). Do better when talk to themselves in math. Parents provide a scaffold from which children can step to higher levels of thinking. Language provides the building blocks for thinking.
Young children are incapable of adult logic (blocking book, getting off teeter-totter causes crash etc.)
At about 8-months, infants develop stranger anxiety (schemas for familiar faces and can't assimilate the new face into a schema so get distressed)
Attachment: emotional tie with another person—children seek closeness to caregiver and are distressed when separated. Thought were attached to those who provide nourishment but monkey likes softer fake monkey better than one with food. They use the soft one as a secure base. Monkeys were distressed when blanket they were raised with was getting washed (BODY CONTACT—rocking, warmth, and feeding make cloth mother more appealing)—contact is key in childhood
Attachments based on familiarity form during a critical period (optimal period when certain events must take place to facilitate proper development. Rigid attachment process that ducks use is called imprinting (if see human first will follow human everywhere). Children do not imprint, mere exposure fosters fondness (familiarity is a safety signal).

Secure attachment: in mom's presence play comfortably, when she leaves they are distressed, when she returns they seek contact. Sensitive, responsive moms. Children approach life with basic trust (sense that world is predictable and trustworthy)
Insecure attachment: marker by anxiety or avoidance of trusting relationships. Less likely to explore surroundings, may cling. When mom leaves they cry or are indifferent. Insensitive, unresponsive moms.
Attachment style is significantly influenced by parenting, and attachment style influences relationship styles later in life.
Anxiety over separation from parents peaks at 13 months.
Those abused/ neglected: higher anxiety, less intelligent.
Most children growing up under adversity are resilient but those who experience no sharp break from abusive past don't bounce back as much.
Unloved may become unloving (abusive as well)
Abuse victims are at considerable risk for depression if they carry a gene variation that spurs stress-hormone production.
High quality daycares are just as good as stay at home moms—kids may become more aggressive and defiant though
Infancy's major social achievement is attachment, childhood's major social achievement is a positive sense of self. At about age 12, most children have a self-concept (understanding and assessment of who they are).
Does our child know who they are? At 6 months when look in mirror, will touch mirror, at 18 months will touch themselves.
Authoritarian parenting: impose rules and expect obedience (kids have less social skills and self-esteem)
Permissive parenting: submit to children's desires (kids are more aggressive and immature).
Authoritative parenting: demanding and responsive. Exert control by setting rules and enforcing them but explain the reasons for rules and encourage open discussing when making rules and allow exceptions.
FOR PARENTING STYLES, CORRELATION IS NOT CAUSATION→ alternatives: children's traits may influence parenting (evoke certain styles), some underlying third factor may be at work

Module 15

Life-span perspective—we continue to develop all throughout our life

Adolescence: transition from childhood to adulthood, extending from puberty to independence

Puberty: Sexual maturation, surge of hormones, growth, primary sex characteristic (reproductive organs and external genitalia), secondary sex characteristics (breasts, hips, facial hair, non-reproductive traits). A year or two before, start feeling attraction. In girls starts with breast development (landmark is first menarche (first period)), in boys first ejaculation. Menarche occurs earlier for stresses of father absence, sexual abuse or insecure attachments. Sequence of physical changes is more predictable than timing. How people react to our physical development is important—we are reaching puberty earlier than in the past.

During adolescence, pruning starts, frontal lobe development (continues until 25), growth of myelin (improved judgment, impulse control, and long-term planning). Frontal lobe development lags behind emotional limbic system so that explains impulsiveness, risky behaviours and emotional storms—reason with gut (so more likely to smoke).

Moral reasoning: the thinking that occurs as we consider right and wrong—we go from preconventional (<9 self-interest, obey rules to avoid punishment or gain awards—you'll be hero) to conventional (early adolescence, uphold laws and rules to gain social approval or maintain social order, don't steal drug because labeled a criminal) to postconventional (adolescence and beyond, belief in basic rights and self-defined ethical principles, people have right to live) moral reasoning as we develop.

Mind makes moral judgments quickly and automatically—we feel disgust/elation.

Desire to punish wrongdoings is mostly driven by emotional reactions such as moral outrage. After the emotional fact, moral reasoning aims to convince us and others of the logic of what we have intuitively felt.

We want someone to die to save 5 but we won't push them—personal dilemma engaged emotions that altered moral judgment.

Character education now involves thinking, feeling, and doing the right thing. Those who learn to delay gratification become more socially responsible, academically successful, and productive.

Erik Erikson believes that each stage of life has its own psychosocial task that needs resolution.

Stage	**Issue**	**Description of task**
Infancy (to 1)	Trust vs mistrust	If needs are met, trust
Toddlerhood (1-3)	Autonomy vs shame and doubt	If don't do things on own, then doubt
Preschool (3-6)	Initiative vs guilt	Initiate task or guilty about efforts to be independent
Elementary school (6-puberty)	Competence vs inferiority	Apply or feel inferior
Adolescence (teens-20s)	Identity vs role confusion	Want single identity or become confused
Young adulthood (20s-40s)	Intimacy vs isolation	Want close relationships or feel isolated
Middle adulthood (40s-60s)	Generativity vs stagnation	Want sense of contribution or lack purpose
Late adulthood (60+)	Integrity vs despair	Reflecting may lead to sense of satisfaction or failure

Teens try different identities (sense of self)—awkward when our different identities overlap

Group identities are often formed by how we differ from others

Social identity: we aspect of self-concept—part of our answer to "Who am I?" that comes from group membership

Self-image scores fall then bounce back in twenties.

Intimacy: ability to form close, loving relationships

Positive parent-teen relationships and positive peer relations often go hand in hand.

Growing peer influence in teen years.

Heredity does lots of the work in forming individual temperament and personality differences, and peer influences do the rest.

Teens see their parents having more influence in other areas—shaping religious faith, thinking about college and career choices etc.

Later independence and earlier sexual maturity have widened the interlude between biological maturity and social independence.

Emerging adulthood: period from late teens to mid-20s bridging the gap between adolescent dependence and full independence and responsible adulthood

Module 7&17

Consciousness: Our awareness of ourselves and our environment (allows us to assemble and process information). Helps us act in our long-term interests (considering consequences) and plays role in survival (anticipating how we seem to others).
States of consciousness: daydreaming, drowsiness, dreaming, hallucinations, orgasm, food/oxygen starvation, sensory deprivation, hypnosis, meditation.
Cognitive neuroscience: interdisciplinary study of the brain activity linked with cognition
In a non-communicative patient, who shows no signs of conscious awareness, when asked to imagine playing tennis, the brain areas that normally control arm and leg movement fired.
If a stimulus activates enough brain-wide coordinated neural activity (strong signals in one area trigger activity elsewhere), it crosses a threshold for consciousness. A weaker stimulus (word flashed super fast) may trigger localized visual cortex activity that quickly dies out, whereas a stronger one would engage other areas of the brain (language, attention and memory).
Dual processing: principle that information is often simultaneously processed on separate conscious and unconscious tracks.
Blindsight: a condition in which a person can respond to a visual stimulus without consciously experiencing it (visual perception track enables us to think about the world—recognize things and plan future actions, visual action track guides our moment-to-moment movements. Sometimes the two conflict, if there is a hollow face, you think it juts out but when you go to swat a fly you KNOW if is inward.
Being focused intensely on an activity increases your total brain activity by 5%.
When you move your wrist at will, you consciously experience the decision 0.2s before the movements, but brain waves jump 0.35s before you consciously perceive your decision.
Running on autopilot allows us to monitor the whole system and deal with new challenges—we mostly function on autopilot with a manual override.
Unconscious parallel processing is faster than sequential conscious processing—sequential processing is better for solving new problems though but can only typically do one task at a time that requires conscious attention.
Selective attention: focusing of conscious awareness on a particular stimulus. You consciously process a tiny bit of information, but unconsciously you use the rest of the information.
Cocktail party effect: ability to attend to only one voice among many (example of selective attention)
When focused on a task you blink less.
We have a slight delay when we switch attentional gears and this can cause accidents. fMRI's show that multitasking shows that multitasking distracts the brain resources allocated to driving. In a conversation with a passenger, the passenger can stop talking when needed.
Inattentional blindness: failing to see visible objects when our attention is directed elsewhere (gorilla and basketball counting)—your conscious mind is only in one place at a time.
Change blindness: failing to notice changes in an environment (switch the construction worker)
Choice blindness: indicate preference, then re-taste bad one unknowingly and still think it is better
Pop-out: when stimuli are so strikingly distinct that they pop-out (smiling face in a crowd of scared faces)
Nature's sensory gifts enable each animal to obtain essential information—frogs can see small black moving things etc.
Can have perfect vision but can't recognize faces—sensation versus perception
Sensation: process by which our sensory receptors and nervous system receive and represent stimulus energies from our environment
Perception: process of organizing and interpreting sensory information, enabling us to recognize meaningful object and events
Bottom-up processing: starts at the sensory receptors and works up to higher levels of processing
Top-down processing: constructs perceptions from the sensory input by drawing on our experience and expectations.
All of our senses:

- Receive sensory stimulation, often using specialized receptor cells
- Transform that stimulation into neural impulses
- Deliver the neural information to our brain

Transduction: process of converting one form of energy into another than our brain can use
Psychophysics: study of relationships between the physical characteristics of stimuli and our psychological experience
Our senses are open just a bit (we can't sense X-rays etc.)
Absolute thresholds: the minimum stimulation needed to detect a particular stimulus 50% of the time

Difference threshold: the minimum difference a person can detect between any two stimuli half the time—the difference threshold increases with the size of the stimulus (add 1 bean to a handful and you will notice, add 1 to a bucket full, and you won't)

> **Weber's Law:** for an average person to perceive a difference, two stimuli must differ by a constant proportion. The exact proportion depends on the stimulus

Signal detection theory: theory predicting how and when we detect the presence of a faint stimulus amid background stimulation. Detection depends partly on a person's experience, expectations, motivation, and alertness. Signal detection theorists want to know why people respond differently to the same stimuli, and why the same person's reaction can vary depending on the circumstances (exhausted parents will hear a whimper but not other loud sounds).

Sublimal: stimuli that are below one's absolute threshold for conscious awareness—if a word flashes, you don't consciously see it, but it reaches your visual cortex, and briefly primes (activation of certain associations) your response to a later question.

Only when a stimulus triggers synchronized activity in several brain areas does it reach consciousness.

When students are told they are listening to a tape that will improve their memories, they perceived themselves receiving the benefits they expected.

Sensory adaptation: diminished sensitivity as a consequence of constant stimulation—nerve cells fire less frequently (when we stare at something, it doesn't vanish because your eyes are unconsciously always moving). Sensory adaptation allows us freedom to focus on informative changes in our environment without being distracted by background chatter—we perceive the world not exactly as it is, but as it is useful for us to perceive it.

Perceptual set: a mental predisposition to perceive one thing and not another—influence by what you think you should be seeing—said "Cheer up" but was expecting "Gear up" so lifts the wheels too early—if you are told a food is gross, are more likely to perceive it. Our preexisting schemas help us organize and interpret unfamiliar information. A given stimulus may trigger different perceptions depending on the context (smaller monster looks scared, and big monster looks evil just because of size, they are identical)

Perceptions are also influence top-down by our emotions and motivation—sad music will make you more likely to hear "die" rather than "dye". Walking destinations look farther for tired people etc. Desired objects seem closer (energizes our going for it). Spouses who feel loved perceive less threat in a stressful martial event (just a bad day). If told it is a dirty team, refs will give more cards.

Module 18

Organisms are sensitive to differing portions of the EMS.
Two characteristics that help determine our sensory experience: wavelength determines hue (the colour we experience), and intensity (amount of energy) influences brightness.
Light enters the eye through the cornea (protects the eye and bends light to provide focus), then passes through the pupil (adjustable opening), which is controlled by the iris (colored muscles that responds to light intensity and emotions), behind the pupil is a lens that focuses incoming light onto the retina (multilayered tissue on the eyeball's sensitive inner surface). The lens focuses the rays by changing its curvature through accommodation. The retina receives upside-down images. Its millions of receptor cells convert particles of light energy into neural impulses and forward those to the brain.
Retina: cones and rods (inner surface). Light energy triggers chemical changes that sparks neural signals, activating nearby bipolar cells, that activate ganglion cells (outside), whose axons twine together into the optic nerve that carries information to your brain, where the thalamus distributes it. Where the optic nerve leaves the eye, there are no receptors, creating a blind spot (using both eyes, your brain fills it in). Cones cluster in and around the fovea (retina's area of central focus), and they each transmit to a single bipolar cell that helps relay the cone's individual message to the visual cortex, which devotes a large area to input from the fovea. These direct connections preserve the cones' precise information, making the better able to detect fine detail. Rods share bipolar cells with other rods, sending combined messages. Cones enable you to perceive colour but are ineffectual in dim light. Rods enable black and white vision and are sensitive in dim light.
The period or dark adaptation (about 20 minutes) matches the average natural twilight transition between the Sun's setting and darkness.
Information processing: begins in the retina's neural layers, which are actually brain tissue that migrated to the eye during early fetal development. They help encode and analyze sensory information (in frog's this is where the "bug detector" is). Information then travels to your bipolar cells, then ganglion cells, then through their axons making up the optic nerve. Any given retinal area relays its information to a corresponding location in the visual cortex, in the occipital lobe. Retinal cells are very sensitive, and can be triggered by pressure.
Feature detection: feature detectors are nerve cells in the brain that respond to specific features such as shape, angle, or movement. These neurons receive information and pass the information of the scene's specific features to other cortical areas, where supercell clusters respond to more complex patterns. These clusters are very specified (faces, houses etc.)
Parallel processing: processing of many aspects of a problem simultaneously. The brain divides a scene into subdimensions: colour, motion, form, and depth. We then construct our perceptions by integrating the separate but parallel work of these different visual teams.
Scene→ rods/cones→ bipolar cells→ ganglion cells→ feature detection→ parallel processing→ recognition
A colour is seen since the object reflects this wavelength of light.
Our difference threshold for colours is so low that we can discriminate more than 1 million colour variations.
Helmhotz trichromatic theory: the eye must have three types of color receptors (work in teams of three—red, green, and blue).
Most people with color-deficient vision lack functioning red or green-sensitive cones, or both (impossible to distinguish between red and green)
Afterimages: stare at a colour for a long time, and its opponent colour will appear. Hering surmised that there must be other color processes, one responsible for red-vs-green perception and one for blue-vs-yellow. This opponent-process theory (with the addition of whit-vs-black) was later confirmed. In the retina and the thalamus, some neurons are turned on by red but off by green. Therefore red and green messages can't both travel at once. By staring at green, we tire our green response, so when we switch to a white background, only the red part of the pairing will fire normally.
Colour processing occurs in two stages: the retina's red, green, and blue cones respond in various degrees to different stimuli, and these signals are then processed by the nervous system's opponent-process cells.
Visual organization: when given a cluster of sensations, people tend to organize them into a gestalt (an organized whole). Necker tube is an example—the whole may exceed the sum of its parts in perception. Therefore in perception, we filter incoming information and CONSTRUCT our perception.
You need to distinguish figure (object) from ground (surroundings). The figure-ground relationship is the organization of the visual field into objects that stand out from their surroundings.
We also group stimuli (organize them into coherent groups): proximity (group nearby figures together), continuity (see continuous patterns rather than discontinuous ones), and closer (we fill in gaps to create a complete, whole object).

Depth perception: the ability to see objects in 3D although the images that strike the retina are 2D—allows us to judge distance. They used a visual cliff (let babies crawl, and try and make them crawl over the edge of a "cliff") to see if depth perception is learned—it seems to be innate.
Binocular cues: depth cues, such as retinal disparity (by comparing two images from the retinas in the two eyes, the brain computes distance—the greater the disparity (difference) between the two images, the closer the object), that depend on the use of two eyes. 3D movies are created using this technique.
Monocular cues: depth cues available to either eye alone (relative size, linear perspective (sharper the angle of convergence of parallel lines the greater the distance), relative height, relative motion, light and shadow, and interposition (if an object partially blocks another then it must be closer).
Motion perception: normally brain computes motion based on assumption that shrinking objects are retreating, and growing objects are approaching. But large objects look like they are moving much slower than smaller objects.
Stroboscopic movement: brain perceives continuous movement in a rapid series of slightly varying images (24pics/s)—when two adjacent lights blink on and off in quick succession, it looks like it is a single light moving back and forth (this is the phi phenomenon)
Perceptual constancy: perceiving objects as unchanging (consistent shapes, size, brightness, and color) even as illumination and retinal images change—top-down process
Colour constancy: perceiving familiar objects as having a consistent colour, even if changing illumination alters the wavelength reflected by the object—we see color relative to the objects surrounding it.
Perception of constancy depends on relative luminance (amount of light an object reflects relative to its surroundings). We perceive objects not in isolation but in their environmental context—COMPARISONS GOVERN OUR PERCEPTIONS
Due to shape constancy, we perceive the form of familiar objects as constant even while our retinas receive changing images of them (door open is still a rectangle even though it looks like a trapezoid).
Due to size constancy we perceive objects as having a constant size even while our distance from them varies (car is always large enough to carry people even if it looks tiny). We still consider an object's context though—a moon on the horizon looks bigger than in the sky even though when isolated they look to be the same size.
Our assumptions can lead our perceptions astray since our brain constructs our perceptions.
Blind people who's vision is restored, cannot detect which shape is which based on vision, even if they can based on touch (he never learned to see the difference). They could distinguish figure from ground and could sense colours (these must be innate). The cortical cells must have no developed normal connection, so they are functionally blind to shape. Similar sensory restrictions later in life do not have the same effects. There must be a critical period for normal sensory and perceptual development.
Perceptual adaptation: the ability to adjust to an artificially displaced or even inverted visual field. It just takes time to adjust, then when you take away whatever is switching things up, it takes time to go back to normal as well.
Perception is a Biopsychosocial phenomenon—INFLUENCED BY BIOLOGICAL, PSYCHOLOGICAL, and SOCIAL-CULTURAL INFLUENCES
Extrasensory perception: controversial claim that perception can occur apart from sensory input; includes telepathy, clairvoyance, and precognition. Most scientists are skeptical that ESP exists (they don't have a better record for predicting things, and since there are so many things to predict, obviously they are going to get a couple of things right). ESP believers have never been able to produce a controlled, reproducible experiment. If any ESP claims were true, it would topple all of our scientific beliefs. To refute those who say there is no ESP, one only need produce a single person who can demonstrate a single, reproducible ESP event—the field of study that researches claims of ESP is called parapsychology.

Module 20&21

Learning: the process of acquiring new and relatively enduring information or behaviours—allows us to adapt to our environment

Cognitive learning: acquisition of mental information, whether by observing events, by watching others, or through language. Observational learning is a time of cognitive learning and allows us to learn from others' experiences.

Locke and Hume echoed Aristotle that we learn by association (connect events that occur in a sequence—behaviours become associated with a context. Takes about 66 days to form a habit.

Complex animals can learn to associate their own behaviour with its outcomes.

Associative learning: learning that certain events occur together (either two stimuli or a response and its consequence). The process of learning associations is conditioning.

Classical conditioning: learn to expect and prepare for significant events such as food or pain (associate 2 stimuli and anticipate event (we brace ourselves for thunder when we see lightning).

Operant conditioning: learn to repeat acts that bring rewards and avoid acts that bring unwanted results. Associate response (our behaviour) and its consequence.

Ivan Pavlov explored what is called classical conditioning (type of learning in which one learns to link two or more stimuli and anticipate events)—influenced/basis for behaviourism

Respondent behaviour: behaviour that occurs as an automatic response to some stimulus.

Isolated dog, put harness on, collect saliva, blow meat powder.

Neutral stimulus (NS): a stimulus that elicits no response before conditioning

Unconditioned response (UR): an unlearned, naturally occurring response to a US

Unconditioned stimulus (US): stimulus that naturally and automatically triggers a response

Conditioned response (CR): learned response to a previously neutral (but now conditioned) stimulus.

Conditioned stimulus (CS): originally irrelevant stimulus that, after association with a US comes to trigger a CR

Acquisition: the initial stage, when one links a NS and US so that the NS begins triggering the CR. In operant conditioning, it is the strengthening of a reinforced response.

Conditioning doesn't happen when the NS follows the US (wouldn't help animals prepare, would be too late)

We can condition ourselves such that onion breath causes sexual arousal.

Conditioning helps an animal survive and reproduce—by responding to cues that help it gain food, avoid dangers, locate mates, and produce offspring.

Higher-order conditioning: the CS in one conditioning experience is paired with a new NS, creating a second (often weaker) CS—light predicts tone, which predicts food (this is also called second-order conditioning)

Extinction: the diminishing of a CR when a US does not follow a CS, and in operant conditioning when a response is no longer reinforced—decreases, then sudden spontaneous recovery of CR (not to the same peak though—so maybe extinction is suppressing CR rather than eliminating it)

Generalization: the tendency, once a response has been conditioned, for stimuli similar to the conditioned stimulus to elicit similar responses (similar tone, toddlers afraid of cars also afraid of motorcycles—this generalized fear often occurs for those who have been abused)—the CR is never as strong for other CS though

Discrimination: the learned ability to distinguish between a CS and other irrelevant stimuli

Pavlov's work is important because: Many responses to many stimuli can be classically conditioned in many organisms (one mode of adaptation), he also showed us how a process such as learning can be studied objectively

Applications of classical conditioning: don't get recovering addicts to visit places associated with drugs, if flavoured medicine elicits a response, then the flavour eventually may be able to elicit an immune response.

We can use conditioning to get rid of fears—go in elevator many times a day/live on plane

Operant conditioning: organisms associate their own actions with consequences. Actions followed by reinforcers increases; those followed by punishers often decrease. Behaviour that operates on the environment to produce rewarding or punishing stimuli.

Law of effect: Thorndike's principle that behaviours followed by favorable consequences become more likely, and that those followed by unfavorable consequences become less easy.

Skinner elaborated on this and developed behavioural technology that revealed principles of behaviour control—you can teach animals things.

Operant chamber (Skinner box): chamber containing a bar/key that an animal can manipulate to obtain a food or water reinforcer (anything that strengthens the behaviour it follows). Attached devices record the animal's rate of bar pressing/key pecking.

Shaping: procedure in which reinforcers guide behaviour toward closer and closer approximations of desired behaviour (take baby steps—successive approximations). It can also help us understand what nonverbal organisms perceive (are dogs red-green colour bind). If we can shape them to respond to one stimulus and not an other, then we know they can perceive the difference.

Discriminative stimulus: the important stimulus

If you respond to a child's whines, it is positively reinforced because getting your attention, and your response is negatively reinforced since the child stops whining

Positive reinforcement: increasing behaviours by presenting positive reinforcers (any stimulus that when presented after a response, strengthens the response.
Negative reinforcement (NOT PUNISHMENT): increasing behaviours by stopping or reducing negative stimuli (fasten seat belt to end the beeping).
If working hard for exam, then negatively enforced by reduced anxiety, and positively reinforced by better grade.
Reinforcement is any consequence that strengthens behaviour.
Primary reinforcers: an innately reinforcing stimulus (one that satisfies a biological need)—unlearned (food).
Conditioned reinforcers: stimulus that gains its reinforcing power through its association with a primary reinforcer—known as a secondary reinforcer (light signals food, money, grades, etc.)
Before pressing the bar, the rats will do a bunch of unwanted things (scratching, sniffing etc.). If you don't present the reinforcement right away, then it might reinforce the other behaviours. Humans do respond to delayed reinforcers (paycheck, good grade, etc.)
Reinforcement schedule: pattern that defines how often a desired response will be reinforced.
Continuous reinforcement: reinforcing the desired response every time it occurs—rapid learning and extinction (if vending machine doesn't work twice in a row, won't use it again (unless spontaneously later)).
Partial (intermittent) reinforcement: reinforcing a response only part of the time—longer learning, but more resistance to extinction (slot machines)—occasionally giving into tantrums reinforces the tantrums.
Fixed-ratio schedules: reinforce behaviour after a set number of responses—stamp cards. Animals will pause only briefly after a reinforcer before returning to a high rate of responding.
Variable-ratio schedules: reinforces a response after an unpredictable number of responses (slot machines). High number of responses.
Fixed-interval schedules: reinforces a response only after a specified time has elapsed. Animals tend to respond more frequently as the anticipated time for reward draws near (check Jell-O more often to see if it has set)
Variable-interval schedules: reinforces a response at unpredictable time intervals (checking for email—slow, steady response) **Check graph on page 290
Response rates are higher with a ratio schedule and more consistent with a variable schedule.
Punishment: an event that tends to decrease the behaviour that it follows. Criminal behaviour is much more influenced (decreased) by swift and sure punishment rather than the threat of severe punishment.

FOR PHYSICAL PUNISHMENTS: Punished behaviour is suppressed and not forgotten (this temporary state may negatively reinforce parents' punishing behaviour), teaches discrimination among situations (child will swear elsewhere), can teach fear (generalization that all teachers are scary can occur), may increase aggression by modeling aggression as a way to cope with problems (many aggressive delinquents and abusive parents come from abusive families but we don't know which is the chicken and which the egg). CAN WORK IF: it is used as a backup when other tactics fail, and if it is combined with reasoning and reinforcing.

Turn threats into positive incentives (you can have the car when your room is clean).

Punishment tells you what not to do; reinforcement tells you what to do.

Skinner's ideas provoked controversy because he insisted that external influences shape behaviour.
Applications of operant conditioning:

School: Use computers that can go at the right pace and give immediate feedback to every student (told right or wrong, and then directed to the next step if right)

Sports: reinforce small successes (start small distance with big baseball and work up to normal). This builds confidence, and this method has shown faster skill improvement than conventional methods.

Work: reward specific, achievable behaviours (IBM used to give check on the spot)

Home: Notice people doing something right and affirm them for it—attention for GOOD behaviour. To reinforce your own desired behaviours/extinguish the undesired ones: state goal in measurable terms and announce it, monitor how often you engage in your desired behaviour, reinforce the desired behaviour, reduce the rewards gradually

	Classical Conditioning	**Operant Conditioning**
Basic Idea	Organism associates event	Organism associates behaviour and resulting events
Response	Involuntary, automatic	Voluntary, operate on environment
Acquisition	Associating events, NS is paired with US and becomes CS	Associating response with a consequence (reinforcer or punisher)
Extinction	CR decreases when CS is repeatedly presented alone	Responding decreases when reinforcement stops
Spontaneous recovery	The reappearance, after a rest period, of an extinct CR	The reappearance, after a rest period, of an extinguished response
Generalization	The tendency to respond to stimuli similar to the CS	Organism's response to similar stimuli is also reinforced
Discrimination	The learned ability to distinguish between a CS and other stimuli that do not signal a US	Organism learns that certain responses, but not others, will be reinforced

Module 23&24

Memory: persistence of learning over time through the storage and retrieval of information.

Recall: retrieving information that is not currently in your conscious awareness but that was learned at an earlier time (fill-in-the-blank)→ we remember MORE than we can recall

Recognition: identifying items previously learned (MC)

Relearning: learning something more quickly when you learn it a second or later time.

Recall, recognition, and relearning speed are three ways that psychologists measure retention of memories.

Recognition is quick and vast, speed of relearning depends on number of repetitions done on day 1 (overlearning is the additional rehearsal of verbal information that increases retention especially when practice is distributed over time).

To remember any event we must: encode (process information into the memory system (extract meaning)), store (retain that encoded information) and retrieve (later get that information back out of memory storage).

Our dual-track brain processes many things simultaneously by means of parallel processing→one track tucks away at routine details, the other track is free to focus on conscious, effortful processing.

Connectionism views memories as products of interconnected neural networks.

Atkinson-Shiffrin three stage model for memory-forming process (has been updated to include new concepts) **See p.315

1. Record to-be remembered information as a fleeting sensory memory (immediate, brief recording of sensory information in the memory system). Sensory memory records a momentary image of a scene or an echo of a sound. We have iconic memory—a momentary sensory memory of visual stimuli; a photographic or picture-image memory lasting no more than a few tenths of a second (we can recall any part of this photo in amazing detail for a few tenths of a second. We also have echoic memory—a momentary sensory memory of auditory stimuli; if attention is elsewhere, sounds and words can still be recalled within 3 or 4 seconds ("Are you listening to me?")
2. Process information into short-term memory (activated memory that holds a few items briefly before the information is stored or forgotten), where we encode it through rehearsal. Without the active processing that we now understand to be part of the working memory, short-term memories have a limited life. Working-memory capacity varies depending on age and other factors (young adults have the best capacity—best multi-taskers). Working-memory capacity seems to reflect intelligence level.
3. Information moves into long-term memory (relatively permanent and limitless storehouse of the memory system, includes knowledge, skills, and experiences) for later retrieval

TWO NEW CONCEPTS: form some memories through automatic processing, but it focuses on explicit memories. Also introduces the working memory that emphasizes the active processing that takes place within the short-term memory.

Baddeley states the short-term memory is not just a temporary shelf for holding incoming information, it also processes information making sense of new input and linking it with long-term memories (interpret if ice cream or I scream).

Working memory: newer understanding of short-term memory that focuses on semi-conscious, active processing of incoming auditory and visual-spatial information, and of information retrieved from long-term memory.

As you are reading the page, there is the visual-spatial information, the auditory rehearsal, and the central execute focuses your attention and handles the processing so that the information can be stored in long-term memory.

Explicit memories: memory of facts and experiences that one can consciously know and declare.

Effortful processing: encoding of explicit memories that requires attention and conscious effort.

Implicit memories: retention independent of conscious recollection. Include procedural memory (ride bike), and classically conditioned associations among stimuli (palms sweat when going to the dentists).

Automatic processing: unconscious encoding of incidental information such as space, time, and frequency, and of well-learned information such as word meanings. Without conscious effort you automatically process information about: space (visualize location on page), time (note sequence of events), and frequency (how many times you ran into someone). It is difficult to shut off.

Processing strategies:

Chunking: organizing items into familiar, manageable units; often occurs automatically—but them in words, sentences, etc.

Mnemonics: memory aids, especially those techniques that use vivid imagery and organizational devices—we are particularly good at remembering mental images. Peg-word system is where each number corresponds to a word, then you visually associate the peg-words with to-be-remembered items (Carrots in a bun etc.). Acronyms also work well.

Distributed practice: we remember things better when our encoding is distributed over time. The spacing effect is the tendency for distributed study or practice to yield better long-term retention than is achieved through massed study or practice. Massed practice can produce speed short-term learning and feelings of confidence, but distributed practice produces better long-term recall. Testing effect: enhanced memory after retrieving, rather than simply reading, information.

We process verbal information at different levels, and that depth of processing affects our long-term retention.

Shallow processing: encoding on a basic level based on the structure or appearance of words (based on letters (capitals vs not etc super shallow)/sounds (less shallow))

Deep processing: encoding semantically based on the meaning of the words; tends to yield the best retention. (Would this word fit in this sentence?—this kind of question would allow you to remember the word more successfully)

You can remember much more about something if the information is meaningful or related to our experience.

We recall not the literal text that we read but what WE ENCODED.

Self-reference effect: we have especially good recall for information we can meaningfully relate to ourselves—especially strong in members of individualistic Western cultures.

The amount remembered depends on the time spent learning and on your making it meaningful for deep processing.

Our capacity for storing long-term memories is essentially limitless.

Despite the brain's vast storage capacity, we do not store information in discrete, precise locations. Instead, many parts of the brain interact as we encode, store, and retrieve the information that forms our memories. When you train rats to find their way out of the maze, no matter what part of their brain you remove, they retain at least partial memory of how to navigate it.

Frontal lobes and hippocampus process and store your explicit memories. Left and right frontal lobes process different types of memories. When you summon up a mental encore of a past experience, many brain regions send input to your frontal lobes for working memory processing. The hippocampus saves explicit memories—damage to it can disrupt recall of explicit memories. Memories are not permanently stored in the hippocampus—it acts as a loading dock where the brain registers and temporarily holds the elements of a remembered episode. Then, memories migrate elsewhere for storage (if you remove hippocampus right away, won't form long-term memory, but a couple days after, it will have no problem if you remove it).

During sleep the hippocampus processes memories for later retrieval

The cerebellum and basal ganglia lay down implicit memories for skills and conditioned associations (won't shake hand of guy who's hand poked hers). Cerebellum plays key role in forming and storing the implicit memories created by classical conditioning. The basal ganglia facilitate formation of our produral memories for skills. It receives input from the cortex but does not return the favor of sending information back to the cortex for conscious awareness of procedural learning.

Stress hormones provoke the amygdala to initiate a memory trace in the frontal lobes and basal ganglia and to boost activity in the brain's memory-forming areas. Therefore emotional arousal can sear certain events into the brain.

If we go through an extremely stressful event, we often have very vivid images of it. This may be adaptive because it would have helped us getting away from potential dangers.

Flashbulb memories: a clear moment of an emotionally significant moment or event

Long-term potentiation (LTP): an increase in a cell's firing potential after brief, rapid stimulation. Believed to be a neural basis for learning and memory.

In electroconvulsive therapy, the current sent through the organism's body will wipe out very recent memories.

Supposedly there are some memory-altering drugs using protein, This might trigger increased production of other proteins that help reshape synapses and transfer short-term memories into long-terms memories.

Memory processing
- →automatic →implicit memories →processed in cerebellum and basal ganglia
  - →Space, time, frequency
  - →Motor and cognitive skills
  - →Classical conditioning
- →effortful →explicit memories →processed in hippocampus and frontal lobes
  - →facts and general knowledge
  - →personally experienced events.

Modules 27&28

Cognition: all mental activities associated with thinking, knowing, remembering, and communicating
Concepts: mental grouping of similar objects, events, ideas, or people—they simplify or thinking.
Prototypes: mental image/best example of a category (hard to classify a whale as mammal because it fits the fish prototype). If our symptoms don't match the classic symptoms, we are less likely to see help.
To problem solve we sometimes use trial and error, and sometimes algorithms (methodical, logical rule/procedure that guarantees solving a particular problem. TRY all 10 letter combinations.
Heuristics: simple thinking strategy that allows us to make judgments and solve problems efficiently; usually speedier but more error-prone than algorithms)—group letters together in likely combos in word scrambles
Insight: sudden realization of a problem's solution; contrasts strategy-based solutions, very satisfactory. Strokes of insight are indicative of increased activity in specific brain areas.
Confirmation bias: tendency to seek information that supports our preconceptions and to ignore/distort contradictory evidence (think the rule for 2-4-6 is up by two, and confirm with 10-12-14, even if it just must be ascending)
Fixation: hard to restructure how we approach a problem
Mental set: tendency to approach a problem in one particular way, often a way that has been successful before
Perceptual set: predisposes what we see
Intuition: effortless, immediate, automatic feeling/though, as contrasted with explicit, conscious reasoning
Things that can affect how good/bad our decisions are:
Availability heuristics: estimating the likelihood of events based on their availability in memory (if very vivid, then we presume they are more common)—in casinos, wins are made VERY obvious. Sometimes we therefore fear the wrong things.
Overconfidence: the tendency to be more confident than correct (overestimate our accuracy)
Belief perseverance: clinging to one's initial conceptions after the basis on which they were formed has been discredited. We need to put ourselves in the other side's shoes to actually not suffer from this. The more we appreciate why our beliefs might be true, the more tightly we cling to them.
We fear what our ancestral history has prepared us to fear (snakes etc.), we fear what we cannot control (planes), we fear what is immediate (driving fears are spanned out over a long drive, whereas plan fears are centered on takeoff and landing), and availability heuristics cause what we fear to be what is most readily available in memory.
Framing: the way an issue is posed (this can significantly affect decisions and judgments)—10% die versus 90% survive, opt-in versus opt-out, vocabulary used
We can make decisions best by giving our brain time to UNCONSCIOUSLY process the information.
Intuition is also adaptive—it makes use of associations (if someone looks like someone who has hurt you before, you will unconsciously avoid them)
Intuition is recognition born of experience: chess players can pick the correct move in nanoseconds
Therefore, intuition can be perilous but is also amazing.
Some animals are super smart: sort things into categories, parrots name objects, transmit tool use, etc. Give a monkey a short stick to get a piece of fruit, and he doesn't know how to do it at first, then he uses it to retrieve a long stick and uses that (insight)—they then exhibit foresight by storing the tool.
Language: our spoken, written, or signed words and the ways we combine them to communicate a meaning.
Three building blocks of language: phenomes (smallest distinctive sound unit (t, ch, a)), morpheme (smallest unit that carries meaning (part of word (prefix) or word), grammar (system of rules that enables us to communicate with and understand others. Semantics are the set of rules for deriving meaning from sounds, and syntax is the set of rules for combining words into grammatically sensible sentences).
As a preschooler you learn tons of words and syntax flawlessly.
Receptive language: by 4 months, babies can recognize differences in speech sounds and can read lips—like to see a face while it is making the sound. Receptive language is the ability to understand what is said to and about them. At 7 moths they learn to segment spoken sounds into individual words.
Productive language: ability to produce words. They recognize noun-verb differences. They enter the babbling state (at about 4 months where they spontaneously utter various sounds at first unrelated to the household language). Babbling is NOT an imitation of adult speech, it includes sounds from various languages. By about 10 months, babbling changes so you can identify the household language. So as adults we can't discriminate certain sounds in Japanese speech (they don't know difference between r and l). Around first birthday they enter the one-word stage where they speak mostly in single words. Then by 2nd birthday hits two-word stage (speaks mostly in two word statements (want juice). In this stage they speak in telegraphic speech (like in a telegram, using mostly nouns and verbs) and follows rules of syntax (adjectives before nouns etc.). If children get a late start on learning a language they will go through the same sequence but faster.

Languages do share some basic elements called universal grammar (nouns, verbs, adjectives etc.). We are born with a predisposition to learn grammar rules. We are not born with a built-in specific language though.
Infants can learn statistical aspects of human speech such as discerning word breaks.
Critical period: period most sensitive for mastering certain aspects of language (if not in this period, will have an accent etc.) By age 7 this period ends.
If you stop the input for one sense, your other senses will heighten (close eyes while kissing).
Aphasia: impairment of language, usually caused by left-hemisphere damage to Broca's or Wernicke's areas.
Broca's area: controls language expression (directs muscle movements involved in speech)—left frontal lobe. Would still be able to speak and comprehend speech.
Wernicke's area: controls language reception (involved in language comprehension and expression)—left temporal lobe. Would not be able to understand.
Language functions are distributed across brain areas (different areas for nouns/verbs etc.)
The brain operates by dividing its mental functions into sub functions.
Other species use different sounds to warn different things. They also taught chimps to sign. Some skeptics said: the vocab was simple, they just did the signs that they knew would get them rewards, we want to see what want or expect to see (perceptual set), chimps lack human syntax. But the chimp then taught another foster chimp language. A bonobo even showed sign of understanding grammar and syntax. If language means the verbal or signed expression of complex grammar then only humans possess the ability, but if it means an ability to communicate through a meaningful sequence of symbols, then apes are capable of language.
Linguistic determinism: Whorf's hypothesis that language determines the way we think—if no way to express past tense, then can't think about past tense (too extreme—we all think of things we can't express (certain colours))
You do think differently depending on your language though—answer questions differently on surveys (more Canadian profiles versus more Chinese profiles). Words do influence our thinking. We think difference between colours is smaller if they are both blue versus slightly green aqua and slightly blue aqua).
Bilingual advantage: although vocabulary in each language is slightly smaller, they can inhibit one language while using the other, and this leads to better inhibition over their attention to irrelevant information.
You sometimes think in words, sometimes in pictures (super effective). For someone who has learned a skill, even watching the activity will activate the brain's internal simulation of it—practice process simulation though (way more effective than outcome simulation).
THINKING AFFECTS OUR LANGUAGE, WHICH THEN AFFECTS OUR THOUGHT.

Module 32

Motivation: a need or desire that energizes and directs behaviour

4 perspectives:

Instinct theory (evolutionary perspective replaced it): Genetically predisposed behaviors. There were thousands of human instincts—rather than explaining human behaviors, they were simply naming them. Instinct: complex behaviour that is rigidly patterned throughout a species and is unlearned→salmon swim upstream to mate. Instinct failed to explain most human motives, the underlying assumption that genes predispose species-typical behaviour is strong (evolutionary perspective).

Drive-reduction theory: how our inner pushes and external pulls interact. This is the idea that a physiological need creates an aroused tension state (a drive) that motivates an organism to satisfy the need. Physiological aim of drive reduction is homeostasis. We are pushed by our need to reduce the drives and pulled by incentives (stimulus that motivates behaviour). When there is a need and an incentive we are strongly driven (starving and smell of cake (incentive to eat)).

Arousal theory: finding the right level of stimulation. Some motivated behaviours increase arousal—curiosity if well fed. Human motivation aims to seek optimum levels of arousal (sensation seekers—enjoy high arousal→intense music, novel foods, risky behaviours). When our biological needs are satisfied, we feel driven to experience stimulation and are hungry for information (infovores)—we have brain mechanisms that reward us for acquiring information. Lack of stimulation=boredom, too much stimulation=stress.

Hierarchy of needs (Abraham Maslow): how some needs take priority over others. Physiological needs →safety needs (feel organized/predictable)→belongingness and love (avoid loneliness/separation) →esteem(achievement/recognition)→self-actualization (live up to full and unique potential)→self-transcendence (find meaning and identity beyond the self—transpersonal meaning). Only if bottom needs are met are we prompted to meet next needs. Order is not universally fixed (hunger strike)—4 basic levels are agreed on by evolutionary psychologists, but gaining and retaining mates/parenting offspring are also universal needs. Some motives are more compelling then others.

Hunger supremacy: half starve volunteers, they become apathetic, obsessed with food (don't care about funny movie scenes etc.)

If you are sexually aroused you can't think of much else.

People in a "hot state" (hungry/ thirsty etc.) can easily recall such feelings in the past and perceive them as driving forces in others' behaviour.

Preschoolers given pretzels want water for snack the next day.

Don't go shopping on an empty stomach.

Stomach contracts and produces hunger pangs (put balloon in that measures it). Remove stomach and still get hungry. Insulin secreted by the pancreas diminished blood glucose by converting it to fate, when blood glucose levels are low you get hungry. Signals from stomach, intestines, and liver signal hunger. Hypothalamus integrates the messages. Arcuate nucleus secretes appetite stimulating and suppressing hormones. Excite one area and animals eat, destroy it and starving animals won't eat. Opposite for suppressing area. Hypothalamus monitors ghrelin (hunger-arousing secreted by empty stomach—in surgery for obesity, seal off part of the stomach so it doesn't produce as much ghrelin). When fall below normal weight, increase appetite and decrease energy expenditure. **Set point:** where the weight thermostat is set (influenced by heredity). Leptin and PYY decrease hunger and orexin increases hunger. **Basal metabolic rate:** body's resting rate of energy expenditure—semistarvation reduces BMR. Slow sustained changes in weight can alter a set point and psychological factors also drive hunger (variety and access=over eating). Researchers prefer settling point: level at which a person's weight settles in response to caloric intake and expenditure.

Part of knowing when to eat is our memory of our last meal (amnesic patients will continue to eat 20 minutes later).

Carbs help boost serotonin, which has calming effects—stress eating!

Given highly salted foods, develop of linking for it, aversion to foods you were sickened by.

Culture affects taste—the more you are exposed to something, the more you like it. And exposure to one set of novel foods increases willingness to try others.

We avoid unfamiliar animal-based foods.

Neophobia (dislike of unfamiliar things)—adaptive to ancestors so don't eat poisonous things.

In hot countries use spices to inhibit bacteria growth.

Pregnancy-related food aversion peak at 10th weak when the embryo is most vulnerable to toxins.

Places where agriculture producing milk=lactose tolerance.

Situational Influences on Eating

Eat more when with friends—presence of others amplify our natural behaviour tendencies (social facilitation).

Unit bias: eat more when bigger portions

Food variety: when foods are abundant and varied, eating more provides more needed vitamins and minerals and produces fat that protects us during winter cold/famine. When a bounty of varied foods is unavailable, we eat less to extend the food supply until winter/famine ends.

Mouth waters because unconditioned response.
Obseity rates has more than doubled in the last 40 years.
Fitness matters more than being a little overweight, but obesity has significant health risks (diabetes, heart disease, Alzheimer's etc.)
Improve memory when you lose weight.
Obese people are less likely to be hired because stereotyped as slow, lazy, and undisciplined. Sometimes greater than race/ gender discrimination. Children scorn fat children (decrease psychological well-being.
You don't lose weight by reducing 3500 calories because your body will lower your BMR when you try to lose weight.
Formerly overweight person will need fewer calories to maintain a specific weight as compared to never overweight one.
Lean people fidget more.
Weights resemble biological parents, identical twins have similar weights, different genes can influence body weight.
Sleep loss= higher risk of obesity (leptin falls, ghrelin rises)
Social influence= if you have friend that is obese, more likely to become it.
We have a fattening world—changing food consumption and activity levels.
Seats are being widened.
Try to impose tax on unhealthy food to subsidize healthy food/advertisements in Europe.
Genes mostly determine why one person today is heavier than another but environment mostly determines why people today are heavier than counterparts 50 years ago.
Permanent weight loss is not easy.
Relentless pursuit of thinness puts people at risk for binge eating, food obsession, weight fluctuations, malnutrition, depression, and side-effects of weight-loss drugs.
Don't want to always be out of control and guilty.

Module 35

Emotions: response of the whole organism involving physiological arousal (heart pounding), expressive behaviors (quickened pace), and conscious experience (thoughts and feelings).

James-Lange Theory (Arousal before emotion): our experience of emotion is our awareness of our physiological responses to emotion-arousing stimuli (angry because we strike, afraid because we tremble).

Cannon-Bard Theory (simultaneous): emotion-arousing stimulus simultaneously triggers physiological responses and the subjective experience of emotion. Body responses are to similar to cause different emotions. High spinal cord injuries result in some reactions being much less intense (anger) and others (weeping) more intense—bodily responses feed experienced emotions.

Most researchers agree that emotions also involve cognition (if we think the guy looks threatening/friendly).

Two-factor theory: Schachtor-Singer theory that to experience emotion on must be physically aroused and cognitively label the arousal. Spillover effect (good run, get job—feel even more elated, soccer game fuels rioting)—to investigate inject with NE, tell somewhat it does (attribute arousal to drugs), tell some it will do nothing (when put in room with an actor they match the emotion to the other person). Emotions depend on how we interpret/label it. Arousal fuels emotion, cognition channels it.

Zajonc said that we have emotional reactions apart from/before our interpretation of a situation—recall liking someone immediately without knowing why (repeated sublimal stimulation makes you like something more). Some complex emotions (hatred/love) travels a high-road (thalamus→cortex where it is analyzed and labeled before command is sent out via amygdala to respond). Simple likes/dislikes/fears take what **Ledoux** calls the low-road (bypasses cortex), which enables emotional response before intellect intervenes.

Amygdala sends more neural projections up to the cortex than it receives back, which makes it easier for our feelings to hijack our thinking than for our thinking to rule our feelings (jump then decide if snake or wind).

Appraisal of situation may be effortless/unconscious but it is still a mental function (brain must have some idea of what it is to react to it)—**Lazarus** says we appraise an event as harmless or dangerous whether we know it is or not (think rustling is a threat then later know just the wind).

Zajonc/Ledoux say event right to emotional response (instant, before cognitive appraisal), lazarus/Schacter-Singer say event→appraisal→emotional response

We may fear a spider and know it is harmless—these are difficult to change our thinking.

Memories, expectations and interpretations can also influence emotions.

Highly emotional people may personalize events (directed towards them), generalize experience (blowing out of proportion).

Learning to think positively can help people feel better.

Sympathetic NS released norepinephrine/epi. Glucose increases because of liver, respiration increases to supply needed oxygen, heart rate and BP increase, digestion is slowed so blood goes to muscles, blood clots quicker.

SNS		**PNS**
Dilate	Pupils	Contract
Decreases	Salivation	Increases
Perspires	Skin	Dries
Increases	Respiration	Decreases
Accelerates	Heart	Slows
Inhibits	Digestion	Activates
Secrete stress hormone	Adrenal glands	Decrease secretion of stress hormones
Reduced	Immune system functioning	Enhanced

Taking exam want to be moderately aroused (alert but not trembling). Don't want too much arousal for difficult tasks, but do want for easy tasks.

Different emotions for not have sharply distinct biological signatures.

Insula: neural center deep in the brain that activates when we experience social emotions (lust, pride, disgust)—lights up for a bunch of different things.

Finger temperatures and hormone secretions that accompany rage and fear sometimes do differ. Fear and joy increase HR but stimulate different facial muscles.

If look at fearful faces, more activity in amygdala.

Depression=right, positive=left.

Polygraph: detects lies, measures physiological responses (perspiration, cardiovascular, breathing changes). Use control questions to detect arousal then use as comparison. Critics: physiological arousal is same from one emotion to another (anxiety/irritation/guilt), innocent people response with heightened tension to accusations implied. Spies can pass without an issue. More effective approach: guilty knowledge test (assess physiological response to crime-

scene details known only by police and guilty person. Some of these lie detection things aren't quite ready for the courtroom but they will be much better than judge's seat-of-the-pants judgments.

Modules 40&41

Personality: a person's characteristic pattern of thinking, feeling, and acting.
Psychodynamic theories: view personality with a focus on the unconscious and the importance of childhood experience (descend from Freud's psychoanalysis.
Observing patients with psychological causes led Freud to the discovery of the unconscious.
Free association: a method of exploring the unconscious in which the person relaxes and says whatever comes to mind, no matter how trivial or embarrassing→ Freud assumed that the what they say draws a path from their past to their troubled present (allows him to go into their unconscious)
Psychoanalysis: Freud's theory of personality that attributes thoughts and actions to unconscious motives and conflicts; the techniques used in treating psychological disorders by exposing/interpreting unconscious tension.
Freud believes that most of the mind is hidden (beneath awareness is unconscious mind (reservoir of mostly unacceptable thoughts, wishes, feelings, and memories, contemporary psychologists say it is information processing of which we are unaware)). Some of these thoughts are temporarily stored in a preconscious area from which we can retrieve for conscious awareness. Freud believes we repress unacceptable passions and that these feelings and ideas unconsciously influence us (nothing is accidental, it is the unconscious seeping through). The manifest content (remembered) of dreams is a censored expression of the latent content (unconscious wishes) according to Freud.
Freud thinks personality is a conflict between impulse and restraint (pleasure-seeking biological urges and social control)→personality arises from efforts to express these impulses to yield satisfaction without guilt or punishment.
Id: reservoir of unconscious psychic energy that strives to satisfy basic sexual and aggressive drives. Operates on pleasure principle and wants immediate gratification.
Ego: largely conscious execute part of personality that mediates the demands of the id, superego, and reality. Operates on the reality principles, satisfying the id in ways that will bring pleasure and not pain.
Superego: represents internalized ideals and provides standards for judgment (conscience) and for future aspirations. MORAL COMPASS. Often opposes the id.
Age 4 or 5 Freud thinks ego recognizes emerging superego.
Psychosexual stages: childhood stages of development during which the id's pleasure-seeking energies focus on distinct erogenous zones (pleasure-sensitive zones).

Stage	Focus
Oral (0-18 months)	Mouth—sucking, biting, chewing
Anal (18-36 months)	Bowel and bladder elimination; coping with demands for control
Phallic (3-6 years)	Genitals—coping with incestuous sexual feelings
Latency (6-puberty)	Dormant sexual feelings
Genital (puberty on)	Maturation of sexual interests

Oedipus complex: boy's sexual desires towards his mom and jealousy and hatred toward the rival dad (people think girls experience a parallel Electra complex). Freud thinks children cope with the threatening feelings by repressing them and identifying with the rival parent.
Identification: process by which children incorporate their parents' values into their developing superegos→Freud thinks this provides gender identity.
Fixation: lingering focus of pleasure-seeking energies at an earlier psychosocial stage with unresolved conflicts
Defense mechanisms: ego's protective methods of reducing anxiety by unconsciously distorting reality→function indirectly and unconsciously
Repression: basic defense mechanism that banishes from consciousness anxiety-arousing thoughts, feelings, and memories→underlies all other defense mechanisms

Defense Mechanism	Unconscious process to avoid anxiety	Example
Regression	Retreating to a more infantile psychosexual state, where some psychic energy remains fixated	Sucking thumb when scared
Reaction formation	Switching unacceptable impulses into their opposites	If angry display exaggerated friendliness
Projection	Disguise one's own threatening impulses by attributing them to others	"The thief thinks everyone is a thief"
Rationalization	Self-justifying reasons for actions instead of the real more threatening unconscious reasons	Alcoholic drinks "just to be sociable"
Displacement	Shift sexual or aggressive impulses to a more acceptable or less threatening object/person	Little girl kicks dog after being sent to room
Denial	Refuse to believe/perceive painful reality	Deny partner is cheating

Neo-Freudians: Freud's followers that accept basic ideas (personality structures (id etc.), importance of unconscious, shaping of personality in childhood, defense mechanisms/anxiety) but place more emphasis on the

conscious' role in interpreting experience and coping with the environment, and doubt that sex and aggression are all-consuming motivations (emphasize loftier motives and social interactions).
Adler and Horney believe that childhood social, not sexual, tensions are crucial for personality formation. Adler proposed inferiority complex and believes that our behaviour is driven by efforts to overcome childhood inferiority feelings that triggers our strivings for superiority and power Horney says childhood anxiety triggers our desire for love and security (also counters Freud's argument that women have penis envy).
Jung believes the unconscious contains more than our repressed thoughts and feelings. He thinks we have a collective unconscious (common reservoir of images/archetypes derived from humans' universal experience—mom=nurture). This is often discounted.
Psychologists still believe that much of our mental life is unconscious but not much else of Freud's work.
For personality test need to probe unconscious, so T/F questions don't work.
Projective tests: personality test such as Rorschach (10 inkblots and analyzed interpretation) that provides ambiguous stimuli designed to trigger projection of one's inner dynamics. Some people love Rorschach some not (responsible use (DON'T infer past childhood sexual abuse))—there is now a computer-aided tool that enhances the test's validity. Evidence is insufficient.
Freud critiques: development is lifelong, doubt infant's neural networks are mature enough to sustain such emotional trauma, overestimates parental influence and underestimates peer influence, gain gender identity earlier and even without same-sex parent, new ideas of why we dream dispute his belief that dreams disguise and fulfill wishes, and slips of the tongue can be explained as competition between similar verbal choices in our memory (bother+trouble=brothel), little research to say that defense mechanisms disguise sexual and aggressive impulses, and that suppressed sexuality causes psychological disorders. Also that his theory rests on few objective observations and has few testable hypotheses. BIGGEST PROBLEM: after-the-fact explanations yet fails to PREDICT behaviours and traits. Freud never claimed that psychoanalysis was predictive science though.
Current researchers say that sometimes we spare our egos by neglecting threatening information, but repression is a rare response to terrible trauma (often memories become even more vivid—enhance memory)
To today's research unconscious involves: schemas, sublimal stimulation, implicit memory, emotions that activate instantly without conscious analysis, etc.
False consensus effect: people tend to overestimate the extent to which others share our beliefs and behaviours.
Terror-management theory: theory of death-related anxiety that explores people's emotional and behavioural responses to reminders of their impending death (an example of a defense mechanism)
Three values that Freud's theory has contributed: importance of childhood experiences, existence of unconscious mind, and defense mechanisms.
Three criticisms: not scientifically testable/ after-the-fact explanations, focuses too much on sexual conflicts in childhood, and repression has not been proven (and this is what his theory is based on).
Psychodynamic theories still rely on interviewing that Freud used, and they still focus on childhood experiences, attachments, unresolved conflicts, and unconscious influences. They no longer dwell on fixation r the idea that resolution of sexual issues is the basis of our personality.
Humanistic theories: view personality with a focus on the potential for healthy personal growth—strive for self-determination and self-realization→study through self-reported experiences and feelings.
Maslow proposed hierarchy of needs and ultimately seeking self-actualization (motivation to fulfill one's potential) and self-transcendence (meaning, purpose, and communion beyond the self).
Rogers believed that people are basically good and are endowed with self-actualization tendencies. Unless thwarted by an environment that inhibits growth, everyone is primed for growth and fulfillment.
Growth promoting climate requires: genuineness (self-disclosing), acceptance (unconditional positive regard--accept knowing people's failures), empathy (share and mirror others' feelings and reflect their meaning).
Self-concept: our thoughts and feelings about ourselves (Who am I?)—Rogers and Maslow think this is the central feature to personality. If we have a negative self-concept then we fall short of our ideal self.
Rogers inspired questionnaire where you answer questions about how you actually are and how you would be ideally. When these are near, then your self-concept is positive.
Some humanistic psychologists believe questionnaires are too impersonal, they prefer interviews/conversations.
People say humanistic psychology concepts are vague and subjective, and that it encourages individualism (am I living the life I want to) which can lead to selfishness. Humanistic psychologists say that a positive self-concept is the first step to developing positive relationships because you feel accepted for who you are. People also say that humanistic psychology is naïve and that it doesn't appreciate our capacity for evil—action requires enough optimism to provide hope and enough realism to fuel concern. Critics say humanistic psychology only encourages the hope and not the realism.

Module 42

Trait: characteristic pattern of behaviour/disposition to feel and act, as assessed by self-report inventories and peer reports (Allport described personality using traits→less concerned with explaining traits than describing them)
Myers-Briggs test describes personality differences (MBTI→MB type indicator)—it has no scientific evidence to say that it can predict job performance, but it is still used as a counseling and coaching tool.
Can't classify people as distinct types because we are all unique, we need to use multiple traits.
Factor analysis: identifies clusters that tap basic components of a trait→outgoing=dislike reading, like practical jokes etc. so all linked with extraversion
Eysencks reduce variations to two or three dimensions including introversion-extraversion, and emotional stability/instability→ make a compass out of these 4 to show spectrum
Brain scans show that extraverts seek stimulation because their normal brain arousal is relatively low.
Genes help define personality, and shyness/inhibition is related to autonomic nervous system reactivity.
You can breed animals to select for specific personalities.
Personality inventories: questionnaire (T/F) that gauges feelings/behaviours to assess selected personality traits.
Minnesota Multiphasic Personality Inventory (MMPI): widely used personality inventory test that was originally used to identify emotional disorders (its most appropriate use), but also used for screening purposes→ determine abnormal personality tendencies. Empirically derived.
Empirically derived test: test a pool of items and then select those that discriminate between groups.
Projective tests are subjective but personality inventories are objective (marked by computers)→you can cheat them though and give what you think is the "right" answer (so they have some questions that are universally true "I get angry sometimes" and if you say false then you know they are lying)
Astronomers/palm reader strategies: stock spiel (we each of certain things that are tree of everyone (worry more than you let on)), read our clothing/gestures/reactions, tell them what they want to here.
Big 5 (CANOE): conscientiousness (careless/impulsive vs organized/disciplined), agreeableness (suspicious/ uncooperative versus trusting/helpful), neuroticism (stable/calm versus anxious/self-pitying), openness (practical/ conforming versus imaginative/prefers variety), and extraversion (reserved/sober versus fun-loving/affectionate)
As of now Big 5 is the best way to describe personality. They can be objectively measured with validity, and they are relatively stable and apply to all cultures in which they have been studied.

- **Stable:** emotional instability, extraversion, and openness wane during adulthood and CA rise.
- **Heritable:** 50% or a bit more
- **Predict other behavioural attributes:** example: introverts prefer email, conscientious people earn better marks and are more likely to me morning people, etc.

Our behaviour is influenced by the interaction of our inner disposition and our environment.
To explore person-situation controversy, look for traits that persist over time and situations. As people grow their personality stabilizes.
Traits are stable, but behaviours may not be. For this reason personality tests are weak predictors of behaviours. However people's AVERAGE behaviours (outgoingness etc.) is predictable.
Traits affect music preferences, dorm rooms/offices, Facebook (legit self), email (extraverts use more adjectives).
In formal situations are traits are more hidden than in informal situations.
If you are told to act the opposite to the way you are, you will be LESS good at it as compared to a natural.
The immediate situation powerfully influences behaviour. When there are clear demands to a situation (traffic lights) it is easy to predict behaviour based on situation than on personality.
Social-cognitive perspective: behaviour is influenced by the interaction of people's traits (including thinking) and their social context—INTERACTION OF US AND OUR ENVIRONEMENT. Bandura proposed it.
Reciprocal determinism: interacting influences of behaviour, internal cognition, and environment (past TV viewing habits (past behaviour) influence viewing preference (internal factor) which influence how TV (environmental factor) affect current behaviour)
Three ways individuals and environment interact: different people choose different environments (you choose your environment then it shapes you), our personalities shape our interpretations and reactions to events (anxious people perceive world as evil), and our personalities help create situations to which we react (how we view/treat people influences how they treat us→think someone is mad at you, don't talk to them, now they are mad at you).
We are the products and the architects of our environments.
Personal control: extent t which we perceive control over our environment→correlate people's feelings of control with behaviours and achievements, and experiment by raising/lowering sense of control and noting the effects
External locus of control: think chance or outside forces beyond our control determine our fate
Internal locus of control: you control your own fate→achieve more in school, better health, delay gratification.

Self-control: ability to control impulses and delay short-term gratification for greater long-term rewards. Predicts better grades and social success.
Self-control is hard and varies—takes up energy. If you practice it though you get better at it.
Learned helplessness: hopeless and passive resignation an animal/human learns when unable to avoid repeated aversive events (if can't get out of punishment, will learn that and even when put into a situation when you can get out, you won't try)→often will become depressed if you think you have no control (prisoners).
Freedom and control are good, but too much decreases satisfaction (more regret over an unchosen option).
If attributional style is pessimistic, you attribute bad performance to lack of ability/control (leads to lower grades).
You need optimism with some realism/pessimism (to prevent complacency/ overconfidence—Asians are more pessimistic so do better in school).
Natural positive-thinking bias vanishes when bracing for feedback or after a traumatic personal event.
Often most overconfident when most incompetent because it takes competence to recognize competence. You can't tell you've made a mistake—if you don't know the Scrabble words you missed, you feel super smart. You should therefore get peer evaluation and not just self-evaluation.
Assessment-center exercises: put them in scenario so you can see how they behave and predict future behaviour.
People say social-cognitive theories focus too much on situation and not enough on inner traits.

Personality Theory	**Key Names**	**Assumptions**	**View of personality**	**Personality Assessment Method**
Psycho-analytic	Freud	Emotional disorders spring from unconscious dynamics, and fixation. Defense mechanisms fend off anxiety.	Personality consists of id, ego, and superego.	Free association, projection tests, dream analysis
Psycho-dynamic	Adler, Horney, Jung	Unconscious and conscious interact. Childhood experiences and defense mechanisms are important.	Interaction of conscious and unconscious motives and conflicts shape our personality.	Projective tests, therapy sessions
Humanistic	Rogers, Maslow	Focus on the ways healthy people strive for self-realization	When basic needs met, strive for self-actualization. In climate of unconditional positive regard, can develop self-awareness and a more realistic and positive self-concept.	Questionnaires, therapy sessions
Trait	Allport, Eysencks	Certain stable and enduring characteristic influence by genetics.	Isolated important dimensions of personality (Big 5)	Personality inventories
Social-Cognitive	Bandura	Traits and social context interact to produce behaviours.	**Conditioning and observational learning interact with cognition to create behaviour patterns**	Assessment centres

Self: center of personality, the organizer of our thoughts, feelings, and actions. We have many possible selves (the ones we want to become/fear of becoming).
Spotlight effect: overestimating others' noticing and evaluating our appearance, performance, and blunders.
Self-esteem: feelings of high or low self-worth. HAPPIER and more successful if you have a higher self-esteem.
Maybe good self-esteem follows success and not the other way around. If low self-esteem, become more critical.
Self-serving bias: readiness to perceive oneself favourably. People accept more responsibility for good deeds than bad and for successes than failures (ref's fault). Most people see themselves as better than average. Less striking in Asia where modesty is prized. People also see themselves more immune to self-serving bias than others. We justify our actions in self-enhancing ways, we overestimate how we would have acted in a bad situation etc. This can lead to Aryan pride (you always think you are right/superior). Aggressive if you have an inflated head and get insulted.
Narcissism: excessive self-love and self-absorption (the ME generation). Stars are very narcissistic.
Reason why disparage yourself even if self-serving bias prevails: put-downs are subtly strategic (you say "not everyone has met you"), they prepare us for possible future (makes a loss understandable), helps us learn from our mistakes (how could I have been so stupid), often pertain to one's old self (recall past bad behaviours, and recent good behaviours).
We are sometimes negative but more often positive.
Defensive self-esteem is fragile and makes failures and criticism feel threatening (leads to aggression/anti-social behaviour). Secure self-esteem is less fragile and is less contingent on external evaluations (accepted for who we are—allows us to enjoy higher QOL)

Module 43

Social psychologists: explore the connections with others by scientifically studying how we think about, influence, and relate to one another. Focus on why the same person will act differently in different situations.
Attribution theory: we explain someone's behaviour by crediting either the situation (situational attribution) or the person's disposition (dispositional attribution)
Fundamental attribution error: tendency for observers to underestimate the impact of the situation and to overestimate the impact of personal disposition (judge based on only one situation) (appears more in Western cultures than in East Asian cultures where they are more sensitive to the power of the situation). When we explain our own behaviour though we are sensitive to how it changes with the situation (except for intentional and admirable acts which we attribute to our own good reason).
If you see the world from a different perspective you may reverse your attribution.
The way we explain others' actions, attributing them to the person or the situation, is very important (juries, how we view homeless people, terrorists etc.) Our attributions have real consequences.
Attitudes: feelings, often influenced by our beliefs, that predispose us to respond in a particular way to objects, people, and events. If we believe someone is threatening us, we may feel fear, and act defensively. Our attitudes affect our actions and our actions affect our attitudes.
Peripheral route persuasion: when people are influenced by incidental cues (speaker's attractiveness, celebrity endorsement etc.) Doesn't engage systematic thinking but produces fast results.
Central route persuasion: when interested people focus on the arguments and respond with favourable thoughts. More durable and more likely to influence behaviour.
Persuasion tries to influence our behaviour by changing our attitudes.
Situations can also influence behaviour (social pressures on politicians)→in this case, external pressures override the attitude-behaviour link
Attitudes are especially likely to affect behaviour when external influences are minimal and when the attitude is stable, specific to the behaviour, and easily recalled.
People will believe more strongly in what they have stood up for—attitudes follow behaviour.
Foot-in-the-door phenomenon: tendency for people who have first agreed to a small request to comply later with a larger request→guard outside door, guard inside door, torturer
Role: a set of expectations about a social position, defining how those in the position ought to behave.
When you enter a new role you feel like you are acting at first, then it becomes you (prisoners versus guards in Zimbardo's Stanford Prison simulation)
Cognitive dissonance theory: we act to reduce the discomfort we feel when two of our thoughts (cognitions) are inconsistent. When we become aware that our attitudes and our actions clash, we can reduce the resulting dissonance by changing our attitudes. (If you write a paper you don't believe in, you then start to believe in it because you feel responsible for the statements—the less coerced and more responsible we feel for a troubling act, the more dissonance we feel, and the more motivated we are to change)—revise rationale of war to so you can continue to support it
Attitudes-follow-behaviour principle implies that we can't directly control all of our feelings, but we can influence them by altering our behaviour. So if you are sad, think happy thoughts.
Changing our behaviour can change how we think about others and how we feel about ourselves.
We behave in ways consistent with our beliefs, but we also come to believe what we have done.

Module 44

Behaviour is contagious (yawning→empathetic people yawn more after seeing others yawn etc.)
Chameleon effect: we match our behaviour to those around us. Automatic mimicry helps us empathize, and reveals mood linkage (sharing up and down moods). Empathetic mimicking fosters fondness.
Suggestibility and mimicry sometimes lead to tragedy (copycat killers after Columbine)
Conformity: adjusting our behaviour or thinking to coincide with a group standard (suggestibility and mimicry are types of it)
Ask what line looks like the model one, if everyone else says Line 2 you are more likely to doubt your choice (1/3 you change your choice). Asch's experiement.
More likely to conform when: we feel incompetent or insecure, in a group of 3+, in a group where everyone else agrees, admire the group's status and attractiveness, have not made a prior commitment to any response, know that others will observe our behaviour, and are from a culture that strongly encourages respect for social standard.
Normative social influence: influence resulting from a person's desire to gain approval or avoid disapproval (biggest reason why we conform)—we need to belong.
Informational social influence: influence resulting from one's willingness to accept others' opinions about reality (Sometimes we conform to be accurate) (drive on left side of road in UK when see everyone else doing it)
Western Europe and most English-speaking countries prize individualism while Asian, African, and Latin American countries value honouring group standards. Conformity rates are lower in individualistic countries.
Milgram did an experiment where "teacher" has to give increasing shocks to a "student" if they get an answer wrong. The student starts yelling but experimenter says keep going. Some teachers stop but most keep going. Before the experiment most people say they wouldn't continue giving shocks, but 60% comply. Also tested in women and same results. Teachers displayed genuine distress. After participants learned the deception, none regretted taking part.
Obedience was highest when: person fiving orders was close at hand and was perceived to be a legit authority figure, the authority figure was supported by a prestigious institution (Yale), victim was depersonalized or at a distance/in another room, and there were no role models for defiance (did not see anyone else defy the experimenter).
Obedience was a factor in the Holocaust. Obedience is not always bad though (let all the women/children get off the boat first).
Asch's and Milgram's experiments were not meant to recreate reality, but meant to explore the underlying processes that shape behaviour.
In Milgram's, moral sense to respond to plea versus obedience and being a good research participant. With kindness and obedience, obedience usually won. Milgram uses the foot-in-the-door effect to get up to the high voltages. After the first acts of compliance or resistance, attitudes begin to follow and justify behaviour (if going to resist usually do so early).
Cruelty does not require villains (students will haze because of social influences).
Social facilitation: stronger responses on simple or well-learned tasks in the presence of others→home advantage (energize)
On tougher tasks, you behave worse with others around (others strengthen our most likely response which is the correct one in a simple task, but the incorrect one in a complex task).
Comedians want a big crowd because crowding triggers our arousal and we will find things more funny.
Social loafing: tendency for people in a group to exert less effort when pooling their efforts toward attaining a common goal than when individually accountable (will pull less hard if you think other people are tugging with you)→you feel less accountable so worry less about what others think, you view your individual contribution as dispensable, if you share the benefits regardless of your contribution you may slack off (group projects)
Deindividuation: the loss of self-awareness and self-restraint occurring in group situations that foster **arousal and anonymity** (riots)
Group polarization: the enhancement of a group's prevailing inclinations through discussion within the group (Nepean and cockiness)→gender differences widen over time because spend more time with your gender (good if increases the sought after goal, but bad if put racist people together because become more racist, if not racist to begin with become less racist)→ideological separation+ deliberation=polarization. This effect can feed terrorism (become more radical). This also happens in the virtual worlds with blogs (read the blogs that agree with you, separation+ conversation=polarization). By linking and magnifying the inclinations of like-minded people, the Internet can be VERY bad AND VERY good.
Groupthink: mode of thinking that occurs when the desire for harmony in a decision-making group overrides a realistic appraisal of alternatives→don't want to cause chaos so just agree (Chernobyl, Pearl Harbour etc. could have been avoided if not for groupthink). Two heads are still better than one when decision making (offers more creativity, and better options).

Social control and personal control interact—we can sway history if we are feeling coerced by doing the opposite of what is expected (Rosa Parks)
Power of one or two individuals to sway majorities is minority influence→if you are a minority to successfully sway the majority you can't budge (you won't be popular but you will be influential)—people may rethink their views

Module 47&48

Psychological disorders: deviant, distressful, and dysfunctional patterns of thoughts, feelings, or behaviours. Dysfunction is key.

Standards for deviant behaviours vary from culture to culture and with time (talking to spirits/homosexuality).

ADHD: psychological disorder marked by the appearance by age 7 of one or more of: extreme inattention, hyperactivity, and impulsivity. Is it just you're being a boy and if put in a more stimulating environment than school, would not be inattentive? Way more diagnoses now than before. Or is it an increased awareness for the disorder? Diagnoses can be subjective and inconsistent. It is heritable, TV and gaming is associated with it, often coexists with a learning disorder/defiant and temper prone behaviour. Treatable with drugs and psychosocial therapies.

In the past often thought puzzling behaviours were due to the devil.

Medical model: the concept that diseases have physical causes that can be diagnosed, treated, and sometimes cured, often through treatment in a hospital.

Illnesses arise based on the interaction of nature and nurture→certain illnesses are more prevalent in specific cultures. These disorders may share an underlying dynamic (anxiety) while differing in symptoms (eating disorder/type of fear etc.) manifested in a particular culture

Not all disorders are culture bound—Schizophrenia and depression are worldwide.

Diagnostic classification aims to describe a disorder, predict its future course, imply appropriate treatment, and stimulate research into its causes.

DSM-IV-TR: American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders—system used for classifying psychological disorders. Need this kind of diagnosis for insurance companies to cover you. It defines a diagnostic process and 16 clinical syndromes without explaining their causes, it describes the disorders. Helps ensure consistent diagnosis. Uses 5 axes of questions: is a clinical syndrome present, is a personality disorder/mental retardation (intellectual developmental disorder) present, is a general medical condition (diabetes) also present, are psychosocial or environmental problems also present, what is the global assessment of this person's functioning (code from 0-100). People critique it because casting too wide of a net.

Once we label a person, we have preconceptions that guide our perceptions and interpretations. Stigma seems to be lifting now that we understand that psychological disorders are diseases of the brain and not failures of character.

People express greatest sympathy for people whose disorders are gender atypical (alcohol dependence in females).

People with disorders are more likely to be the victims of violence than the perpetrators.

Labels can also change reality (teachers told a child is gifted may act in a certain way that elicits the behaviour expected). Labels can serve as self-fulfilling prophecies (someone thinks you are mean, might treat you coldly, so you act mean).

Insanity defense is a hard one morally.

Labels are valuable since they help with communication, understanding, and research.

26% of American adults suffer from a mental disorder in a given year.

Highest rates in the states—immigrants to the US are less likely to suffer than those born in the US (immigrant paradox).

More likely to develop psychological disorder if you are poor—not sure which comes first—poverty stresses can trigger it, but illnesses can plunge further into poverty.

Wide range of risk and protection factors for psychological disorders.

Typically exhibit first symptoms before the age of 24.

Many successful people exhibited psychological difficulties (Newton, da Vinci, etc.)

Anxiety disorders: psychological disorders characterized by distressing, persistent anxiety or maladaptive behaviours that reduce anxiety.

> **Generalized anxiety disorder:** person is continually tense, apprehensive, and in a state of autonomic nervous system arousal. Symptoms are commonplace, but not for 6+months. 2/3 of sufferers are women. Person may not be able to identify, and therefore deal with or avoid, the anxiety's cause (free-floating anxiety). Generally in maltreated children, and symptoms decrease by age 50.
>
> **Panic disorder:** unpredictable, minutes-long episodes of intense dread in which a person experiences terror and accompanying chest pain, choking, or other frightening sensations. Smokers have a doubled risk.
>
> **Phobias:** persistent, irrational fear and avoidance of a specific object, activity, or situation. Specific phobias focus on something specific. Social phobia is shyness taken to an extreme. Worries about anxiety can amplify anxiety. Agoraphobia is the fear/avoidance of a situation in which escape might be difficult or help unavailable when panic strikes (won't go into an elevator). Darwin suffered from panic disorder.
>
> **OCD:** unwanted repetitive thoughts (obsessions) and/or actions (compulsions). Cross the line of normality when interfere with life and cause distress. The person knows they are irrational, but the anxiety is so haunting that they continue to do it.

PTSD: haunting memories, nightmares, social withdrawal, jumpy anxiety, and/or insomnia that linger for 4+ weeks after a traumatic experience. Memories exist to protect us in the future, but sometimes they take over our lives. The greater one's emotional distress during a trauma, the higher the risk for PTSD (higher if you were in the twin towers than just watching). The more frequent the experience the worse the outcomes are (more likely to die). A sensitive limbic system increases vulnerability (floods the system with stress hormones). Genes play a role (twins are more likely to share risk. Debriefing by getting people to revisit the experience is ineffective and sometimes harmful. We have survivor resilience—can show you how strong you are. Lead to **post-traumatic growth** (positive psychological changes as a result of struggling with extremely challenging circumstances and life crises). Those who have experiences some adversity have a better mental health and well-being.

How do anxious feelings arise? Learning and biological perspectives:

Learning: **Conditioning:** infants fear furry objects associated with frightening noises. Stimulus generalization (fear of all dogs), and reinforcement (avoiding the feared situation reduces anxiety, thus reinforcing the phobic behaviour) contribute to anxiety. **Observational learning:** see other monkeys are afraid of snakes. **Cognition:** interpretation of situations (wind or murderer). People with an anxiety disorder are hypervigilant (pounding heart=heart attack).

Biology: **Natural selection:** fear things that ancestors had to avoid. Modern fears stem from older fears (fear of planes= fear of confinement and heights). Evolution did not prepare us to fear bombs dropping from the sky. Compulsive acts exaggerate behaviour that contributed to our survival (washing up=ritual hand washing, checking territory= checking lock). **Genes:** contribute to anxiety. Certain genes have been discovered to contribute to anxiety. They regulate neurotransmitters (serotonin, glutamate—too much glutamate=overactive alarm centre). **Brain:** Overarousal of brain areas involved in impulse control and habitual behaviours. Anterior cingulate cortex (monitors our actions and check for errors) is hyperactive in OCD. Fear-learning experiences can create fear circuits in the amydala. Some antidepressants damped this fear circuit activity and its associated OC behaviour. Fears can be blunted by giving people drugs as they recall and then rerecord a traumatic experience (the associated emotion becomes erased)

Module 49

Mood disorders: psychological disorders characterized by emotional extremes. 2 principal forms: major depressive disorder and bipolar disorder.

Major depressive disorder: person experiences 2+ weeks of significantly depressed moods or diminished interest or pleasure in most activities along with 4+ other symptoms. Depression is very common. Sadness warns us to stop and take appropriate measures (life's purpose is not to be happy, but to survive and reproduce). Sadness slows us down, defuses aggression, helps us let go of unattainable goals, and retrains risk taking. Major depressive disorder occurs when at least 5 signs of depression last 2+ weeks. Suffered more by women.

With or without therapy, episodes of major depression usually end.

Mania: hyperactive, wildly optimistic state. Little need for sleep, overactive, elated, over talkative, fewer sexual inhibitions. Find advice irritating, but their own judgment might lead to reckless spending/unsafe sex. In mild forms, mania's energy and free-flowing thinking fuels creativity (Handel). Those who rely on precision and logic (journalists, architects) suffer bipolar disorder less than those who rely on emotional expression and vivid imagery (artists, poets).

Bipolar disorder: person alternates between the hopelessness and lethargy of depression and the overexcited state of mania (manic-depressive). There has been a huge increase and diagnoses, but thought to go down with the new DSM which adds a category for those who swing from depression to anger. Suffered equally by men and women.

Understanding depression must explain: behavioural and cognitive changes accompany depression, depression is widespread (so causes must be widespread), women are at a higher (2x) risk than men (trend begins in adolescence)—women are more vulnerable to disorders involving internalized states such as depression, anxiety, and inhibited sexual desire whereas men are more likely to suffer from external disorders such as alcohol abuse, antisocial conduct, lack of impulse control, most major depressive episodes self-terminate (recovery is more likely to be permanent the later the first episode strikes, the longer the person stays well, the fewer the previous episodes, the less stress experiences, and the more social support received), stressful events related to work, marriage, and close relationships often precede depression, depression is striking earlier and is more widespread (Especially in developed countries among young adults)—maybe because more likely to disclose depression.

Genetic influences: run in families, They use linkage analysis where they look at DNA from affected and unaffected family members, looking for differences. This points to a chromosome neighbourhood. Many genes work together to put people at greater risk.

Brain: diminished activity in depressive states and more activity in manic states. Left frontal lobe and adjacent reward center are active during positive emotions. Those with depression have smaller frontal lobes. In bipolar disorder have decreased axonal white matter or enlarged fluid-filled ventricles. NE is scarce in depression and overabundant in mania (smoking temporarily increases NE). Serotonin also has an effect. Drugs often increase serotonin or NE by blocking reuptake or breakdown. Physical exercise increases serotonin. What's good for the heart is good for the mind (high fish, vegetables, and olive oil) leads to less depression. Alcohol misuse leads to depression.

Depression is a whole-body disorder (biological influences contribute but so do social-cognitive factors).

Depressed people's negative view magnifies bad experiences and minimizes good one. Self-defeating beliefs and negative explanatory style feed depression's vicious cycle.

Negative thoughts and negative moods interact: self-defeating beliefs may arise from learned helplessness. More common in women (respond more strongly to stress). Women also ruminate (stay focused on a problem). Depends on your explanatory style (blame it on others versus yourself—depressive=stable, global, internal). These can lead to hopelessness. More likely to develop depression if pessimistic. In Westerners with more individualistic communities, youth are forced to take personal responsibility for failure or rejection.

Self-defeating beliefs, negative attributions, and self-blame coincide with a depressed mood and are indicators of depression, but it is not clear if they CAUSE depression.

State-dependent memory: if in a depressed mood, more likely to recall bad memories.

People genetically predisposed to depression more often experience depressing events (boss may question person's competence if fatigued etc.). Then this new loss compounds the original depression.

Small losses can sour our thinking—if Sens lose, more likely to feel like I won't be successful at school.

We can break the cycle of depression by moving to a different environment, reversing our self-blame and negative attributions, turning our attention outward, or engaging in more pleasant activities and more competent behaviour.

Module 52&54

Psychotherapy: treatment involving psychological techniques; interactions between therapist and patient looking to overcome difficulties or achieve personal growth
Some therapists combine techniques (eclectic approach).
Psychoanalysis: Freud's therapeutic technique, believed in free associations, resistances (blocking from consciousness anxiety-laden material), dreams and transferences (patient's transfer to the analyst of emotions linked with other relationships)—and the therapist's interpretations of them—released previously repressed feelings allowing the patient to gain self-insight. Few people practice this anymore, but served as a foundation.
Wants to release the energy previously devoted to id-ego-superego conflicts (we do not fully know ourselves). Wants to bring repressed feelings into conscious awareness. Sit out of line of sight, childhood experiences mold adults. Costly, not scientifically supported, and takes a lot of time.
Insight therapies: therapies that aim to improve psychological functioning by increasing a person's awareness of underlying motives and defenses.
Humanistic therapies: boost self-fulfillment by helping them grow in self-awareness and self-acceptance, promoting growth is focus (clients not patients), take immediate responsibility instead of uncovering hidden determinants, conscious thoughts are more important than unconscious ones, present and future are more important than the past.
Behaviour therapies: applies learning principles to eliminate unwanted behaviours.
Cognitive therapy: teaches people new, more adaptive ways of thinking; based on the assumption that thoughts intervene between events and our emotional reactions. Teach more constructive ways of thinking.

Rational-emotive behaviour: confrontational cognitive therapy that vigorously challenges people's illogical, self-defeating attitudes and assumptions. Reveal the absurdity of their thoughts.
Beck seeks to reverse clients' catastrophizing beliefs about themselves, their situations, and their futures. Persuade people to remove the dark classes with which they view life. Get people to change what they say to themselves. Stress inoculation training teaches people to restructure their thinking in stressful situations.

Therapy	**Presumed Problem**	**Therapy Aim**	**Therapy Technique**
Psycho-dynamic	Unconscious conflicts from childhood experiences	Reduce anxiety through self-insight. Explore/ gain perspective into defended-against thoughts and feelings. Restore awareness of their own wishes/ feelings. Reveal past relationship troubles as the origin of current difficulties.	Interpret patients' memories and feelings. Meet face-to-face 1-2 a week for a few weeks/months. *Interpersonal psychotherapy* is a brief (12-16 session) variation where the goal is symptom relief (current relationships/helping improve relationship skills.
Client-centered (humanistic)	Barriers to self-understanding and self-acceptance.	Enable growth via unconditional positive regard (accept worst traits), genuineness, and empathy	Listen actively (paraphrase, clarify, reflect—empathetic) and reflect. Non-directive therapy—hard to be totally nondirective (a mirror), but try.
Behavior	Dysfunctional behaviors	Relearn adaptive behaviours, extinguish problem ones	Use classical conditioning (wetting the bed/waking the child up) (counterconditioning—evoke new responses to stimuli that are triggering unwanted behaviours: exposure (systematic desensitization—use progressive relaxation to associate pleasant relaxed state with gradually increasing anxiety-triggering stimuli (cannot be anxious and relaxed at the same time)/virtual reality exposure therapy (when too hard to recreate situation)) or aversion therapy (associates unpleasant state like nausea to unwanted behaviour like alcohol consumption/ gross nail polish if chewing nails—hard because know won't get sick when outside of lab)) or operant conditioning (voluntary behaviours are strongly influenced by their consequences) (token

			economies—might not be durable out in real world, but might shift to real-world rewards like social acceptance, might not be ethical to control behaviour, but they apply for the treatment)
Cognitive	Negative, self-defeating thinking	Promote healthier thinking and self-talk	Train people to dispute negative thoughts and attributions
Cognitive-behavioural	Self-harmful thoughts and behaviours	Promote healthier thinking and adaptive behaviours.	Train people to counter self-harmful thoughts and behaviours. Combines cognitive (change self-defating thinking) and behaviour (change behaviour) therapies. Relabel compulsive thoughts in OCD then replace them with a different behaviour (running).
Group and family	Stressful relationships	Heal relationships	Understand family and other social systems, explore roles, and improve communication. Group therapy saves time and money, offers a social lab to explore behaviours and social skills, lets people see they are not alone, provide feedback as clients try out new ways of behaving. Self-help groups mostly for stigmatized/ hard to discuss illnesses, provide a support network.

Biomedical therapy: medication or other biological treatment
Psychopharmacology: study of effect of drugs on mind and behaviour. Need double-blind procedures.

Therapy	**Presumed problem**	**Therapy Aim**	**Therapy technique**
Drug therapies	Neuro-transmitter malfunction	Control symptoms of psychological disorders	Alter brain chemistry using drugs. **Antipsychotics:** dampen responsiveness to irrelevant stimuli. Used for Schizophrenia and other thought disorders. Block dopamine receptors. Powerful side effects. **Antianxiety:** Depress CNS (don't use with alcohol), facilitates the extinction of learned fears, can lead to dependence when anxious/withdrawal, new standard is antidepressants. **Antidepressants:** treat depression, OCD, anxiety. Increase NE and serotonin by blocking reuptake/ breakdown (selective-serotonin-reuptake-inhibitors). More side effects if block both. SSRIs used for other disorders. Take weeks to have an effect—increased serotonin promotes neurogenesis. Exercise also helps increase them. Best to use antidepressants and cognitive-behavioural together. Placebo effect is mostly responsible improvement (except for severe depression). **Mood-stabilizing drugs:** lithium prevents/eases manic episodes and to a lesser extent lifts depression. Not sure how.
Brain stimulation	Severe, treatment-resistant depression	Alleviate treatment-resistant depression	Stimulate brain through ECT (brief electric current sent through the brain of an anesthetized patient, doesn't remember what happened, not sure how it works (maybe placebo effect, often relapse within 6 months), repetitive transcranial magnetic stimulation (performed on wide awake patients, not sure how it works, maybe energizes the left frontal lobe, may cause nerve cells to form new functioning circuits through the process long-term potentiation), or deep brain stimulation (hub that links frontal lobes to limbic system is overactive in depressed patients so implant electrodes).
Psycho-surgery	Brain malfunction	Relieve severe disorders	Remove or destroy brain tissue. Lobotomy was once used to calm uncontrollably emotional or violent patients. Cut nerves connecting frontal lobes to emotion-controlling centers of the inner brain. Created lethargic, immature, and uncreative person. More precise psychosurgeries are sometimes used now as a last resort.
Thera-peutic life-style change	Stress and unhealthy life-style	Restore healthy biological state	Alter lifestyle through adequate exercise, sleep, light exposure, social connection, anti-rumination (redirect negative thoughts), and nutritional supplements. Biopsychosocial approach. Not sure which factors are responsible for the effects.