

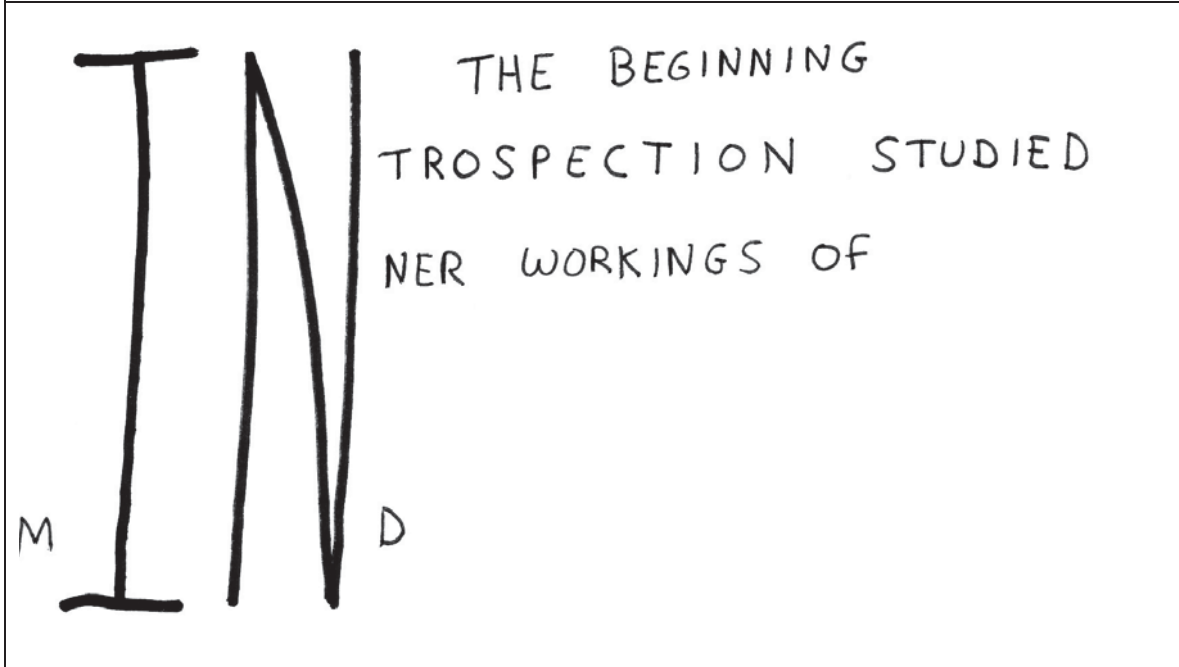
## UNIT 1: THE DEFINITION AND HISTORY OF PSYCHOLOGY

QUESTION #1.1: What is the definition of psychology?

**Psychology is best defined as the "scientific study of behavior in humans and animals."** Behavior is what people and animals do: e.g., what a person says about last night's dream, and how long it takes a rat to run a maze.

You might think that psychology was the "study of the mind" due to the fact that the prefix *psyche* is Greek for mind, soul, spirit, and the suffix *ology* refers to the study of something. Almost a hundred years ago, John **Watson** decided that psychology should be a science: not just a vague and introspective reflection on our own thoughts and feelings. Watson urged that psychology be defined as the scientific study of behavior. Since about 1920, most university psychologists have accepted Watson's definition. So, think of psychologists as scientists who study behavior.

*Introspection was the first technique for studying the mind*



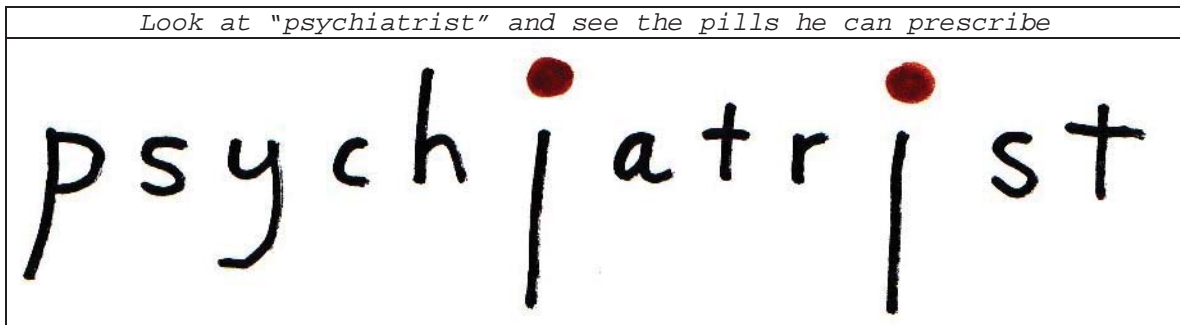
There are some terms related to psychology that are frequently confused with it.

**Psychiatry is a branch of medicine** specializing with mental disorders. Psychiatrists are medical doctors, and have been through medical school, an internship, residency training, and board certification as specialized physicians. The letters M.D. usually appear at the end of the name. The letters at the end of the name of a psychologist may be

Ph.D., Ed.D., or Psy.D., and so it may be appropriate to address a psychologist as "Dr." but he or she is not a physician.

There is one important difference between what psychologists and psychiatrists can do. Under the current laws of most states and countries, the ability to write prescriptions for psychiatric medication is limited to physicians. So, if you needed a prescription for an anti-depressant like Prozac, you would have to go to a psychiatrist (or other physician); a psychologist could not write the prescription in most places.

Here is how to remember what psychiatrists can do.



Notice that the word *psychiatrist* unlike the word *psychologist* repeats the letter *i*. Now, look at the dots above those letters, and imagine that they are little Prozac pills.

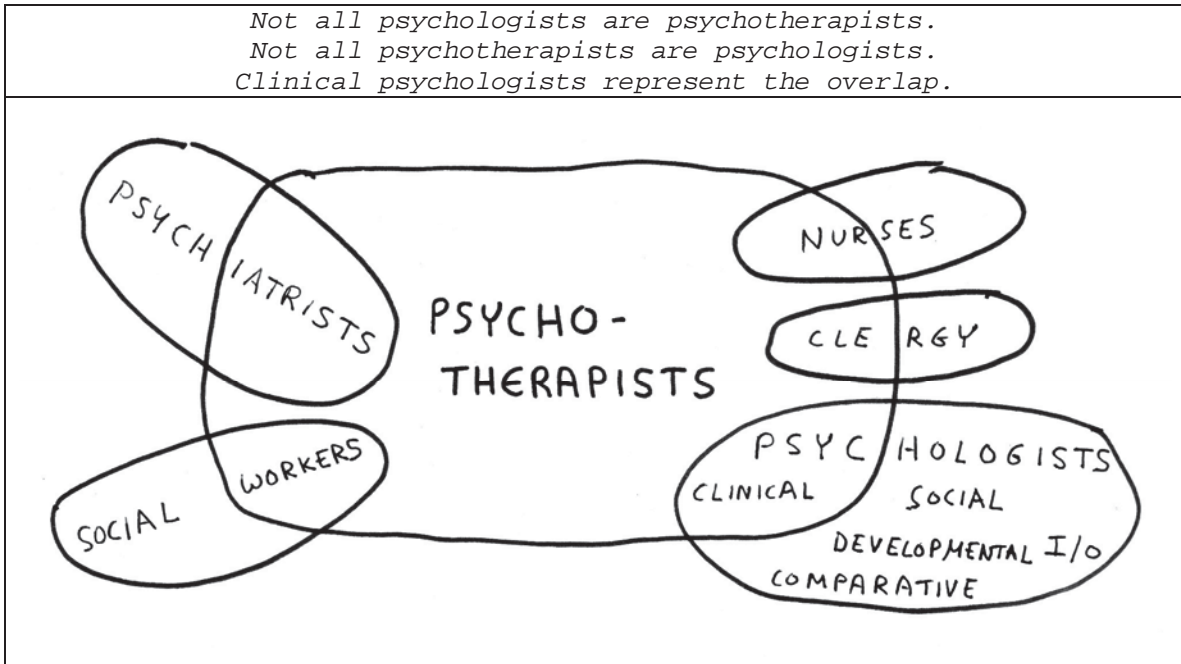
**Psychotherapy is a form of treatment emphasizing communication.** A psychotherapist is a mental health professional who treats patients ("clients") by communicating with them. Usually, this takes place in verbal form: talking and hearing. Here is how to remember that.

P S Y C H O     T   H     E R A P Y  
                  A   E  
                  L   A  
                  K   R

At the very middle of the word *psychotherapy* are the letters *t* and *h* and they stand for talking and hearing, the kind of communication that goes on in psychotherapy.

Only some psychologists, **clinical psychologists, can perform psychotherapy**, but most psychologists do not, working instead in some other branch of psychology. Some psychiatrists perform psychotherapy, but most do not, relying instead on other forms of psychiatric treatment, such as medication. Not all psychotherapists are psychiatrists or psychologists. Some may have professional training as a marriage counselor, social worker, nurse, or member of the clergy (e.g., priest, minister, or rabbi).

Here is how to remember that not all psychologists are psychotherapists, and not all psychotherapists are psychologists. Notice the overlapping relationships between these categories.



**Psychoanalysis** refers to the theories of the mind and psychotherapeutic techniques developed by **sigmund Freud** (pronounced FROID). Do not use the noun *psychoanalysis* or the adjective *psychoanalytic* or the verb *to psychoanalyze* synonymously with psychology, psychotherapy, or psychiatry, but only to refer to that which is Freudian.

*fill in the missing letters*

P		Y	C	H	O	A	N	A	L	Y	S	I	S		O	U	N	D	E	R
	I														R					
	G														E					
	M														U					
	U														D					
	N																			
	D																			

Freud himself was a medical doctor, so we can also call Freud a psychiatrist. He treated his patients by talking with them, so we can also call him a psychotherapist. Whether or not we can also call Freud a psychologist depends upon whether or not we consider his research methods sufficiently scientific to warrant that title.

A psychoanalyst is someone, usually a psychotherapist, who has received specialized formal training in Freudian theory and techniques. Until

about 1960, most American psychiatrists and psychotherapists were of a psychoanalytic orientation. Today, most psychiatrists emphasize medication as the main approach to treatment, and most American psychotherapists follow other, non-Freudian theories and techniques of treatment.

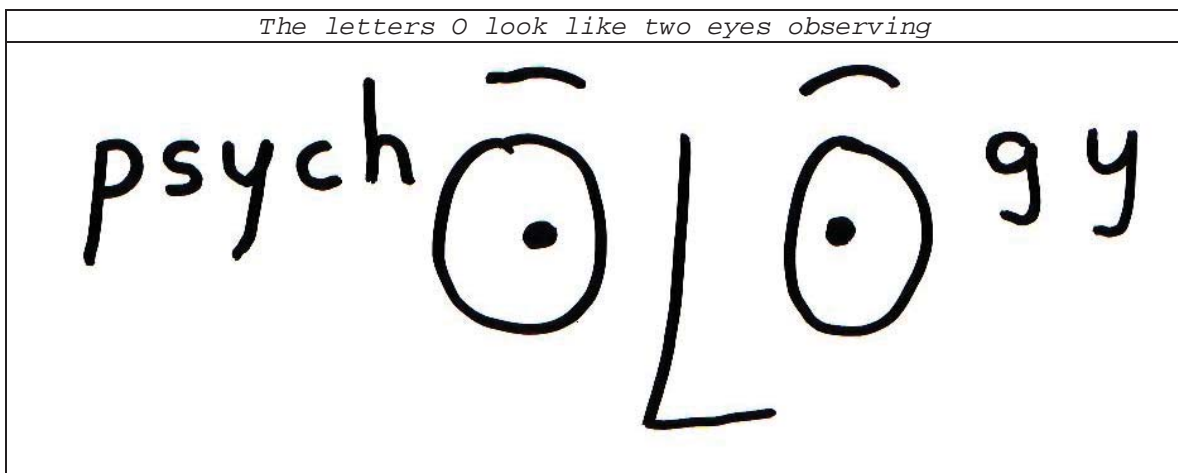
**QUESTION #1.2: What makes psychology scientific?**

Psychology is a science because it follows the empirical method. The scientific status of any endeavor is determined by its method of investigation, not what it studies, or when the research was done, and certainly not by who did the investigation. All sciences use the empirical method. **Empiricism emphasizes objective and precise measurement.**

Psychology and the other behavioral or social sciences (sociology, anthropology, economics, political science) are not as precise in their measurements as are biology, chemistry or physics, but to the extent that psychologists use empirical evidence, their findings may be referred to as scientific.

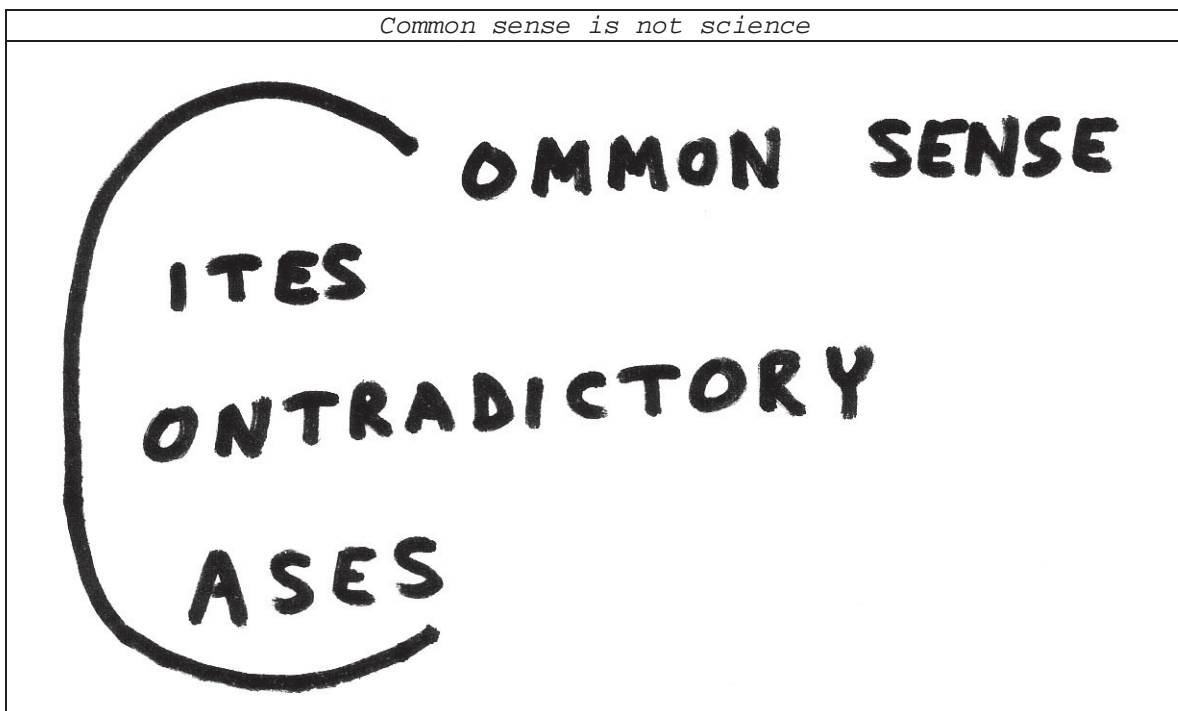
It is this emphasis on the empirically observable that made it necessary for psychology to change its definition from the study of the mind (because the mind itself could not be directly observed) to the science of behavior. We can directly observe and carefully measure externals such as what a person does, says, and marks down on a psychological test. We cannot directly observe a person's mind (e.g., internal thoughts, emotions).

Here is how to remember that a psychologist is a scientist who studies behavior using the empirical method. Notice that in the word *psychologist* the letter *O* is repeated twice. That does not happen in *psychiatrist* or *psychoanalyst* or even *psychotherapist*. Imagine that those letters are eyeballs opened wide, so that the psychologist can better observe behavior: e.g., what a rat does in a maze or how a patient behaves.



**Pseudo-psychology is phony, non-scientific speculation** about human behavior. Astrology (trying to predict a person's behavior or character on the basis of the position of planetary bodies) is generally regarded as a pseudo-science because of its origin in ancient Babylonian religion, not in the modern science of astronomy, which carefully measures and calculates the position of the planets. If someone were to gather enough data to prove that astrology could consistently and systematically predict behavior or character, then astrology would become a genuine science. However, until that evidence is presented, scientists, including psychologists, prefer to err on the side of skepticism.

**Common sense, by itself, is not sufficient for science.** Common sense refers to generally accepted ideas about human behavior, but many of these have not been subjected to the kind of systematic investigation that formal science demands. Common sense tends to limit its database to self-reflection (**introspection**) and over-emotionalized, isolated examples (case studies), some of which might even be contradictory. Common sense may be a starting point for some of our hypotheses about human nature, but we cannot stop there: we must go forward and systematically gather data to test those hypotheses. So it is best not to use the term *common sense* in this course.



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**GRAMMAR LESSON:** The word *hypothesis* is singular. The plural is *hypotheses*.  
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**Data are the bits of information that are observed** by psychological research. Within the social sciences, the term *data* is regarded as plural. So, we should say *these data are* instead of *this data is*. Within other fields, such as information technology, data is regarded as singular (a base of information) and therefore, in that field, people say "this data is."

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**GRAMMAR LESSON:** The word *data* is plural, and means "facts." The term for a single bit of information is *datum*.

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**A theory is an abstract concept which science uses to understand, explain, or control** what it is studying. Theories are never to be seen as substitutes for a lack of facts. Theory works together with observed data to form scientific knowledge.

### DATA + THEORY = KNOWLEDGE

If we have only theory, but no data, we do not have scientific knowledge, but only idle speculation. If we have only data, but no theory to make sense of it, then we are left with meaningless trivia. Both theory and data are essential components of scientific knowledge. Scientific knowledge is always growing. Sometimes the growth is produced by new data (more facts to back up a theory) and sometimes the growth is occasioned by a new theory that does a better job in explaining more data.

**Inference is the process of reasoning from something directly observed to something else not directly observed.** This word comes from the verb *to infer*. Psychologists observe behavior and then make inferences about why the person (or animal) behaved in that way. Emotions, motives, and abilities are never directly observed, but only inferred. Here are some examples of inferences that psychologists or you yourself might make.

OBSERVATION	INFERENCE
The patient scored high on the depression scale.	The patient is feeling very depressed.
The cat went to the water bowl before going to the food bowl.	The cat is more thirsty than hungry right now.
That guy plays his music too loud.	He is a jerk.

Science tries to explain the natural world with theories of cause and effect. Sometimes we observe an effect, and infer a likely cause.

<b>OBSERVATION</b> <i>effect</i>	<b>INFERENCE</b> <i>cause</i>
The little girl is crying.	She probably fell and got hurt.

Of course, if the cause was not essential to produce the effect, we could be mistaken, for there may be some other cause of the observed behavior. Perhaps the little girl was not able to use the swing because another child cut in front of her: she was not physically hurt, but her sadness was due to disappointment.

Sometimes we observe a cause, and infer a subsequent effect.

<b>OBSERVATION</b> <i>cause</i>	<b>INFERENCE</b> <i>effect</i>
That little boy is being badly beaten by his father.	He will grow up to become a serial killer.

Of course, if the cause is not always adequate to produce the effect, these predictions can be mistaken. Predictions are much easier in a science like physics, where all hydrogen atoms react the same. In psychology, we must keep in mind that people do not merely react, but they respond. Between the **cause** (an environmental **stimulus**) and the **effect** (the **response**) is an **organism** (a person or an animal). The stimulus is always something external, a change in energy that the organism can perceive (e.g., a loud sound). The stimulus is not an internal drive (e.g., hunger). The organism is a person or animal who perceives the stimulus and then creates a response. The response is what the organism does (e.g., action, speech, scores on a test). The stimulus **elicits** a response; the organism **emits** a response.

STIMULUS	ORGANISM	RESPONSE
=====	=====	=====
= what just =	= the person=	= what the =
= happened =	= or animal =	= organism now =
= in the =====>=	= who has =====>=	= thinks, feels, =
= organism's =	= just been =	= or does =
= environment =	= stimulated=	= = =
=====	=====	=====

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**GRAMMAR LESSON:** The word *stimulus* is singular. The plural is *stimuli*.

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Because no two people are exactly alike, there is only a limited ability to predict if a given stimulus will lead to a given response. Psychologists disagree about whether these differences are due to *free will* (different organisms make different choices on how to deal with the same situation) or whether different responses are determined by the different background factors (e.g., heredity, early childhood) influencing later responses to later stimuli.

So let us be cautious when we infer what will become of an abused child. Perhaps the mistreated little boy will become a serial killer, or perhaps he will develop a great empathy for other abused children, and become a police officer, nurse, or psychotherapist who tries to help others in the same situation.

This course in psychology will overlap in its topics and methods with other courses. The sciences of biology and sociology also use the empirical method and study human life, but their focus is different. Biology has a *micro* focus, and looks at human life as organ systems and metabolism. Sociology has a *macro* focus and looks at human life in terms of participation in larger units: groups and cultures. Think of psychology as the bridge between biology and sociology. The first few units of this book emphasize the physiological areas of psychology, and the last units will overlap with sociology.

<b>BIOLOGY</b>	<b>PSYCHOLOGY</b>	<b>SOCIOLOGY</b>
<i>Study human life as</i>	<i>Study human life as</i>	<i>Study human life as</i>
Organ systems of tissues and metabolism	Individual centers of thought, emotion, and action	Participants in group and cultural processes

The relationship between psychology and religion is often debated. Some (but not most) scientists are atheists who view religion as not much more than superstition or pseudo-science. Sigmund Freud (the psychoanalyst) and B.F. **Skinner** (the Behaviorist) thought that as science came to better understand human behavior, there would be less reliance upon religion.

On the other hand, some religious extremists may oppose science. Cult leaders may claim to be the only authority on everything and forbid their followers from consulting science. Some traditional religious fundamentalists take scripture (e.g., the *Bible*, *Torah*, *Quran*) literally, and contend that scripture contains all that we need to know about human nature, and therefore, we do not need a science of behavior.

On the relationship of religion and psychology, this book takes the middle position: there is no contradiction between the two because they employ different methodologies in coming to conclusions about human nature. Psychology and other sciences use the empirical method of observation. Religion gets its knowledge from revelation: scripture, a prophet, a pope, etc. Science tells us what people *are* like, while religion tells us what people *should* be like. Psychology searches for techniques to promote mental health, while religion seeks salvation. It is the contention of this book that one can be a devout Christian, Jew, Hindu, Jain, Sikh, Zoroastrian, Muslim or Buddhist and also be a good scientist. The religiously devout should not be concerned that psychology, or any other science, is going to conclude that God does not exist, or come up with another formula for saving one's soul.



	<b>SCIENCE</b>	<b>RELIGION</b>
<i>Method</i>	Empirical observation	Revelation
<i>Truth as</i>	Valid data	Enduring values
<i>Human nature</i>	The way it is	The way it should be

Most psychologists, psychiatrists, and psychotherapists are not atheists, but have some religious affiliation. Indeed, many Catholic priests, Protestant ministers, and Jewish rabbis blend modern psychotherapeutic techniques with traditional spiritual counseling in what is known as pastoral care.

**QUESTION #1.3: Who were the major figures and schools in the historical development of psychology as a science?**

We could go back to the first human who introspected, and reflected upon questions such as *Why do I feel what I feel? think what I think? do what I do?*

We could start on the continent of Africa, with the Egyptian physician Imhotep, who dissected and observed the human body. His later Greek counterpart, **Hippocrates**, concluded that **mental disorders were not due to demonic possession, but to physical problems with the body**. He is also credited with the first physicians' oath embodying ethical principles and professional obligations. **Galen**, who lived in Rome during the first century of the common era, concluded that the brain and nervous system had a central role in thought and emotion. A clearer understanding of how mind and body interact had to await the foundation provided by chemistry and biology in the last hundred years.

Philosophers and theologians have long addressed the question of human behavior and **free will** (whether people actually choose what they are going to do) or **determinism** (that their thoughts, emotions, and behaviors are completely determined by forces of heredity and environment). In ancient Greece, Socrates advocated the use of questioning as a method of furthering knowledge. His student, Plato, concluded that the healthy mind (soul) was governed by reason and kept the body's passions and the quest for honor in check. Plato's student, Aristotle, advocated more of an empirical approach to understanding the world, but he did not always stick to rigorous observation. For example, Aristotle used mere reasoning to conclude that the heavier an object is, the faster it will fall to earth. It took almost two thousand years before Galileo actually performed an experiment at the leaning tower of Pisa to conclude that it was an object's mass density, not its weight, which determined the rate of its descent.

Modern science is generally traced from events in Europe known as the Renaissance and the Enlightenment. British philosophers such as Bacon and Locke emphasized the importance of empiricism as the basis for science. Gradually, the empirical method advanced with the use of the telescope to observe the planets, the microscope to watch germs, and the laboratory to perform experiments on chemicals, cells, and electricity.

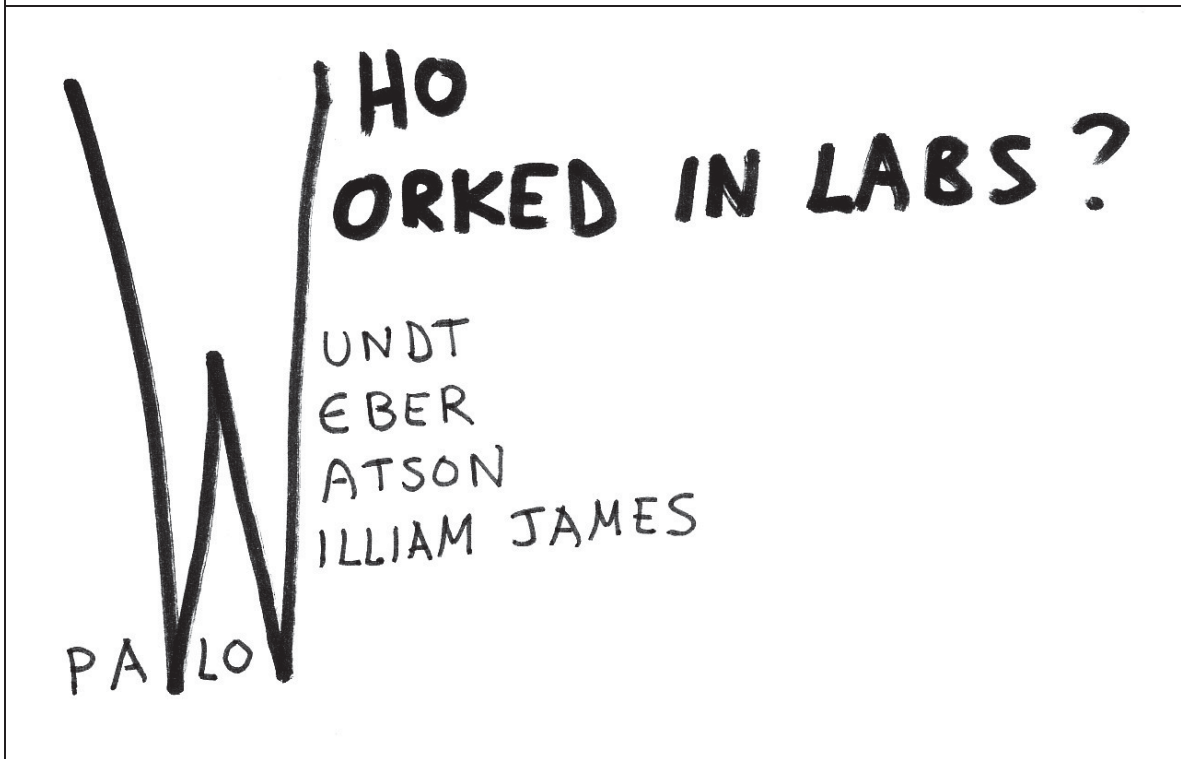
With science comes math. In 19<sup>th</sup> century England, nursing pioneer Florence **Nightingale** and physician Sir Francis **Galton** applied statistics to health care and epidemiology: "Wherever you can, count." In Germany, physicist Gustav **Fechner** (say "FEK ner") developed mathematical formulas that related the brightness of light to the ability of humans to detect the stimulus. Today, we would regard much of the research of Galton and Fechner as being within the field of psychology.

**The first psychology research laboratory is usually credited to Wilhelm Wundt** (say "VOONT") of Leipzig, Germany, in 1879. He was a physician by training, but developed an interest in investigating human behavior. He established the first university department of psychology, and the first professional journal in the field. However, much of his laboratory work would not be considered true experiments by present day standards. His main research technique was still **introspection, reflecting on his own private mental activities**. Wundt's school was known as **German Structuralism** because he maintained that the structure of the mind could be inferred from observing the structure of its thought. Wundt influenced the first generation of scientific psychologists in Europe and abroad.

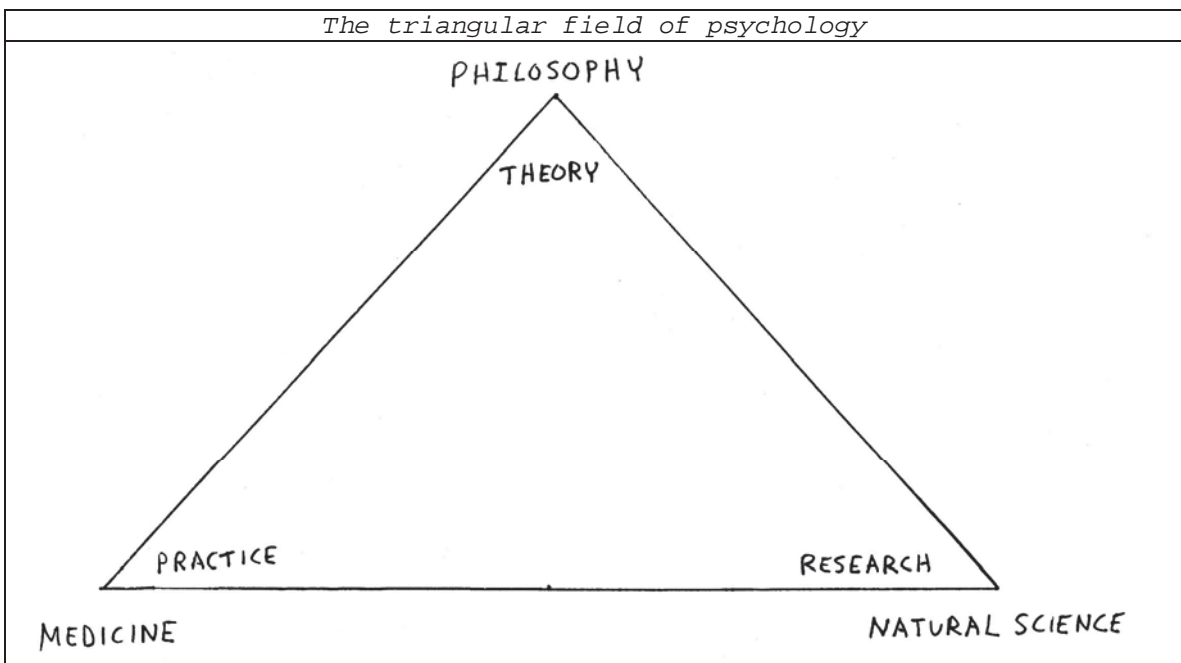
On this side of the Atlantic, **William James** was an American physician who offered the first U.S. course in psychology in 1875 and also developed a demonstration laboratory at Harvard. He also studied the contents of his own "stream of consciousness" but acknowledged some of the limitations of introspection. His school became known as **American Functionalism** because he emphasized **how organisms function with respect to their environments**. Although James recognized the power of habits, he championed the doctrine of free will: that people are not mere billiard balls who react to their environment, but conscious organisms with the power of deciding how to respond.

More than anyone else, it was William James who put together the modern field of psychology in his definitive book, *Principles of Psychology* in 1890. The field of modern scientific psychology is actually triangular, with the three corners representing the three starting points of medicine, natural science and philosophy. Each of these left a different focus in the study of human behavior: clinical practice, laboratory research, or theoretical formulations. William James had training as a physician, a laboratory for some rudimentary research, and a growing interest in pragmatic philosophy.

How to remember which pioneers worked in a laboratory  
Notice: Freud is not there.



The triangular field of psychology



Today, a good undergraduate curriculum in the field of psychology must cover all the corners of this triangle. Regardless of your future career objective within the field of psychology, you must learn about its theories, research methods, and clinical applications.

The **American Psychological Association** was founded in 1892 by **G. Stanley Hall** of Clark University. Credit for the current definition of psychology should go to John B. **Watson (the founder of Behaviorism)** who urged that psychology reject the purely introspective approach of studying the mind, and define itself as the science of behavior.

<i>Pioneers in psychology</i>				
<b>NAME</b>	<b>DATES</b>	<b>COUNTRY</b>	<b>BACKGROUND</b>	<b>METHODS</b>
Weber	1795-1878	Germany	Physiology	Math Laboratory
Fechner	1801-1887	Germany	Physics	Math Laboratory
Nightingale	1820-1910	England	Nursing	Statistics Cases
Galton	1822-1911	England	Medicine	Statistics
Wundt	1832-1920	Germany	Medicine	Introspection Laboratory
Bucke	1832-1903	Canada	Medicine Literature	Introspection Cases
James	1842-1910	U.S.A.	Medicine Art	Introspection Laboratory
Pavlov	1849-1936	Russia	Medicine Physiology	Laboratory
Hall	1844-1924	U.S.A.	Divinity	Survey Laboratory
Ladd-Franklin	1847-1930	U.S.A.	Psychology	Animal behavior
Ebbinghaus	1850-1909	Germany	Philosophy	Graphs Laboratory
Ramon y Cajal	1852-1934	Spain	Medicine Physiology	Laboratory
Kraepelin	1856-1926	Germany	Medicine	Cases
Freud	1856-1939	Austria	Medicine	Introspection Cases
Binet	1857-1911	France	Law Entomology	Testing
Calkins	1863-1930	U.S.A.	Psychology	Introspection
Titchener	1867-1927	England	Philosophy Physiology	Introspection
Watson	1878-1958	U.S.A.	Psychology	Laboratory
Wertheimer	1880-1943	Czech	Psychology	Laboratory

Modern psychology owes its advances to men and women who differed greatly in terms of their academic training, research methods, topics of interest, and countries of origin. Although most of the earliest figures in psychology were white males, the field soon attracted women and persons of all ethnic backgrounds. Margaret **Washburn** was the first woman Ph.D. in psychology in 1894. Mary Whiton **Calkins** was the first woman president of the American Psychological Association in 1905. Kenneth B. **Clark** was the first African-American president of the American Psychological Association, over a half century ago. Today, two

thirds of the students in American graduate programs in psychology are women. In foreign countries, the figure is well above three-quarters.

Many of the pioneers of scientific psychology developed a loyal cadre of followers who continued to advance the founder's research and theory. One early school was the Structuralism of Wundt. It developed in Germany, but was brought to England and the U.S. by Edward Titchener. **Structuralism** was based primarily upon introspection and assumed that the structure of the mind could be inferred by observing the structure of how it perceived. The approach of William James became known as American **Functionalism**. He wanted to focus more on how the organism adapted to its environment, but he still used introspection in the form of following his own "stream of consciousness". The more extreme environmental approach of **Behaviorism rejected introspection as unscientific**, and instead suggested that research be confined to laboratory studies of human and animal behavior.

		<i>When the school started</i>	
		Before 1900	After 1900
W H E R E	European	<b>Structuralism</b> Wundt: demo labs and introspection	<b>Psychoanalysis</b> Freud: case studies and introspection
	American	<b>Functionalism</b> James: demo labs and introspection	<b>Behaviorism</b> Watson & Skinner: serious labs  <b>Humanism</b> Maslow & Rogers: case studies and introspection
S T A R T E D			

Within psychotherapy, the first great school was Freud's psychoanalysis, with its emphasis on the unconscious determinants of behavior: sexual and aggressive drives. After 1960, the psychoanalytic hold on American psychotherapy gave way to the more **Humanistic approach of Rogers, emphasizing free will, and the great reservoir of human potential and goodness.**

## SCHOOLS OF PSYCHOLOGY

school	Start	Major figure(s)	studied	branch	research
STRUCTURALISM	19c	Wundt Titchener	perception	Experimental	demo labs
FUNCTIONALISM	19c	James Angell	adaptation to environment	Experimental	demo labs
PSYCHOANALYSIS	19c	Freud	unconscious drives of sex and aggression	Clinical	Cases
BEHAVIORISM	20c	Pavlov Watson Skinner	conditioned behaviors	Experimental	serious labs
HUMANISTIC	20c	Adler Rogers Maslow	free will	Clinical	Cases

### **QUESTION #1.4: What are the major fields of psychology today?**

Modern psychology is a hybrid science, a tree with many roots and many branches, but a common trunk of empirical methodology. As in medicine and engineering, most psychologists tend to specialize in one particular field of psychology.

**Clinical psychologists** are still the most numerous field. These are the psychologists who **work with patients**, alongside psychiatrists, social workers, and nurses. Many clinical psychologists are in private practice, while others work for hospitals, health maintenance organizations, or agencies. Some clinical psychologists assess the mental health of patients and diagnose specific mental disorders. Some clinical psychologists perform **psychotherapy**, while others use other techniques of treatment or specialize in diagnosis.

**Industrial / Organizational psychologists study the workplace.** They may be in private practice, or be employed by large private companies, consulting firms, government agencies, or the military. They focus on selecting, training, and supervising workers.

**Consumer psychologists study the marketplace.** They help determine which people are the best source of potential customers for a product, which products will sell, and how to advertise.

**Comparative psychologists study different animal species. Ethologists** study animals in their natural habitats: feeding, mating, aggressive, and other social behaviors.

**Experimental psychologists work primarily in laboratories**, studying topics such as sensation, perception, learning, and memory.

**Developmental psychologists focus on how people grow over the life cycle:** from fetus, to neonate, to infant, to toddler, to child, to adolescent, to adulthood, to old age.

**Social psychologists** study how people respond to **interpersonal** stimuli: **attitude** change, discrimination, group behavior, and conformity to **cultural** norms.

Psychiatry is not a branch or sub-fields of psychology, but separate profession, rooted in medicine. Psychotherapy and psychoanalysis are not branches or sub-fields of psychology, but overlapping fields.

<i>Fields of psychology</i>			
<b>specialty</b>	<b>proportion</b>	<b>where they work</b>	<b>activities</b>
Clinical	About half	Private practice Clinics Hospitals Universities	Diagnosis Psychotherapy
Cognitive	Small but growing	Universities	Basic Research
Community	Small but growing	Government Universities	Applied Research
Comparative	Small	Universities	Basic Research
Consumer	Small but growing	Corporations Private practice	Applied Research
Counseling	a tenth	Private practice Clinics Hospitals Universities	Counseling
Cultural	Small	Universities	Basic Research Applied Research
Developmental	Small but growing	Universities	Basic Research Applied Research
Educational	Small but growing	Schools Universities	Applied Research
Engineering	Small but growing	Corporations Universities	Applied Research
Environmental	Small	Universities	Applied Research
Forensic	Small but growing	Law enforcement	Applied Research
Gender	Small	Universities	Basic Research
Health	Small but growing	Hospitals Universities	Applied Research
Industrial - Organizational	Small but growing	Corporations Private practice Military	Applied Research
Learning	Small	Universities	Basic Research
Medical	Small but growing	Hospitals Universities	Applied Research
Personality	Small	Universities	Basic Research
Political	Small	Universities Campaigns	Applied Research
School	Small but growing	Schools Universities	Applied Research
Sensation & perception	Small	Universities	Basic Research
Social	Small	Universities	Basic Research
Sports	Small	Sports teams	Applied Research