Assigning Topics

Below you will find a list of presentation topics. I will be giving the first 5 to 7 presentations. The earliest the student presentations will start on September 27. My goal is to have you select a topic and presentation date by the end of our first class meeting. The order in which you will select a topic and presentation date will be based on a lottery. Each of you will select a number from a hat. The number you select will determine both your partner and the selection order. The student drawing the lowest number will be paired with the student that draws the highest number (e.g. if there are 24 students in the class #1 will be paired with #24). You and your partner will be given an opportunity to select a topic and a date for your presentation. I will give you a few minutes to confer with your partner and will then give you an opportunity to select a topic. Ever time I teach this course a few students complain about a lack of interest in a topic or fear it will be difficult to find enough material to fill 45-minute presentation. Do not fret there are more than enough interesting presentation topics. While you may not be familiar with several of the diseases on the list I can assure you that there is more than enough material to fill two 45-minute presentation. While there are a number of subtopics you are required to cover it is my expectation that you and your partner will have an opportunity to add a personal touch to your presentation. As you research your topic you will be required to identify several additional subtopics that you would like to include in your presentation. In the past students have focused their presentation of issues ranging from ethics, economics, emerging technologies, health disparities, medical sociology, the interface between medicine and public policy, cultural differences in diagnosis and treatment of diseases, novel therapies. While I expect you and your partner to take the lead in organizing your presentations I will also be part of your team.

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<th>Potential Lecture Topics (from Wikipedia)</th>
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<td><strong>Neurological Complications of AIDS including HIV Associated Dementia (HAD):</strong> AIDS is primarily an immune system disorder caused by the human immunodeficiency virus (HIV), but it can also affect the nervous system. HIV does not appear to directly invade nerve cells but it jeopardizes their health and function, causing symptoms such as confusion, forgetfulness, behavioral changes, severe headaches, progressive weakness, loss of sensation in the arms and legs, stroke, cognitive motor impairment, or damage to the peripheral nerves. Other complications that can occur as a result of HIV infection or the drugs used to treat it include pain, seizures, shingles, spinal cord problems, lack of coordination, difficult or painful swallowing, anxiety disorder, depression, fever, vision loss, gait disorders, destruction of brain tissue, and coma.</td>
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<td><strong>Prion diseases (Mad Cow Disease CJD &amp; vCJD)</strong> or transmissible spongiform encephalopathies (TSEs) are a family of rare progressive neurodegenerative disorders that affect both humans and animals. They are distinguished by long incubation periods, characteristic spongiform changes associated with neuronal loss, and a failure to induce inflammatory response.</td>
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<td><strong>Schizophrenia:</strong> is a chronic, severe, and disabling brain disorder that affects about 1.1 percent of the U.S. population age 18 and older in a given year. People with schizophrenia sometimes hear voices others don’t hear, believe that others are broadcasting their thoughts to the world, or become convinced that others are plotting to harm them. These experiences can make them fearful and withdrawn and cause difficulties when they try to have relationships with others.</td>
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Charcot-Marie-Tooth disease (CMT) is one of the most common inherited neurological disorders, affecting approximately 1 in 2,500 people in the United States. CMT, also known as hereditary motor and sensory neuropathy (HMSN) or peroneal muscular atrophy, comprises a group of disorders caused by mutations in genes that affect the normal function of the peripheral nerves. The peripheral nerves lie outside the brain and spinal cord and supply the muscles and sensory organs in the limbs. A typical feature includes weakness of the foot and lower leg muscles, which may result in foot drop and a high-stepped gait with frequent tripping or falls. Foot deformities, such as high arches and hammertoes (a condition in which the middle joint of a toe bends upwards), are also characteristic due to weakness of the small muscles in the feet. In addition, the lower legs may take on an "inverted champagne bottle" appearance due to the loss of muscle bulk. Later in the disease, weakness and muscle atrophy may occur in the hands, resulting in difficulty with fine motor skills. Some patients experience pain, which can range from mild to severe.

Fragile X syndrome (FXS), the most common cause of inherited mental impairment. This impairment can range from learning disabilities to more severe cognitive or intellectual disabilities. (Sometimes referred to as mental retardation.) FXS is the most common known cause of autism or "autistic-like" behaviors. Symptoms also can include characteristic physical and behavioral features and delays in speech and language development.

Huntington’s Disease (HD): results from genetically programmed degeneration of brain cells, called neurons, in certain areas of the brain. This degeneration causes uncontrolled movements, loss of intellectual faculties, and emotional disturbance. HD is a familial disease, passed from parent to child through a mutation in the normal gene. Each child of an HD parent has a 50-50 chance of inheriting the HD gene. If a child does not inherit the HD gene, he or she will not develop the disease and cannot pass it to subsequent generations. A person who inherits the HD gene will sooner or later develop the disease. Whether one child inherits the gene has no bearing on whether others will or will not inherit the gene. Some early symptoms of HD are mood swings, depression, irritability or trouble driving, learning new things, remembering a fact, or making a decision. As the disease progresses, concentration on intellectual tasks becomes increasingly difficult and the patient may have difficulty feeding himself or herself and swallowing. The rate of disease progression and the age of onset vary from person to person. A genetic test, coupled with a complete medical history and neurological and laboratory tests, helps physicians diagnose HD. Presymptomic testing is available for individuals who are at risk for carrying the HD gene. In 1 to 3 percent of individuals with HD, no family history of HD can be found.

Autism (sometimes called “classical autism”) is the most common condition in a group of developmental disorders known as the autism spectrum disorders (ASDs). Autism is characterized by three distinctive behaviors. Autistic children have difficulties with social interaction, display problems with verbal and nonverbal communication, and exhibit repetitive behaviors or narrow, obsessive interests. These behaviors can range in impact from mild to disabling. Autism varies widely in its severity and symptoms and may go unrecognized, especially in mildly affected children or when more debilitating handicaps mask it. Scientists aren’t certain what causes autism, but it’s likely that both genetics and environment play a role.

Depression: Everyone occasionally feels blue or sad, but these feelings are usually fleeting and pass within a couple of days. When a person has a depressive disorder, it interferes with daily life, normal functioning, and causes pain for both the person with the disorder and those who care about him or her. Depression is a common but serious illness, and most who experience it
need treatment to get better. Many people with a depressive illness never seek treatment. But the vast majority, even those with the most severe depression, can get better with treatment.

**Parkinson’s Disease** (PD) belongs to a group of conditions called motor system disorders, which are the result of the loss of dopamine-producing brain cells. The four primary symptoms of PD are tremor, or trembling in hands, arms, legs, jaw, and face; rigidity, or stiffness of the limbs and trunk; bradykinesia, or slowness of movement; and postural instability, or impaired balance and coordination. As these symptoms become more pronounced, patients may have difficulty walking, talking, or completing other simple tasks. PD usually affects people over the age of 50. Early symptoms of PD are subtle and occur gradually. In some people the disease progresses more quickly than in others. As the disease progresses, the shaking, or tremor, which affects the majority of PD patients may begin to interfere with daily activities. Other symptoms may include depression and other emotional changes; difficulty in swallowing, chewing, and speaking; urinary problems or constipation; skin problems; and sleep disruptions. There are currently no blood or laboratory tests that have been proven to help in diagnosing sporadic PD. Therefore the diagnosis is based on medical history and a neurological examination. The disease can be difficult to diagnose accurately.

**Cerebral Palsy** refers to any one of a number of neurological disorders that appear in infancy or early childhood and permanently affect body movement and muscle coordination but don’t worsen over time. Even though cerebral palsy affects muscle movement, it isn’t caused by problems in the muscles or nerves. It is caused by abnormalities in parts of the brain that control muscle movements. The majority of children with cerebral palsy are born with it, although it may not be detected until months or years later. The early signs of cerebral palsy usually appear before a child reaches 3 years of age. The most common are a lack of muscle coordination when performing voluntary movements (ataxia); stiff or tight muscles and exaggerated reflexes (spasticity); walking with one foot or leg dragging; walking on the toes, a crouched gait, or a “scissored” gait; and muscle tone that is either too stiff or too floppy. A small number of children have cerebral palsy as the result of brain damage in the first few months or years of life, brain infections such as bacterial meningitis or viral encephalitis, or head injury from a motor vehicle accident, a fall, or child abuse.

**Attention deficit-hyperactivity disorder (ADHD)** is a neurobehavioral disorder that affects 3-5 percent of all American children. It interferes with a person's ability to stay on a task and to exercise age-appropriate inhibition (cognitive alone or both cognitive and behavioral). Some of the warning signs of ADHD include failure to listen to instructions, inability to organize oneself and school work, fidgeting with hands and feet, talking too much, leaving projects, chores and homework unfinished, and having trouble paying attention to and responding to details. There are several types of ADHD: a predominantly inattentive subtype, a predominantly hyperactive-impulsive subtype, and a combined subtype. ADHD is usually diagnosed in childhood, although the condition can continue into the adult years.

**Fetal Alcohol syndrome Disorders & Fetal Alcohol Syndrome:** Prenatal exposure to alcohol can cause a range of disorders, known as fetal alcohol spectrum disorders (FASDs). One of the most severe effects of drinking during pregnancy is fetal alcohol syndrome (FAS). FAS is one of the leading known preventable causes of mental retardation and birth defects. If a woman drinks alcohol during her pregnancy, her baby can be born with FAS, a lifelong condition that causes physical and mental disabilities. FAS is characterized by abnormal facial features, growth deficiencies, and central nervous system (CNS) problems. People with FAS might have problems with learning, memory, attention span, communication, vision, hearing, or a
combination of these. These problems often lead to difficulties in school and problems getting along with others. FAS is a permanent condition. It affects every aspect of an individual’s life and the lives of his or her family.

Fetal alcohol spectrum disorders (FASDs) is an umbrella term describing the range of effects that can occur in an individual whose mother drank alcohol during pregnancy. These effects include physical, mental, behavioral, and/or learning disabilities with possible lifelong implications. The term FASDs is not intended for use as a clinical diagnosis.

**Alzheimer’s Disease** (AD) is a progressive, neurodegenerative disease characterized in the brain by abnormal clumps (amyloid plaques) and tangled bundles of fibers (neurofibrillary tangles) composed of misplaced proteins. Age is the most important risk factor for AD; the number of people with the disease doubles every 5 years beyond age 65. Three genes have been discovered that cause early onset (familial) AD. Other genetic mutations that cause excessive accumulation of amyloid protein are associated with age-related (sporadic) AD. Symptoms of AD include memory loss, language deterioration, impaired ability to mentally manipulate visual information, poor judgment, confusion, restlessness, and mood swings. Eventually AD destroys cognition, personality, and the ability to function. The early symptoms of AD, which include forgetfulness and loss of concentration, are often missed because they resemble natural signs of aging.

**Sleep Disorders** We will focus on Insomnia – an inability to fall or stay asleep that can result in functional impairment throughout the day and Narcolepsy – excessive daytime sleepiness combined with sudden muscle weakness; episodes of narcolepsy are sometimes called "sleep attacks" and may occur in unusual circumstances.

**Migraine** as an intense pulsing or throbbing pain in one area of the head. It is often accompanied by extreme sensitivity to light and sound, nausea, and vomiting. Migraine is three times more common in women than in men. Some individuals can predict the onset of a migraine because it is preceded by an "aura," visual disturbances that appear as flashing lights, zig-zag lines or a temporary loss of vision. People with migraine tend to have recurring attacks triggered by a lack of food or sleep, exposure to light, or hormonal irregularities (only in women). Anxiety, stress, or relaxation after stress can also be triggers. For many years, scientists believed that migraines were linked to the dilation and constriction of blood vessels in the head. Investigators now believe that migraine is caused by inherited abnormalities in genes that control the activities of certain cell populations in the brain.

**Stroke** occurs when the blood supply to part of the brain is suddenly interrupted or when a blood vessel in the brain bursts, spilling blood into the spaces surrounding brain cells. Brain cells die when they no longer receive oxygen and nutrients from the blood or there is sudden bleeding into or around the brain. The symptoms of a stroke include sudden numbness or weakness, especially on one side of the body; sudden confusion or trouble speaking or understanding speech; sudden trouble seeing in one or both eyes; sudden trouble with walking, dizziness, or loss of balance or coordination; or sudden severe headache with no known cause. There are two forms of stroke: ischemic - blockage of a blood vessel supplying the brain, and hemorrhagic - bleeding into or around the brain.

**Lissencephaly** which literally means "smooth brain," is a rare, gene-linked brain malformation characterized by the absence of normal convolutions (folds) in the cerebral cortex and an abnormally small head (microcephaly). It is caused during embryonic development by defective neuronal migration, the process in which nerve cells move from their place of origin to their permanent location. Symptoms of the disorder may include unusual facial appearance, difficulty swallowing, failure to thrive, muscle spasms, seizures, and severe psychomotor retardation.
Hands, fingers, or toes may be deformed.

**Obsessive-Compulsive Disorder, OCD,** is an anxiety disorder and is characterized by recurrent, unwanted thoughts (obsessions) and/or repetitive behaviors (compulsions). Repetitive behaviors such as handwashing, counting, checking, or cleaning are often performed with the hope of preventing obsessive thoughts or making them go away. Performing these so-called "rituals," however, provides only temporary relief, and not performing them markedly increases anxiety.

**Tay-Sachs disease** is a fatal genetic lipid storage disorder in which harmful quantities of a fatty substance called ganglioside GM2 build up in tissues and nerve cells in the brain. The condition is caused by insufficient activity of an enzyme called beta-hexosaminidase A that catalyzes the biodegradation of acidic fatty materials known as gangliosides. Gangliosides are made and biodegraded rapidly in early life as the brain develops. Infants with Tay-Sachs disease appear to develop normally for the first few months of life. Then, as nerve cells become distended with fatty material, a relentless deterioration of mental and physical abilities occurs. The child becomes blind, deaf, and unable to swallow. Muscles begin to atrophy and paralysis sets in. Other neurological symptoms include dementia, seizures, and an increased startle reflex to noise. A much rarer form of the disorder occurs in patients in their twenties and early thirties and is characterized by an unsteady gait and progressive neurological deterioration. Persons with Tay-Sachs also have "cherry-red" spots in their eyes. The incidence of Tay-Sachs is particularly high among people of Eastern European and Askhenazi Jewish descent.

**Addiction** is a state in which an organism engages in a compulsive behavior, even when faced with negative consequences.

**Eating Disorders** (including Anorexia Nervosa, Bulimia Nervosa & Binge-Eating Disorder) is present when a person experiences severe disturbances in eating behavior, such as extreme reduction of food intake or extreme overeating, or feelings of extreme distress or concern about body weight or shape.

**Back Pain** as a focus for a review of the biology and treatment of chronic pain.

**Dyslexia** is classified as a learning disability that impairs the development of reading skills.

**Epilepsy** is neurological disorder characterized by recurring seizures.

**Prader-Willi Syndrome** is a rare genetic disorder characterized by reduced cognitive abilities, poor physical coordination and abnormal eating and sleeping habits.

**Rett Syndrome** is a developmental disorder characterized by the under development of head (microcephaly) and the hands and feet. Rett syndrome is also defined by a suite of stereotypical behavioral disturbances similar to those observed in autism.