

## ***Biology Honors Reading List***

Select no less than 500 pages of reading material for Semester 2. That could mean selecting 2-3 smaller books or 1 larger text. You will need a hard copy of the book in class next Friday. If you are ordering online, I recommend doing before the weeks end. The first assignment from the text will be presented next week and will require you to mark up the book. If cost is prohibitive please let me know, and I will order the title of your choosing so you can be prepared next Friday.

### ***The Demon-Haunted World*** by Carl Sagan

A book about what science really is, and how the scientific method fights ignorance and superstition. Very well written, and probably an enjoyable read for anyone. Approximately 200 pages.

### ***T. Rex and the Crater Of Doom*** by Walter Alvarez

A book about the extinction of the dinosaurs and the search and collaboration of many scientists to develop the “mass impact” theory of extinction and discover the evidence to support it. Quite Short.

### ***The Beak of the Finch*** by Jonathan Weiner

A book about the Finches of the Galapagos islands and evolution. Infinitely better than the Origin of the Species. Fairly long, at least 500 pages.

### ***Origin of the Species*** (Any Version) by Charles Darwin

A boring book on evolution, but the original. Tried and true. Read an abbreviated version if you can find one – the regular one talks way too much about pigeons. Unabridged version approximately 450 pages.

### ***A Natural History of the Senses*** by Diane Ackerman

A discussion of taste, touch, smell, sight, and hearing. Not terribly scientific, but written by a truly excellent writer. It discusses the history of perfume, the meaning of communal eating, and much more. Written for the layperson. About 200 pages.

### ***On Aggression*** by Konrad Lorenz

A book about competition between tropical fish around the coral reef. Lorenz and competition are always AP Bio topics.

### ***Silent Spring*** by Rachel Carson

A very famous book indeed. Recommended by The Times magazine. Mentioned in the 2003 AP Bio Exam and the Bio SAT II.

### ***Your Inner Fish: A Journey into the 3.5-Billion-Year History of the Human Body*** by Neil Shubin

Parsing the millennia-old genetic history of the human form is a natural project for Shubin, who chairs the department of organismal biology and anatomy at the University of Chicago and was co-discoverer of *Tiktaalik*, a 375-million-year-old fossil fish whose flat skull and limbs, and finger, toe, ankle and wrist bones, provide a link between fish and the earliest land-dwelling creatures.

### ***The Book of Life: An Illustrated History of the Evolution of Life on Earth*** by Stephen Jay Gould (Editor)

A lucid, readily comprehensible, and largely up-to-date overview of the origins and evolution of life on earth, from the emergence of bacteria 4 billion years ago to that of *Homo sapiens* in recent geological time. Written by distinguished scientists, the text proceeds chronologically, giving an in-depth account of the fossil record. It is matched by hundreds of paintings, drawings, charts, and graphs that reinforce the authors' discussions.

### ***Your Brain on Food: How Chemicals Control Your Thoughts and Feelings***

Gary Wenk (Author)

Why is eating chocolate so pleasurable? Can the function of just one small group of chemicals really determine whether you are happy or sad? Does marijuana help to improve your memory in old age? In this book, Gary Wenk demonstrates how, as a result of their effects on certain neurotransmitters concerned with behavior, everything we put into our bodies has very direct consequences for how we think, feel, and act.

### ***Dead Men Do Tell Tales: The Strange and Fascinating Cases of a Forensic Anthropologist*** William R. Maples, Michael Browning (Authors)

Noted forensic anthropologist Maples, whose specialty is the study of bones, and freelance journalist Browning here recount Maples's criminal and anthropological investigations over the past 20 years. The book's strength is as a snapshot of the world of forensic scientists.

***The Seven Daughters of Eve: The Science That Reveals Our Genetic Ancestry***

Bryan Sykes (Author)

Sykes is passionate about his work in decoding mitochondrial DNA and about using this knowledge to trace the path of human evolution. To lure readers into this specialized work, he relates personal and historical anecdotes, offering familiar ground from which to consider the science. A discussion of the history of genetics and descriptions of the early landmark work of Sykes and his associates culminate with his finding that 90 percent of modern Europeans are descendents of just seven women who lived 45,000 to 10,000 years ago.

***Welcome to Your Brain: Why You Lose Your Car Keys but Never Forget How to Drive and Other Puzzles of Everyday Life***

Sam Wang (Author), Sandra Aamodt (Author)

Neuroscientists Aamodt, editor-in-chief of *Nature Neuroscience*, and Wang, of Princeton University, explain how the human brain—with its 100 billion neurons— processes sensory and cognitive information, regulates our emotional life and forms memories. They also examine how human brains differ from those of other mammals and show what happens to us during dreams.

***The Biophilia Hypothesis*** Stephen R. Kellert (Editor)

Why is it that most of us find baby animals irresistibly cute? Why do so many people fear even the sight of snakes? Stephen Kellert and Edward Wilson, the prolific Harvard biologist, gather essays by various hands on these and other questions, and the result is a fascinating glimpse into our relations with other animals. Humans, Wilson writes, have an innate (or at least extremely ancient) connection to the natural world, and our continued divorce from it has led to the loss of not only "a vast intellectual legacy born of intimacy" with nature but also our very sanity.

***Plague of Frogs: Unraveling an Environmental Mystery***

William Souder (Author)

A Plague of Frogs is an ecological detective story, one that begins when a class of middle schoolers discovers an unusual number of deformed frogs in a pond on a southern Minnesota farm in 1995. William Souder spins a gripping tale of scientific investigation, environmental debate, and the frightening implications of what these deformed frogs mean for humanity. This is a superb account of a disturbing environmental happening, which finally leaves us wondering, as scientists do, over its larger implications."

***The Immortal Life of Henrietta Lacks*** Rebecca Skloot (Author)

From a single, abbreviated life grew a seemingly immortal line of cells that made some of the most crucial innovations in modern science possible. Henrietta Lacks was a mother of five in Baltimore, a poor African American migrant from the tobacco farms of Virginia, who died from a cruelly aggressive cancer at the age of 30 in 1951. A sample of her cancerous tissue, taken without her knowledge or consent, as was the custom then, turned out to provide one of the holy grails of mid-century biology: human cells that could survive--even thrive--in the lab.

***Genome: The Autobiography of a Species in 23 Chapters***

Matt Ridley (Author)

Each chapter pries one gene out of its chromosome and focuses on its role in our development and adult life, but also goes further, exploring the implications of genetic research and our quickly changing social attitudes toward this information. *Genome* shies away from the "tedious biochemical middle managers" that only a nerd could love and instead goes for the A-material: genes associated with cancer, intelligence, sex (of course), and more.

***Lives of a Cell: Notes of a Biology Watcher*** Lewis Thomas (Author)

Thomas explores the world around us and examines the complex interdependence of all things. Extending beyond the usual limitations of biological science and into a vast and wondrous world of hidden relationships, the book explores in personal, poetic essays topics such as computers, germs, language, music, death, insects, and medicine.

***The Youngest Science: Notes of a Medicine-Watcher***

Lewis Thomas (author)

A doctor's fascinating view of what medicine was, and what it has become. Thomas first learned about medicine by watching his father practice in an era when doctors comforted rather than healed. Looking back upon his experiences as a medical student, young doctor, and senior researcher, Thomas notes that medicine is now rich in possibility and promise.

***A General Theory of Love*** Thomas;Amini, Fari;Lannon, Richard Lewis (Author)

A powerfully humanistic look at the natural history of our deepest feelings, and why a simple hug is often more important than

a portfolio full of stock options. The grasp of neural science is topnotch, but the book is more about humans as social animals and how we relate to others--for once, the brain plays second fiddle to the heart.

***And the Waters Turned to Blood*** Rodney Barker (Author)

Don't drink the water. Don't swim in it, fish in it, or even bathe in it. Rodney Barker's book details the latest plague to visit our shores: *Pfiesteria piscicida*, the "cell from hell," an aquatic microorganism that causes sufferers to exhibit symptoms similar to Alzheimers or multiple sclerosis and the government's attempts to suppress reports.

***The Hot Zone: A Terrifying True Story*** Richard Preston (Author)

The dramatic and chilling story of an Ebola virus outbreak in a suburban Washington, D.C. laboratory, with descriptions of frightening historical epidemics of rare and lethal viruses. More hair-raising than anything Hollywood could think of, because it's all true.

***The Demon in the Freezer*** Richard Preston (Author)

On December 9, 1979, smallpox, the most deadly human virus, ceased to exist in nature. After eradication, it was confined to freezers located in just two places on earth: the Center for Disease Control in Atlanta and the Maximum Containment Laboratory in Siberia. Since the fall of the Soviet Union in 1991 a sizeable amount of the former Soviet Union's smallpox stockpile remains unaccounted for, leading to fears that the virus has fallen into the hands of nations or terrorist groups willing to use it as a weapon.

***The Botany of Desire: A Plant's-Eye View of the World***

Michael Pollan (Author)

Pollan's fascinating account of four everyday plants and their co-evolution with human society challenges traditional views about humans and nature. Using the

histories of apples, tulips, potatoes and cannabis to illustrate the complex, reciprocal relationship between humans and the natural world, he shows how these species have successfully exploited human desires to flourish.

***In Defense of Food: An Eater's Manifesto*** Michael Pollan (Author)

As an increasing number of Americans are overfed and undernourished, Pollan makes a strong argument for serious reconsideration of our eating habits and casts a suspicious eye on the food industry and its more pernicious and misleading practices. Listeners will undoubtedly find themselves reconsidering their own eating habits.

***The Omnivore's Dilemma: A Natural History of Four Meals*** Michael Pollan (Author)

In a journey that takes us from an "organic" California chicken farm to Vermont, Pollan asks basic questions about the moral and ecological consequences of our food. Critics agree it's a wake-up call and, written in clear, informative prose, also entertaining.

***Wicked Plants: The Weed That Killed Lincoln's Mother and Other Botanical Atrocities*** Amy Stewart (Author), Briony Morrow-Cribbs (Illustrator)

A tree that sheds poison daggers; a glistening red seed that stops the heart; a shrub that causes paralysis; a vine that strangles; and a leaf that triggered a war. Stewart takes on over two hundred of Mother Nature's most appalling creations. It's an A to Z of plants that kill, maim, intoxicate, and otherwise offend.

***Wicked Bugs: The Louse That Conquered Napoleon's Army & Other Diabolical Insects*** Amy Stewart (Author)

With wit, style, and exacting research, Stewart has uncovered the most terrifying and titillating stories of bugs gone wild. It's an A to Z of insect enemies, interspersed with sections that explore bugs with kinky sex lives ("She's Just Not That Into You"), creatures lurking in the cupboard ("Fear No Weevil"), insects eating your tomatoes ("Gardener's Dirty Dozen"), and phobias that feed our (sometimes) irrational responses to bugs ("Have No Fear").

***The Philadelphia Chromosome: A Genetic Mystery, a Lethal Cancer, and the Improbable Invention of a Lifesaving Treatment*** by Jessica Wapner

Philadelphia, 1959: A scientist scrutinizing a single human cell under a microscope detects a missing piece of DNA. That scientist, David Hungerford, had no way of knowing that he had stumbled upon the starting point of modern cancer research—the Philadelphia chromosome. It would take doctors and researchers around the world more than three decades to unravel the implications of this landmark discovery. In 1990, the Philadelphia chromosome was recognized as the sole cause of a deadly blood cancer, chronic myeloid leukemia, or CML. Cancer research would never be the same. Science journalist Jessica Wapner reconstructs more than forty years of crucial breakthroughs, clearly explains the science behind them, and pays tribute—with extensive original reporting, including more than thirty-five interviews—to the dozens of researchers, doctors, and patients with a direct role in this inspirational story. Their curiosity and determination would ultimately lead to a lifesaving treatment unlike anything before it.

The Philadelphia Chromosome chronicles the remarkable change of fortune for the more than 70,000 people worldwide who are diagnosed with CML each year. It is a celebration of a rare triumph in the battle against cancer and a blueprint for future research, as doctors and scientists race to uncover and treat the genetic roots of a wide range of cancers.

***Survival of the Sickest: The Surprising Connections Between Disease and Longevity*** by Dr. Sharon Moalem

Joining the ranks of modern myth busters, Dr. Sharon Moalem turns our current understanding of illness on its head and challenges us to fundamentally change the way we think about our bodies, our health, and our relationship to just about every other living thing on earth. Through a fresh and engaging examination of our evolutionary history, Dr. Moalem reveals how many of the conditions that are diseases today actually gave our ancestors a leg up in the survival sweepstakes. But *Survival of the Sickest* doesn't stop there. It goes on to demonstrate just how little modern medicine really understands about human health, and offers a new way of thinking that can help all of us live longer, healthier lives. (Amazon)

***The Ghost Map: The Story of London's Most Terrifying Epidemic--and How It Changed Science, Cities, and the Modern World*** by Steven Johnson

On August 28, 1854, working-class Londoner Sarah Lewis tossed a bucket of soiled water into the cesspool of her squalid apartment building and triggered the deadliest outbreak of cholera in the city's history. In this tightly written page-turner, Johnson (*Everything Bad Is Good for You*) uses his considerable skill to craft a story of suffering, perseverance and redemption that echoes to the present day. Describing a city and culture experiencing explosive growth, with its attendant promise and difficulty, Johnson builds the story around physician John Snow. In the face of a horrifying epidemic, Snow (pioneering developer of surgical anesthesia) posited the then radical theory that cholera was spread through contaminated water rather than through miasma, or smells in the air. Against considerable resistance from the medical and bureaucratic establishment, Snow persisted and, with hard work and groundbreaking research, helped to bring about a fundamental change in our understanding of disease and its spread. Johnson weaves in overlapping ideas about the growth of civilization, the organization of cities, and evolution to thrilling effect. From Snow's discovery of patient zero to Johnson's compelling argument for and celebration of cities, this makes for an illuminating and satisfying read. (Publishers Weekly via Amazon)