



HOW TO KEEP A SECRET: THE STORY OF CRYPTOGRAPHY

James Kraft



ARTIFICIAL INTELLIGENCE: PRINCIPLES, CONCERNS, AND FUTURE DIRECTIONS

Guillermo Warley

Session II

Tuesdays, 2:30 p.m. (begins October 15)

Fee: \$70

Cryptography refers to the technique used to send information that can be understood only by the intended recipient. Today, without being made aware of it, we use cryptography every time we make a bank transaction or log onto a website, but cryptography goes back to ancient times. Learn the history of cryptography, why cryptography is important in our daily lives, why classical methods of cryptography are no longer used, and the basics of modern cryptography. As the great American cryptographer Bruce Schneier wrote, “There are two kinds of cryptography in this world: cryptography that will stop your kid sister from reading your files, and cryptography that will stop major governments from reading your files.” In this class, with no need for a mathematical background, we will discuss methods that fall into the first category, outline a method that falls into the latter, and look at some methods that fall between the cracks.

James Kraft graduated from the University of Maryland with a Ph.D. in mathematics. Over the next 35 years he taught math at several colleges as well as public and private high schools. In the midst of his teaching career, he was employed by the NSA as a research cryptographer. He has taught many cryptography classes and enjoyed presenting non-technical talks on the history of cryptography to middle and high school students and adults.

Session II

Thursdays, 11:00 a.m. (begins October 17)

Fee: \$70

In this course, students will acquire a better understanding of artificial intelligence (AI) technology and how it works. What can be done to regulate, control, and manage AI development? How can you embrace this new technology with enthusiasm and without fear, but with a healthy skepticism about what AI can and can't do. Discover the historical perspective on AI and the current state of mind regarding AI. Learn the role of graphic processing units (GPU) and advancements in miniaturization of electronics in the rapid development of AI in recent years. See how popular generative AI applications such as ChatGPT and Hallucinations are impacting media. What are deepfakes and what are efforts to detect them? How are the United States, the European Union, China, and others regulating AI? Although this course incorporates concepts that were introduced in a previous course on AI, there is much new information included. We will look at recent developments, selected articles, relevant news about AI while also speculating on its future direction.

Guillermo Warley is an electrical engineer with graduate degrees in electronics and signal processing. He has 35 years of experience designing technology products for several industries. Guillermo is a Senior Life Member of the IEEE (Institute for Electrical and Electronics Engineers), and the SSIT (Society for the Social Implications of Technology). He has taught technology subjects at various Osher programs including Towson University, American University, and Johns Hopkins University. He has teaching experience at both graduate and undergraduate levels in electrical engineering topics.

Thank you for being part of the Osher community!



THE SCIENCE AND REALITY OF THE OPIOID EPIDEMIC IN THE U.S.

Patrick Chaulk and Deborah Finch

Session I

Thursdays, 11:00 a.m. (begins September 12)

Fee: \$70

In this four-week course, we will discuss the current opioid epidemic in the U.S., its roots, and the larger substance use problem in America. We will also discuss how our view of addiction has evolved over recent decades. Addiction was originally viewed as a moral weakness requiring greater personal strength to overcome. Over time, addiction became viewed as a threatening problem that resulted in the “war on drugs.” As a result, we too often turn to incarceration as a major tool in responding to drug use. However, evolving neuroscience suggests that addiction can be increasingly viewed as a chronic brain disease. We will discuss the current scientific understanding of addiction and how this impacts treatment and recovery. Other important themes throughout our discussion include the important role of public health in prevention and education programs, how stigma and harm reduction impacts diagnosis and treatment, and important risk factors such as age, genetics, and the environment. Join us for a lively discussion of a contemporary crisis.

C. Patrick Chaulk, MD, MPH, is a physician with PCARE, a Baltimore nonprofit community-based program treating people with opioid use disorder. He previously was assistant commissioner with the Baltimore City Health Department. He has broad policy and community service, having worked as the senior associate for health at the Annie E. Casey Foundation. He serves on the Maryland State Harm Reduction Advisory Committee, the Baltimore City Health Department Syringe Exchange Oversight Committee, and the Greater Baltimore HIV Health Services Planning Council. He received his MD and completed a pediatric residency at the University of Nebraska College of Medicine and a preventive medicine residency at Johns Hopkins.

Deborah Finch is the founder and leader of the Prevention & Recovery Think Tank in Carroll County, MD. She also currently serves on the CC Opioid Prevention Coalition, the CC Senior Opioid Policy Group, the CC Healthy Aging Leadership Team and Board of Directors of On Our Own of Carroll County. She previously was a health educator with Carroll County Public Schools and most recently a prevention coordinator for the Carroll County Health Department, managing the Opioid Misuse Prevention Program. She is an advocate for substance use prevention and recovery, an educator, event planner, community organizer and public speaker. She is a graduate of Towson University (B.A. health education) and Ball State University (M.A. health science).



YOU ARE WHAT YOU THINK: THE POWERFUL MIND-BODY CONNECTION

Ann Farrell

Sessions I and II

Thursdays, 1:00 p.m. (begins September 12)

Fee: \$140 (\$70 for each session)

We are all emotional beings living in physical bodies, each of us suffering from the frailty of the human condition. This course expands our knowledge of genetics and epigenetics to the mental health domain and examines the potent influence that our state of mind has on the messages our brain sends to our immune system, our nerves, and our cells. We know now that the very way we think, and act, can maximize our ability to heal and enhance our overall health. Throughout this course, we will look at America's alarming rate of mental illness and unhappiness, delve into the neurophysiology of the brain driving human behavior, and explore the relationship between mental well-being and disease, with focus on the impacts of early childhood trauma. We will review long known approaches to managing stress and to optimizing happiness for better physical health and longevity.

Ann Farrell, B.S.N. R.N., is a career-long patient advocate in roles as direct care provider, hospital and HealthIT vendor executive, and principal of Farrell Associates, a strategic healthcare consulting firm. Ann has been a popular featured speaker in numerous international and national forums and an instructor in prior Osher courses focused on the U.S. healthcare market and the medical industrial complex.

ONLINE COURSE



LIGHT, SIGHT, AND COLOR: HOW WE SEE THE WORLD

Jim O'Leary

Session II

Fridays, 9:30 a.m. (begins October 18)

Fee: \$70

Vision and color are all about light. How do we define light? It is something so ubiquitous but difficult to describe or completely understand. Scientifically, light is composed of waves, or particles—or both—generated by the sun and traveling through space. Spiritually, cultures and religions confer many different meanings and attributes to light. Some creatures make their own light through bioluminescence. The human eye sees only a tiny fraction of the entire spectrum of light. We will explore light across the spectrum from gamma rays to radio waves. Why do we see color? Our understanding of color is not intuitive, starting with the fact that there is no color existing in the outside world. Light enters our eyes, sparking reactions that become interpreted by our brain to form shapes and colors. Color is in our mind, in our brain. We will explore the light/eye/brain interaction to get a better understanding of how we perceive color. How do our eyes and brain work together to interpret the world around us? How is color perceived and do we see things the same way other animals do? These are just some of the questions we will explore during this four-week course.

Jim O'Leary served as chief space and Earth science specialist for Baltimore's Maryland Science Center, developing planetarium programs, IMAX films, science exhibits and educator workshops, and appeared many times as a science expert on TV and radio. He oversaw renovation of MSC's rooftop observatory and its 1927-era telescope and received the Excellence in Outreach Award from NASA and, for 12 years, hosted "Skywatch" on WYPR.

ONLINE COURSE**FOR THE LOVE OF DOGS: CYNOLGY 101**

Stephanie Slahor

Session I**Mondays, 1:00 p.m. (begins October 14)****Fee: \$70**

Unleash your curiosity about man's best friend. This course is all about dogs from their origination, domestication, anatomy, their extraordinary five senses, and the dog-human connection. We will explore dog-human partnerships in search, security, assistance, agriculture, conservation, history, and entertainment. This course will also include information about different dog breeds, registries, dog shows and other activities. Nuzzle up with your pup, if you have one, and learn more about these amazing animals.

Stephanie Slahor holds Ph.D. and J.D. degrees. She is retired from her law practice and university and law school teaching. In retirement, she creates and teaches informative lifelong learning courses for Osher Institutes around the country, primarily in the natural sciences, and about places in the world with unique geological or human history.