



Course program and reading list

Semester 0 Year 2018

School: Baruch Ivcher School of Psychology

Life and Mind: Biological Sciences and Psychology

Lecturer:

Prof. Daniel Levy daniel.levy@runi.ac.il

Dr. Limor Shtoots slimor@runi.ac.il

Teaching Assistant:

Dr. Limor Shtoots slimor@runi.ac.il

Course No.:	Course Type :	Weekly Hours :	Credit:
8996	Lecture	8	8

Course Requirements :	Group Code :	Language:
Final Paper	180899601	English



Course Description

Elective Cluster



Course Goals

The goal of the Interdisciplinary Cluster in Life Sciences and Psychology is to connect psychology with a broad perspective on understanding the mechanisms of life. We will learn fascinating, cutting-edge biological topics and discuss questions such as: What are the psychological implications of an evolutionary view of human nature? Should parents be forced to vaccinate their children? What are the promises and perils of personalized

medicine? Can psychology help humanity avoid falling victim to drug-resistant microbes? What interactions of brain and mind are responsible for the mystery of consciousness?

Grading

Unit 1: *Zoology, Evolution and Ethology* – Where did we come from and where are we heading?

We will learn about Darwin's evolutionary theory and its implications for psychology and medicine today. **Topics include:** The origin of life and cellular evolution; Psychology in the light of human evolution – deception, collaboration, punishment, and more...

Possible Activities: Virtual animal dissection labs; Biomimicry project; A tour of the new nature museum located at Tel-Aviv University.

Unit 2: *Microbiology* – Know your enemy (or friend?)

Microbes are playing an important role in the bioprocess of all living organisms and maintain homeostasis of the universe. **Topics include:** Infectious diseases and their epidemiology – from evolutionary, genetic, social, political and psychological points of view; Antibiotic resistance; The link between brain disease and gut microbiome.

Possible Activities: Microscopy lab; Project: "Educating the public regarding proper use of antibiotics".

Unit 3: *Immunology* – Our body's line of defense

The chief function of immunity is to discriminate between self and non-self. What are the molecular and cellular components and pathways that protect an organism from infectious agents or cancer? **Topics include:** The immune system's memory; Autoimmune disorders; Psychoneuroimmunology and its effects on mental health.

Possible Activities: Debate: psychological resistance to inoculation; Journal clubs.

Unit 4: *Genetics* – From reading the Code to writing it...

While recent advances in genetic research increase our ability to diagnosis and treat human abnormalities, they have also raised many ethical and psychological considerations, which are still hotly debated and remain unresolved. **Topics include:** Sex, genes, and the environment; Mutations; Genetic testing; The human genome project; Bioinformatics and ethics.

Possible Activities: Debate: Personalized medicine; Interview a genetics researcher or genetic counselor.

Unit 5: Cancer – Life Out of Control

As people live longer, the incidence of cancer is rising worldwide and the disease is expected to strike over 20 million people annually by 2030. Why is cancer still here? What are the physiological, psychological, social and political implication? **Topics include:** The molecular biology of cancer; New paths in diagnosis and cure of cancer; Cognitive and affective effects of chemotherapy and radiation; Psychological coping with cancer; Proactive intervention in cases of genetic risk.

Possible Activities: Mini grant: early cancer detection; Meeting with a cancer ward psychologist; Creating an educational board game.

Unit 6: Consciousness - The Astonishing Hypothesis

"The Astonishing Hypothesis is that you, your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behavior of a vast assembly of nerve cells and their associated molecules" (Francis Crick, discoverer of the structure of DNA). We will explore the range of current scientific knowledge about consciousness. **Topics include:** Neural correlates of consciousness; Blindsight; Limits of unconscious thinking; Unlocking the Locked-In mind; Animal consciousness and machine consciousness.

Possible Activities: Critique of a philosophical approach to consciousness; Experiencing subliminal thought.



Reading List

Will be provided