

Course Outline (*please complete as appropriate*)

COURSE TITLE	Mystery of life
NAME OF LECTURER	BALÁZS VERES

COURSE DESCRIPTION

DNA is the source of the three letter words that determine what the life form will be and how it functions. The genetic code words are made from just four letters, A, C, G, and T, which correspond to the four nitrogenous bases, adenine, cytosine, guanine, and thymine. Because there are three letters in each code word and only four letters to choose from, the genetic code has just 64 words. Sixty-four words to spell out the information necessary to make all the forms of life on our planet How does this code work? if we want to understand this code we have to start our trip back in the 50s.

The first stage is the discovery of the DNA double helix structure by Watson and Crick. The second stage is to understand the three-letter genetic code and read the blueprint of life. The third stage is the modification of the genetic material in bacterial cells using the tools of recombinant DNA technology. The fourth stage is gathering an enormous amount of data by sequencing the DNA and the last stage is to create new life forms and modify the human genome.

RECOMMENDED READINGS

Popular scientific books about DNA/genes or molecular biology books depending on the students' previous knowledge.

TEACHING METHODS

Frontal teaching combined with problem-solving sessions.

ASSESSMENT METHODS

if an examination is necessary a short written essay-like exam will be included otherwise active attendance in lectures is enough to complete the course.

CLASS TOPICS (*each class is 3 hrs*)

Discovery of the double-helix structure.

Cracking the genetic code.

Recombinant DNA technology.

Human genome project.

Let's sequence everything

Personalized genome-based medicine.

Gene therapy, CRISPR system.

GATTACA - superhumans?

Epigenetics: another code.

Artificial life.

SPECIAL COMMENTS

The study material (powerpoint slid show) is designed equally for scientific and non-scientific (general) audience. Depending on the students' previous knowledge the lectures could be more detailed or more popular.

해외우수교수초빙강좌 수강 제한 및 유의사항 (Notice for KNU students)

- a. 2018년 8월 졸업예정자(조기졸업자 포함)
- b. 국내 타대학 교류학생
- c. 재이수의 경우 개강전 수강취소만 가능(7.4-7.5에 한함)
- d. 해외우수교수초빙강좌 수강과목은 2018.2학기 수강꾸러미로 신청불가