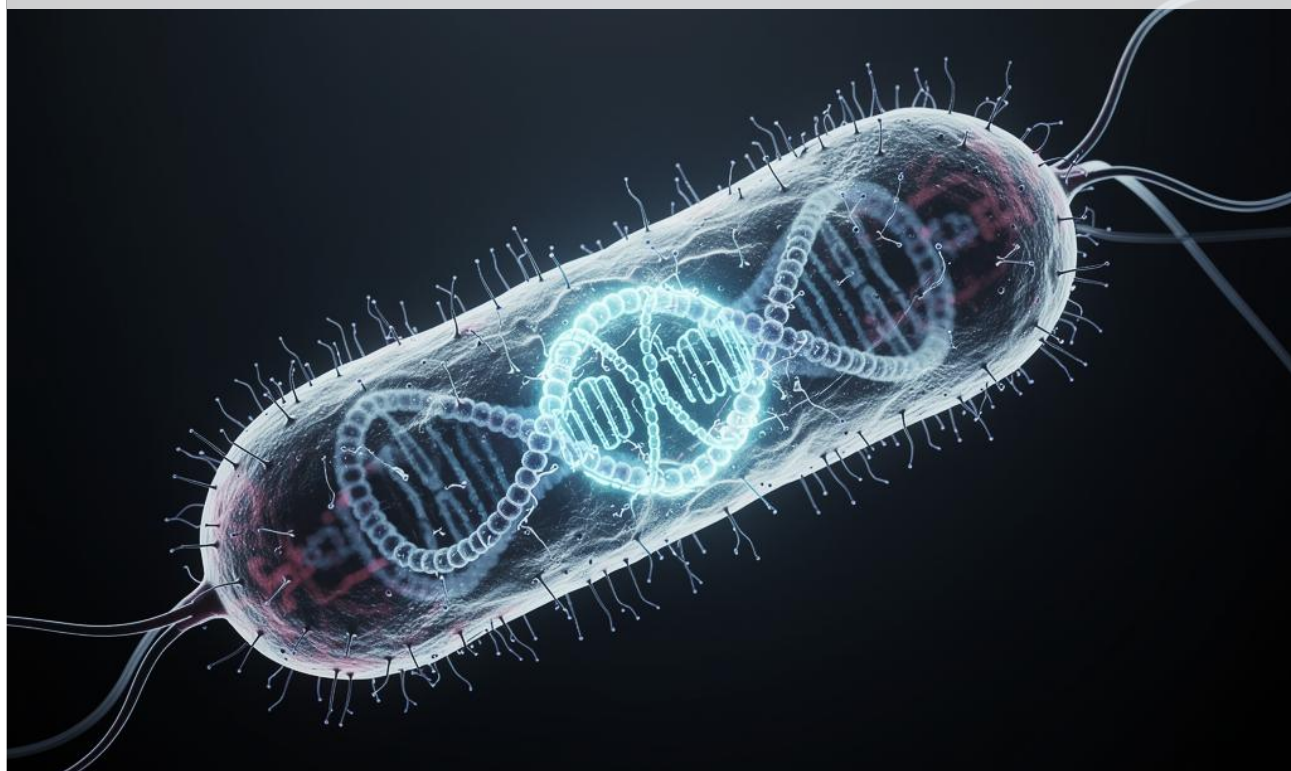


# Bi9690en Synthetic biology



## How to engineer life?

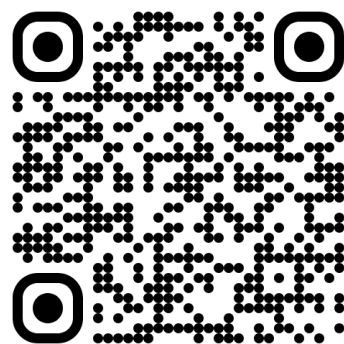
Combine biology, chemistry, and engineering to create novel organisms with unique properties not found in nature.

**Teachers:** Dr. Karel Říha (CEITEC), Dr. Martin Marek (RECETOX),  
Dr. Stanislav Mazurenko (RECETOX)

## Outline:

- ▶ Origins and core of synthetic biology.
- ▶ Genetic and protein engineering, including synthetic genomes.
- ▶ Expanding life's building blocks
- ▶ Tools and systems: optogenetics, artificial organelles/cells, and the minimal cell.
- ▶ Metabolic engineering, synthetic ecosystems, and future ethical considerations.

## Autumn 2026



2+2 credits