2380242 – Biology III
Instructor: Asst.Prof.Dr.Seckin Eroglu
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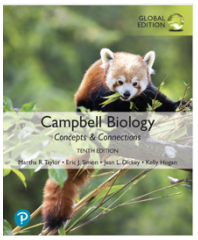
Schedule: Spring, 2025: *Lecture:* M, 15:40-17:30 Z-04. *Lab:* F, 13:40-15:30.

Aim: The aim of the course is to provide teacher candidates with the concepts and understanding of biology such as gene and evolution.

Text book
Campbell Biology:
Concepts & Connections, 9th edition, Pearson



Objectives
-Students comprehend basic concepts in biology such as the evolutionary relationships between living things, cell division and cancer, speciation mechanisms, etc.
-Students develop a basic understanding of how genes synthesize proteins to carry out life
-Students can scientifically explain the molecular and physiological processes that constitute daily life of living things in a deep and holistic perspective.
-Students evaluate the use of GM technology in crops

Outcomes
- Students can explain how cells divide and how uncontrolled division may lead to cancer.
- Students can compare and contrast meiosis and mitosis.
- Students can clearly demonstrate check points in cell cycle.
- Students can evaluate which speciation mechanism might be the most effective in evolution of species in case studies
- Students can explain three major GM technologies

Methods

To better engage students and assess in real time their learning, we will use active learning principles: basically, adding discussion, case study, and clicker questions to the lecture. Lecturing will be kept at minimum. Furthermore, we will focus on main concepts and spend most of our time making sense of them. Scientific research shows conceptual understanding sticks better and transferable.

You are expected to actively participate in all lessons by attending the class, completing responsibilities before the lesson, sharing relevant sources (news, articles, materials, etc.) with the class, taking part in discussions and in-class activities, sharing your feedback on lessons with the instructor.

You will have lab sessions where you will watch audiovisuals complementary to the lecture.

Grading
Grading will be calculated according to METU catalogue, manipulating the threshold to ensure enough people get AA (maybe 3-8 out of 40). Rounding grades will follow mathematical rules, meaning if the threshold is 80 and you are 79,3 you will fall under the threshold.

Course Schedule

Week	Topic
1	Warm up-General introduction
2	Patterns of inheritance, chapter 9
3	Patterns of inheritance, chapter 9
4	Molecular biology of the gene, chapter 10
5	Molecular biology of the gene, chapter 10
6	Control of gene expression, chapter 11
7	DNA technology and genetics, Chapter 12
8	DNA technology and genetics, Chapter 12
9	Evolution of populations Chapter 13
10	Evolution of populations Chapter 13
11	The origin of species Chapter 14
12	Tracing evolutionary history Chapter 15
13	Tracing evolutionary history Chapter 15

14	Review of the semester

Assessment and Grading:

Type of material	Total weight in score
Lab	10%
Concept check (Week 2&3)	20%
Midterm (24 March 2025)	30%
Final Exam (to be announced later)	40%