



Chair of biochemistry and molecular biology  
Pirogov Russian National Research Medical University

## Lecture 0

# Introduction into Biology course

For the 1-year students of the International faculty

**Anastasia Aleksandrovna Kotikova**

Today's plan:

- Introduce your teacher
- Talk about our Chair
- Discuss your expectations
- Consider the curriculum
- Train to solve problems and tests
- Hometask

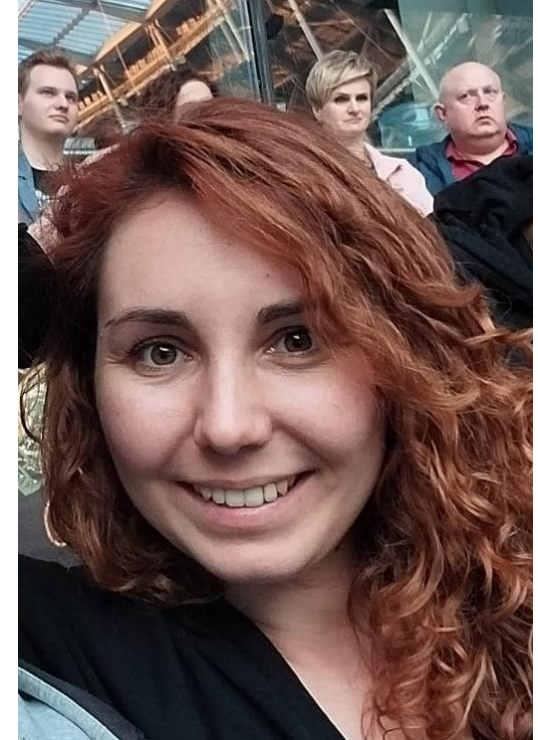
# Chair of biochemistry and molecular biology



Shestopalov Alexandr V.,  
Head of Chair

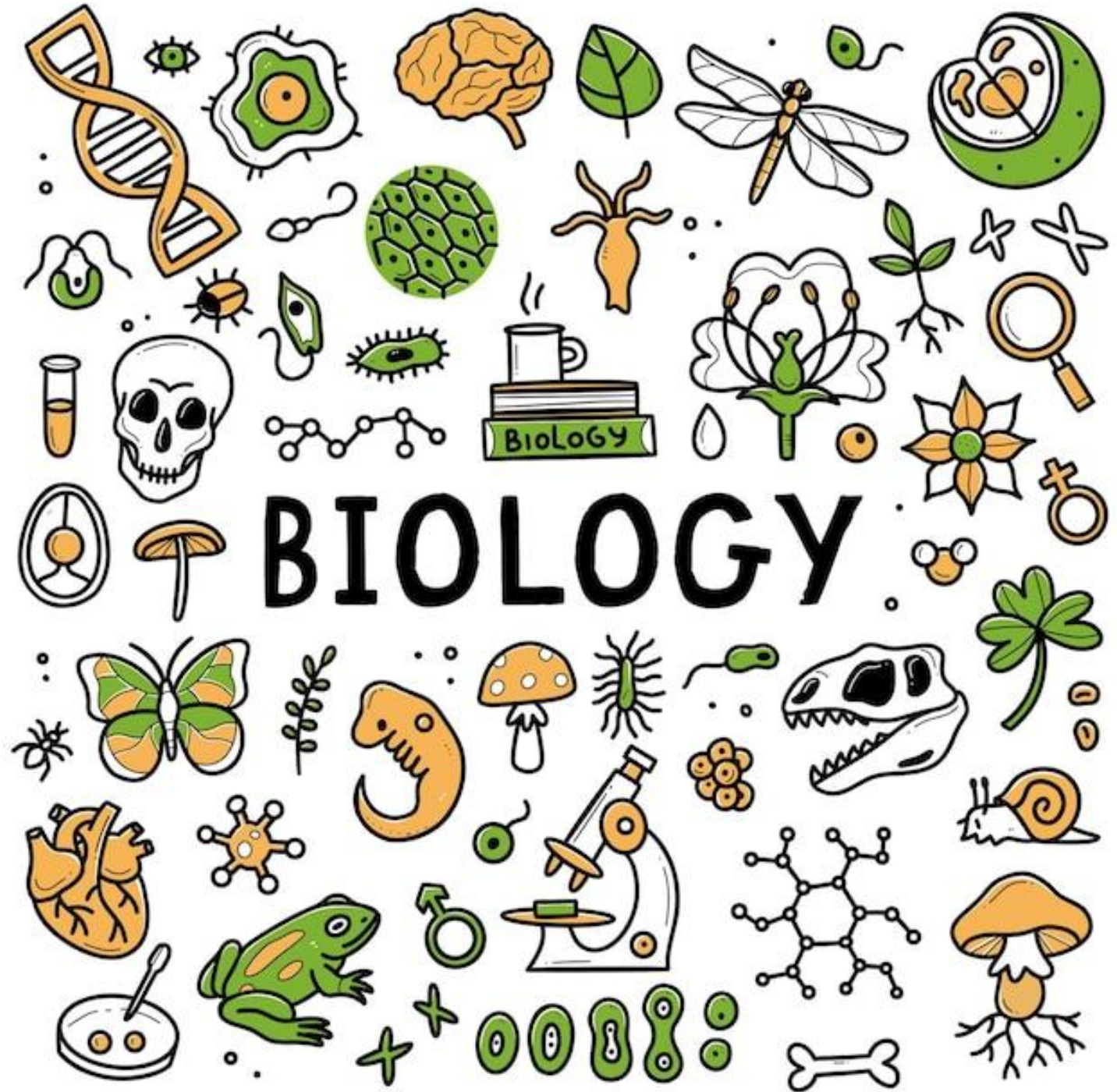


Borisenko Olga V.,  
Head of studies



Kotikova Anastasia A.,  
Your teacher

# Your expectations from the Biology course





# Contents of the Biology course: 8 modules + exam

- 1. Introduction to molecular biology.** 1 lecture, 3 seminars, Q
- 2. Genetic material of a cell.** 2 lectures, 3 seminars, Q
- 3. Gene expression and protein synthesis.** 2 lectures, 3 seminars, Q
- 4. Molecular biology methods.** 2 lectures, 2 seminars, Q
- Credit ---
- 5. The structure and functioning of eukaryotic cells.** 2 lectures, 3 seminars, Q
- 6. Cell cycle and sexual reproduction.** 1 lecture, 2 seminars, Q
- 7. Signal transduction.** 2 lectures, 3 seminars, Q
- 8. Cell death. Carcinogenesis basics.** 2 lectures, 3 seminars, Q
- Exam ---



# Main topics in the Biology course:

## Term 1: Molecular biology

### 1. Introduction to molecular biology.

The subject of MB, Central dogma of MB, genes and genomes

### 2. Genetic material of a cell.

DNA replication, packaging, and repair

### 3. Gene expression and protein synthesis.

Transcription, Translation, RNA and protein modification

### 4. Molecular biology methods.

PCR, sequencing, DNA cloning and their application



## Term 2: Cell biology

### 5. The structure and functioning of eukaryotic cells.

Biological membranes, types of cells in human body, their organelles structure and functions

### 6. Cell cycle and sexual reproduction.

Mitosis and meiosis, gametogenesis, fertilization

### 7. Signal transduction.

How cells in our body communicate with each other

### 8. Cell death. Carcinogenesis basics.

How and why cells die or convert into malignant ones



# Types of classes

Class	Online/Offline	Your Activities	Your rating
Lecture	Online or offline	Listening and writing (preparing a summary), ask questions	<b>Presence, 1 point (≈5%)</b> * Lecture materials are included in the control works on seminars!
Seminar	offline	Prepare for the class according to the questions, discuss them with your teacher and your mates, write a control work	<b>Oral activity, 0-10 points (≈15%)</b> <b>Writing a control work, 0-10 points (≈30%)</b>
Colloquium	offline	Repeat the material of the whole module, ask your teacher questions before the colloquium	<b>Test, 0-20 points, <u>min 14</u> (≈10%)</b> <b>Oral part, 0-10 points, <u>min 7</u> (≈40%)</b>
Credit	offline	Prepare the topics (classes and tests) to re-take, ask your questions if any	Automatic credit if rating is $\geq 70\%$ and green
Exam	offline	Oral answer to 3 questions * If rating in both terms is $\geq 90\%$ , you get “excellent” mark automatically	<b>0-20 points, <u>min 14</u></b> $((\text{I term rating} \times 0,6) + (\text{II term rating} \times 0,4)) \times 0,7 + \text{your exam answer} \times 0,3 = \text{your final points}$

# How to prepare for a class

## **Lecture:**

- Prepare a copy book and a writing tool (or you may use electronic devices for making notes)
- Prepare tea/coffee, a rug or whatever makes you feel comfortable
- Enjoy the lecture! Ask your teacher to repeat once again if you missed something, do not hesitate to ask questions if something is not clear

## **Seminar:**

- Check the topic of the next seminar and the list of questions. If you do not have any, ask your teacher
- Check if the seminar topic has the corresponding lecture materials. If yes – watch the lecture or refresh the information from it
- Open the recommended book(s) at the corresponding topic, prepare a summary of the key terms
- Do the home task if any

## **Colloquium:**

- Check the topics for the colloquium and the list of the corresponding questions. If you do not have any, ask your teacher
- Refresh the information using your summaries from the lectures, seminars, and books
- Train the on-line test
- Sleep well before the day of the colloquium

You may re-take

# Control works, colloquium tests and oral parts

Your teacher will have a special day every week when you may improve your works if your mark is below 7







**Ready, Steady, GO!**