

Cellular and Molecular **Biology/Cell Biology**

Lectures:

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Practicum:

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Practicum ZMB 1

Horvatovac 102a

small building, 1st floor

- **Cell Biology I** – methods, cellular organization, organelles of the eukaryotic cell
- **Cell Biology II** – nucleus (cell cycle, meiosis, C – mitosis)
- **Molecular Biology** –DNA molecule, transcription, mRNA, translation

❖ Lectures

➤ Contents of **Cell Biology I**:

- Methods
- Origin and Organization of the Cell
- Biomembranes
- Plastids
- Mitochondrion
- Endoplasmic reticulum
- Golgi Complex
- Lysosomes
- Cytoskeleton

❖ Practicum

➤ 3 hours per week

➤ obligatory!!!

➤ materials for practicum:

- **Skripta za studente biologije
“PRAKTIKUM IZ STANIČNE I
MOLEKULARNE BIOLOGIJE”**
- **Obrasci uz skripta**
- **Lab coat**
- **Lab accessory**

**Obligatory
for each
practicum!!!**

❖ Skripta i obrasci na web stranici BO
(<http://www.pmf.unizg.hr/biol>)

➤ **entrance exam!!!**

➤ absence from the practicum max. **2 X!**

➤ it is possible to switch the day of the practicum to catch up but it **is necessary to contact assistant by e-mail!**

➤ Students collect points from the each exercise and the final number of points contributes to their final grade

❖ Partial exam

➤ **2 partial exams:**

1. After Cell Biology I Lectures
2. After Cell Biology II and Molecular Biology Lectures

Grading and exams

Score (%)	Grade
60-69	2 (enough)
70-79	3 (good)
80-89	4 (very good)
90-100	5 (excellent)

Elements according to which the students are evaluated are:

1. Exam (partial or final)
2. Practicum

Students who achieve at least **80%** at partial exams do not have to attend the final exam.

Final exam – written part + oral part

How is the final grade calculated?

(**E**) - Exam (either sum of partial exams or final exam): score (%) x **0,7**

(**P**) - Practicum: score (%) x **0,3**

Total score = E + P → oral exam

Important – the **E** score has to be at least 60%

Examples:

Student 1

partial exams **E1** 78/95; **E2** 88/100 → $166:195 = 87\% \rightarrow 85 \times 0,7 = 59,5$

practicum **P** - 91 % → $91 \times 0,3 = 27,3$

student does not have to go to final exam – partial exams > 80%

Total score: **59,5 + 27,3 = 86,8** → oral exam

Student 2

partial exams **E1** 68/95; **E2** 72/100 → $140:195 = 72\% \rightarrow 72 \times 0,7 = 50,4$

practicum **P** - 88 % → $88 \times 0,3 = 26,4$

student has to go to final exam – partial exams < 80%

final exam score: 78%

Total score: **54,6 + 26,4 = 81** → oral exam

Literature:

- **1. Molecular Biology of the Cell.** 5th ed.
Alberts, Bruce i sur.
New York: [Garland Publishing](#); 2008. – book available in the library of the Division of Molecular Biology
- **2. Molecular Biology of the Cell.** 4th ed.
Alberts, Bruce i sur.
New York: [Garland Publishing](#); 2002. – book available in the library of the Division of Molecular Biology and NCBI web page
- **3. Molecular Cell Biology.** 4th ed.
Lodish, Harvey i sur.
New York: [W. H. Freeman & Co.](#); 2000. – book available in the library of the Division of Molecular Biology
- **4. The Cell - A Molecular Approach.** 2nd ed.
Cooper, Geoffrey M.
Sunderland (MA): [Sinauer Associates, Inc](#); 2000. – book available at the library of the Division of Molecular Biology and NCBI web page
- **5. Stanica, molekularni pristup**
Cooper, Geoffrey M - hrvatsko izdanje
Zagreb: [Medicinska naklada](#); 2004 – knjiga dostupna u biblioteci ZMB

http://www.google.hr/search?hl=hr&q=Molecular+Biology+of+the+Cell+Alberts&btnG=Tra%C5%BEi&meta= Winamp Search

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Pretraži: web stranice na hrvatskom jeziku stranice iz zemlje: Hrvatska

eb Rezultati 1 - 10 od približno 385.000 za Molecular Biology of the Cell Alberts. (0,31 sek.)

Objekt: [Preražite rezultate samo na ovom jeziku - hrvatski](#). Jezik pretraživanja možete postaviti ovdje: [Postavke](#)

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Fourth Edition, of book by **Alberts** et al published in 1994, accessible for free from the National Center for Biotechnology Information, Bethesda, MD.
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www.amazon.com/Molecular-Biology-Cell-Bruce-Alberts/dp/0815341059 - 284k - [Spremljeno u privremenu memoriju](#) - [Slične stranice](#)

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Chloroplasts and Photosynthesis 25

Introduction

All animals and most microorganisms rely on the continual uptake of large amounts of organic compounds from their environment. These compounds provide both the carbon skeletons for biosynthesis and the metabolic energy that drives all cellular processes. It is believed that the first organisms on primitive earth had access to an abundance of organic compounds produced by geochemical processes (see [Chapter 1](#)) but that most of these original compounds were used up billions of years ago. Since that time virtually all of the organic materials required by living cells have been produced by *photosynthetic organisms*, including many types of photosynthetic bacteria. The most advanced photosynthetic bacteria are the cyanobacteria, which have minimal nutrient requirements. They use electrons from water and the energy of sunlight to convert atmospheric CO₂ into organic compounds. In the course of splitting water [in the reaction $n\text{H}_2\text{O} + n\text{CO}_2 \xrightarrow{\text{light}} (\text{CH}_2\text{O})_n + n\text{O}_2$], they liberate into the atmosphere the oxygen required for oxidative phosphorylation.

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