

BIO1.1: CELLULAR BIOLOGY

I. Course description:

1. Credit points: 3 ECTS

2. Time commitment:

Items	Lecture	Tutorial	Practical	Total
No. of hours	21	0	9	30

3. Prerequisites:

- Lab Assignments: Students should keep track of all protocols, material and methods that will be use; write down results obtained in the lab and be able to explain them.
- Mid-term and Final exams will include all material given during lectures, exercises and labs.

4. Recommended background knowledge: Basics in Molecular Biology and Biochemistry

5. Subject description:

- Introduction to Cells and the most common living molecules
- Introduction to Cellular organization
- Cell movements
- Transport in and out of the cells
- Cell division: Binary fission and mitosis
- Meiosis and sexual reproduction
- Organization of the animal body
- Lab work: (4 group with 3 hours each) to introduce the Lab Safety and to Practice on fixing, staining cells to distinguish the white blood cell types under microscope

6. Objectives & Outcome:

6.1. Objectives: The aim of this course is to provide students with

- The principles of cellular biology
- The details of organelles of plant and animal cells.
- Basic intracellular and extracellular activities

6.2. Out-Come:

- The students will gain fundamental knowledge in Cellular Biology with cell structures, components, organelles and basic intracellular and extracellular activities.
- The course will include lectures, exercises, videos and two laboratory practical that will introduce students to the field of cellular biology.

- The laboratory teaching of this course will provide students an opportunity to create the slide of stained blood cells and to distinguish the difference between types of white blood cells under microscope

7. Assessment/ Evaluation

Component	Attendance	Exercises	Assignments	Lab-work	Midterm	Final
Percentage %	10	0	0	20	20	50

8. Prescribed Textbook(s): N/A

II. Course content & schedule:

1. Topic 1: Introduction of Cells and the most common living molecules
2. Topic 2: Introduction of Cellular organization
3. Topic 3: Cell movements
4. Topic 4: Transport in and out of the cells
5. Topic 5: Cell division: Binary fission and mitosis
6. Topic 6: Meiosis and sexual reproduction
7. Topic 7: Introduction to Life Cycle
8. Lab work
 - Lab basic skill and safety introduction (lab1)
 - Effects of some physical and chemical factors on cells' survival (lab 1)
 - Identification of blood cell types (lab 2)
 - Identification of cells' mitosis stages (lab3)

III. Reference Literature:

- [1]. "Cell Biology- A short course" 2nd Edition from Stephen R. Bolsover, Jeremy S. Hyams, Elizabeth A. Shephard, Hugh A. White, Claudia G. Wiedemann.
- [2]. "Essential Cell Biology" 3rd Edition from Bruce Alberts, Dennis Bray, Karen Hopkin, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts, Peter Walter.