

**Laboratory
techniques
necessary for
success in biological
sciences**

**تکنیک های
آزمایشگاهی لازم برای
موفقیت در رشته های
علوم زیستی**

1. Molecular Biology Techniques

- PCR (Polymerase Chain Reaction)**
- DNA/RNA extraction and purification**
- Gel electrophoresis**
- Cloning techniques (restriction enzymes, ligations)**
- DNA sequencing**

2. Cell Culture Techniques

- Maintenance and propagation of cell lines**
 - Primary cell culture**
 - Transfection and manipulation of gene expression**

3. Protein Analysis Techniques

- **Western blotting**
- **Immunoprecipitation**
- **Enzyme-linked immunosorbent assay (ELISA)**

4. Microscopy and Imaging:

- Fluorescence microscopy**
- Confocal microscopy**
- Live-cell imaging**

5. Bioinformatics:

- **Analysis and interpretation of data**
 - **Genomic and proteomic analysis**
- **Utilization of sequence analysis tools**

7. Animal Models:

- **Handling and care of laboratory animals**
- **Designing experiments employing animal models**

8. Advanced Techniques (Dependent on Research Area)

- **Mass spectrometry**
- **Next-generation sequencing**
- **CRISPR/Cas9**