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AL-FARABI KAZAKH NATIONAL UNIVERSITY

MANUAL FOR
LABORATORY CLASSES
IN BIOLOGICAL PHYSICS

Methodical development

Almaty
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The methodical development for Laboratory Work in Biophysics is a set of teaching materials and guidelines for laboratory work in biophysics that has been prepared and held at the Al-Farabi Kazakh National University.

This book is designed for a small biophysical workshop and a special workshop. The works presented here do not require complex and expensive equipment and can easily be reproduced in any university laboratory. The methodical development describes the main sections of Biophysics: thermodynamics of electrical conductivity in biological systems, bioelectric phenomena, photometric methods of biological system's research, lasers in biology and medicine, and others.

Self-help questions that were designed to further the understanding of the processes and phenomena observed during laboratory work can be found at the end of each chapter.

This guide is intended for university students studying in the fields of biology, biotechnology, ecology, and medicine.

Publishing in audiotape release.

Методические разработки предназначаются для малого биофизического практикума и специального практикума. Работы, представленные в данном руководстве, не требуют сложного и дорогого оборудования и могут легко быть воспроизведены в любой университетской лаборатории. В книге рассмотрены основные разделы биофизики: термодинамика, электропроводность биологических систем, биоэлектрические явления, фотометрические методы исследования биологических систем, лазеры в биологии и медицине, и др. Расположенные в конце каждой главы вопросы для самоконтроля способствуют более прочному и глубокому пониманию процессов и явлений, наблюдаемых в лабораторной работе. Настоящие разработки предназначаются для студентов, обучающихся по специальностям «Биология», «Биотехнология», «Экология», а также для студентов медицинских специальностей университетов.

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FOREWORD

Methodical development for laboratory work in biophysics is a set of teaching materials and guidelines for laboratory work on biophysics which prepared and held at the Al-Farabi Kazakh National University.

This methodical development has been tested for a number of years in a pedagogical setting in the Department of Biophysics and Biomedicine. They cover the main sections of the course in accordance with the types of programs in biophysics and are intended for university students.

The works may be included in the laboratory practical courses on «Biophysics», «Theoretical and Applied Biophysics», «Photobiology», «Biophysics Medical Biophysics with the basics», as well as during some sections Special practical.

The works presented here do not require complex and expensive equipment and can easily be reproduced in any university laboratory.

At the end of each Chapter are questions of self-control that will help more firmly and deeply understand the processes and phenomena observed in laboratory work.

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Educational issue

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