

## A Descriptive Guide for the Acceptance Exam for The Biochemistry Ph.D. Program

**Please note that this guide aims to provide a brief understating of the exam content, structure, and regulations. This guide is not inclusive by any means.**

**The acceptance exam assesses** applicants' knowledge, skills, and aptitude in Biochemistry. Applicants will be allowed a **90-minute** to answer **35 multiple-choice questions, 10 short-answer questions, and 5 problem-solving questions**. The diverse questions cover a wide range of topics associated with the main core concepts of Biochemistry, biochemical and analytical laboratory techniques, data analysis, and critical thinking. An applicant must **achieve a score of 70% and above to be considered for admission** into the program. Below are some key areas to pay attention to when preparing for the exam:

- 1. Core Concepts:** the exam will include questions that test the applicants' understanding of fundamental concepts in Biochemistry, including but not limited to protein structure and function, enzyme kinetics, metabolism, DNA and RNA structure, molecular biology, cell signaling, and bioenergetics.
- 2. Laboratory Techniques:** the exam will include questions or practical scenarios that assess the applicant's familiarity with common laboratory techniques used in Biochemistry research, including but not limited to protein purification, chromatography, gel electrophoresis, DNA sequencing, PCR, and spectroscopy techniques.
- 3. Problem-Solving and Data Analysis:** the exam will include problem-solving questions that require applicants to analyze experimental data, perform calculations related to enzyme kinetics, metabolic pathways, or protein interactions, and interpret and draw conclusions from the given information. Assess their ability to apply theoretical concepts to practical scenarios and draw meaningful insights from data.
- 4. Research and Critical Thinking:** the exam will test applicants' research skills and critical thinking abilities by including questions that require them to evaluate scientific literature, identify research gaps, propose experimental designs, and critically analyze research methodologies.
- 5. Time Management:** the exam will be time-limited to evaluate applicants' ability to manage their time effectively under pressure.

### Recommended Resources:

Biochemistry, 4th Edition by Donald Voet and Judith G. Voet.

Lehninger Principles of Biochemistry, 8<sup>th</sup> Edition by David L. Nelson and Michael M. Cox



Core Concepts of Biochemistry	Laboratory Techniques	Problem Solving & Data Analysis	Critical Thinking
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Protein Structure & Function	<input type="checkbox"/> Protein Purification	<input type="checkbox"/> Analyze Experimental Data	<input type="checkbox"/> Evaluate Scientific Literature
<input type="checkbox"/> Enzyme Kinetics	<input type="checkbox"/> Chromatography	<input type="checkbox"/> Interpret & Draw Conclusions	<input type="checkbox"/> Identify Research Gaps
<input type="checkbox"/> Metabolism	<input type="checkbox"/> Gel Electrophoresis	<input type="checkbox"/> Solve Problems	<input type="checkbox"/> Propose Experimental Designs
<input type="checkbox"/> DNA & RNA Structure	<input type="checkbox"/> DNA sequencing		<input type="checkbox"/> Analyze Research Methodologies
<input type="checkbox"/> Molecular Biology	<input type="checkbox"/> Spectroscopy Techniques		
<input type="checkbox"/> Cell signaling	<input type="checkbox"/> PCR		
<input type="checkbox"/> Bioenergetics			