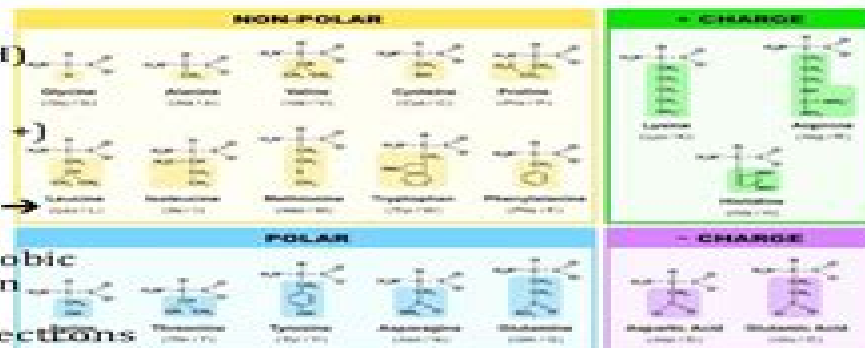
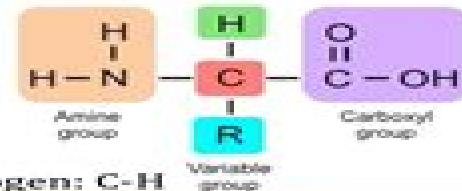


# CHEM3503-Biochem Study Guide-comprehensive-2022-2023

## UNIT 2

### AMINO ACIDS

- Identify backbone
  - Same in every AA
  - 3 groups
    - Carboxyl:  $\text{COO}^-$ ,  $\text{COOH}$
    - Amino:  $\text{NH}_3^+$ ,  $\text{NH}_2$
    - Central carbon (alpha) with a hydrogen:  $\text{C-H}$
- ID type of side chain
  - Charged:  $-$ ,  $+$
  - Polar: S, O, N (SH, OH, NH)
  - Non-polar: CH
- Type of bonds
  - Charged: Ionic Bonds ( $-$  to  $+$ )
  - Polar:
    - SH **disulfide bond**
    - OH, NH (uncharged)  $\rightarrow$  **hydrogen bond**
  - Non-polar: CH **Hydrophobic**
    - Forms core of protein
    - Aggregation
- How to break bonds
  - Heat    Secondary, tertiary, and quaternary structures    non-polar/hydrophobic bonds
  - Change in pH or Salt    tertiary, quaternary structures    ionic bonds, hydrogen bonds
  - Chemicals/Reducing agents    Secondary, tertiary, and quaternary structures    disulfide bonds
  - Enzymes or hydrolysis reaction    Primary structure    peptide bonds



### PROTEIN STRUCTURE

- Primary, Secondary, Tertiary, and Quaternary



#### Primary structure

Linear sequence of amino acids



The primary structure of a protein is the linear sequence of amino acids. It is the most basic level of protein structure and is determined by the genetic code. The sequence of amino acids determines the protein's function and its ability to fold into a specific three-dimensional shape.

#### peptide bonds

Association of two or more polypeptides (some proteins only)



Proteins are made up of one or more polypeptides. The polypeptides are linked together by peptide bonds, which are formed by the reaction of the amino group of one amino acid with the carboxyl group of another amino acid. The resulting protein has a specific three-dimensional shape that determines its function.

# Bio Chem Study Guide

**Christopher K. Mathews, Harry Ako**



## Bio Chem Study Guide:

**General, Organic, and Biochemistry Study Guide** Marcia L. Gillette, Ira Blei, Wendy Gloffke, George Odian, 2006-01-27 This study guide provides reader friendly reinforcement of the concepts covered in the textbook Features include Chapter outlines Are you able to Worked text problems Fill ins Test yourself Concept maps Can also be used for Blei and Odian s Organic and Biochemistry *Biochemistry Basics* Milin Kurup, 2020-12-21 The Biochemistry Basics Biochemistry and Molecular Biology Study Guide was created by a renowned student from the University of Florida and includes all notes diagrams and study guides for all the important subjects covered in Biochemistry Molecular Biology Genetics and Microbiology Milin Kurup is a double major in B S Microbiology and Cognitive and Behavioral Neuroscience student from the University of Florida In addition to his degree Milin is a UF Biochemistry BCH4024 Study Instructor Group Leader a Microbiology MCB3020L Teaching Assistant a Genetics PCB4522 Teaching Assistant and a Neuroscience Research Assistant at the University of Florida While many of these classes cover high density material this study guide hopes to organize and condense the whole curriculum into short page review sheets In the author s time of instruction and study he organized a collection of all reactions mechanisms processes and concepts all studied in Biochemistry Genetics and Microbiology Overall this biochemistry study guide covers topics such as biomolecule structures Protein Carbohydrate Nucleic Acids and Lipids biomolecules function biomolecule metabolism Protein Metabolism Carbohydrate Metabolism Nucleic Acid Metabolism and Lipid Metabolism physiological biochemical relationships genetics and biological microbiological biochemical processes Overall the guide is organized into 1 3 page summaries of each specific topic and acts as a study guide for those who hope to study individual concepts in detail All sections include detailed diagrams color coded notes labeled illustration and detailed descriptions for effective comprehension In addition to class studies many students also have used this study guide as an MCAT review guide The short and condensed review pages have helped many student organize and categorize important topics as they continue to study for the MCAT Ultimately this organized set can be extremely useful for students review especially before class exams school projects standardized test and much more **General, Organic, and Biological Chemistry Study Guide and Selected Solutions** Karen C. Timberlake, 2001-11 Keyed to the learning goals in the text this guide is designed to promote active learning through a variety of exercises with answers and mastery exams The guide also contains complete solutions to odd numbered problems **Study Guide and Solutions Manual, Fundamentals of General, Organic, and Biological Chemistry, Third Edition** John McMurry, Susan McMurry, 1999 Provides worked out solutions to text problems along with chapter by chapter outlines and a variety of self tests at the end of each chapter *The Absolute, Ultimate Guide to Lehninger Principles of Biochemistry 4e* Marcy Osgood, Karen Ocorr, 2005 This undergraduate textbook describes the structure and function of the major classes of cellular constituents and explains the physical chemical and biological context in which each biomolecule reaction and pathway operates The fourth edition adds a

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Sue Baker Publishing News **Study Guide and Selected Solutions Manual [for] Fundamentals of General, Organic**

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