# Biological Chemistry/Biophysics

Purpose: To support teaching and research through the doctoral level in biological chemistry and biophysics within the School of Molecular Biosciences. The departments or programs most closely associated with this area are: Chemistry, Microbiology, Institute of Biological Chemistry , and Genetics and Cell Biology. Other programs or departments which might find certain aspects of this of interest are: Bioanalytical Laboratory, Biological Systems Engineering, Chemical Engineering; Electron Microscopy Center; Medicine, NMR Center, Nuclear Radiation Center, Pharmacy and Pharmacology/Toxicology, Pharmacotherapy and Pharmacology/Toxicology, Plant Pathology, and Veterinary Medicine.

## General Collection Guidelines:

Languages: English is the primary language of the collection, but materials written in French, German, Italian, and Russian may also be acquired. Translations into English are preferred over the original, if they are available.

Chronological Guidelines: Emphasis is on the present. Works of specific historical nature may be selectively acquired.

Geographical Guidelines: Not applicable.

Treatment of the Subject: Lower division textbooks, laboratory manuals, and popular or introductory works are not generally purchased. Upper division texts are purchased selectively. Material of a biographical nature may be purchased selectively.

Types of Material: Material collected consists primarily of monographic and serial publications, and includes dictionaries, encyclopedias, directories, abstracts and indexes, handbooks, federal and state government documents, and proceedings or transactions of symposia or conferences in any suitable format.

Date of Publication: Primarily the past ten years, though some earlier publications may be sought. Retrospective materials may be purchased either in the original, reprint, microform, or electronic version depending on availability and cost.

Other General Considerations: Collection should represent the areas of animal, microorganism (microbe), and plant biochemistry and biophysics.

## Observations and Qualifications by Subject with Collection Level:

Proteins and Enzymes: C(1) / B

Includes hormones, hormone receptors, antibodies, enzyme mechanisms, protein-nucleic acids (DNA and RNA) interactions, proteins of bacterial chemotaxis, metalloenzymes, redox proteins, signal transduction, membrane proteins, signalling, muscle proteins, chemical modification of proteins, protein-protein interactions, interprotein charge transfer reactions, protein-DNA interactions, macromolecular assembly and folding of proteins, cancer-associated proteins

Nucleic Acids: C(1) / B

Gene regulation, RNA and DNA structure and function, protein-nucleic acids (RNA and DNA) interactions, DNA repair, DNA sequencing and synthesizing, recombinant DNA techniques.

Lipids and Biomembranes: C(1) / B

Membrane proteins, lipid biosynthesis, protein analysis and purification, protein and nucleic acid function.

Structural Biology and Biophysical Techniques: C(1) / B

Biomolecular NMR spectroscopy, molecular dynamics, X-ray crystallography, electronic spin or power resonance (ESR or EPR) spectroscopy, optical spectroscopy, fluorescence spectroscopy, CD (circular dichroism) spectroscopy.

Molecular Biology: C(1) / B

Protein and gene sequence analysis, mutagenesis, gene cloning, protein expression.

Metabolism: C(1) / B

Amino acid biosynthesis, lignin and lignan biosynthesis, taxol biosynthesis, nitrogen fixation, terpene biochemistry, synthesis and degradation of carbon compounds, antibiotics, biological regulatory mechanisms.

Reproductive Biology: C(1) / B

Mammalian spermatogenesis.

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