

**BIOS 452/CHEM 452
TOPICAL SUMMARY
EXAM 3**

LIPIDS

Classification

Fatty Acids

Saturated

Unsaturated/configuration

Chain length

Nomenclature

Melting Point

Triacylglycerols (Triglycerides)

Structure

Components

Properties

Function

Polar lipids

Components

Fatty Acids

Glycerol

Phosphate

Alcohols

Sphingosine

Sugars

Phospholipid Structure

Glycerol phosphate

Sphingosine phosphate

Properties

Function

Lipid bilayer structure

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ENZYME KINETICS

Velocity vs. reactant (substrate) plot
Uncatalyzed 1st order reaction
Enzyme catalyzed reaction

Dependence of V_{\max} on enzyme concentration
Kinetic scheme for enzyme catalyzed reaction
Derivation of Michaelis-Menten equation
Steady-state approximation
 K_M
 V_{\max}

Relation of K_M to K_S and substrate affinity
Determination of K_M , V_{\max} from Lineweaver-Burke plot

Competitive inhibition
V vs. [S] plot
Kinetic scheme
Equation for V
Determination of K_i
Relation of K_i values to structure and substrate binding site

Noncompetitive inhibition
V vs. [S] plot
Kinetic scheme
Equation for V
Determination of K_i
Site on enzyme associated with non-competitive inhibition

Enzyme catalysis
Catalytic triad in chymotrypsin
Role of His, Ser, Asp
Thiol proteases
Role of cys mercapto group

Enzyme regulation
Allosteric control by small molecules
Sigmoidal dependence of v on substrate
Changes in quaternary structure
Control by proteins
Covalent Modification
Proteolytic activation