CH	Item	Topic
13	1	Catabolism & Anabolism: purpose & characteristics
13	2	Gibbs free energy (G, G'o, Go): definitions
13	3	Gibbs free energy (G, G'o, Go): relationship to H, S, Keq, E, E'o
13	4	Enthalpy (H); definition, relationship to G, S
13	5	Entropy (S); defintion, relationship to G, H
13	6	ATP: basis for free energy changes accompanying hydrolysis
13	7	High energy compounds besides ATP: characteristics
13	8	ATP in reactions: group transfer vs. hydrolysis
13	9	Regeneration of ATP - short term
13	10	Oxidation-Reduction (Redox) reactions: characteristics
13	11	Biological electron donors & acceptors
13	12	Carbon oxidation states (electron "ownership" definition)
13	13	Mechanisms of biological e- transfer: deyhrogenation, etc.
13	14	Standard Reduction Potential (Eo, E'o) - relationship to e- affinity
13	15	E and the Nernst equation: significance, when to use
13	16	relationship between $\Delta E'o$ and $\Delta G'0$
13	17	relationship between ΔE and ΔG
13	18	calculation of ΔE, ΔG, $\Delta E'o$ and $\Delta G'o$
13	19	electron carriers (NAD, NADP, FAD, FMN): characteristics, roles
14	20	Glucose: biological roles & major fates
14	21	Glycolysis (preparatory phase): start with?, end with?, reactions?
14	22	Glycolysis (payoff phase): start with?, end with?, reactions?
14	23	Glycolysis: ATP-requiring/producing reactions, NADH-producing rxns
14	24	Glycolysis: major regulatory enzymes, allosteric/covalent control
14	25	Relative energy output of glycolysis vs. complete oxidation
14	26	Aerobic & anaerobic fates of pyruvate: when & why
14	27	Glycogen, starch & sugar catabolism, glycolytic points of entry
14	28	Gluconeogenesis: purpose, precursors, location of pathway, primary organs
14	29	gluconeogenesis:primary reactions/enzymes of 1st bypass step
14	30	gluconeogenesis:logic of mitochondrial reactions in 1st bypass step
14	31	gluconeogenesis: 2nd bypass reaction, enzyme
14	32	gluconeogenesis: 3rd bypass reaction, enzyme
15	33	allosteric/covalent control and the logic of reciprocal regulation
15	34	gluconeogenesis/glycolysis regulation: allosteric regulators
15	35	fructose 2,6-bisphosphate: role in glycolysis and gluconeogenesis
15	36	transport forms of glucose: glucose, sucrose and trehalose
15	37	role of sugar nucleotides in carbohydrate synthesis
15	38	glycogen synthase: activity and regulation
15	39	glycogen phosphorylase: activity & regulation
14	40	Pentose Phosphate pathway: role, regeneration of glucose 6-P
16	41	respiration: definition, stages
16	42	Fate of pyruvate - role of pyruvate dehydrogenase complex (PDH)
16	43	PDH: structure, function & chemistry
16	44	Citric Acid Cycle (CAC): early rxn (OAA -->citrate) characteristics
16	45	CAC: intermediate rxns (citrate --> succinate) characteristics
16	46	CAC: late rxns (succinate --> OAA) characteristics
16	47	CAC: GTP, NADH, FADH2-generating reactions
16	48	CAC as an *amphibolic* pathway
16	49	Major *anaplerotic* rxns for CAC
16	50	CAC regulation:rxns, allosteric/covalent characteristics
16	51	matching the rate of glycolysis to the CAC
16	52	Glyoxylate cycle:function, unique chemistry, where performed
16	53	enzyme nomenclature:synthetase, synthase, phosphorylase, kinase, etc.