

			Primary Task	Secondary Task	Extra EK 1001 problems/TPR 2015 SW passages/TBR EOC tests	second 1/3 passages	last 1/3 passages	CARS passages
6/13/2016	Monday	1	TBR Gen Chem 1 - Stoichiometry + 1/3 + passages EK: 1.6 (reactions and stoichiometry)	Kaplan 1 - Biology and Behavior	significant figures, 1-2; chemical reactions and chemical equilibrium, 108-129			2 EK
6/14/2016	Tuesday	2	TBR Biology 6 - Structure and Function in Cells and Viruses + 1/3 EK: bio 1: 1.2 (water), 1.3 (lipids), 1.4 (carbs), 1.5 (nucleotides), 1.6 (amino acids), 1.7 (minerals), bio 2: chapter 1 (the cell)	Kaplan 1 - Biology and Behavior	SW: 10, 21, 24-29, 33			2 TPRH
6/15/2016	Wednesday	3	TBR Physics 1 - Translational Motion + 1/3 EK: 1.1 (motion and force), 1.2 (vectors and scalars), 1.3 (translational motion), 1.4 (graphs of linear motion), 1.5 (projectile motion), 1.6 (mass and weight) nova physics: 2 (the language of motion)	Kaplan 2 - Sensation and Perception	translational motion, 1-129			2 EK
6/16/2016	Thursday	4	TBR Ochem 1 - Molecular Structure + 1/3 EK: 2.2 (representations of organic molecules), 2.3 (bonds and hybridization), 2.4 (resonance and electron delocalization), 2.5 (functional groups)	Kaplan 2 - Sensation and Perception	structural formula THROUGH bonding, 1-118 SW: 11			2 TPRH
6/17/2016	Friday	5	TBR Gen Chem 2 - Atomic Structure + 1/3 EK: 1.2 (atoms), 1.4 (quantum mechanics), 1.5 (bonding), 1.8 (radioactive decay)	Kaplan 3 - Learning and Memory	atoms 3-34; molecules, 73-107; quantum numbers THROUGH energy level of electrons, 137-157; PHYSICS BOOK- radioactive decay THROUGH fission and fusion, 475-509 SW: 1, 2, 3, 4, 5, 6, 10, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81,			2 EK
6/18/2016	Saturday	6	TBR Biology 7 - Metabolic Components + 1/3 EK: bio 1: 1.8 (enzymes), 1.9 (enzyme regulation), 1.10 (enzyme classification), 3.7 (ATP and NADH)	Kaplan 3 - Learning and Memory	SW: 1, 3			2 TPRH
6/20/2016	Monday	8	TBR Physics 2 - Forces and Torque + 1/3 EK: 1.7 (force and free body diagrams), 1.8 (newton's laws), 2.2 (torque) Nova: 3 (laws of motion), 6 (friction and air resistance), 7A-D (torques and properties of solids)	Kaplan 4 - Cognition, Consciousness, and Language	the nature of force THROUGH tension, 130-245; equilibrium THROUGH torque, 257-312	Gen Chem 1		3 EK
6/21/2016	Tuesday	9	TBR Ochem 2 - Isomers and Stereochemistry + 1/3 EK: 2.6 (stereochemistry)	Kaplan 4 - Cognition, Consciousness, and Language	stereochemistry, 119-209 SW: 1,2,3, 5, 7, 8, 10, 16, 17, 29, 30	Bio 6		3 TPRH
6/22/2016	Wednesday	10	TBR Gen Chem 3 - Periodic Trends + 1/3 EK: 1.3 (elements and the periodic table)	Kaplan 5 - Motivation, Emotion, and Stress	periodic table, 35-7 SW: 7, 8, 9, 11-20	Physics 1		3 EK
6/23/2016	Thursday	11	TBR Biology 8 - Metabolic Pathways + 1/3 EK: bio 1: 3.2 (use versus storage), 3.3 (glucose), 3.4 (fatty acid), 3.5 (protein), 3.6 (regulation), 3.8 (metabolic disorders)	Kaplan 5 - Motivation, Emotion, and Stress	SW: 2, 4-7, 22	Ochem 1		3 TPRH
6/24/2016	Friday	12	TBR Physics 3 - Work and Energy+ 1/3 EK: 2.3 (equilibrium), 2.4 (systems and energy), 2.5 (energy and accounting), 2.6 (work and power), 2.7 (machines: ramp, pulley, lever) Nova: 4 (the law of gravitation), 5A-D (planes and circles), 9 (energy)	Kaplan 6 - Identity and Personality	energy THROUGH power, 313-380 SW: 1, 2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14,	Gen Chem 2		3 EK
6/25/2016	Saturday	13	TBR Ochem 3 - Structure elucidation and spectroscopy + 1/3 EK: bio 1: 4.3 (spec)	Kaplan 6 - Identity and Personality	Alkanes - #210 - 265 (SKIP 231, 258) SW: 6, 9, 13, 14, 15, 24	Bio 7		3 TPRH

6/27/2016	Monday	15	TBR Gen Chem 4 - Electrochemistry + 1/3 EK: 6.5 (chemical potential + redox rxns), 6.6 (electrochemical cells)	Kaplan 7 - Psychological Disorders	electrochemistry, 861-1001 SW: 25, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71	Physics 2	4 EK
6/28/2016	Tuesday	16	TBR Biology 9 - Genetic Information + 1/3 EK: "bio 1: 2.7 (mitosis), 2.8 (mutations), 2.9 (meiosis), 2.10 (mendelian and population genetics)"	Kaplan 7 - Psychological Disorders	SW: 12-13,16, 34, 37-43	Ochem 2	2 TPRH + 2 EK
6/29/2016	Wednesday	17	TBR Physics 4 - Periodic Motion + 1/3 Nova: 11 (periodic motion and waves)	Kaplan 8 - Social Processes, Attitudes, Behaviors	hooke's law, 246-256; wave characteristics THROUGH simple harmonic motion, 636-659, 679-744 (skip 705, 708, 709) SW: 4, 5, 48, 50, 51	Gen Chem 3	4 EK
6/30/2016	Thursday	18	TBR Ochem 4 - Lab Techniques + 1/3 EK: bio 1: 4.2 (separating componuds)	Kaplan 8 - Social Processes, Attitudes, Behaviors	lab techniques, 911-1001	Bio 8	2 TPRH + 2 EK
7/1/2016	Friday	19	TBR Gen Chem 5 - Gases and Gas Laws + 1/3 EK: "5.2 (behavior of gases), 5.3 (real gases) "	Kaplan 9 - Social Interaction	gases THROUGH real gases, 158-227 SW: 29, 31, 33, 36	Phys 3	5 EK
7/2/2016	Saturday	20	TBR Biology 10 - Expression of Genetic Information + 1/3 EK: "bio 1: 2.2 (the genome and regulation), 2.3 (organization of genetic material), 2.4 (transcription), 2.5 (rna modificat ion), 2.6 (translation), 4.4 (genetic techniques)"	Kaplan 9 - Social Interaction	SW: 8-9, 11, 14-15, 35-36	Ochem 3	3 TPRH + 2 EK
7/4/2016	Monday	22	TBR Physics 5 - Fluids and Fluid Dynamics + 1/3 EK: chapter 3 (fluids) Nova: 10 (fluids)	Kaplan 10 - Social Thinking	fluids THROUGH surface tension, 510-610 SW: 15, 16, 18, 19, 20, 21, 22, 23, 24, 25 , 26, 27, 28	Gen Chem 4	6 EK
7/5/2016	Tuesday	23	TBR Ochem 5 - Lipids + 1/3 EK: 3.8 (bonding and rxns of biological molecules)	Kaplan 10 - Social Thinking	fatty acids and amino acids, 691-853 SW: 28, 36,	Bio 9	3 TPRH + 3 EK
7/6/2016	Wednesday	24	TBR Gen Chem 6 - Phases and Phase Changes + 1/3 EK: "5.4 (the liquid and solid phases), 5.66 (phase changes) "	Kaplan 11 - Social Structure and Demographics	bonding in solids, 130-136; vapor pressure, 505-528; phases, 569-578; phase changes THROUGH colligative properties, 620-715 SW: 26, 27, 28, 30, 32, 35	Phys 4	9 EK (90 mins)
7/7/2016	Thursday	25	TBR Biology 1 - Nerve and Muscle + 1/3 EK: "chapter 2 (nervous system), chapter 6 (muscle, bone and skin)"	Kaplan 11 - Social Structure and Demographics	SW: 29, 30, 44-54, 77, 79, 80-85	Ochem 4	review
7/8/2016	Friday	26	TBR Physics 6 - Electrostatics and Magnetism + 1/3 EK: 4.2 (static electric charge), 4.5 (magnetism) Nova: 14 (electrodynamics)	Kaplan 12 - Social Stratification	electric charge, 761-806; magnetism, 868-894 SW: 29, 30, 33, 34	Gen Chem 5	9 TPR (90 mins)
7/9/2016	Saturday	27	TBR Ochem 6 - Carbonyls and Alcohols + 1/3 EK: 3.2 (nucleophiles), 3.3 (electrophiles), 3.4 (substitution rxns), 3.5 (addition rxns), 3.6 (oxidation and redction), 3.7 (aldol condensation)	Kaplan 12 - Social Stratification	Alcohols and Substitutions THROUGH Carbonyls and Amines UP TO Amines - #394 - 690 SW: 12, 18, 19-21, 23, 25, 26, 27	Bio 10	review
7/11/2016	Monday	29	TBR Gen Chem 7 - Solubility + 1/3 EK: 6.2 (solution chemistry), 6.3 (vapor pressure), 6.4 (solubility)	TPR 3 - Biological Foundations of Behavior	solutions, 439-568 SW: 21, 34, 45	Phys 5	9 EK (90 mins)
7/12/2016	Tuesday	30	TBR Biology 2 - Heart and Lung EK: "4.2 (respiratory system), 4.3 (blood), 4.4 (cardiovascular system)"	TPR 3 - Biological Foundations of Behavior	SW: 62-65, 86-88	Ochem 5	review
7/13/2016	Wednesday	31	TBR Physics 7 - Electricity and Circuits EK: 4.3 (moving electricity), 4.4 (circuits) Nova: 15 (electric circuits)	TPR 3 - Biological Foundations of Behavior	movement of charge, 807-856 SW: 31, 32, 35, 36, 37, 38, 39, 40, 41, 42, 44	Gen Chem 6	TS CARS 1

7/14/2016	Thursday	32	TBR Ochem 7 - Carbohydrates EK: "3.8 (bonding and rxns of biological molecules)"	TPR 3 - Biological Foundations of Behavior	carbohydrates, 854-910 SW: 31, 34	Bio 1	review
7/15/2016	Friday	33	TBR Gen Chem 8 - Acids and Bases + 1/3 EK: "7.2 (acids and bases), 7.3 (water and acid-base chemistry)"	TPR 4 - Interacting with the Environment	definitions THROUGH salts, 716-811 SW: 42, 44, 48, 49, 50, 51, 52, 53, 56, 58	phys 6	TS CARS 2
7/16/2016	Saturday	34	TBR Biology 3 - GI Tract and Kidney EK: chapter 5 (digestive and excretory system)	TPR 4 - Interacting with the Environment	SW: 18, 73-76, 78	Ochem 6	review
7/18/2016	Monday	36	TBR Physics 8 - Sound and Doppler Effect EK: 5.2 (wave features), 5.3 (waves b/w media), 5.4 (waves as sine functions), 5.5 (interference), 5.6 (sound and intensity), 5.7 (resonance), 5.8 (doppler) Nova: 12 (sound)	TPR 4 - Interacting with the Environment	wave characteristics, 660-678, 705, 708, 709; doppler effect, 745-760 SW: 45, 46, 47, 49, 53, 54, 57, 58	Gen Chem 7	TS CARS 3
7/19/2016	Tuesday	37	TBR Ochem 8 - Nitrogen Chemistry	TPR 5 - Learning, Memory and Behavior	Amines 691-767 SW: 4, 22, 32, 33, 35, 37, 38	Bio 2	review
7/20/2016	Wednesday	38	TBR Gen Chem 9 - Titration Curves + 1/3 EK: "7.4 (titration), 7.5 (salts and buffers) SW: 54, 55, 57"	TPR 5 - Learning, Memory and Behavior	titrations THROUGH polyprotic titrations, 812-860	Phys 7	TS CARS 4
7/21/2016	Thursday	39	TBR Biology 4 - Reproduction and Development EK: 3.7 (reproduction and development)	TPR 5 - Learning, Memory and Behavior	SW: 17, 23, 72-73, 89, 90-95	Ochem 7	review
7/22/2016	Friday	40	TBR Physics 9 - Light and Radiation EK: 5.9 (light waves) Nova: 13A-C (light)	TPR 6 - Personality, Motivation, Attitudes, and Psychological Disorders	light, 895-940; SW: 17, 52, 59, 60	Gen Chem 8	TS CARS 5
7/23/2016	Saturday	41	TBR Gen Chem 10 - Equilibrium + 1/3 EK: "chapter 4 (thermodynamics)"	TPR 6 - Personality, Motivation, Attitudes, and Psychological Disorders	equilibrium 274-295; thermodynamics, 296-438; SW: 22, 23, 40, 43, 46, 47, 82	Bio 3	review
7/25/2016	Monday	43	TBR Biology 5 - Endocrinology and Immunology EK: "bio 2: 3.1-3.6, 4.5 (lymphatic system), 4.6 (immune system)"	TPR 7 - Self-Identity and Group Identit	SW: 11, 19, 20, 31-32, 55-61, 66-71	Physics 8	TS CARS 6
7/26/2016	Tuesday	44	TBR Physics 10 - Geometrical Optics EK: 5.10 (optics), 5.11 (mirrors and lenses), 5.12 (lens aberrations), 5.13 (multiple lens system) Nova: 13D-H (light)	TPR 7 - Self-Identity and Group Identit	mirrors and lenses; SW: 55, 56, 61, 62, 63, 64 941-1001;	Ochem 8	review
7/27/2016	Wednesday	45	TBR Gen Chem 11 - Thermochemistry + 1/3 EK: 5.5 (calorimetry)	TPR 8 - Social structure	heat capacity THROUGH calorimeters, 579-619; thermodynamics, 296-438 SW: 24, 37	Gen Chem 9	TS CARS 7
7/28/2016	Thursday	46	TBR Gen Chem 12 - Chemical Kinetics + 1/3 EK: 1.7 (chemical kinetics)	TPR 8 - Social structure	kinetics, 228-273; SW: 38, 39, 41	Bio 4	review
7/30/2016	Saturday	48	EK FL #1			Phys 9	3 TPRH
7/31/2016	Sunday	49	review exam	KA passages: sensory perception	TBR Bio EOC Diagnostic 1: 1	Gen Chem 10	TS CARS 8
8/1/2016	Monday	50	review exam	sight	TBR Bio 2: 1	Bio 5	review
8/2/2016	Tuesday	51	AAMC Section Bank B/B, C/P, P/S (first 1/3)	sound	TBR Gen Chem 1: 1	Phys 10	9 AAMC (90 mins)
8/3/2016	Wednesday	52	AAMC Official Practice Guide Questions (first 1/2)	somatosensation	TBR Gen Chem 2: 1	Gen Chem 11	review
8/4/2016	Thursday	53	AAMC Physics, Chem, Bio 1, Question Packs (first 1/2)	taste and smell	TBR Physics 1: 1	gen chem 12	3 EK

8/6/2016	Saturday	55	AAMC Official Sample Test					3 TPRH
8/7/2016	Sunday	56	review exam	sleep and consciousness, drug dependence	TBR Physics 2: 1		Gen Chem 1 + Bio 6	TPR CARS #1
8/8/2016	Monday	57	review exam	memory	TBR Bio 1: 2		physics 1 + ochem 1	review
8/9/2016	Tuesday	58	review exam	cognition	TBR Bio 2: 2		Gen Chem 2 + Bio 7	3 EK
8/10/2016	Wednesday	59	EK in-class exams & review: bio 1 lec 1, verbal (ii and 1), Chemistry lec 1 & 2, Psych/Soc lec 1, bio 2 lec 6	language	TBR Gen Chem 1: 2		Physics 2 + ochem 2	9 AAMC (90 mins)
8/11/2016	Thursday	60	EK in-class exams & review: bio 1 lec 2, verbal lec 2, chemistry 3, psych/soc lec 2, bio 2 lec 5, physics lec 1	emotion	TBR Gen Chem 2: 2		gen chem 3 + bio 8	review
8/13/2016	Saturday	62	EK FL #2					3 TPRH
8/14/2016	Sunday	63	review exam	stress	TBR Physics 1: 2		physics 3 + ochem 3	Kaplan CARS #1
8/15/2016	Monday	64	review exam	nervous system	TBR Physics 2: 2		gen chem 4 + bio 9	review
8/16/2016	Tuesday	65	AAMC Section Bank B/B, C/P, P/S (1/3 each)	endocrine system, behavior and genetics	TBR Gen Chem 1: 3		physics 4 + ochem 4	3 EK
8/17/2016	Wednesday	66	AAMC Official Practice Guide Questions (second 1/2)	motivation and attitudes	TBR Gen Chem 2: 3		gen chem 5 + bio 10	9 AAMC (90 mins)
8/18/2016	Thursday	67	AAMC Physics, Chem, Bio 1, Question Packs (second 1/2)	theories of personality	TBR Physics 1: 3		physics 5 + ochem 5	review
8/20/2016	Saturday	69	AAMC Official Practice test					3 TPRH
8/21/2016	Sunday	70	review exam	psychological disorders	TBR Physics 2: 3		gen chem 6 + bio 1	TPR CARS #2
8/22/2016	Monday	71	review exam	social psychology	TBR Gen Chem 1: 4		physics 6 + ochem 6	review
8/23/2016	Tuesday	72	review exam	normative and non-normative behavior	TBR Gen Chem 2: 4		gen chem 7 + bio 2	3 AAMC
8/24/2016	Wednesday	73	EK in-class exams & review: bio 2 lec 2, chemistry lec 5 & 6, verbal lec 4, psych/soc lec 4, physics lec 3	learning	TBR Physics 1: 5		physics 7 + ochem 7	Kaplan CARS #2
8/25/2016	Thursday	74	EK in-class exams & review: bio 1 lec 3, physics lec 2, psych/soc lec 3, chemistry 4, bio 2 lecture 3 & 4, verbal lec 3	self-identity	TBR Physics 2: 5		gen chem 8 + bio 3	review
8/27/2016	Saturday	76	EK FL #3					3 EK
8/28/2016	Sunday	77	review exam	social behavior	TBR Gen Chem 1: 6		physics 8 + ochem 8	TPR CARS #3
8/29/2016	Monday	78	review exam	social interactions, self-presentation and interacting with others	TBR Gen Chem 2: 6		gen chem 9 + bio 4	review
8/30/2016	Tuesday	79	AAMC Section Bank B/B, C/P, P/S (1/3 each)	social structures			physics 9 + gen chem	3 AAMC
8/31/2016	Wednesday	80	AAMC Question Banks Bio 1 (last 1/2), Bio 2 (last 1/2)	demographics			bio 5 + physics 10	Kaplan CARS #3
9/1/2016	Thursday	81	EK in-class exams and review: bio 1 lec 4, psych/soc lec 5, chemistry lec 7, physics lec 4 & 5, bio 2 lec 1	social inequality			gen chem 11 + gen ch	review
9/3/2016	Saturday	83	EK FL #4					2 TPRH
9/4/2016	Sunday	84	review exam					2 EK
9/5/2016	Monday	85	review exam					2 TPRH
9/6/2016	Tuesday	86	review AAMC materials + weaknesses					1 AAMC
9/7/2016	Wednesday	87	review AAMC materials + weaknesses					

9/8/2016	Thursday	88	rest					1 AAMC
9/9/2016	Friday	89	rest					
9/10/2016	Saturday	90	MCAT - TIME TO MAKE UP FOR THAT UNDERGRAD GPA					1 AAMC

TBR Bio Chapters	Old TPR SW	TPR SW 2015	
1 - nerve and muscle	8, 9, 15, 38, 41, 48, 49, 50, 51, 60,68, 69, 70, 71, 72, 74, 79, 8	29, 30, 44-54, 77, 79, 80-85	
2 - heart and lung	42, 44, 45, 52, 53, 54	62-65, 86-88	
3 - GI tract and kidney	14, 17, 76, 77, 78	18, 73-76, 78	
4 - reproduction and development	3, 11, 13, 18, 36, 37, 81, 82, 83	17, 23, 72-73, 89, 90-95	
5 - endocrinology and immunology	19, 20, 21, 22, 39, 40, 43, 46, 47, 57, 58, 59, 61, 67, 73, 75	11, 19, 20, 31-32, 55-61, 66-71	
6 - structure and function in cells and viruse	1, 2, 4, 6, 7, 10, 24, 26, 35	10, 21, 24-29, 33	
7 - metabolic components	23, 32	1/3/2016	
8 - metabolic pathways	5, 12, 16, 17, 25, 28, 29	2, 4-7, 22	
9 - genetic information	33, 34, 55,56 62, 63, 64, 65, 66	12-13,16, 34, 37-43	
10 - expression of genetic information	27, 30, 31, 56	8-9, 11, 14-15, 35-36	
			new passages
			bio
			gen chem
			orgo
TBR Gen Chem			physics
1 -Stoichiometry,	Old TPR SW	TPR SW 2015	
2 -Atomic Structure	1-4, 6, 9-18, 70	1, 2, 3, 4, 5, 6, 10, 72, 73, 74, 75, 76, 77, 78, 7	
3 - Periodic Trends	5, 7, 19-28, 43, 72	7, 8, 9, 11-20	
4 - electrochemistry	8, 56, 79-91	25, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7	
5 - gases and gas laws	40, 61, 64, 67	29, 31, 33, 36	
6 - phases and phase changes	35, 57, 59, 60, 62, 63, 65, 66	26, 27, 28, 30, 32, 35	
7 - solubility	31, 41, 42, 45, 68, 69	21, 34, 45	
8 - acids and bases	30, 32, 34, 36, 38, 47-50, 53-54	42, 44, 48, 49, 50, 51, 52, 53, 56, 58	
9 - titration curves	51, 52, 55	54, 55, 57	
10 - equilibrium	29, 37, 39, 46, 58, 73, 75-77	22, 23, 40, 43, 46, 47, 82	
11 - thermochemistry	74, 78	24, 37	
12 - chemical kinetics	33, 44, 71	38, 39, 41	

orgo	TBR SW 2015			
1 - molecular structure	11,			
2 - isomers and stereochemistry	1,2,3 , 5, 7, 8, 10, 16, 17, 29, 30			
3 - structure elucidation and spectroscopy	6, 9, 13, 14, 15, 24			
4 - lab techniques				
5 - lipids	28, 36,			
6 - carbonyls and alcohols	12, 18, 19-21, 23, 25, 26, 27			
7 - carbohydrates	31, 34			
8 - nitrogen chemistry	4, 22, 32, 33, 35, 37, 38			
physics	Old TPR SW	TPR SW 2015		
1 - translational motion, 2-forces and torqu 3-work and energy	1,2,4,3-9,15-18	1, 2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14,		
4 - periodic motion	17, 51, 52, 54	4, 5, 48, 50, 51		
5 - fluids and fluid dynamics	10-13, 19-24	15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 2		
6 - Electrostatics and magnetism	27, 28, 31, 32,	29, 30, 33, 34		
7 - Electricity and Circuits	25, 26, 29, 30, 33-39	31, 32, 35, 36, 37, 38, 39, 40, 41, 42, 44		
8 - Sound and Doppler Effect	14, 40, 42, 43, 45, 46, 48, 49, 50, 53, 55, 56, 57	45, 46, 47, 49, 53, 54, 57, 58		
9 - Light and Radiation	41, 58, 59	17, 52, 59, 60		
10 - Geometrical Optics	44, 47, 60	55, 56, 61, 62, 63, 64		





3 - GI tract and kidney	chapter 5 (digestive and excretory system)							
4 - reproduction and development	3.7 (reproduction and development)							
5 - endocrinology and immunology	bio 2: 3.1-3.6, 4.5 (lymphatic system), 4.6 (immune system)							
6 - structure and function in cells and viruse	bio 1: 1.2 (water), 1.3 (lipids), 1.4 (carbs), 1.5 (nucleotides), 1.6 (amino acids), 1.7 (minerals), bio 2: chapter 1 (the cell)							
7 - metabolic components	1.8 (enzymes), 1.9 (enzyme regulation), 1.10 (enzyme classification), 3.7 (ATP and NADH)							
8 - metabolic pathways	3.2 (use versus storage), 3.3 (glucose), 3.4 (fatty acid), 3.5 (protein), 3.6 (regulation), 3.8 (metabolic disorders)							
9 - genetic information	2.7 (mitosis), 2.8 (mutations), 2.9 (meiosis), 2.10 (mendelian and population genetics)							
10 - expression of genetic information	2.2 (the genome and regulation), 2.3 (organization of genetic material), 2.4 (transcription), 2.5 (rna modification), 2.6 (translation)							









o Free energy/Keq(equilibrium constant, relationship of the equilibrium constant and $\Delta G^\circ$ )	o Le Châtelier's Principle
o Endothermic/exothermic reactions	
o Free energy:G	
o Spontaneous reactions and $\Delta G^\circ$	
o Phosphoryl group transfers and ATP	
o Biological oxidation-reduction (half-reactions, soluble electron carriers, flavoproteins)	o Bioenergetics/thermodynamics (free energy/Keq, concentration)
o Phosphorylation/ATP (ATP hydrolysis $\Delta G \ll 0$ , ATP group transfers)	
<b>22. Carbohydrates</b>	
o Nomenclature and classification, common names	o Absolute configuration
o Cyclic structure and conformations of hexoses	
o Epimers and anomers	
o Hydrolysis of the glycoside linkage	
o Monosaccharides	
o Keto-enol tautomerism of monosaccharides	o Disaccharides
o Polysaccharides	
<b>23. Glycolysis, Gluconeogenesis, and the Pentose Phosphate Pathway</b>	
o Glycolysis (aerobic), substrates and products	
o Glycolysis feeder pathways: glycogen, starch metabolism	
o Fermentation (anaerobic glycolysis)	
o Gluconeogenesis	
o Pentose phosphate pathway	
o Net molecular and energetic results of respiration processes	
<b>24. Principles of Metabolic Regulation</b>	
o Regulation of metabolic pathways	
o Maintenance of the dynamic steady state	
o Regulation of glycolysis and gluconeogenesis	
o Metabolism of glycogen	
o Regulation of glycogen synthesis and breakdown (allosteric and hormonal control)	o Analysis of metabolic control
<b>25. Citric Acid Cycle</b>	
o Acetyl-CoA production	
o Reactions of the cycle, substrates, and products	
o Regulation of the cycle	
o Net molecular and energetic results in respiration processes	
<b>26. Metabolism of Fatty Acids and Proteins</b>	
o Description of fatty acids	
o Digestion, mobilization, and transport of fats	



- o Endoplasmic reticulum: Role in membrane biosynthesis
- o Endoplasmic reticulum: Role in biosynthesis of secreted proteins
- o Golgi apparatus: general structure and role in packaging and secretion
- o Peroxisomes: organelles that collect peroxides

### 31. Cytoskeleton

- o General function in cell support and movement
- o Microfilaments: composition and role in cleavage and contractility
- o Microtubules: composition and role in support and transport
- o Intermediate filaments, role in support
- o Composition and function of cilia and flagella
- o Centrioles, microtubules organizing centers

### 32. Tissues Formed From Eukaryotic Cells

- o Epithelial cells
- o Connective tissue cells

### 33. Cell Theory

- o History and development
- o Impact on biology

### 34. Classification and Structure of Prokaryotic Cells

- o Prokaryotic domains (Archaea, Bacteria)
- o Major classifications of bacterial by shape (Bacilli [rod shaped], Spirilli [spiral-shaped], Cocci [spherical])
- o Lack of nuclear membrane and mitotic apparatus
- o Lack of typical eukaryotic organelles
- o Presence of cell wall in bacteria
- o Flagellar propulsion, mechanism

### 35. Growth and Physiology of Prokaryotic Cells

- o Reproduction by fission
- o High degree of genetic adaptability, acquisition of antibiotic resistance
- o Exponential growth
- o Existence of anaerobic and aerobic variants
- o Parasitic and symbiotic
- o Chemotaxis

### 36. Genetics of Prokaryotic Cells

- o Existence of plasmids, extragenomic DNA
- o Transformation: incorporation into bacterial genome of DNA fragments from external medium
- o Conjugation
- o Transposons (also present in eukaryotic cells)

### 37. Virus Structure













66. Periodic Motion

o Amplitude, frequency, phase

o Transverse and longitudinal waves, wavelength and propagation speed

o Density, specific gravity

o Buoyancy, Archimedes' Principle

o Hydrostatic pressure (Pascal's Law, Hydrostatic pressure,  $P = \rho gh$ )

o Viscosity: Poiseuille Flow

o Continuity equation ( $A \cdot v = \text{constant}$ )

o Concept of turbulence at high velocities

o Surface tension

o Bernoulli's equation

o Venturi effect, pitot tube

68. Gas Phase

o Absolute temperature, (K) Kelvin Scale

o Pressure, simple mercury barometer

o Molar volume at 0°C and 1 atm = 22.4 L/mol

o Ideal Gas: definition

o Ideal Gas:  $PV = nRT$

o Ideal Gas: Boyle's Law:  $PV = \text{constant}$

o Ideal Gas: Charles' Law:  $V/T = \text{constant}$

o Ideal Gas: Avogadro's Law:  $V/n = \text{constant}$

o Kinetic Molecular Theory of Gases

o Heat capacity at constant volume and at constant pressure

o Boltzmann's Constant

o Deviation of real gas behavior from Ideal Gas Law (qualitative, Van der

Waals' Equation)

o Partial pressure, mole fraction

o Dalton's Law relating to partial pressure to composition

69. Electrostatics

o Charge, conductors, charge conservation

o Insulators

o Coulomb's Law

o Electric field  $E$  (field lines, field due to charge distribution)

o Electrostatic energy, electric potential at a point in space

70. Circuit Elements

o Current  $I = \Delta Q / \Delta t$ , sign conventions, units

o Electromotive force, voltage

o Resistance: Ohm's Law  $V = IR$

o Resistance: Resistors in series

o Resistance: Resistors in parallel







o Hydration, the hydronium ion	84. Solubility
o Units of concentration (e.g., molarity)	
o Solubility product constant; the equilibrium expression $K_{sp}$	
o Common-ion effect, its use in laboratory separations	o Complex ion formation
o Complex ions and solubility	
o Solubility and pH	
85. Titration	
o Indicators	
o Neutralization	
o Interpretation of the titration curves	o Redox titration
86. Covalent Bond	
o Lewis Electron Dot formulas	o Resonance structures
o Formal charge	
o Lewis acids and bases	
o Partial ionic character: role of electronegativity in determining charge distribution	o Partial ionic character: Dipole Moment
o $\sigma$ and $\pi$ bonds	
o Hybrid orbitals: $sp^3$ , $sp^2$ , $sp$ and respective geometries	
o Valence shell electron pair repulsion and the prediction of shapes of molecules (e.g., $NH_3$ , $H_2O$ , $CO_2$ )	
o Structural formulas for molecules involving H, C, N, O, F, S, P, Si, Cl	
o Delocalized electrons and resonance in ions and molecules	
o Multiple bonding (effect on bond length and bond energies, rigidity in molecular structure)	
o Stereochemistry: Isomers (structural isomers, stereoisomers, conformational isomers)	o Stereochemistry: Polarization of light, specific rotation
o Stereochemistry: Absolute and relative configuration (R and S, E and Z)	
87. Liquid Phase-Intermolecular Forces	
o Hydrogen bonding	
o Dipole Interactions	
o Van der Waals' Forces (London dispersion forces)	
88. Separations and Purifications	
o Extraction: distribution of solute between two immiscible solvents	
o Distillation	
o Chromatography: Column chromatography, gas-liquid chromatography	o Chromatography: High pressure liquid chromatography
o Chromatography: Paper chromatography	
o Chromatography: Thin-layer chromatography	
o Electrophoresis	





















o Social exclusion (segregation and isolation)139. HealthDisparities											
o Class, gender, and race inequalities in health140. HealthcareDisparities											
o Class, gender, and race inequalities in health care											

