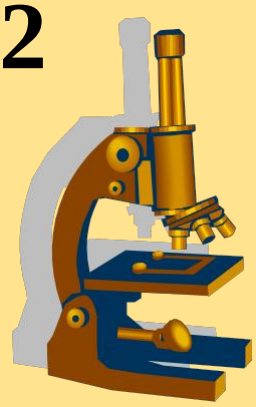
BIOL 1010

Department Wide Final

Exam Assessment

Spring Semester 2012



1140
Students

20 Lecture Sections (ACS =

2 Full-time Faculty Members

6 Adjunct Faculty Members

27 Lab Sections (ACS =

8 Part-time Laboratory Instructors

Salt Lake Community College

Step Ahead.

Assessment Results listed by Course Objective

BIOL 1010 Departmental Final Exam Spring 2012			
Question	Objective	St Dev	Proficiency
1	All organisms share the characteristics of life. Among the characteristics are:	7%	82.8%
2	The sequence which represents the correct order of increasing complexity in living systems is:	13%	81.2%
3	The scientific method includes these steps:	10%	75.6%
4	A valid scientific hypothesis must…	15%	79.2%
5	The unifying concept in biology that explains the diversity and connectedness of all living things	15%	60.6%
6	Four elements that are basic to life are:	11%	90.5%
7	Hydrogen bonds are…	19%	67.0%
8	Water is important to life because…	13%	76.9%
9	The following statement(s) about pH is/are true:	9%	71.7%
10	The type of bond resulting from the sharing of electrons between atoms is:	14%	75.6%
11	All organic molecules contain the following element (s):	22%	48.8%
12	The four types of organic molecules found in all living things include carbohydrates, lipids, nucleic	12%	83.7%
13	Which of the following atoms usually forms the greatest number of covalent bonds with other atoms?	17%	56.8%
14	What are proteins in a diet typically used for at the cellular level?	15%	60.0%
15	Nucleotides…	9%	77.2%
16	The Cell Theory states:	11%	87.2%
17	You are told that the cells on a microscope slide are either plant, animal or bacterial. They have cell walls and membrane-bound organelles. You conclude the cells…	19%	63.6%
18	The cytoskeleton of the cell performs the following roles in the cell:	9%	77.5%
19	Membrane transport requiring energy is:	14%	75.8%
20	Enzymes…	20%	47.3%
21	The characteristic of ATP that makes it the energy currency of cells is:	25%	39.0%
22	The two products of the light reactions that are used directly in the Calvin cycle to produce carbohydrates are:	15%	70.2%
23	The waste materials of the light reactions of photosynthesis are:	20%	58.3%
24	CAM plants have an advantage over C3 plants under the following conditions:	12%	65.0%
25	NADH produced during glycolysis delivers its “cargo” to the following phase of cellular respiration:	20%	45.1%
26	Which of the following phases of cellular respiration occurs outside the mitochondria?	20%	49.3%
27	The transmission (passage) of genetic information is ensured by:	17%	66.1%
28	Cell division that produces somatic (body) cells is called:	18%	60.4%

29	____ produces gametes in animals and spores in other organisms.	27%	53.6%
30	The stage of meiosis during which homologous chromosomes separate is:	27%	42.7%
31	The most *significant* difference between mitosis and meiosis is:	22%	58.2%
32	Genetic variation results from:	17%	69.0%
33	Gregor Mendel deduced the laws of:	16%	64.2%
34	Dr. Smith's parents have normal hearing. However, Dr. Smith has an inherited form of deafness caused by the allele *d.* the genotypes of Dr. Smith's parents are:	17%	75.5%
35	Pedigree analysis can be used to study:	16%	84.8%
36	Mendel's law of segregation states that:	13%	62.1%
37	The scientists who received the Nobel Prize for their work in discovering the structure of the DNA molecule were:	16%	69.7%
38	If a double-stranded DNA molecule contains 30% T, how much A does it contain?	15%	79.2%
39	The correct nucleotide sequence in mRNA transcribed from the DNA nucleotide sequence GCCATGACC is:	18%	73.9%
40	Genetic mutations result from:	12%	69.3%
41	Transcription produces RNA while translation produces	6%	76.0%
42	Charles Darwin formulated his theory of natural selection as a mechanism by which evolution can occur. The following is/are component(s) of his theory:	17%	78.6%
43	Long-legged cheetahs are well adapted to catching prey. The ancestor of the cheetah is believed to have had relatively short legs. According to Darwin, the evolution of long-legged cheetahs is best explained by:	27%	52.1%
44	The formation of new species due to the presence of geographic barriers is called:	12%	67.1%
45	A biological species…	16%	61.3%
46	Which of the following can serve as reproductive barriers between species?	9%	89.5%
47	Hybrid sterility is an example of:	23%	65.1%
48	A change in the genetic makeup of a population is called:	21%	40.4%
49	The inhabitants of a small village have a much higher rate of dwarfism (one in three) than human populations in general. This is likely due to:	34%	51.3%
50	The following order of categories indicates a **DECREASE** in the degree of diversity:	12%	78.6%
		TOTAL	67.1%

Assessment Results listed by Increasing Proficiency

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Question	Objective	St Dev	Proficiency
31	10-7. That gene mutations are changes in the sequence of DNA bases that affect genetic Information and expression.	5%	24.5%
43	10-5. The making of a protein requires transcription and translation.	10%	30.9%
35	7-4. The electron transport chain captures much energy.	7%	32.7%
30	5-3. The structure and cycle of adenosine triphosphate (ATP).	5%	35.2%
23	8-7. That meiosis halves the number of chromosomes because homologous chromosomes separate during meiosis. Synapses and crossing-over also occur during meiosis.	4%	35.8%
49	14-4. The other mechanisms of speciation (e.g. sympatric speciation).	10%	36.7%
6	1-1. That evolution explains why organisms are characterized by diversity and unity.	6%	36.8%
44	13-6. The process of natural selection and that it can be stabilizing, directional, or disruptive.	10%	40.7%
10	3-1. The chemical properties of carbon atoms.	8%	43.1%
14	3-3. The synthesis and breakdown of biological polymers.	13%	44.9%
29	5-4. The basic concepts of enzyme function.	4%	47.2%
48	13-4. That population genetics tells us when microevolution occurs.	7%	48.7%
26	10-5. The making of a protein requires transcription and translation.	8%	52.4%
36	7-3. That cellular respiration has four phases. Three phases occur in the mitochondria.	11%	54.7%
17	4-2. The different sizes and types of cells and how cells are studied.	7%	55.4%
33	6-3. That photosynthesis involves two sets of reactions: The light reactions and the Calvin cycle Reactions.	6%	56.2%
45	14-3. The basic concept of macroevolution and speciation and that the origin of new species Usually requires geographic separation (e.g. allopatric speciation).	12%	58.7%
46	14-1. That species have been defined in more than one way.	11%	60.1%
21	8-6. That meiosis produces cells that become the gametes in animals and spores in other Organisms.	5%	60.8%
20	8-4. That somatic cells have a cell cycle and undergo mitosis and cytokinesis. Mitosis maintains The chromosome number.	15%	62.5%
28	10-1. That DNA is the genetic material.	14%	62.6%
40	9-3. That Mendel's law of segregation describes how gametes pass on traits.	7%	63.4%
47	14-2. That reproductive barriers maintain genetic differences between species.	11%	64.3%
22	8-1. That cell division ensures the transmission of genetic information.	10%	64.3%
27	10-3. The Mechanism of DNA replication and repair.	15%	66.0%
25	8-2. That cell division is involved in both asexual and sexual reproduction.	29%	66.4%
24	8-8. That meiosis and the importance of genetic variation.	7%	66.8%
8	2-4. That atoms react with one another to form molecules though chemical bonds and attractions.	18%	67.2%

13	3-2. The diversity of organic molecules makes life diverse (e,g, functional groups, monomers)	12%	68.6%
32	6-4. The light reaction absorbs solar energy and converts it into chemical energy.	26%	69.2%
19	5-6. The different types of transport across membranes.	29%	69.6%
18	4-3. The basic structures found in prokaryotic and eukaryotic cells.	7%	70.9%
38	9-5. That monohybrid and dihybrid crosses are used to show Mendel's laws of inheritance.	18%	72.8%
41	13-2. That Charles Darwin formulated natural selection as a mechanism for evolution.	9%	74.4%
11	2-4. That atoms react with one another to form molecules though chemical bonds and attractions.	26%	75.4%
34	6-6. That C4 and CAM plants also produce a carbohydrate but under different conditions.	15%	77.1%
3	1-7. The method and practice of scientific inquiry.	7%	78.2%
50	15-3. That organisms are classified into categories and that the Linnaean classification system Reflects phylogeny.	12%	78.3%
2	1-3. The hierarchy of biological organization.	4%	78.6%
15	3-4. The basic structure and function of the four types of biological macromolecules.	16%	80.7%
42	14-2. That reproductive barriers maintain genetic differences between species.	14%	81.2%
9	2-6. The dissociation of water, the pH scale, and buffers and the harmful effects of acid Deposition.	23%	82.3%
37	9-1. That Gregor Mendel deduced the Laws of Inheritance.	13%	82.4%
4	1-6. The value and use of science as a process of obtaining knowledge based upon observable Evidence.	9%	88.0%
39	9-7. The use of pedigree analysis in human genetics and genetic disorders.	11%	88.7%
1	1-2. The characteristics that describe living organisms (life).	8%	89.1%
12	3-4. The basic structure and function of the four types of biological macromolecules.	19%	90.1%
5	2-5. The structure and unique properties of water.	7%	90.6%
16	4-1. That cells are the basic units of life.	21%	91.6%
7	2-2. The elements that make up living organisms.	7%	93.2%
		TOTAL	64.7%

Assessment Results listed by decreasing Standard Deviation

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25	8-2. That cell division is involved in both asexual and sexual reproduction.	29%	66.4%
19	5-6. The different types of transport across membranes.	29%	69.6%
11	2-4. That atoms react with one another to form molecules though chemical bonds and attractions.	26%	75.4%
32	6-4. The light reaction absorbs solar energy and converts it into chemical energy.	26%	69.2%
9	2-6. The dissociation of water, the pH scale, and buffers and the harmful effects of acid Deposition.	23%	82.3%
16	4-1. That cells are the basic units of life.	21%	91.6%
12	3-4. The basic structure and function of the four types of biological macromolecules.	19%	90.1%
38	9-5. That monohybrid and dihybrid crosses are used to show Mendel's laws of inheritance.	18%	72.8%
8	2-4. That atoms react with one another to form molecules though chemical bonds and attractions.	18%	67.2%
15	3-4. The basic structure and function of the four types of biological macromolecules.	16%	80.7%
20	8-4. That somatic cells have a cell cycle and undergo mitosis and cytokinesis. Mitosis maintains The chromosome number.	15%	62.5%
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28	10-1. That DNA is the genetic material.	14%	62.6%
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44	13-6. The process of natural selection and that it can be stabilizing, directional, or disruptive.	10%	40.7%
41	13-2. That Charles Darwin formulated natural selection as a mechanism for evolution.	9%	74.4%

4	1-6. The value and use of science as a process of obtaining knowledge based upon observable Evidence.	9%	88.0%
26	10-5. The making of a protein requires transcription and translation.	8%	52.4%
10	3-1. The chemical properties of carbon atoms.	8%	43.1%
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7	2-2. The elements that make up living organisms.	7%	93.2%
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35	7-4. The electron transport chain captures much energy.	7%	32.7%
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		TOTAL	64.7%