

COURSE SLO ASSESSMENT REPORT, SCC

Department: Biology Course: Biology 190 – Introduction to Biotechnology

Year: 2013 Semester: Fall

1) Outcome to be assessed	2) Means of assessment and criteria of success	3) Summary of data collected			4) Analysis of data	5) Plan of action/ what to do next	
<p>Demonstrate knowledge of the fundamental biotechnology concepts that include basic molecular biology, industrial applications, a brief history of the field, and ethical considerations.</p>	<p>A set of three “easy” multiple choice questions (considered together as subtest 1) and a set of three “moderate” multiple choice questions (considered together as subtest 2) will be embedded in the lecture final exam.</p> <p>Success for this student learning outcome will be assessed by comparison of the average class percentages of subtest 1 and subtest 2 to the expected average class percentages for each subtest.</p>	Category	Question	Data	<p>Based on the criteria of success for this assessment, this class was successful in demonstrating knowledge of fundamental biotechnology concepts as indicated by both subtest 1 and subtest 2 having average class percentages greater than the minimum expected for each.</p> <p>Subtest 1 average class percentage: 77.2%</p> <p>Subtest 2 average class percentage: 64.9%</p> <p>(See attached Par Score report for calculation of</p>	<p>Current teaching methods used in this course appear to be effective and will be continued and improved upon where applicable. One example might be the development of an assignment or interactive class activity on the topic of phase testing a new drug for FDA approval.</p> <p>Data gathering will continue in the Fall of 2014 to add to the pool of data.</p>	
		Subtest 1	<p>A mixture of DNA fragments of different sizes can be separated by a procedure termed</p> <p><u>Topic:</u> Industrial application</p> <p><u>Difficulty:</u> Easy</p>	<p>a. Electroporation b. Southern Blotting <i>c. Electrophoresis</i> d. Polymerase Chain Reaction e. Column Chromatography</p>			<p>Total # responses 19</p> <p># Correct responses 15</p> <p>% Correct responses 78.9%</p>
		Subtest 1	<p>Biologists today know that the flow of genetic information is in the order of</p> <p><u>Topic:</u> Basic molecular biology</p> <p><u>Difficulty:</u> Easy</p>	<p>a. RNA to DNA to Proteins b. Enzymes to Carbohydrates to Lipids <i>c. DNA to mRNA to Proteins</i> d. Ribosomes to Transfer RNA to Messenger RNA e. Introns to Exons to Telomeres</p>			<p>Total # responses 19</p> <p># Correct responses 17</p> <p>% Correct responses 89.5%</p>

<p>“Success” will be defined here as the ability of the class to provide the following expected average percentages for each subtest:</p> <p>For the three “easy” questions considered together as subtest 1, 70% (or more) is expected.</p> <p>For the three “moderate” questions considered together as subtest 2, 50% (or more) is expected.</p>	<p>Subtest 1</p> <p><u>Topic:</u> Basic molecular biology</p> <p><u>Difficulty:</u> Easy</p>	<p>Recombinant DNA describes</p> <ol style="list-style-type: none"> DNA that has had all of its Introns removed DNA that has been copied by a cell immediately prior to cell division <i>DNA that contains genetic sequences from more than one source / species of organism</i> DNA that has been cut into small fragments DNA molecule that has been chemically combined with an RNA molecule 	<p><u>Total # responses</u> 19</p> <p><u># Correct responses</u> 12</p> <p><u>% Correct responses</u> 70.6%</p>	<p>average class percentages above)</p>
	<p>Subtest 2</p> <p><u>Topic:</u> Basic molecular biology</p> <p><u>Difficulty:</u> Moderate</p>	<p>Which of the following is true regarding complementary base pairing in DNA molecules?</p> <ol style="list-style-type: none"> Guanine bases pair specifically with Adenine bases <i>Cytosine bases pair specifically with Guanine bases</i> Cytosine bases pair specifically with Adenine bases Guanine bases pair specifically with Thymine bases Thymine bases pair specifically with Cytosine bases 	<p><u>Total # responses</u> 19</p> <p><u># Correct responses</u> 18</p> <p><u>% Correct responses</u> 94.7%</p>	

		<p>Subtest 2</p> <p><u>Topic:</u> Industrial application</p> <p><u>Difficulty:</u> Moderate</p>	<p>Where specifically does quality control and testing occur in a generalized biotechnology manufacturing process?</p> <p>a. At the start of the process during upstream processing</p> <p>b. In the central stages of the manufacturing process</p> <p>c. Towards the end of the process during downstream processing</p> <p>d. After the manufacturing process is complete – after downstream processing</p> <p><i>e. All of the above</i></p>	<p>Total # <u>responses</u> 19</p> <p># Correct <u>responses</u> 12</p> <p>% Correct <u>responses</u> 70.6%</p>		
		<p>Subtest 2</p> <p><u>Topic:</u> Industrial application</p> <p><u>Difficulty:</u> Moderate</p>	<p>What is the specific purpose of “Phase 1” testing during a drug’s clinical trials (Phase testing)?</p> <p>a. Evaluate the effectiveness of the new drug in animals</p> <p>b. Evaluate the effectiveness of the new drug in humans</p> <p>c. Assess the biological activity of the new drug in animals</p> <p><i>d. Determine safety and dosage in humans</i></p> <p>e. Examine side effects of the drug in bacteria</p>	<p>Total # <u>responses</u> 19</p> <p># Correct <u>responses</u> 7</p> <p>% Correct <u>responses</u> 36.8%</p>		