

Dedman NMS Biological Sciences BS

2018-2019

Completed

2 GOALS 5 OUTCOMES 5 MEASURES 5 TARGETS 5 FINDINGS 19 ATTACHMENTS

Mission

Students will develop proficiency in the foundational areas of genetics and cell biology; advanced areas that integrate basic knowledge, and focus on topics of current interest. Students will also demonstrate skills in a laboratory setting. Upon graduation students will successfully compete for admission to various professional and graduate schools.

Outcomes/Objectives	Measure	Target	Findings
1 GOAL Offer A Rigorous Curriculum The department's goal is to offer a rigorous and state of the art curriculum.			
Outcome has action plan	1.1.1	1.1.1.1 Exceeded	Of 136 genetic students, 69 or 51%

Outcomes/Objectives	Measure	Target	Findings
<p>1.1</p> <p>Understanding Mendelian Concepts</p> <p>Students will be able to describe basic Mendelian concepts, and use them to demonstrate single gene and multifactorial inheritance.</p> <p>Supported Initiatives (3)</p> <p>STRATEGIC INITIATIVES</p> <ul style="list-style-type: none"> ● To enhance the academic quality and stature of the university. ● To improve teaching and learning. ● To strengthen scholarly research, creative achievement, and opportunities for innovation. <p>ACTION PLAN</p> <p>DUE</p> <p>no due date set</p>	<p>Performance</p> <p>Students will be tested to measure their comprehension of each of the learning outcomes. Four questions were taken from class exams to assess each learning outcome. Student performance was evaluated using the following rubric: Exemplary = 4-5 correct; Accomplished = 3 correct; Developing = 2 correct; Beginning = 1 correct; Absent = none correct.</p>	<p>70% of Genetic students will be Accomplished or Exemplary in the five learning outcomes.</p>	<p>tested exemplary; 45 or 33% accomplished; 16 or 12% developing; 4 or 3% beginning, and 2 or 1% absent. Total students testing exemplary or accomplished = 114/136 or 84%.</p> <p>PLANS FOR IMPROVEMENT (WHAT WILL BE DONE NEXT? HOW WILL THE DATA BE USED? HOW DOES THE FINDINGS DIFFER FROM PRIOR YEARS?)</p> <p>This year, 84% of the students tested as exemplary or accomplished, slightly above the previous two years and exceeding the target of 70%. No changes are planned.</p>
<p>Outcome has action plan</p>	<p>1.2.1</p>	<p>1.2.1.1 Exceeded</p>	<p>The findings for each of these</p>

Outcomes/Objectives	Measure	Target	Findings
<p>1.2</p> <p>Understanding Structure and Function of Cellular Membranes</p> <p>Students will be able to describe the various roles of cellular membranes and their associated lipids and proteins.</p> <p>Supported Initiatives (3)</p> <p>STRATEGIC INITIATIVES</p> <ul style="list-style-type: none"> ● To enhance the academic quality and stature of the university. ● To improve teaching and learning. ● To strengthen scholarly research, creative achievement, and opportunities for innovation. <p>ACTION PLAN</p> <p>DUE</p> <p>no due date set</p>	<p>Performance</p> <p>Students will be tested to measure their comprehension of each of the learning outcomes. After completing the course, students should be able to: (1) Understand the various roles of cellular membrane and their associated lipids and proteins. (2) Identify components of the cytoskeleton and understand the mechanisms by which the cytoskeleton is organized. (3) Recognize the trafficking patterns of proteins as they travel to their specific location in the cell. (4) Understand the steps involved in cellular signaling. Five questions were taken from class exams to assess each learning outcome. Student performance was evaluated using the following rubric: Exemplary = 4-5 correct; Accomplished = 3 correct; Developing = 2 correct; Beginning = 1 correct; Absent = none correct.</p>	<p>70% of Cell Biology students will be Accomplished or Exemplary in the five learning outcomes.</p>	<p>learning outcomes is as follows: (1) Students testing Exemplary = 116 or 89%; Accomplished = 15 or 11%; Developing = 0 or 0%; Beginning = 0 or 0%, and Absent = 0 or 0%. Total students testing exemplary or accomplished = 131/131 or 100%. (2) Students testing exemplary = 76 or 58%; Accomplished = 34 or 26%; Developing = 14 or 11%; Beginning = 7 or 5%; and Absent 0 or 0%. Total students testing exemplary or accomplished = 110/131 or 84%. (3) Students testing Exemplary = 109 or 84%; Accomplished = 12 or 9%; Developing 8 or 6%; Beginning 1 or 1%; and Absent 1 or 1%. Total students testing exemplary or accomplished = 121/131 or 92%. (4) Students testing Exemplary =115 or 88%; Accomplished = 13 or 10%; Developing = 2 or 2%; Beginning = 1 or 1%, and Absent = 0 or 0%. Total students testing exemplary or accomplished = 128/131 or 97%.</p> <p>PLANS FOR IMPROVEMENT (WHAT WILL BE DONE NEXT? HOW WILL THE DATA BE USED? HOW DOES THE FINDINGS DIFFER FROM PRIOR YEARS?)</p>

Outcomes/Objectives	Measure	Target	Findings
			<p>This year Outcome 2 was the lowest scoring with 58% exemplary students whereas the other outcomes were all in the 80% range for exemplary students. This outcome topic, the cytoskeleton, is the last topic we cover in the semester. Attendance in lecture for this topic is lower than the rest of the semester. Next year, i will enforce a stricter attendance policy. I will also allow more time for active learning activities.</p>
13	1.3.1	13.1.1 Exceeded	Students testing Exemplary = 37 or

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<p>Understanding of How Organ System Works Together to Maintain Homeostasis</p> <p>Students will be able to demonstrate how the body integrates responses of organ systems to external stimuli.</p> <p>Supported Initiatives (3)</p> <p>STRATEGIC INITIATIVES</p> <ul style="list-style-type: none"> ● To enhance the academic quality and stature of the university. ● To improve teaching and learning. ● To strengthen scholarly research, creative achievement, and opportunities for innovation. 	<p>Performance</p> <p>Students will be tested to measure their comprehension of each of the learning outcomes. Five questions were taken from class clinical case studies to assess each learning outcome. Student performance was evaluated using the following rubric: Exemplary = 4-5 correct; Accomplished = 3 correct; Developing = 2 correct; Beginning = 1 correct; Absent = none correct.</p>	<p>70% of Physiology students will be Accomplished or Exemplary.</p>	<p>86%; Accomplished = 3 or 7%, Developing = 0 or 0%, Beginning = 1 or 2%, and Absent = 2 or 5%. Total students testing exemplary or accomplished = 40/43 or 93%.</p> <p>PLANS FOR IMPROVEMENT (WHAT WILL BE DONE NEXT? HOW WILL THE DATA BE USED? HOW DOES THE FINDINGS DIFFER FROM PRIOR YEARS?)</p> <p>Last year, low-scoring students in my assessment were due to either inability to follow instructions, or inability to communicate clearly. To address the first issue, I wrote a much more detailed set of instructions (3 pages) summarizing formatting (TNR font, 12 point, 1 inch margins), organization (topic sentence, may use bullet points or tables to organize answers, length of paragraphs, etc.) and logical reasoning (answer the questions in order-do not skip around as the questions will lead you to the answer). I discussed these instructions in class prior to the first assignment, and then had an increasing penalty point deduction for not following instructions. The</p>

Outcomes/Objectives	Measure	Target	Findings
			<p>first assignment was written feedback, and a mandatory one-on-one meeting in my office. The second week was written feedback plus a 20% grade deduction, and a mandatory meeting. The third week was written feedback and a 40% grade deduction and a mandatory meeting. By the fourth assignment, all students were able to follow instructions.</p> <p>The issue of inability to communicate clearly and concisely was solved by enlisting the help of Professor Lydia Allen, who specializes in STEM writing at the SMU Writing Center. I students were unable to communicate effectively after the third assignment, students were asked to meet with Professor Allen and work on communicating ideas effectively. There were only two students who fell into this category, both ESL students. By the end of the semester, these students had also (for the most part) corrected this problem.</p>

Outcomes/Objectives	Measure	Target	Findings
<p>1.4</p> <p>Understanding Recombinant DNA Technology</p> <p>Students will be able to design the molecular cloning of a foreign gene into the multiple cloning site of a vector, and successfully select for the transformation of bacterial cells with this newly designed recombinant DNA molecule. They will be assessed based on their completion of Labs 6-8 that require the design, transformation, and selection of a newly made recombinant DNA molecule made by the student.</p> <p>Supported Initiatives (3)</p> <p>STRATEGIC INITIATIVES</p> <ul style="list-style-type: none"> ● To enhance the academic quality and stature of the university. ● To improve teaching and learning. ● To strengthen scholarly research, creative achievement, and opportunities for innovation. 	<p>1.4.1</p> <p>Performance</p> <p>Students will be tested to measure their comprehension of each of the learning outcomes. Upon completion of the course students will be able to: (1) Design the molecular cloning of a foreign gene into the multiple cloning site of a vector and successfully select for the transformation of bacterial cells with this newly designed recombinant DNA molecule. (2) Evaluate the strengths and weakness of genetic testing of a human genotype using the Polymerase Chain Reaction and single nucleotide polymorphic alleles. (3) Understand the use of site specific in vitro mutagenesis in the reversion of mutant alleles in bacteria as well as the application of this technology to human gene therapy. Five questions were taken from class exams to assess each learning outcomes. Student performance was evaluated using the following rubric: Exemplary = 4-5 correct; Accomplished = 3 correct; Developing = 2 correct; Beginning =</p>	<p>1.4.1.1 Exceeded</p> <p>70% of Molecular Genetics students will be Accomplished or Exemplary.</p>	<p>(1) Students testing exemplary = 14 or 93%; Accomplished 1 or 7%; Developing 0 or 0%; Beginning 0 or 0%; and Absent 0 or 0%. Total students testing exemplary or accomplished = 15/15 or 100. (2) Students testing Exemplary = 13 or 87%; Accomplished = 0 or 0%; Developing = 0 or 0%; Beginning = 2 or 13%; and Absent = 0 or 0%. Total students testing exemplary or accomplished = 13/15 or 87%. (3) Students testing Exemplary = 10 or 67%; Accomplished = 2 or 13%; Developing = 1 or 7%; Beginning = 1 or 7%; and Absent = 1 or 7%. Total students testing exemplary or accomplished= 12/15 or 80%.</p> <p>PLANS FOR IMPROVEMENT (WHAT WILL BE DONE NEXT? HOW WILL THE DATA BE USED? HOW DOES THE FINDINGS DIFFER FROM PRIOR YEARS?)</p> <p>The next time I teach the course: 1) I plan to give a practice exercise at the end of the lab where this material was covered to make sure students were able to carry out this task before the final exam; 2) Include a few questions at the end</p>

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	1 correct; Absent = none correct.		of the lab write-up that will challenge the students to think more about the implications of certain results from this PCR experiment, and 3) Make it part of the lab report to obligate the students to formulate their own answer to the question before the final exam.

Outcomes/Objectives	Measure	Target	Findings
<p>2 GOAL Prepare Students</p> <p>The department's goal is to prepare students for a career in the life sciences via postgraduate study or immediate employment.</p>			
Outcome has action plan	2.1	2.1.1.1 Exceeded	Four of 73 or 5% of graduating

Outcomes/Objectives	Measure	Target	Findings
<p>2.1</p> <p>Preparation to achieve career goals</p> <p>The department will prepare students through teaching of its curriculum, research, and advanced technologies.</p> <p>Supported Initiatives (3)</p> <p>STRATEGIC INITIATIVES</p> <ul style="list-style-type: none"> ● To enhance the academic quality and stature of the university. ● To improve teaching and learning. ● To strengthen scholarly research, creative achievement, and opportunities for innovation. <p>ACTION PLAN</p> <p>DUE</p> <p>no due date set</p>	<p>Surveys Collected and Assessed</p> <p>Information is collected from exit surveys/interviews, and actual counts of students admitted into graduate or professional schools. The surveys are made available to each of our seniors via email, mailings, and a social gathering and also help us determine (1) the degree of satisfaction, and (2) subjective assessment of the program. Results for admission to graduate or professional schools is taken from surveys, as well as numbers verified through the Office of Pre-Health Advising on campus.</p>	<p>At least 30% of graduating seniors will be accepted to post-graduate studies, and/or professional studies.</p>	<p>seniors (BA + BS) were accepted to post-graduate studies, and 46 or 63% were accepted to professional studies for the 2019 entry year. Total acceptance = 50/73 or 68%. Of these students, about 35 were BS majors. In addition 11 BS majors reported finding employment by the time of graduation.</p> <p>PLANS FOR IMPROVEMENT (WHAT WILL BE DONE NEXT? HOW WILL THE DATA BE USED? HOW DOES THE FINDINGS DIFFER FROM PRIOR YEARS?)</p> <p>We will continue to monitor this important outcome indefinitely, as it is key to our program's success.</p>