Discipline	Course Number	Title
Biology	104	BIO 104 11/21/2016- Biology of Exercise
Division	Department	Faculty Preparer
Math, Science and Engineering Tech	Life Sciences	Marvin Boluyt
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Identify the basic cellular and physiological principles that underly exercise performance, metabolism, and nutrition.

- Assessment Plan

    o Assessment Tool: Departmentally-designed questions

    o Assessment Date: Winter 2016

    o Course section(s)/other population: all

    o Number students to be assessed: all

    o How the assessment will be scored: item analysis

    o Standard of success to be used for this assessment: 70% of students will score at least 70%.

    o Who will score and analyze the data: department faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2016	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
47	32

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

> Only 45 students are included on the class rosters at the end of the semester. Of these, 32 participated in each of the assessed evaluation items.
>
> DL1 ended with 27 students; 21 of these participated in the assessed evaluation items.
>
> DLN ended with 18 students; 11 of these participated in each of the assessed evaluation items.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

> Only DL courses are offered in BIO 104; all available DL students were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

> Exams 1, 2, 3, 4 and 6 choose questions randomly from a pool of questions on this outcome. The 10 most commonly occurring questions on each of these 5 exam that address this outcome were assessed.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

> Met Standard of Success: Yes
>
> For section DL1:
>
> On 78% of 10 questions analyzed from each exam, 70% or more of the students answered correctly.
>
> For section DLN:
>
> On 92% of the 10 questions analyzed from each exam, 70% or more of the students answered correctly.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students in both sections met the standard of success. On the questions from both sections on which the students did not meet the standard of success, the level of success ranged from 50-64%. Overall, it appears that the performance on Outcome #1 met the standard of success, but left some room for improvement.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Performance on Outcome #1 (compared with somewhat better performance on Outcomes #2 and #3) may have been negatively affected by the following:

Outcome #1 items included a greater volume of material and included material with more complexity and detail.

Despite these challenges, student performance met the standard of success. Improvement may be obtained by finding mechanisms to encourage adherence.

Outcome 2: Identify environmental factors that modify exercise performance and health status.

- Assessment Plan
    - Assessment Tool: Departmentally-designed questions
    - Assessment Date: Winter 2016
    - Course section(s)/other population: all
    - Number students to be assessed: all
    - How the assessment will be scored: item analysis
    - Standard of success to be used for this assessment: 70% of students will score at least 70%.
    - Who will score and analyze the data: department faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2016	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed

47	45

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

> Only 45 students are included on the class rosters at the end of the semester. Of these, 31 participated in each of the assessed evaluation items, the others sporadically.
>
> DL1 ended with 27 students; 19 of these participated in the assessed evaluation items.
>
> DLN ended with 18 students; 12 of these participated in each of the assessed evaluation items.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

> Only DL sections were offered for this course. Both DL sections for the Winter 2016 semester were assessed

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

> Exam 5 chooses questions randomly from a pool of questions that address this outcome. The ten most commonly occurring questions on Exam 5 were assessed.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

> **Met Standard of Success: <u>Yes</u>**
>
> For section DL1:
>
> On 10 out of 10 questions analyzed (100%), more than 70% of the students answered correctly.
>
> For section DLN:
>
> On 8 out of 10 questions analyzed (80%), more than 70% of the students answered correctly.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Student performance far exceeded the standard of success on this outcome.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Because student performance far exceeded the standard of success on this outcome, improvement will be difficult to realize.

Outcome 3: Identify effects of acute and chronic exercise on health risk status, disease prevention and treatment, and on age-associated changes in biological function.

- Assessment Plan

    o Assessment Tool: Departmentally-designed questions

    o Assessment Date: Winter 2016

    o Course section(s)/other population: all

    o Number students to be assessed: all

    o How the assessment will be scored: item analysis

    o Standard of success to be used for this assessment: 70% of students will score at least 70%.

    o Who will score and analyze the data: department faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2016	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
47	45

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Only 45 students are included on the class rosters at the end of the semester. Of these, 34 participated in each of the assessed evaluation items.

DL1 ended with 27 students; 22 of these participated in the assessed evaluation items.

DLN ended with 18 students; 12 of these participated in each of the assessed evaluation items.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Only DL courses are offered. Both DL sections offered in Winter 2016 were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Exam 7 chooses questions from a pool of questions that address Outcome #3. The 10 most frequently occurring questions on Exam 7 were assessed.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: <u>Yes</u>

For section DL1:

On 9 of 10 questions (90%), more than 70% of the students answered correctly.

For section DLN:

On 9 of 10 questions (90%), more than 70% of the students answered correctly.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Student performance far exceeded the standard of success on Outcome #3.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Because student performance far exceeded the standard of success on this outcome, improvement will be difficult to realize.

Outcome 4: Reliably measure physiological and biometric variables.

- Assessment Plan

    o Assessment Tool: Student measurement of physiological and biometric variables

    o Assessment Date: Winter 2016

    o Course section(s)/other population: all

    o Number students to be assessed: all

    o How the assessment will be scored: departmentally-developed rubric

    o Standard of success to be used for this assessment: 70% of students will score at least 70%.

    o Who will score and analyze the data: department faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2016	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
47	37

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Only 45 students are included on the class rosters at the end of the semester. Of these, 37 participated in at least one of the assessed evaluation items.

DL1 ended with 27 students; 25 of these participated in at least one of the assessed evaluation items.

DLN ended with 18 students; 12 of these participated in at least one of the assessed evaluation items.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Only DL sections are offered for BIO 104. Both sections offered during the winter semester of 2016 were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Student performance on two laboratory reports (Labs 5 and 11) were analyzed to assess Outcome #4. The two labs were chosen because they are the only two labs that require a demonstration by the student to the instructor of laboratory measurements. The scores of written lab reports were used to assess the level of success.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: No

For section DL1:

Lab 5 (Blood Pressure): 20 of 27 (74%) students scored 70% or better on this assignment. 2 students did not turn in this assignment, so 20 of 25 (80%) of the students who completed the assignment scored 70% or better.

Lab 11 (Body Composition): 11 of 27 (41%) students scored 70% or better on this assignment. (5 students did not turn in this assignment; so 11 of 22 students who completed the assignment (or 50%) scored better than 70%.)

For section DLN:

Lab 5 (Blood Pressure): 12 of 18 (67%) students scored 70% or better on this assignment.

6 students did not turn in this assignment; 12 of 12 (100%) students who completed the assignment scored 70% or better on this assignment.

Lab 11 (Body Composition): 10 of 18 (56%) students scored 70% or better on this assignment. 10 of 10 (100%) students who completed the assignment scored 70% or better on this assignment.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Performance on Outcome #4 was mixed. There were 2 sections and 2 lab reports; thus, there were 4 evaluations. On 3 of the 4 evaluations, success was well above the standard of success for students who turned in the assignment, but significantly below the standard of success on the 4th.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

The data strongly suggest that the most obvious way to improve performance on Outcome #4 is to increase student participation in the laboratory exercises. The instructors currently use numerous email encouragements to induce students to participate. It is also stated policy that students who do not participate in the required lab demonstrations to the instructor will fail the course.

II. Course Summary and Action Plans Based on Assessment Results

1. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

Overall, this course seems to be meeting the needs of students reasonably well. It is always surprising and disappointing to see how many students decrease or halt their participation during a semester. This may be an inherent challenge of educating students that have busy lives, and may also be a challenge of the DL format.

2. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

This assessment report will be shared with the departmental faculty at a departmental faculty meeting during winter semester, 2017.

3.

Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Course Assignments	To remedy the inadequate performance of students on	We expect that weighting the lab reports more heavily will provide	2017

	outcome 4 (lab reports) we will 1. Have instructors place greater emphasis on the lab reports in their communications with students and 2. Change the grading scale so that the lab reports are weighted more heavily.	a greater incentive for the students to complete them.	

4. Is there anything that you would like to mention that was not already captured?

5.

III. Attached Files

Faculty/Preparer:	Marvin Boluyt	**Date:** 11/22/2016
Department Chair:	Anne Heise	**Date:** 11/28/2016
Dean:	Kristin Good	**Date:** 12/02/2016
Assessment Committee Chair:	Ruth Walsh	**Date:** 01/09/2017