Discipline	Course Number	Title
Biology	102	BIO 102 05/10/2023- Human Biology
College	Division	Department
	Math, Science and Engineering Tech	Life Sciences
Faculty Preparer		Anne Heise
Date of Last Filed Assessment Report		02/04/2017

I. Review previous assessment reports submitted for this course and provide the following information.

1. Was this course previously assessed and if so, when?

   Yes

   It was last assessed using data from Fall 2016.

2. Briefly describe the results of previous assessment report(s).

   I quote: "Overall it appears to me that the course is meeting the stated objectives of the class."

   This class is taught only by part-time faculty so there are some challenges in getting faculty to collect all the data I ask of them. This was an issue in 2016 and an even bigger issue in Winter 2023.

3. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

   There were plans to emphasize some material related to reproductive technology. I really don't know if much was actually done, thanks to the disruption from the pandemic.

II. Assessment Results per Student Learning Outcome

Outcome 1: Identify parts of the human cells and their function and recognize concepts related to cell chemistry, cellular energetics and homeostasis.

- Assessment Plan

- o Assessment Tool: Set of common questions used on exams in all sections

- o Assessment Date: Winter 2019

- o Course section(s)/other population: All sections

- o Number students to be assessed: All

- o How the assessment will be scored: Item analysis of questions from unit exams using an answer key

- 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)
	2023	

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

# of students enrolled	# of students assessed
65	27

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.

The plan was to assess all students in all sections of the course. A new P/T faculty was hired to teach one section and try as I did I could not get him to contribute any data.

That instructor was replaced in Week 13 and I did not ask the replacement instructor to take on any assessment tasks.

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.

All students in all sections were going to be assessed but (see above) in the end I have data only for two sections.

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

Five standardized questions were used to assess this outcome. The questions were embedded in instructors' unit exams. Instructors sent Anne Heise item analyses for all questions.

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>
87.5% of the questions were answered correctly.

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

The assessment uses five multiple-choice questions. For each question at least 80% of students answered the question correctly. The worst performance was in one of the assessed sections of Bio 102 on a question about homeostasis and carbon dioxide. Students reading at a lower lexile might not have understood what was going on, or perhaps in one section carbon dioxide was used as an example of homeostasis, but it wasn't used in the poorly-performing section.

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.

This material is usually covered early in the semester. Early in the semester it's worth stressing test-reading and test-taking skills so that students will only get a question wrong because they don't know the answer, not because they didn't understand what the question was getting at.

Outcome 2: Recognize the main parts of each of the 11 human organ-systems, the main function(s) of each part and the main disorders that affect each organ-system. Recognize how these diseases change normal function. Recognize current means of diagnosis and treatment for these systems.

- Assessment Plan

  o Assessment Tool: Set of common questions used on exams in all sections

  o Assessment Date: Winter 2019

  o Course section(s)/other population: All sections

  o Number students to be assessed: All

- o How the assessment will be scored: Item analysis of questions from unit exams using an answer key

- 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)
	2023	

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

# of students enrolled	# of students assessed
65	28

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.

> The plan was to assess all students in all sections of the course. A new P/T faculty was hired to teach one section and try as I did I could not get him to contribute any data.
>
> That instructor was replaced in Week 13 and I did not ask the replacement instructor to take on any assessment tasks.
>
> Thus one instructor submitted no data at all. For this Outcome, another did not manage to embed all five questions in their exams.

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.

> The plan was to assess all students in all sections. See above; this did not happen.

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

> Five standardized questions were used to assess this outcome. The questions were embedded in instructors' unit exams. Instructors sent Anne Heise item analyses for all questions

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>
I have results for 5/5 questions from one instructor and 4/5 questions from the other instructor. 93% of the questions were answered correctly.

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

Performance was very strong across the 5 questions asked, and in both assessed sections of Bio 102. I'm not too surprised because organ systems have been talked about in classrooms starting in grade school. This is not a mysterious level of analysis, like cells or genes may be.

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.

This outcome lends itself to vivid visuals and videos. Instructors can be urged to continue to search out such instructional materials.

Outcome 3: Recognize specific healthy lifestyle choices that can affect the normal functioning of the human body and how these choices relate to the presence of specific diseases.

- Assessment Plan
    - Assessment Tool: Set of common questions used on exams in all sections
    - Assessment Date: Winter 2019
    - Course section(s)/other population: All sections
    - Number students to be assessed: All
    - How the assessment will be scored: Item analysis of questions from unit exams using an answer key
    - 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)
	2023	

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

# of students enrolled	# of students assessed
65	30

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.

The plan was to assess all students in all sections of the course. A new P/T faculty was hired to teach one section and try as I did I could not get him to contribute any data.

That instructor was replaced in Week 13 and I did not ask the replacement instructor to take on any assessment tasks.

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.

The plan was to assess all students in all sections. See above; this did not happen.

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

Five standardized questions were used to assess this outcome. The questions were embedded in instructors' unit exams. Instructors sent Anne Heise item analyses for all questions.

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

I have results for 5/5 questions from one instructor and 4/5 questions from the other instructor.

92% of the questions were answered correctly.

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

Performance was very strong across the board.

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 knowledge necessary to do well on this outcome is so important for healthy living. Instructors can be urged to stress the objectives linked to this outcome, and to embed healthy lifestyle choices into as many parts of Bio 102 as possible.

Outcome 4: Solve simple human genetic problems. Recognize current concepts in human genetics.

- Assessment Plan

  o Assessment Tool: Set of common questions used on exams in all sections

  o Assessment Date: Winter 2019

  o Course section(s)/other population: All sections

  o Number students to be assessed: All

  o How the assessment will be scored: Item analysis of questions from unit exams using an answer key

  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)
	2023	

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

# of students enrolled	# of students assessed
65	35

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.

> The plan was to assess all students in all sections of the course. A new P/T faculty was hired to teach one section and try as I did I could not get him to contribute any data.
>
> That instructor was replaced in Week 13 and I did not ask the replacement instructor to take on any assessment tasks.

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.

> One instructor submitted no data at all. For this Outcome, another did not manage to embed all five questions in their exams.

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

> Five standardized questions were used to assess this outcome. The questions were embedded in instructors' unit exams. Instructors sent Anne Heise item analyses for all questions.

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>
>
> I have results for 5/5 questions from one instructor and 1/5 questions from the other instructor.
>
> 85% of the questions were answered correctly. This is true...whether this means the standard of success was truly met, given the large amount of missing data...I don't know!

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

> There was a lot of missing data for this Outcome. Nevertheless, the students who were assessed did well, with 85% of all questions answered correctly. The lowest percent correct for any question was 77%. My only question is really one for the next syllabus revision: is a focus on Mendelian genetics really a worthy outcome for Bio 102?

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 standard of success was met. I think the questions used to assess this outcome probably need to be revisited given the advances in human genetics.

Outcome 5: Recognize current advances in human reproductive technology.

- Assessment Plan

    o Assessment Tool: Set of common questions used on exams in all sections

    o Assessment Date: Winter 2019

    o Course section(s)/other population: All sections

    o Number students to be assessed: All

    o How the assessment will be scored: Item analysis of questions from unit exams using an answer key

    o Standard of success to be used for this assessment: 75% of answers correct for each outcome.

    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)
	2023	

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

# of students enrolled	# of students assessed
65	15

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.

The plan was to assess all students in all sections of the course. A new P/T faculty was hired to teach one section and try as I did I could not get him to contribute any data.

That instructor was replaced in Week 13 and I did not ask the replacement instructor to take on any assessment tasks.

Thus, one instructor submitted no data at all. For this Outcome, another did not manage to embed the questions in their exams.

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.

The plan was to assess all students in all sections. See above; this did not happen.

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

Five standardized questions were used to assess this outcome. The questions were embedded in instructors' unit exams. Instructors sent Anne Heise item analyses for all questions

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

I have results for 5/5 questions from one instructor and 0/5 questions from the other instructor.

92% of the questions were answered correctly, but a lot of data is missing.

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

I received data from only one of the three sections of Bio 102. This section did very well; 97% of the questions were answered correctly.

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 outcome covers important information for 102 students. It is probably a good idea to make sure the objectives tied to this outcome are up to date, given the advances in reproductive technology. This could lead to revisions to some of the questions used to assess the outcome.

Outcome 6: Recognize proper use of laboratory equipment such as the microscope. Recognize laboratory practices, such as dissection, measurement, careful observation and analysis of experiments and the use of the scientific method.

- Assessment Plan

    o Assessment Tool: Lab worksheets which include short answers, matching, diagram labeling and multiple choice questions

    o Assessment Date: Winter 2019

    o Course section(s)/other population: All

    o Number students to be assessed: Random sample of 10 students from each section

    o How the assessment will be scored: Item analysis using an answer key

    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)
	2023	

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

# of students enrolled	# of students assessed
65	15

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.

The plan was to assess all students in all sections of the course. A new P/T faculty was hired to teach one section and try as I did I could not get him to contribute any data.

That instructor was replaced in Week 13 and I did not ask the replacement instructor to take on any assessment tasks.

Thus, one instructor submitted no data at all. For this Outcome, another did not manage to embed any of the questions on their exams.

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.

> The plan was to assess all students in all sections. See above; this did not happen.

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

> Five standardized questions were used to assess this outcome. The questions were embedded in instructors' unit exams. Instructors sent Anne Heise item analyses for all questions.

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>
>
> I received data from just one instructor for this Outcome. 74 of 75 questions were answered correctly, so the standard of success was met...for that instructor. I have no information from the other instructor.

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

> Only one of the three sections of Bio 102 did the questions used to assess this Outcome. They answered 97% of the questions correctly, which is terrific.

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.

> No suggestions here.

III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

> To be honest, there has been so much change in pedagogy and student populations since the previous assessment that I do not think there is any way to ascribe either improvements or declines in performance to any changes that might have been

proposed in 2017. For example, the two sections that contributed data to this assessment were both VCLASS, a modality that didn't exist in 2017.

At least we can tell that VCLASS didn't destroy student success. Just like in the last assessment, the standard of success was met for all outcomes.

2. 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?

It is time to update the assessment plan, which states that 10 students will be randomly assessed for each outcome. Given the difficulties in collecting any data at all, perhaps especially in a class that does not have any FT faculty involvement , we should simply assess all students in all sections. That would be easier on faculty than going through a random selection process.

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

I can share this report with FT faculty in Fall 2023, and I will share the results with the PT faculty who actually teach the course.

4.

Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Outcome Language	Current: **Outcome 4: Solve simple human genetics problems and apply this skill to understand current research in human genetics as well as family history.** Possible revision: Outcome 4: Solve simple human genetics problems. Apply concepts	The "simple human genetics problems" are using Punnett Squares to predict outcomes for the relatively small subset of human conditions that are controlled just by one pair of alleles. Punnett Squares are fun and reinforce what happens in gametogenesis but most human conditions are not as straightforward as the few that are determined by just	2024

	from current research in molecular genetics to explain human diseases.	one gene. More attention should be paid to how a suite of genes interacts with a person's environment to determine the person's traits or behavior.	
Assessment Tool	The assessment plan needs some re-writing. 1. Rather than taking a random sample, all students should be assessed. 2. Rather than using the "70% of students score 70%" standard of success, the standard of success should be 75% of the questions pertaining to a given outcome are answered correctly.	1. Assessing all the students saves faculty the randomizing step. Given the small number of sections and students involved, I can't see any reason to use a random sample. 2. The "70% of students score 70%"only works for Outcomes that are assessed by a single artifact, such as performance on a rubric. I have attached a document that discusses this issue. If an LMS can completely calculate whether 70% of students scoring 70%, then OK, we can do that in the future. But in my opinion, it is wrong to ask part-time faculty to tally these results by hand, for only a limited value in assessment.	2023

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

> Wanda Gunderson and Joel Bonney, part-time faculty in the Biology Department, collected the data I used for this report.
>
> Wanda in particular has contributed so much to Bio 102, from helping edit the assessment questions to supplying a complete data set for analysis. WCC is so lucky that she works here!

III. Attached Files

Data Summary
Rationale for not using 70% of 70%
Questions used for Assessment

Faculty/Preparer: Anne Heise **Date:** 05/12/2023
Department Chair: Susan Dentel **Date:** 05/15/2023
Dean: Tracy Schwab **Date:** 05/17/2023
Assessment Committee Chair: Jessica Hale **Date:** 11/22/2023

Discipline	Course Number	Title
Biology	102	BIO 102 11/21/2016-Human Biology
Division	Department	Faculty Preparer
Math, Science and Engineering Tech	Life Sciences	Anne Heise
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Identify parts of the human cells and their function, and explain cell chemistry, cellular energetics and homeostasis.

- Assessment Plan

    o Assessment Tool: Set of common questions used on exams in all sections

    o Assessment Date: Winter 2016

    o Course section(s)/other population: All sections

    o Number students to be assessed: all

    o How the assessment will be scored: item analysis of questions from unit exams

    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
67	60

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.

Not all students may have been present on the day the outcome was assessed.

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.

All sections are on the main campus. Day and evening sections were assessed.

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

Five multiple-choice questions were embedded on unit exams. Data were compiled by instructors and sent to Anne Heise for analysis.

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>

The standard of success was met for all questions in all 3 sections, with %-correct ranging from 70% to 94% for different questions and sections. Combined over all 3 sections, the % correct ranged from 72% to 87%.

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

Chemistry and cell biology are always challenging to students and perhaps especially so in a class with no pre-requisites.

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.

I am satisfied with the performance of these students.

Outcome 2: Recognize the main parts of each of the 11 human organ-systems, the main function(s) of each part and the main disorders that affect each organ-system. Explain how these diseases change normal function, current means of diagnosis and treatment.

- Assessment Plan

  - Assessment Tool: Set of common questions used on exams in all sections

  - Assessment Date: Winter 2016

  - Course section(s)/other population: All sections

  - Number students to be assessed: all

  - How the assessment will be scored: item analysis of questions from unit exams

  - 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
67	58

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.

Not all students were present during the assessment. Additionally with this outcome, Anne Heise did not receive data for all questions. Specifically, I am missing 5 out of 15 total section-question results.

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.

All sections were assessed. The class meets only on the main campus.

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

Five questions for the outcome were embedded in unit exams. Instructors compiled results and sent them to Anne Heise for analysis.

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 the 10 section-question results that I have, the standard of success was met in 9 of them. In the 10th, only 65% of students got the question right. In the other 9 cells, % correct ranged from 75 to 100%.

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

There were missing data for this outcome but for the results that I do have, performance was very good. I think organ-level knowledge is easier for students than chemistry or cell biology.

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.

I am satisfied with student performance.

Outcome 3: Recognize specific healthy lifestyle choices that can affect the normal functioning of the human body, and how these choices relate to the presence of specific diseases.

- Assessment Plan
    - Assessment Tool: Set of common questions used on exams in all sections
    - Assessment Date: Winter 2016
    - Course section(s)/other population: All sections
    - Number students to be assessed: all
    - How the assessment will be scored: item analysis of questions from unit exams
    - 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
67	38

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.

Lots of missing data for this outcome. It works out that for each of the 5 questions, there are just 2 sections reporting, although which 2 sections those are varies for different questions!

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.

All students were assessed. The class is taught only on the main campus, in day and evening times.

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

Five questions were embedded in unit exams. Instructors compiled information and sent it to Anne Heise for analysis.

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

There were 10 question-section results and 5 question-section missing results. Of the 10 results, the standard of success was met in 8. The standard of success was not met in 2 cases, and as it turns out both of these cases were the same embedded question.

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

There were missing data for this outcome. Students did well on 4 questions but were clearly stumped by the 5th question. It asked for which of the following

conditions can regular exercise lower ones risk. The conditions were: some type of cancer, type 1 diabetes, Down syndrome, and sickle-cell anemia. This is a pretty hard question because people may have heard of the importance of exercise in the management of diabetes or in the prevention of type 2 diabetes. That would thus be a tempting answer. The correct answer is cancer.

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.

Either more emphasis on exercise, and/or more emphasis on diabetes, might improve performance on this outcome.

Outcome 4: Solve simple human genetic problems and apply to current research in human genetics as well as family history.

- Assessment Plan

    o Assessment Tool: Set of common questions used on exams in all sections

    o Assessment Date: Winter 2016

    o Course section(s)/other population: All sections

    o Number students to be assessed: all

    o How the assessment will be scored: item analysis of questions from unit exams

    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
67	58

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.

Students may have been absent on the day of the assessment, or may have dropped the class by the time the assessment was administered.

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.

All sections of Bio 102 are on the main campus and are taught face-to-face.

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

Five questions related to this outcome were embedded in unit exams. Instructors compiled results and sent them to Anne Heise for analysis.

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

In 12 of 15, or 80% of, question-section results the standard of success was met with % correct ranging from 70 to 100%. In the 3 cases where the standard of success was not met, by chance the % correct in each case was 65%.

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

Students did very well on this outcome. Two of the five questions used to assess this outcome were Punnett Square problems, which students often enjoy once they figure out how to do them.

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.

I am satisfied with student performance on this outcome.

Outcome 5: Apply the principles of classical evolution to the modern molecular understanding of human evolution.

- Assessment Plan

   o Assessment Tool: Set of common questions used on exams in all sections

   o Assessment Date: Winter 2016

- o Course section(s)/other population: All sections

- o Number students to be assessed: all

- o How the assessment will be scored: item analysis of questions from unit exams

- 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
67	58

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.

All students in all sections were assessed. Students may have dropped or been absent on testing days.

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.

All sections are on main campus. Sections include day and evening.

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

Five standardized questions were used to assess this outcome. The questions were embedded in instructors' unit exams. Instructors sent Anne Heise item analyses for all questions.

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

The standard of success was met overall, with overall success on the five questions ranging from 71 to 93%. For students in 1 section, only 47% of the students answered correctly on f 2 of the questions. If you consider the 3 sections and 5 questions per section, there are 15 section-question results. For this outcome, 6/15, or 40% of these results were below 70%.

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

Overall performance on this outcome was very good.

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.

More attention could be paid to the geographic origin of humans.

Outcome 6: Analyze current advances in human reproductive technology with respect to human health and human evolution.

- Assessment Plan

  o Assessment Tool: Set of common questions used on exams in all sections

  o Assessment Date: Fall 2013

  o Course section(s)/other population: All sections

  o Number students to be assessed: Random sample of 10 students from each section

  o How the assessment will be scored: item analysis of questions from unit exams

  o Standard of success to be used for this assessment: 75% of answers correct for each outcome.

  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

67	56

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.

Students may have dropped or been absent on test day.

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.

All sections of Bio 102 are on the main campus and include day and p.m. sections.

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

Five standardized questions were used to assess this outcome. The questions were embedded in instructors' unit exams. Instructors sent Anne Heise item analyses for all questions.

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
The standard of success was met for 4 of the 5 questions used to assess the outcome, with percent correct ranging from 86 to 100%. For the 5th question only 55% of students overall answered the question correctly. In two of the three Bio 102 sections the standard of success was not met for this question, with 24% answering correctly in 1 section, and 63% answering correctly in the other. (In the third section, 75% answered correctly.) With 5 questions and 3 instructors, there are 15 measurements of success. The standard was met in 13/15, or 87% of the measurements.

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

Overall performance on this outcome was excellent. In one section, the standard of success was not met for one question. The questions used to assess this outcome focused on pre-natal testing and genetic counseling. I'm pleased that students have a good grasp of this very important information.

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.

> More attention might be paid to In-Vitro Fertilization as the question related to IVF had lower success than other questions.

Outcome 7: Recognize proper use of laboratory equipment such as the microscope. Recognize laboratory practices such as dissection, measurement, careful observation and analysis of experiments and the use of the scientific method.

- Assessment Plan

  - Assessment Tool: Lab worksheets which include short answer, matching, diagram labeling and multiple choice 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
67	40

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.

> I received no data from one of the 3 instructors.

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.

> Bio 102 is taught face-to-face only, and only on the main campus. All sections were included in the assessment population.

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

> Five questions were embedded in a multiple-choice lab quiz. Instructors compiled results and sent them to Anne Heise for analysis.

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>
>
> Out of 10 question-section results, the standard of success was met in 9, or 90%. In the 10th only 45% of students answered the question correctly.

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

> Overall there was good performance on this outcome; however I did not receive any data from 1 section of Bio 102. The one question that was challenging was about whether the size of a specimen observed in a microscope will change if the magnification changes. This is kind of a trick question that will definitely stump some students unless it has been explicitly discussed in lab.

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.

> It can never hurt to emphasize microscope use and what is actually happening when you change the magnification you are observing with.

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 it appears to me that the course is meeting the stated objectives of the class. I do plan to take a closer look at the master syllabus to see whether there is a way to update some of the reproductive technology info and perhaps add some information about gender identity.

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

I will share the results by email with the part-time faculty who teach the class, and I will share the results with full-time faculty at a department meeting.

3.

Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Objectives	I would like to update info on reproductive technology, look carefully at the amount of time spent on human evolution, and see whether we can add info on gender identity. Additionally I plan to consider how the course addresses lifestyle choices in human health and disease.	The class is a non-majors class intended to interest students in biology generally and human biology in particular. The course should look for opportunities to explore health and disease and ones choices in promoting health and preventing disease. The course should also be an up-to-date look at current topics in human health such as advances in genetic counseling and manipulation, and current perspectives on gender identity.	2017

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

Three part-time instructors did all the data collection. They also helped choose the questions that were used for the assessment. They are: Wanda Gunderson, Anne

Kozal, and Mark Foret. Anne Heise crunched the numbers and filed the assessment report but the work could not have been done if Wanda, Anne K, and Mark had not worked with me.

III. Attached Files

Data analysis
Assessment questions

Faculty/Preparer:	Anne Heise	**Date:** 01/04/2017
Department Chair:	Anne Heise	**Date:** 01/04/2017
Dean:	Kristin Good	**Date:** 01/06/2017
Assessment Committee Chair:	Ruth Walsh	**Date:** 01/31/2017

COURSE ASSESSMENT REPORT

I. Background Information
1. Course assessed:

    Course Discipline Code and Number: BIO 102

    Course Title: Human Biology

    Division/Department Codes: LIFD/BIO

2. Semester assessment was conducted (check one):
    - ☒ Fall 20_10_
    - ☐ Winter 20__
    - ☐ Spring/Summer 20__

3. Assessment tool(s) used: check all that apply.
    - ☐ Portfolio
    - ☒ Standardized test
    - ☐ Other external certification/licensure exam (specify):
    - ☐ Survey
    - ☐ Prompt
    - ☐ Departmental exam
    - ☐ Capstone experience (specify):
    - ☐ Other (specify):

4. Have these tools been used before?
    - ☐ Yes
    - ☒ No

    If yes, have the tools been altered since its last administration? If so, briefly describe changes made.

5. Indicate the number of students assessed and the total number of students enrolled in the course.

    All students from sections 05 and 06 were assessed. The number assessed on 4 unit exams varied from 33 to 39. Total enrolled in Bio 102 during Fall 2010 was 141 in 6 sections. Thus between 23 and 28% of the students were assessed.

6. If all students were not assessed, describe how students were selected for the assessment. *(Include your sampling method and rationale.)*

    We intended to take a sample from each section but the logistics were too much for me. There were 6 sections, all taught by part-time instructors with no lead instructor coordinating the crew. Some instructors used paper tests while others used Blackboard tests. I was too distracted to learn how to do an item analysis for the Bb tests, so I did not attempt to retrieve those data at the end of the term. I never received data from 2 of the sections.

II. Results
1. Briefly describe the changes that were implemented in the course as a result of the previous assessment.

None that I know of, really. The course has been taught by a revolving cast of part-time instructors and there has not been a full-time or long-term faculty person to monitor the course.

2. List each outcome that was assessed for this report exactly as it is stated on the course master syllabus. *(You can copy and paste these from CurricUNET's WR report.)*

    1. *Identify the parts and their function in human cells, and explain cell chemistry, cellular energetics and homeostasis.*

2. *Identify the main parts of each of the 11 human organ-systems, the main function(s) of each part and the main disorders that affect each organ-system. Explain how these diseases change normal function, current means of diagnosis and treatment.*

3. *Recognize specific healthy lifestyle choices that can affect the normal functioning of the human body, and how these choices relate to the presence of specific diseases.*

4. *Solve simple human genetic problems and apply this skill to understand current research in human genetics as well as family history.*

5. *Apply the principles of classical evolution to the modern molecular understanding of human evolution.*

6. *Analyze current advances in human reproductive technology with respect to human health and human evolution.*

7. *Recognize proper use of laboratory equipment such as the microscope. Recognize laboratory practices such as dissection, measurement, careful observation and analysis of experiments and the use of the scientific method. NOTE: This is an outcome for Bio 102 but was not assessed. I do not know why.*

3. For each outcome that was assessed, indicate the standard of success exactly as it is stated on the course master syllabus. *(You can copy and paste these from CurricUNET's WR report.)*

Standard of success to be used for this assessment: 75% of answers correct for each outcome. (This is the standard of success for all outcomes.)

4. Briefly describe assessment results based on data collected during the course assessment. Indicate the extent to which students are achieving each of the learning outcomes listed above and state whether the standard of success was met for each outcome. *In a separate document, include a summary of the data collected and any rubrics or scoring guides used for the assessment.*

Learning outcome	# questions used to assess	Average % answered correctly	Standard of success met?
"parts and their function in human cells…"	4	78%	Yes
"human organ systems…"	4	89%	Yes
"healthy lifestyle choices…"	4	83%	Yes
"solve genetics problems"	5	82%	Yes
"human evolution"	4	80%	Yes
"reproductive technology"	3	77%	Yes

5. Describe the areas of strength and weakness in students' achievement of the learning outcomes shown in the assessment results. *(This should be an interpretation of the assessment results described above and a thoughtful analysis of student performance.)*
Strengths: The students demonstrated broad knowledge over all of the assessed outcomes for Bio 102.

Weaknesses: The weakest performance was on a question concerning the part of the neuron that is affected in multiple sclerosis. Only 36% of students knew the right answer. The next weakest performance was on a question about In Vitro Fertilization: only 42% of students answered this question correctly.

III. Changes influenced by assessment results
1. If weaknesses were found (see above) or students did not meet expectations, describe the action that will be taken to address these weaknesses. *(If students met all expectations, describe your plan for continuous improvement.)*

COURSE ASSESSMENT REPORT

I will communicate these findings with our part-time instructors with success rates for each question used in the assessment. I expect they will spend a little more time in lecture and in lab on the questions with the lowest percent answered correctly. I do think the questions themselves are well worded and do not need to be re-written for greater clarity.

2. Identify intended changes that will be instituted based on results of this assessment activity (check all that apply). Please describe changes and give rationale for change.
    a. ☐ Outcomes/Assessments on the Master Syllabus
       Change/rationale:

    b. ☐ Objectives/Evaluation on the Master Syllabus
       Change/rationale:

    c. ☐ Course pre-requisites on the Master Syllabus
       Change/rationale:

    d. ☐ 1st Day Handouts
       Change/rationale:

    e. ☐ Course assignments
       Change/rationale:

    f. ☐ Course materials (check all that apply)
       ☐ Textbook
       ☐ Handouts
       ☐ Other:

    g. ☐ Instructional methods
       Change/rationale:

    h. X☐ Individual lessons & activities
       Change/rationale:

    • Spend more time on reproductive technology in lecture and in lab. Rationale: most students did not know what In-vitro fertilization is. IVF is not a cutting-edge technology – it is a core procedure to help certain couples conceive a child.

    • Spend more time in lecture and lab on the anatomy and pathology of the nervous system. Rationale: well under half of students could answer a question about the part of a neuron that is affected in multiple sclerosis.

    • Spend a little less time (maybe) covering the basics of some common human diseases such as diabetes and Down syndrome. Rationale: 100% of students answered questions on these topics correctly. I suspect that is because they either already knew the material, or they knew enough that they could master the basics very easily. Thus, an instructor could either use the time to cover these topics at greater depth or to cover topics students did not do well on such as IVF or nervous system pathologies.

3. What is the timeline for implementing these actions? Changes can begin in Winter 2012.

IV. Future plans

1. Describe the extent to which the assessment tools used were effective in measuring student achievement of learning outcomes for this course.

It's hard to say. Performance was generally quite high, and that could be because the questions were too easy. However, it could be because the students are learning just what we expect them to. I have not taught this class myself so I don't have any intuition as to whether the tool is measuring what we hope it measures.

Approved by the Assessment Committee July 2011   **3**

COURSE ASSESSMENT REPORT

2. If the assessment tools were not effective, describe the changes that will be made for future assessments.

3. Which outcomes from the master syllabus have been addressed in this report?

   All _____   Selected __X___

   If "All", provide the report date for the next full review: _____.

   If "Selected", provide the report date for remaining outcomes: __Summer 2012_.

Submitted by:

Print: _Anne Heise_   **Signature** _____ **Date:** _11/23/11_
     Faculty/Preparer

Print: _Marvin Boluyt_   **Signature** _____ **Date:** _11/23/11_
     Department Chair

Print: _Marty Showalter_   **Signature** _____ **Date:** _11/30/11_
     Dean/Administrator

COURSE ASSESSMENT REPORT

I. Background Information

1. Course assessed:

    Course Discipline Code and Number: Bio. 102

    Course Title: Human Human Biology

    Division/Department Codes: MNBS/LIF

2. Semester assessment was conducted (check one):

    X☐ Fall 2006__

    ☐ Winter 20__

    ☐ Spring/Summer 20__

3. Assessment tool(s) used: check all that apply.

    ☐ Portfolio

    ☐ Standardized test

    ☐ Other external certification/licensure exam (specify):

    ☐ Survey

    ☐ Prompt

    ☐ Departmental exam

    ☐ Capstone experience (specify):

    X☐ Other (specify): Unit exams and Lab performance

4. Have these tools been used before?

    x☐ Yes

    ☐ No

    If yes, have the tools been altered since its last administration? If so, briefly describe changes made.

    Unit exams modified every semester

5. Indicate the number of students assessed/total number of students enrolled in the course.

    48 originally enrolled; as semester progressed, fewer students took unit exams since some has dropped the course. Since the questions on a given outcome often came from different exams, an average of the number of students answering the 5 questions for each outcome was taken.

6. Describe how students were selected for the assessment.

    All taking the exam were assessed.

II. Results

1. Briefly describe the changes that were implemented in the course as a result of the previous assessment.

    Changes each semester based on exams and student feedback

2. State each outcome (verbatim) from the master syllabus for the course that was assessed.

    All were assessed. *(See attached)*

3. Briefly describe assessment results based on data collected during the course assessment, demonstrating the extent to which students are achieving each of the learning outcomes listed above. *Please attach a summary of the data collected.*

    Please see attached data summary. The results show that all outcomes were met at the 70% or above level.

4. For each outcome assessed, indicate the standard of success used, and the percentage of students who achieved that level of success. *Please attach the rubric/scoring guide used for the assessment.*

    Please see the attached data summary.

5. Describe the areas of strength and weakness in students' achievement of the learning outcomes shown in assessment results.

COURSE ASSESSMENT REPORT

Strengths: Students scored higher on questions requiring identification of terms or straight memorization.

Weaknesses: Students had more difficulty with conceptual questions, and those requiring the application of memorized material.

III. Changes influenced by assessment results

1. If weaknesses were found (see above) or students did not meet expectations, describe the action that will be taken to address these weaknesses.
   Case studies and more examples of the application of the material will be presented in lecture, to familiarize and stress the importance of critical thinking.

2. Identify intended changes that will be instituted based on results of this assessment activity (check all that apply). Please describe changes and give rationale for change.
   a. ☐ Outcomes/Assessments on the Master Syllabus
      Change/rationale:

   b. x☐ Objectives/Evaluation on the Master Syllabus
      Change/rationale: Restate some objectives to stress critical thinking and to require students to explain and apply course concepts more in line with assessment questions.

   c. ☐ Course pre-requisites on the Master Syllabus
      Change/rationale:

   d. ☐ 1st Day Handouts
      Change/rationale:

   e. x☐ Course assignments
      Change/rationale: Give more study questions dealing with case studies and applications of the facts they have learned.

   f. ☐ Course materials (check all that apply)
      ☐ Textbook
      x☐ Handouts Modify objectives as stated above.
      ☐ Other:

   g. ☐ Instructional methods
      Change/rationale: Do more step-by-step analyses of real-life situations with students.

   h. ☐ Individual lessons & activities
      Change/rationale:

3. What is the timeline for implementing these actions? Winter, 2007 semester

IV. Future plans

1. Describe the extent to which the assessment tools used were effective in measuring student achievement of learning outcomes for this course.
   The assessment results suggested putting more emphasis on critical thinking, an important component of all the outcomes for this course.

2. If the assessment tools were not effective, describe the changes that will be made for future assessments.

3. Which outcomes from the master syllabus have been addressed in this report?
   All __x___   Selected _____
   If "All", provide the report date for the next full review: __Assess Fall term, 2009

   If "Selected", provide the report date for remaining outcomes: _____.

COURSE ASSESSMENT REPORT

Submitted by:

Name: _Esta Grossman /Esta Grossman_ Date: _1/8/06_
Print/Signature

Department Chair: _Esta Grossman /Esta Grossman_ Date: _1/8/06_
Print/Signature

Dean: _Martha Showal_ Date: _1/10/06_
Print/Signature