| Organizational Area | Summary Results |
|---|---|

Indiana University System AMS » Indiana University: Kokomo »
Academic Affairs » School of Sciences

**Biology**

**Overall Statistics**

- **33%** (4/12) outcomes were included
- **25%** (1/4) of outcomes included have at least one measure specified
- **25%** (1/4) of outcomes included have measures with findings specified

| 3 Total Measures | | 3 Total Measures with Findings |
|---|---|---|

**Measure Type/Method**

| | |
|---|---|
| Student Artifact | 1 (33%) |
| Exam | 2 (67%) |
| Portfolio | 0 (0%) |
| Other | 0 (0%) |
| **Total Direct** | **3 (100%)** |

| | |
|---|---|
| Survey | 0 (0%) |
| Focus Group | 0 (0%) |
| Interview | 0 (0%) |
| Other | 0 (0%) |
| **Total Indirect** | **0 (0%)** |

| | |
|---|---|
| **Unspecified** | **0 (0%)** |

**Measure Level**

| | |
|---|---|
| Course | 3 (100%) |
| Program | 0 (0%) |
| Institution | 0 (0%) |
| Other | 0 (0%) |
| Unspecified | 0 (0%) |

**Acceptable Target Achievement**

| | |
|---|---|
| Not Met | 1 (33%) |
| Met | 2 (67%) |
| Exceeded | 0 (0%) |
| Unspecified | 0 (0%) |

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| Report : | Assessment Cycle Details for : Biology |
| --- | --- |
| | **Report Generated by Taskstream** |
| Workspace : | Academic Program Assessment and Planning Workspace |
| Assessment Plan: | 2019-2020 Assessment Cycle: Assessment Plan and Assessment Findings |
| Assessment Plan Template : | IU Kokomo Academic Assessment Template |
| Report Generated : | Tuesday, September 01, 2020 |

## Measures and Findings

## *Biology Program Goals and Outcomes*

✥ **Outcome**

**Goal 1 (Content) 2. Students will describe chemical and molecular processes fundamental to living organisms.**

*Components: experimentation, measurement, data collection, interpretation, evaluation.*

**Mapped to:**

*No Mapping*

*No measures specified*

**Goal 1 (Content) 3. Students will describe the biological world and its relationship to basic human needs and activities.**

*Components: measurement, data collection, observation, evaluation, calculation.*

**Mapped to:**

*No Mapping*

## *Measure*
*Exam question in BIOL-L 321 Human Immunology*

**COURSE LEVEL; DIRECT - EXAM**

**Details/Description:**

The following question was added to the final. It is an excellent tool to assess this learning outcome since it involves calculations leading to a conclusion about herd immunity (which is a very basic and important concept in relation to vaccine efficacy and vaccination campaigns).

The following information is known about influenza and influenza vaccination in the U.S. The influenza vaccine efficacy, which is difficult to measure, has recently been shown to be approximately 56%. The influenza vaccination coverage is 46% for the entire U.S. population based on 2011 data. The basic reproductive number for influenza varies from one study to the next. In general, most studies report it as being between 2 and 3 (R0 = 2 to 3). Based on this information, what can you conclude about herd immunity against influenza in the United States? Do we have hard immunity? Show your calculations. (10 points)

**Acceptable Target:**

70 % is the baseline

**Implementation Plan (timeline):**

This course was offered in Fall 2018.

**Key/Responsible Personnel:**

**Supporting Attachments:**

## *Findings*
*for Exam question in BIOL-L 321 Human Immunology*

**Summary of Findings:**

Unfortunately, only 5 out of 9 students answered the question in a satisfactory way. The main common mistake was related to not being able to use the correct mathematical formula to solve the problem (a couple different equations had to be applied).

**Acceptable Target Achievement:**

Not Met

**Reflections/Notes:**

Although these types of problems are practiced in class, the results show the need to place even greater emphasis on practicing them and making sure that students thoroughly understand how to solve them.

Only nine students took the final, so this is a small sample size, which might be a also factor in this case.

**Substantiating Evidence:**

## *Measure*
*Exam question in MICR-M 310*

**COURSE LEVEL; DIRECT - EXAM**

**Details/Description:**

In the final exam in MICR-M 310 Principles of Microbiology, one of the questions asked students the following:
In wastewater (sewage) treatment, there is a "biological" step in the process. What does this mean and what is achieved by this step? What types of microorganisms are involved?

The biological step in sewage treatment relies on very heterogeneous microbial population to transform organic material as they grow. To fully understand this step in sewage treatment , students must apply concepts in microbial metabolism and microbial growth (studied earlier in the semester) as concepts in public health. Because many diverse microorganisms are involved in the process (including both prokaryotes and eukaryotes), it is truly a fairly comprehensive topic in microbiology. Being able to answer this question in a complete way would signal a great understanding of the material.

**Acceptable Target:**

70% is the baseline

**Implementation Plan (timeline):**

The course was taught in Spring 2020.

**Key/Responsible Personnel:**

**Supporting Attachments:**

## *Findings*
*for Exam question in MICR-M 310*

**Summary of Findings:**

14 out of 19 students (73.6%) answered the question in a satisfactory way . More specifically, 5/5 biology majors answered the question in a satisfactory way (the remaining students were BIPH or biochemistry majors).

**Acceptable Target Achievement:**

Met

**Reflections/Notes:**

We will continue to work with students to increase their ability to synthesize different topics and answer comprehensive questions. Overall, the results are good.

**Substantiating Evidence:**

## *Measure*
*Poster presentation in microbiology*

**COURSE LEVEL; DIRECT - STUDENT ARTIFACT**

**Details/Description:**

Pairs of students had to work on a poster presentation related to an infectious disease. affecting humans. The posters had to cover several points (e.g., mechanisms of pathogenesis, cellular characterization of the infection process, etc.). Some of these points were relevant to this assessment exercise. Specifically, the posters had to address the clinical issues facing humans (with each given infection) as well as the epidemiology of the disease in human populations. Epidemiological data as well as detailed clinical symptoms were expected.

**Acceptable Target:**

The baseline was at 70%.

**Implementation Plan (timeline):**

This course was offered in Spring 2019.

**Key/Responsible Personnel:**

**Supporting Attachments:**

## *Findings*
*for Poster presentation in microbiology*

**Summary of Findings:**
The poster presentations went very well. The various points were mostly covered very thoroughly. Out of the ten posters, seven had complete and thorough discussions on their disease epidemiology and clinical aspects (as it relates to humans). Those students were also able to answer questions in a satisfactory way.

Two posters were a bit weak on the epidemiology aspect (one did not present any data at all on epidemiology). The third one was very vague on the clinical symptoms. Accordingly, we are scoring 7 out of 10 (70%) as meeting the expectations.

**Acceptable Target Achievement:**
Met

**Reflections/Notes:**
The students were provided with guidelines in the syllabus and via Canvas. These guidelines were then discussed in more details in class on two occasions. In the future, we will provide a sample poster to ensure that students are very clear on what is expected from the poster presentation.

**Substantiating Evidence:**

### Goal 1 (Content) 4. Students will describe the interaction of plants, animals, microorganisms and their environment.

*Components: measurement, data collection, observation, evaluation, calculation.*

**Mapped to:**

*No Mapping*

*No measures specified*

### Goal 1 (Content) 5. Students will describe the cellular and molecular basis of genetics.

*Components: measurement, data collection, observation, evaluation, calculation.*

**Mapped to:**

*No measures specified*

*No Mapping*