**UA Rich Mountain**
**Assessing Student Learning**
**Course Outcomes Report**
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**Fall 2020**

## 1. Purpose

The Course Outcomes Report supplies information each semester regarding student learning on the course level. This report must be submitted to your division chair by the last day of the semester. Data from this report will be integrated into the annual Program Outcomes Report on Student Learning.

## 2. Background

Course Name: Biological Science Course # BIOL154

## 3. Course Outcome(s) being assessed this semester

**Think of the evidence of student learning activity or project. Choose ONE outcome for this course.**

Distinguish between mitosis and meiosis including their role in the life cycle.

Strategic Goals: Select the Goal(s) associated with the Course Outcomes(s) being assessed this semester.
https://services.uarichmountain.edu/intranet/staff/annualpubs/

☐Goal One: Mission Driven
☐Goal Two: Operate with Integrity
☐Goal Three: Provide High Quality Education
☒Goal Four: Continuous Quality Improvement
☒Goal Five: Effective & Efficient Operations

Related Program Outcome:

Students will apply technological and research skills to identify, locate, and process information.

Related GELO category: Choose one
☐ Thinking critically
☐ Communicating effectively
☐ Using technology
☒ Conducting relevant research

**4. Evidence of Student Learning**
Describe the classroom activity/tools related to **course** objective (What did they do for the class which was tied to this objective? Was it a project? Discussion? Quiz?)

Describe Activity: In current project, students prepares the tip of a root of an onion to observe the different stages of mitosis during plant cell division by following standard protocol. In addition, students should observe prepared slides of Whitefish blastula and green onion root tips for better understanding the difference between animal and plance cell division. Moreover, students should collect original research articles including review articles and web search to explain the importance of mitosis during growth and development and its significance in "apoptosis",a process where old cells are replaced by newly formed cells during mitosis, and "cancer" a challenging chronic disease. However, current report does not explain much about the data obtained from lab work, but it supports to the students to prepare a report in the format of mini riview article to understanf the significance of mitosis that explain how cancer cells develop due to faliur of mitosis cell division. Also, students significantly improve their way of criticall thinking on the critical role of apoptosis and its significance in the control of cancer development when mitosis fails. This would help students to expend horizon of their knowledge in the area of regulatory mechanism of apoptosis and uncontrol growth of cancer that how a single mistake during mitosis can be lethal. Students also develop their skill to write mini-review professionally.

**5. Reflection**
**A.** What was the result of this activity? (How do you know that students satisfied the course objective being measured?)

Students were able to conduct experiment and collect required materials to write their scientific research report systematically. Interestingly, almost over 85% students could make significant improvement on the following procedure, collecting, analyzing and implementing data to write their technical lab report in the format of mini-review article.
No surprise that initially, students usually struggle to follow protocol and finding related references, but with the passes of time they significantly improved on it. I strongly believe that students will be highly competitive with their peer in the area of research and active learning. I make it sure that students clearly understood what they need to do and which references need to be cited. I believe that all students who challenged this project, performed very nice. Some students who did attempt this activity, could not do well in final exam either. I believe that all of the students who performed this project obtained 90% on their project work.Significant progress they made on the final exam due to writing this final report on the role of mitosis in the control of cancer and regulatory mechanism of apoptosis.

**6. Enter course data**
Number of students in your course(s) who met course objectives: 21

Enter the number of students total in your course section(s): 23

Enter the percent (%) of students achieving this course objective. (Data will be used on Program Outcomes Report under Evidence of Student Learning.) 90

**7. Response to data:** Will you change how you teach as a result of this assessment?

<u>Choose only one</u> of the narration options below. If curricular changes are needed, briefly explain any changes planned for course improvement. If no changes are needed, indicate the rationale in the space provided below.

☐Changes(s) needed. *Type here*

☒No change(s) needed

***Attach <u>anonymous</u> student samples of each activity along with the grading rubric / scale.**
**** Attach any meeting minutes associated with this assessment**