Program Assessment Report 2017-2018

Program Name: Biochemistry, Cell & Molecular Biology
Focus this Academic Year was Program Learning Outcomes 2 and 4.
Newly developed and completed (with assessment data) rubrics had to be attached to this submission separately as the paste function did not accomidate their formating.
Thank you,
Kathleen Dwyer

Program Learning Outcome: 1).Demonstrate mastery of the key principles of Biochemistry and Molecular Biology; developing familiarity with the molecular components of cells, their interactions in metabolism, the flow of genetic information resulting in their s

1. Identify the artifact(s) (i.e. student work or outputs) that you used to assess the PLO. [Projects, papers, presentations, portfolios, exam questions, specific assignments, capstone work]

   Artifacts: Choose an item.

   Other artifact(s)

   Click or tap here to enter text.

2. Identify the instruments (e.g. rubrics, surveys, spreadsheets, statistical software) used to assess the artifact(s) (i.e. the way in which student output are analyzed).

   Instruments: Choose an item.

   Other instruments Used

   Click or tap here to enter text.

3. Describe program collaboration to plan, implement and use the results of assessment.

   Click or tap here to enter text.

   Explain the results of the assessment activities.

   Click or tap here to enter text.

4. Where applicable, outline the steps you will take to make improvements to the program based on the results of assessment activities identified in #3.

   Click or tap here to enter text.

Program Assessment Report 2017-2018

Program Name: Biochemistry, Cell & Molecular Biology

Program Learning Outcome: 2).Acquire laboratory skills, including safety skills, in both basic and advanced experimental techniques. This will include use of the scientific method in the design of experiments and development of critical thinking skills in the

1. Identify the artifact(s) (i.e. student work or outputs) that you used to assess the PLO. [Projects, papers, presentations, portfolios, exam questions, specific assignments, capstone work]

   Artifacts: lab reports (considered first draft) and final writing-intensive paper

   Other artifact(s)

Assessment of Program Learning Outcome: 2).Acquire laboratory skills, including safety skills, in both basic and advanced experimental techniques. This will include use of the scientific method in the design of experiments and development of critical thinking skills. Analysis from the Molecular Biology II Lab which BCMB Majors take in their Senior Year.

In the development of CRISPR constructs targeting *Arabidopsis thalians SCRL* gene knockouts, students select the sgRNA target sequence that they will use for the rest of the semester. In the resulting lab reports, the students are good at presenting the process and the guidelines we developed, but they struggle with specifically applying the information in discussing the particulars in their final selection of the sgRNA target sequences. This certainly requires correction in the first draft which they do for the final paper. Little by little they learn to be very specific in the analysis and presentation of their results.

With regards to assessment of both the student's and instructor's performance, the instructor now i) requires submission of a finished questionnaire on two primary literature articles on CRISPR technology in plants, ii) has improved the resulting presentation, especially towards student learning how to write a concise, but thorough specifically applied data analysis, instead of a generalized presentation of the results and iii) next year will introduce a new related rubric (see attached) for a more detailed assessment of trends in the first and final draft.

Fall 2015 Lab Report 2 (20 points) – average 16 points (80%) and range 15-18.5 points

with 0/16 including proper rationale for choice of sgRNA for assigned gene

Fall 2015 Final Paper – 16/16 included very specific rationale for choice of sgRNA target sequences

Fall 2016 Lab Report 2 (20 points) – average 16 points (80%) and range 15.5-19 points

with 2/18 including proper rationale for choice of sgRNA for assigned gene

Fall 2016 Final Paper – 18/18 included specific rationale for choice of sgRNA target sequences

Fall 2017 Lab Report 4 (20 points) –

New CRISPR System – must select two Target DNAs and I requested a more applied analyses average 15.5 points (77%) and range 12-18 points

with 3/18 including proper rationale for choices of target DNAs for assigned gene

Fall 2017 Final Paper – 19/20 included specific rationale for choice of sgRNA target sequences.

2. Identify the instruments (e.g. rubrics, surveys, spreadsheets, statistical software) used to assess the artifact(s) (i.e. the way in which student output are analyzed).

   Instruments: developed MBIIL Rubric Selection Target DNA(s) to be used next Fall 2018 -see attached

   Other instruments Used

3. Describe program collaboration to plan, implement and use the results of assessment.

   In answers to questions 1 and 2

   Explain the results of the assessment activities.

   Click or tap here to enter text.

4. Where applicable, outline the steps you will take to make improvements to the program based on the results of assessment activities identified in #3.

   Also In answers to questions 1 and 2

Program Assessment Report 2017-2018

Program Name: Biochemistry, Cell & Molecular Biology

Program Learning Outcome: 3).Identify and analyze critically major topics at the forefront of Biochemistry and Molecular Biology.

1. Identify the artifact(s) (i.e. student work or outputs) that you used to assess the PLO. [Projects, papers, presentations, portfolios, exam questions, specific assignments, capstone work]

   Artifacts: Choose an item.

   Other artifact(s)

   Click or tap here to enter text.

2. Identify the instruments (e.g. rubrics, surveys, spreadsheets, statistical software) used to assess the artifact(s) (i.e. the way in which student output are analyzed).

   Instruments: Choose an item.

   Other instruments Used

   Click or tap here to enter text.

3. Describe program collaboration to plan, implement and use the results of assessment.

   Click or tap here to enter text.

   Explain the results of the assessment activities.

   Click or tap here to enter text.

4. Where applicable, outline the steps you will take to make improvements to the program based on the results of assessment activities identified in #3.

   Click or tap here to enter text.

Program Assessment Report 2017-2018

Program Name: Biochemistry, Cell & Molecular Biology

Program Learning Outcome: 4).Demonstrate discipline-specific oral and written communication.

1. Identify the artifact(s) (i.e. student work or outputs) that you used to assess the PLO. [Projects, papers, presentations, portfolios, exam questions, specific assignments, capstone work]

   Artifacts: Powerpoint Presentations as well as writing intensive Molecular Biology II Lab Papers

   Other artifact(s)

   Click or tap here to enter text.

2. Identify the instruments (e.g. rubrics, surveys, spreadsheets, statistical software) used to assess the artifact(s) (i.e. the way in which student output are analyzed).

   Instruments: Dwyer BCMB Seminar Assessment Rubric 2018;
   WasilewskiCapstoneAssessmentPresentationRubric2018;
   MB2 Lab Report 2018 Rubric Adapted For Biology Department Assessment Also

   Other instruments Used

   See attached

3. Describe program collaboration to plan, implement and use the results of assessment.

   Currently 4 instructors teach BCMB Seminar and the BCMB Capstone Course. Results from two instructors analyzed/submitted. Next time data from all instructors will be included.

   Explain the results of the assessment activities.

   Meeting benchmarks

4. Where applicable, outline the steps you will take to make improvements to the program based on the results of assessment activities identified in #3.

   Develop Common Rubric for all BCMB Seminar Sections (BCMB Capstone Course Assessment will remain individualized since a differently structure course

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Program Name: Biochemistry, Cell & Molecular Biology

Program Learning Outcome: 5).Develop required collaboration, interpersonal, and team-building skills required for their post-graduate endeavors.

1. Identify the artifact(s) (i.e. student work or outputs) that you used to assess the PLO. [Projects, papers, presentations, portfolios, exam questions, specific assignments, capstone work]

   Artifacts: Choose an item.

   Other artifact(s)

   Click or tap here to enter text.

2. Identify the instruments (e.g. rubrics, surveys, spreadsheets, statistical software) used to assess the artifact(s) (i.e. the way in which student output are analyzed).

   Instruments: Choose an item.

   Other instruments Used

   Click or tap here to enter text.

3. Describe program collaboration to plan, implement and use the results of assessment.

   Click or tap here to enter text.

   Explain the results of the assessment activities.

   Click or tap here to enter text.

4. Where applicable, outline the steps you will take to make improvements to the program based on the results of assessment activities identified in #3.

   Click or tap here to enter text.

Program Assessment Report 2017-2018

Program Name: Biochemistry, Cell & Molecular Biology

Program Learning Outcome: 6).Apply their degrees to their careers.

1. Identify the artifact(s) (i.e. student work or outputs) that you used to assess the PLO. [Projects, papers, presentations, portfolios, exam questions, specific assignments, capstone work]

   Artifacts: Choose an item.

   Other artifact(s)

   Click or tap here to enter text.

2. Identify the instruments (e.g. rubrics, surveys, spreadsheets, statistical software) used to assess the artifact(s) (i.e. the way in which student output are analyzed).

   Instruments: Choose an item.

   Other instruments Used

   Click or tap here to enter text.

3. Describe program collaboration to plan, implement and use the results of assessment.

   Click or tap here to enter text.

   Explain the results of the assessment activities.

   Click or tap here to enter text.

4. Where applicable, outline the steps you will take to make improvements to the program based on the results of assessment activities identified in #3.

   Click or tap here to enter text.