

Departmental Assessment Meeting: Report

Please fill out this report based on your department's conversation and return via e-mail to Megan Leonard or Sasha Pfau by March 31, 2017.

Summary of past decisions

Please summarize up to three departmental changes made since the last HLC visit (08-09) the impetus for those changes and any changes to information gathering about student development.

- **ASBMB Accreditation and Student Chapter.** In 2014, through efforts of former BCMB Chair Dr. Rick Murray the Biochemistry and Molecular Biology (BCMB) Program received accreditation from the American Society for Biochemistry and Molecular Biology (ASBMB). The impetus for obtaining such accreditation was twofold: first, ASBMB accreditation increases the visibility of the program and makes the program more attractive to incoming students, and second, students belonging to ASBMB accredited programs have the opportunity to have their BCMB degree certified by ASBMB through satisfactory performance in the ASBMB Certification Exam. The BCMB Program has also provided an opportunity for students to become part of an ASBMB Student Chapter, which, among other things, allows students to apply to be part of the ASBMB Honor Society ($\chi\Omega\Lambda$). Records of student success both in the getting their degrees certified by ASBMB and in getting inducted in the ASBMB Honor Society will contribute to the assessment of student development.
- **Changed Advanced Cell Biology from an elective course to a required course.** The BCMB faculty felt that Advanced Cell Biology course covers topics that all BCMB majors should master, and as such it was decided that it should be among the required courses for the major. In addition, since this course is critical for students planning to take the MCAT or the Biochemistry GRE, we changed its course number from a 450 to 355 to make it clear that it should be taken during the junior year to better coincide with the timing of when students typically take these standardized exams.
- **Introduced a discussion on how to prepare and present PowerPoint seminars as part of the BCMB Senior Seminar.** One of the recommendations from the external BCMB Program Review conducted by Dr. Rachell Booth last year was to include training for PowerPoint presentations as part of the BCMB Senior Seminar. The BCMB faculty agreed with this sentiment, and this year we have dedicated one BCMB Senior Seminar session for this purpose.

Looking forward

Please summarize your department's focus for student development and your evaluation methods.

- **Generation of standardized rubrics for student's Research Reports.** One of the components of the BCMB Capstone Experience is the submission of a Research Report based on the research students carry out as part of the requirement for their major. This report is to be written in the

style of a scientific paper and is graded by the designated Hendrix faculty mentor. Currently, there is no standard rubric that is used by faculty members to grade these reports, and the BCMB faculty will be working to generate one in the near future. We feel that such a rubric will be provided a more consistent and fair instrument to measure student achievement in this portion of the capstone experience.

- **Discussions on assessment tools for student achievement.** In past years, BCMB students were required to take the Biochemistry (BCM) GRE as part of their Capstone Experience. In addition to providing a feedback on individual student achievement, the scores on the BCM GRE were also used to compare achievement of Hendrix students across the nation. Given the expense associated with the BCM GRE, it was recently decided to replace this exam with an in-house generated comprehensive exam. While this new exam will be useful in assessing individual student achievement, it will not allow the program to assess performance of BCMB students with respect to the rest of the nation. The BCMB faculty is discussing possible ways by which this issue can be addressed.
- **Implementing mechanisms to track student success.** The BCMB faculty is discussing ways by which we can better track career paths and successes of BCMB alumni as a way to evaluate the effectiveness of the BCMB program. Potential strategies that are being discussed to meet this goal include the use of social network tools such as LinkedIn and Facebook.

Achieving departmental goals for students

Please explain how your departmental curriculum achieves your student learning goals, being sure to include the Capstone. Feel free to attach a curricular map or other supporting documents. Summarize the ways your department provides guidance in the effective use of research and information resources.

The learning goals for BCMB students are*:

- A) Acquire a sound understanding of the foundational and core concepts in the discipline.
- B) Access and assess appropriate scientific literature and databases.
- C) Develop hypotheses and propose appropriate experiments to test them.
- D) Design and/or conduct experiments and record/archive the data appropriately.
- E) Analyze and interpret experimental results using appropriate quantitative tools.
- F) Summarize and convey information orally, visually and in writing
- G) Work safely in the laboratory.
- H) Work effectively as an individual and as a team member.
- I) Recognize and understand the ethical issues involved in both the conduct of research and in the dimensions of research.

**this list has been modified from the document prepared by Dr. Andres Caro, former BCMB Chair, for the external Program Review that took place during the 2015-2016 academic year.*

Each of these learning goals are achieved through the following curricular components:

A) Access and assess appropriate scientific literature and databases.

- This goal is achieved mostly through:
 - Participation in the research experience that all BCMB majors are required to be involved in.
 - Participation in certain courses in the major that require search and/or critical reading of scientific literature (*e.g.*: BIOL 355 Advanced Cell Biology, BIOL 430 Immunology)
 - Participation in the Capstone Experience. Students often need to access scientific literature and/or databases as they prepare their final Research Reports and their Senior Seminar presentations.

B) Develop hypotheses and propose appropriate experiments to test them.

- This goal is achieved mostly through:
 - Participation in the research experience that all BCMB majors are required to be involved in.
 - Participation in certain courses in the major whose lab component involve generation of hypotheses and articulation of experiments designed to address specific hypothesis (*e.g.*: BIOL 250 Genetics, BIOL 355 Advanced Cell Biology).

C) Design and/or conduct experiments and record/archive the data appropriately.

- This goal is achieved mostly through:
 - Participation in the research experience that all BCMB majors are required to be involved in.
 - Participation in most courses in the major that include lab as an integral component of the course.

D) Analyze and interpret experimental results using appropriate quantitative tools.

- This goal is achieved mostly through:
 - Participation in the research experience that all BCMB majors are required to be involved in.
 - Participation in most courses in the major that include lab as an integral component of the course.

E) Summarize and convey information orally, visually and in writing

- This goal is achieved mostly through:
 - Presentations of research findings at scientific meetings – these can include poster or oral presentations.

- Completion of the Capstone Experience, which includes an oral presentation and a written Research Report on the research students have conducted as part of the major requirement.
- Participation in most courses in the major that include oral presentations an/or scientific reports as integral components of the courses.

F) Work safely in the laboratory.

- This goal is achieved mostly through:
 - Participation in the research experience that all BCMB majors are required to be involved in.
 - Participation in most courses in the major that include lab as an integral component of the course.

G) Work effectively as an individual and as a team member.

- This goal is achieved mostly through:
 - Participation in the research experience that all BCMB majors are required to be involved in.
 - Participation in most courses in the major that include lab as an integral component of the course.

H) Recognize and understand the ethical issues involved in both the conduct of research and in the dimensions of research.

- This goal is achieved mostly through:
 - Informal discussion between students and faculty in the context of courses and/or laboratory experiences.

Summary the ways the BCMB Program provides guidance in the effective use of research and information resources.

- BCMB students are required to carry out laboratory research as part of the major, and as such they are mentored in a variety of skills that relate to the use of research and information resources. For example, through these and other classroom experiences, students learn how to use databases for analyzing data produced by other research groups and for searches of scientific literature.

Your department's role in achieving the college's shared goals for students

Please explain how your departmental learning goals contribute to the Vision for Student Learning Goals. Feel free to attach a map or other supporting documents.

Please refer to the "Template for department to VSLG mapping (for BCMB Program)" document.