

University of Delaware
Permanent Status Program Review
BS Major in Quantitative Biology
March 2013

The Quantitative Biology major was granted provisional status in 2007. It has enrolled between two and six freshmen each fall, and has graduated ten students. The program was developed with funds from a Howard Hughes Medical Institute grant, and has since received subsequent HHMI grants.

Objectives, Strengths, and Weaknesses

The major appears to meet the original goals for which it was created. This involves preparing life science majors with a much stronger foundation in the physical sciences and mathematics to prepare them for careers in research. The major supports the first Milestone of the Path to Prominence, and is congruent with the Academic Priorities of the University.

Strengths of the major appear to be its progressive mix of course and subject requirements, designed to meet the needs of future biomedical researchers. It is one of the few undergraduate quantitative biology majors in the US. In addition, the major is clearly very rigorous. The only possible weakness noted is the low number of students enrolled, including a slight downward trend from 2008. The original proposal anticipated 10 to 15 freshmen enrolling each year, and the number has been less than one half of that.

Impact and Demand

The quantitative biology major should not have any significant impact on any research, service, or instructional programs, other than those in mathematics and biology. The admission requirements are the same as those for a BS in Mathematics, but no evidence is presented of fair implementation. Enrollments in the Quantitative Biology major have been relatively low, with a current total enrollment of 18 students. This is not surprising, however, given the nature of the major and its rigor. Students are advised by faculty in Mathematics and Biology, and the cost for the students is the same as that of Biology majors. Letters of support are provided from Chemistry and Biology. There is no letter of support from Physics or Computer and Information Sciences, but these are probably not necessary with this small number of students required to take only two physics courses and one CISC course. A letter of support from the Dean would strengthen the report. In addition, it would be important to know what is envisioned for this program in the future in terms of numbers of students. If there are plans for increasing enrollment, it would strengthen the report to outline them in more detail. It appears that resources to support and maintain the major are adequate.

Evaluation

The Quantitative Biology major supports General Education goals One and Two in the areas of quantitative reasoning and critical problem solving. The major clearly delineates the knowledge and learning outcomes expected of their graduates. The BS in Quantitative Biology is assessed regularly as part of the Department of Mathematical Sciences.

Seven of the ten major graduates are currently enrolled in PhD programs in associated areas. One is in medical school, and two others are employed in fields related to the major.

Conclusion

While small, the Quantitative Biology major educates students for work in a rapidly growing field of science. The evidence provided in the proposal supports granting of permanent status to the major.

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