Report of BS Subcommittee to CLAS C&C

27-Sep-2016

Members:

Heidi Dierssen, MARN, chair

Jeffrey Connors, MATH

Nicholas Leadbeater, CHEM

Eldridge Adams, BIOL

Robert Henning, PSYC

Vernier Cormier, PHYS

Background

Chair Jon Gajewski formed the Bachelor of Science Subcommittee in late fall 2015 to review a proposal submitted by the Department of Economics for a bachelor of science major. Members for this subcommittee were recruited from each of the four departments (PHYS, MATH, CHEM, BIOL) that offer the science and math courses required for the “Plan A” bachelor of science degree in CLAS. In addition, additional members were recruited from a social science department that currently offers a B.S. (PSYC) as well as a cross-disciplinary science area (MARN). Heidi Dierssen (MARN) agreed to serve as chair.

Subcommittee Deliberations

The subcommittee quickly determined that the “Plan B” option for B.S. degrees that CLAS currently follows did not offer sufficient flexibility to fully consider the proposal submitted by the Department of Economics because of the overly restrictive nature of the breadth requirement:

Current Plan B

*The Plan A science and mathematics requirements form a template to be used, by the proposing department, in the development of new or revised departmental BS degree requirements. Proposals will be evaluated to ensure that their intent is to attain the* ***same level of rigor, breadth and depth as Plan A****. Once approved, a department’s BS requirements will be listed under that department.*

The committee proposes revising the wording of the Plan B B.S. requirements in order to:

1. provide a more explicit definition of the level of rigor, depth, and breadth that would constitute a B.S. program
2. ensure that the rules can be consistently applied to diverse proposals from both natural and social science departments
3. allow for consideration of different scientific disciplines that may not be well served by requiring only natural science courses
4. allow for consideration of accepted definitions of what constitutes a B.S. degree within specific disciplines at peer and aspirant peer institutions.

The committee unanimously puts forward the following revised “Plan B” language:

“*Science is the pursuit and application of knowledge and understanding of the natural and social world following a systematic methodology based on evidence” (The Science Council). Each B.S. proposal will be reviewed by a CLAS Courses and Curriculum B.S. Subcommittee consisting of Departments that currently offer a B.S. degree. Proposals will be evaluated to ensure that their intent is to attain the same level of rigor and depth as Plan A, and a level of breadth that provides the foundation of a scientific discipline that is appropriate for the field of study. For achieving appropriate breadth, consideration will be given to the level of exposure to theory, experimental/observational methods and quantitative analysis, as well as providing sufficient diversity in science courses from other disciplines. Such requirements may be achieved wholly or in part through specification of the General Education requirements and/or Related Area courses. Additional consideration will be given to the precedent set by peer institutions and their requirements for B.S. offerings in the discipline. Once approved, the B.S. requirements for a program will be listed under the department.*

Related Topics and Issues Considered by the Subcommittee

1. Although the B.S. degree is referred to as “Plan A” or “Plan B,” this distinction is only for curricular planning purposes. All B.S. degrees from UCONN are considered equivalent.
2. There is no “Plan B” B.S. program currently in place at UCONN. The B.S. in Applied Math and the B.S. in Psychology both require all of the required math and science courses of “Plan A” including: 2 semesters of Calculus, and 5 semesters of laboratory natural science courses (2 Chemistry, 2 Physics, and 1 Biology).
3. “Plan B” states that the same level of breadth must be attained as “Plan A,” and this makes it extremely difficult to approve any program plan that does not include the math and the “breadth” of the current laboratory natural science courses.
4. The breadth of natural science requirements currently required for a B.S. could be modified to allow for a broader interpretation of the definition of “science” e.g., knowledge and understanding of the natural and social world following a systematic methodology based on evidence (The Science Council).
5. “Plan B” lacks specific guidance about what constitutes the same level of rigor, breadth and depth as “Plan A,” or what discipline-specific considerations should be given to precedents set at respected peer institutions. This is particularly relevant to the field of Economics, where variants of the B.S. degree already exist at peer and aspirant peer institutions.
6. It seems likely that “breadth” can be obtained by requiring other types of science courses relevant to a discipline, such courses as in Psychological Sciences, Marine Sciences, Animal Science, Geoscience, Geography, and Natural Resources and the Environment.
7. Should science courses for non-majors be considered for “Plan B”?
8. Is some course overlap needed for “Plan A” and Plan “B”? Currently, “Plan A” requires 5 courses from 3 disciplines. Would 2 disciplines be sufficient?
9. All UCONN students currently take 6-7 credits in Science and Technology, including one laboratory, as part of their General Education Content Area 3. Would this alone be sufficient to provide the “breadth” component of a B.S.?
10. If the two required Gen Ed Content 3 courses were specified to overlap with required B.S. natural science laboratory courses, would this be sufficient science content? What would be the burden on enrollments to the departments offering these courses?
11. What role does exposure to theory, experimental/observational methods and data analysis play in the science requirement? Can this be provided by courses prescribed within the proposed discipline?
12. What math and statistics courses should be required for a B.S.? Are the two calculus courses required for all disciplines?
13. Adding more math and statistics to a B.A. would add rigor to the major (e.g., an honors track), but would not be sufficient for adding scientific content for a B.S.