Curriculum Council Agenda  
February 14, 2005

Curriculum Council presents the following proposal for faculty approval:

**I. Department of Computer Science – Proposal for Revised Major/Minor**

Current major requirements:

1) CS 127, 128, 255, 256  
2) Two course from CS 355, 356, 357  
3) Four additional upper level courses in computer science  
4) Math 135 and 235

Proposed major requirements:

1) CS 126 or 127  
2) CS 128, 255, 256  
3) Two course from CS 355, 356, 357  
4) Four additional upper level courses in computer science  
5) Math 135 and 235

Current minor requirements:

1) CS 127, 128, 255, 256  
2) Two courses at the upper level in computer science  
3) Math 135

Proposed minor requirements:

1) CS 126 or 127,  
2) CS 128, 255, 256  
3) Two courses at the upper level in computer science  
4) Math 135

**Rationale:**

In accordance with recommendation from the Association for Computing Machinery (ACM), we plan to offer more than one entry into the computer science major and minor. As the ACM stated in their 2001 curricula recommendations: “Because introductory programs differ so dramatically in their goals, structure, resources, and intended audience, we need a range of strategies that have been validated by practice.” Among the range of introductory courses endorsed by the ACM, two match courses currently offered at Illinois Wesleyan: CS 120 – Intro to the Web for Non-Majors and CS 127 – Computer Science I. However, only the latter leads into the major. There is no doubt that CS 120 has been a very successful course. We want to afford students the accessibility of a web-based approach together with the opportunity to pursue a major or minor in computer science.

**Logistical Concerns:**

- No courses will currently be deleted due to this proposed change
• No additional staff will be required. We anticipate that the course will be taught chiefly by tenure-line science faculty.
• There should be no negative impact on current Computer Science offerings.
• No additional library, computer or media resources will be required.

Curriculum Council presents the following proposal without recommendation as provided for in the Faculty Handbook, Chapter III.B.4 – Procedures and Policies for Standing Committees, Curriculum Council Procedures, page III-10

II. Department of Biology – Proposal for Revised Major
Adding cell/molecular requirement, changing distributional requirements and increasing number of required courses from 9 to 10.

Current Catalog Copy – Introduction and requirements for the Biology Major

A basic assumption underlying the biology curriculum is that all undergraduate biology majors, regardless of future plans for specialization, can profit by taking a required core of courses in the field, thereby gaining a broad introduction to the principles of all important areas of modern biology.

Students planning a major sequence in the field of the biological sciences should include in the four-year program of studies as much experience as possible in (1) other sciences (particularly chemistry and physics), (2) mathematics and (3) foreign language.

Satisfactory completion of such a program provides the student with the necessary background for (1) graduate level study; (2) admission to schools of medicine, dentistry, forestry, osteopathy, pharmacy, optometry, veterinary medicine, medical technology or paramedical programs; (3) teaching biology at the elementary or secondary levels*; and (4) position in research, industrial laboratories and government field work.

Opportunities for independent study for third and fourth-year students are offered in the courses 495 and 499.

All students must earn a “C-“ or better in General Biology 102 in order to take courses requiring 102 as a prerequisite.

Major sequence:

A minimum of nine courses in biology to include:

1) biology 101 and 102
2) one course in botany selected from 306 or 315
3) one course in ecology or one course in evolutionary biology (selected from 217, 219, 230 or 316)
4) one course in genetics (312 or 412)
5) four additional courses selected from departmental offerings.

Other courses outside the department which biology majors are expected to take include:
1) four courses in chemistry
2) two lab courses in physics
3) mathematics through 151 or 161 (or proficiency)

*Biology majors and minors who desire secondary teaching certificates and/or middle school and subject area teaching endorsements must apply to the Teacher Education program as early as possible in their academic career. Refer to the Educational Studies curriculum description in this Catalog and the Teacher Education Information Handbook for further information.

Proposed Catalog Copy—Introduction and requirements for the Biology major

A basic assumption underlying the biology curriculum is that all undergraduate biology majors, regardless of future plans for specialization, can profit by taking a required core of courses emphasizing study at the molecular/cellular, organismal, and population/community levels of organization, thereby gaining a broad introduction to the principles of all important areas of modern biology.

Students planning a major sequence in the field of the biological sciences should include in the four-year program of studies as much experience as possible in other sciences (particularly chemistry and physics) and mathematics.

Satisfactory completion of such a program provides the student with the necessary background for: (1) graduate level study; (2) admissions to schools of medicine, dentistry, environmental management, forestry, osteopathy, pharmacy, optometry, veterinary medicine, physical therapy, or paramedical programs; (3) teaching biology at the elementary or secondary levels*; and (4) positions in research, industrial laboratories and government field work.

Opportunities for independent study for second, third and fourth-year students are offered in the courses 399, 495 and 499. Biology 395 serves as an introduction to biological research.

All students must earn a “C-“ or better in General Biology 102 in order to take courses require 102 as a prerequisite.

Major Sequence:

A minimum of ten courses in biology to include:
1) biology 101 and 102
2) two courses in molecular or cellular biology to include genetics (312) and one other course (selected from 240, 314, 317, 330, 407, 412, or 414)
3) two courses in systems or organismal biology to include one course in plant biology (306 or 315) and one other course (selected from 219, 302, 307, 310, 311, 313 or 314)
4) one course in population or community biology or in evolutionary biology (selected from 217, 219 or 316)
5) three additional courses selected from departmental offerings
6) one of the ten courses must have a significant investigative component—research and/or use of primary literature and/or experimental work (selected from 217, 302, 314, 326, 327, 328, 330, 399, 407, 411, 412, 495 or 499)
Cross-listed course in numbers 2 and 3 (314) and 3 and 4 (219) cannot be counted towards both categories.

Other courses outside the department that biology majors are expected to take include:
1) four lab courses in chemistry (201, 202, 311, 312)
2) two lab courses in physics (101, 102 or 105, 106)
3) mathematics through 151 or 161 (or proficiency)

*Biology majors and minors who desire secondary teaching certificates and/or middle school and subject area teaching endorsements must apply to the Teacher Education program as early as possible in their academic career. Refer to the Educational Studies curriculum description in this Catalog and the Teacher Education Information Handbook for further information.

Rationales for changes:

1) To include a course requirement in molecular and cell biology.

All fields of biology have been profoundly changed by utilization of new techniques available from molecular biology, cell biology, and molecular genetics. All of our biology students need exposure to these techniques, procedures and applications as part of their training. With the new laboratory facilities and equipment that we have in the CNS plus the expertise of Drs. Bolivar and Walker in the Biology Department, we propose to add a molecular and cellular biology requirement to our curriculum.

2) To reorganize the distributional requirements in the major to reflect the nature of differing levels of biological organization.

The Department of Biology has been engaging in a comprehensive examination of our curriculum including comparing our curriculum to that of other liberal arts colleges [including 24 in the top 50 ranking by U.S. News and World Report and/or 14 schools included in a list of the Top 25 Baccalaureate Colleges producing science and engineering doctorates (1991-95)], and reevaluating our General Biology sequence 101 and 102. (A Curriculum Development Grant to Drs. Walker, Balser and Dey, in part, supported this reevaluation of the curriculum.) Our study included gathering data from the web and via email requests, evaluating the data, making recommendations to the biology faculty, having discussions, gathering more data to help answer questions raised, and finally coming to consensus conclusions. First, we revised the general biology courses beginning this fall to make changes in topic sequence and coverage, to provide improved coherence from topic-to-topic, and to emphasize unifying concepts in order to provide a better learning experience for the students. Over time laboratories will also be changed to meet new objectives. One of the major themes to emerge in the general biology sequence revision was the acknowledgement of the various levels of biological organization that biologists study, namely those with a molecular & cellular focus, those with an organism & organism systems focus, and those dealing with populations, community, and evolution. We are proposing to apply the same framework emphasizing differing levels of biological organization in our subsequent course requirements in the major. Most of the schools that we investigated have a similar framework of levels of biological organization in their course requirements for the biology major, if they have a theme at all.

3) To require one course with a significant investigative component—research and/or use of primary literature and/or experimental work.
In the last 10 years, there has been a greater emphasis placed on undergraduate Biology Departments to expose their students to, and/or include them in biological research. One of our departmental goals is to emphasize to our students that research is as an important component of their education. Most, but not all, biology majors already take one or more of the course options listed for meeting the investigative component requirement. Thus, this change does not require the addition of new faculty. This course requirement just formally states this objective and establishes an expectation for all of our students (including prospective ones).

4) To increase the number of required courses for the major from nine to ten.

The Biology Department would like to maintain a requirement of three course electives in our curriculum by increasing the nine courses required for the major to ten courses. In keeping with the liberal arts tradition of maintaining breadth of study both outside of and within the students’ chosen major, we feel it is critical that our students be required not only to investigate all essential areas of biology (the distributional areas) but also to explore a diversity of personal interests within the field (electives). However, because of the rapidly expanding nature of this academic field, we have expanded the core of required courses (the distributional areas as described previously in 1 and 2 above) to reflect the widening knowledge base that we feel is critical to prepare our students for all careers in biology. With the increase in distributional requirements within the major to seven courses/areas, we need to increase the major from nine courses to ten courses in order to maintain the requirement of three course electives within the major. This will make it more difficult for students to design a narrowly focused academic program if we require ALL students to complete ten courses for the major. Our hope is that by directing students into three elective courses, while still allowing a choice of subjects, the intellectual climate for our students will be enhanced.

We note that many of the selective graduate and professional schools to which our students apply urge applicants to have as broad a background in biology as possible. The department believes that the increase in the number of courses required for the major from nine to ten will enhance and broaden our students’ backgrounds in biology to enable our majors to continue to have high acceptance rates into prestigious and increasingly competitive programs.

While not a part of the rationale for increasing the number of courses in the Biology Department to a ten course requirement, we note the following practical considerations: We think it is desirable and not a hardship for our students to take ten biology courses for the major. A transcript study of IWU biology graduates over a ten-plus year period revealed that 79.3% of the graduates already take 10 or more biology courses and the other 20.7% took 9 or 9.5 courses. We do not believe implementation of the ten-course major will strain the biology faculty or require any increased staffing, as there are adequate seats available now to meet any additional course requirements. Lastly, the Dean of Admissions, Jerry Pope, does not see any problems in continuing to recruit students to the major as a result of the change from nine to ten courses.