

Curriculum Council Agenda
February 4, 2008

I. Revision of Chemistry Department Minor

The Chemistry Department proposes to clarify language describing the chemistry minor sequence and to add three existing 300-level courses as possible electives in the minor. The chemistry minor will continue to be a seven-course minor, and no new resources are needed to support this change.

Current Requirements:

Chemistry Minor Sequence:

The chemistry minor consists of the following courses:

- 1) chemistry 201, 202, 311, 312
- 2) one of the following courses: chemistry 301 or 321
- 3) two of the following courses: chemistry 322, 323, 413, 414, 415, 432 or 470

Proposed Requirements:

Chemistry Minor Sequence:

The chemistry minor consists of the following courses:

- 1) chemistry 201, 202, 311, 312
- 2) one of the following courses: chemistry 301 or 321
- 3) and two of the following courses: chemistry 301, 317, 321, 322, 323, 330, 332, 413, 414, 415, 432 or 470

II. Revision of Mathematics Major

Current Requirements:

- 1) One of the calculus sequences (i), (ii), or (iii)
- 2) Math 200 and 215

Students are strongly recommended to take Computer Science 135 and then Math 200 in either their freshman or sophomore year. However, students should consult with a mathematics advisor in order to determine the best time for them to take these courses. Computer Science 135, Math 200 and Math 215 should be completed by the end of the second year.

And a minimum of six courses that satisfy the following requirements:

- 3) two courses selected from Math 405, 410, 415, 425, 440, or 489
- 4) four additional electives selected from Math 240, 300, 307, 310, 311, 324, 325, 330, 351, 360, 405, 415, 425, 440 or approved 389/489
- 5) Students must take at least one 400-level mathematics course in their senior year. Students are allowed to take more than two 400-level courses

Additional course for the major: CS 135

Proposed Requirements:

A minimum of eleven course units to include:

- 1) One of the following sequences:
 - i) Calculus: Math 161, 162, 263, and 264
 - ii) Analysis: Math 165, 166, and 267

- iii) Calculus with *Mathematica*: Math 155, 156 and 157
- 2) Math 200 and 215
- 3) Two courses selected from Math 405, 410, 415, 425, 440, or 470
- 4) Four additional electives selected from Math 300, 307, 310, 311, 324, 325, 330, 340, 351, 360, 405, 415, 425, 440 or approved 370/470
- 5) Students must take at least one 400-level course in the senior year, but they are allowed to take more than two 400-level courses

Additional requirement: CS 135

(Students are strongly recommended to take Computer Science 135 and then Math 200 in either their freshman or sophomore year. However, students should consult with a member of the mathematics faculty in order to determine the best time to take these courses. Computer Science 135, Math 200, and Math 215 should be completed by the end of the sophomore year)

(See Rationale Below)

III. Revision of Mathematics Minor

Current Requirements:

A minimum of six course units in mathematics to include:

- 1) Math 155 and 156, or Math 161 and Math 162, or Math 165 and Math 166
- 2) One of: Math/CS 135, Math 157, or Math 163
- 3) three courses selected from those numbered 200 or above, to include at least two numbered 300 or above, but excluding Math 397.

Proposed Requirements:

A minimum of six course units in mathematics to include:

- 1) Math 155 and 156, or Math 161 and 162, or Math 165 and 166
- 2) One of: Math/CS 135, Math 157, Math 263, or Math 267
- 3) Math 200 or Math 215
- 4) Two additional mathematics courses numbered 300 or above, but excluding 397.

Rationale:

For many years the Mathematics department has been offering Analysis I and II and Calculus III as courses meeting five (or six) hours per week with one unit credit for both the students and the professors. This is leading to faculty burnout and is unfair to the students, since the credit does not accurately reflect their time commitment. We propose to change the way we package these courses so that the teaching load and demands on the students match the other courses on campus. Our Calculus I and II courses already meet for three class hours per week (the standard), so we propose no change in them. We propose to repackage the current Analysis I and II as Analysis I, II, and III and split the current Calculus III into two courses. Both sequences provide the foundation for the major, teach needed skills for several other majors, and meet the formal reasoning general education requirement for many students.

Teaching assignments for all of the courses in the calculus and analysis sequences rotate through the mathematics faculty. This proposal splits courses, so it will result in a need of two additional teaching units per year, but because of prerequisite structures, these extra units would not be needed until

academic year 2008-09. The proposed new courses are at the 200-level because they have two 100-level prerequisites (matching the description of 200-level on page 62 of the Catalog).

No additional library or media resources will be required.

The proposed changes to the major and minor are solely the result of realigning the Calculus and Analysis sequences as described above. The previous and proposed sequences contain the same material, but the latter would spread out this material more equitably across several courses. Students are required to complete either the Calculus or Analysis sequence (or the Calculus with *Mathematica* sequence, which has not been offered for at least five years and is not addressed by this proposal) as part of the major, so this would require mathematics majors to take an additional course. However, since the current Analysis sequence consists of two courses each meeting five hours per week, the student workload in terms of contact hours would actually be reduced. A similar situation holds for Calculus III—rather than earning a single unit of credit for a six-hour course, the proposed 263 and 264 (each three hours) more accurately reflect the amount of contact hours.

There are several options for a minor in mathematics. In each case, number of courses required would remain constant. Students who currently take 165 and 166 to fulfill minor requirements would still take these courses, whereas students who use 163 now would instead use the proposed 263.

Should these proposed course changes take effect, it is the intent of the department to revisit the issue of a revised major and/or minor during the academic year 2008-2009 and tweak the prerequisites for our upper-level courses to reflect the new offerings at the lower level. Additionally, we would address at that time the remaining Calculus courses (151 and 155-157), which are currently on the books but not being offered.

IV. Revision of Psychology Minor Requirements:

Current Requirements:

Six course units including:

- 1) psychology 100
- 2) either 211, 212, or 213
- 3) either 215, 217, or 218
- 4) psychology 227 (or equivalent statistics course)
- 5) psychology 300
- 6) one additional course numbered 300 or above

Proposed Requirements:

Six course units of which at least two are upper division. If students meet competencies through advanced placement or through coursework in another department, they must take additional courses to meet unit requirements. Requirements include:

- 1) psychology 100
- 2) either 211, 212, or 213
- 3) either 215, 217, or 218
- 4) One of the following options:
 - a. 202 and two additional Psychology courses number 301 or above
 - b. 227 and 300 and one additional Psychology numbered 301 or above

- c. Completion of methodology competency in another department (approved by psychology department chair), two additional psychology courses numbered 301 or above, and one additional psychology course as necessary to meet the six unit requirement.

Rationale:

The psychology minor currently requires two methodology courses out of a total of six courses. It has become clear that this heavy methodology emphasis meets the needs of only a subset of the minor students. Students who seek to do research in the future, either in their graduate work or employment, benefit from this rigorous methodology emphasis. Others, however, are more interested in being consumers of psychological research. For these students, it makes more sense for them to take one methodology course allowing them the space to take an additional 300-level course in a content area of their choosing. This curriculum change allows students to choose which approach best fits their needs.

The following lists the number of students who actually completed the Psychology minor in the past two years. This is a relatively conservative way of calculating minors given that students who pursued a minor may not have fully completed it.

Accounting	1	English	2	Sociology	4
Biology	6	History	1	Theatre	1
Business	16	Hispanic Studies	1	Women's Studies	1
Education	2	Nursing	2		

This list reveals that students come from across campus and they likely have very different needs. This requirement change will allow students to select the option that best meets their goals.

Our review of psychology minors at top liberal arts colleges reinforces our view that our current minor requirement has too strong an emphasis on methodology. None of the top ten liberal arts colleges have more than a one-course methodology requirement.