

UNIVERSITY FACULTY SENATE FORMS

Academic Program Approval

This form is a routing document for the approval of new and revised academic programs. Proposing department should complete this form. For more information, call the Faculty Senate Office at 831-2921.

Submitted by: John L. Burmeister phone number: 302-831-1130

Department: Chemistry and Biochemistry email address: jlburm@udel.edu

Action: Revise courses required for BS/BIOC degree

(Example: add major/minor/concentration, delete major/minor/concentration, revise major/minor/concentration, academic unit name change, request for permanent status, policy change, etc.)

Effective term: 09F

(use format 04F, 05W)

Current degree: B.S. in Biochemistry

(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed change leads to the degree of: _____

(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed name: _____

Proposed new name for revised or new major / minor / concentration / academic unit
(if applicable)

Revising:

Undergraduate major / Concentration: B.S. in Biochemistry

(Example: Applied Music – Instrumental degree BMAS)

Undergraduate minor: _____

(Example: African Studies, Business Administration, English, Leadership, etc.)

Graduate Program Policy statement change: _____

(Must attach your Graduate Program Policy Statement)

Graduate Program of Study: _____

(Example: Animal Science: MS Animal Science: PHD Economics: MA Economics: PHD)

Graduate minor / concentration: _____

Note: all graduate studies proposals must include an electronic copy of the Graduate Program Policy Document, highlighting the changes made to the original policy document.

List new courses required for the new or revised curriculum. How do they support the overall program objectives of the major/minor/concentrations)?

(Be aware that approval of the curriculum is dependent upon these courses successfully passing through the Course Challenge list. If there are no new courses enter "None")

Replace: CHEM-165 Freshman Majors Seminar (0 credits FYE requirement) and
CHEM-119 Quantitative Chemistry I (3 credits) with the new course
CHEM-115 Introduction to Chemical Sciences (3 credits, DLE requirement) –
see rationale below.

Explain, when appropriate, how this new/revised curriculum supports the 10 goals of undergraduate education: <http://www.ugs.udel.edu/gened/>

It addresses all of the Goals of Undergraduate Education, except for #8 and #9.

Identify other units affected by the proposed changes:

(Attach permission from the affected units. If no other unit is affected, enter "None")

None

Describe the rationale for the proposed program change(s):

(Explain your reasons for creating, revising, or deleting the curriculum or program.)

For decades, freshman BS/CHEM, BS/BIOC, and BS/CHEG majors were in lockstep, as far as their required freshman CHEM courses (CHEM-111/112/119/120) were concerned. That changed in 94S, when CHEM-120 Quantitative Chemistry was dropped from the BS/CHEG curriculum. The other shoe will drop during the 2008-2009 academic year, with the removal of CHEM-119 Quantitative Chemistry from BS/CHEG curriculum. (Beginning with the Class of 2012, BS/CHEG majors will take CHEM-220/221 Quantitative Analysis during their sophomore year.)

These major changes have caused our Department to reevaluate the first-year program for our CHEM, BIOC, and XCE majors. We have concluded that they will be better served by CHEM-115, which incorporates and enlarges upon the content of CHEM-165, our Freshman Majors Seminar (for all of our majors – BA/CHEM, BA/XCE, BS/CHEM, and BS/BIOC), and replaces the set of relatively sophisticated CHEM-119 laboratory experiments with a more basic set which is better suited for the needs and background of our freshman BS/CHEM and BS/BIOC majors.

CHEM-115 will therefore satisfy the FYE requirement of all of our CHEM/BIOC/XCE majors, as was the case for CHEM-165.

CHEM-115 Introduction to Chemical Sciences:

Lecture & discussion, 2 credits; lecture & discussion & lab, 3 credits. Introduction to the CHEM/BIOC Department and the chemical professions: curricula, sub-disciplines, related areas, research, and career opportunities. Social events and mentoring. Group calculator and computer sessions, discussions, and presentations. Experimental techniques and procedures.

The course addresses two main objectives, as outlined above:

It will fulfill the FYE requirement for all of our BA/CHEM, BA/XCE, BS/CHEM, and BS/BIOC majors.
It will also lay the experimental groundwork for our BS/CHEM and BS/BIOC majors.

(Extended discussions with Prof. Raul Lobo, of the CHEG Department contributed significantly to the changes outlined above.)

Program Requirements:

(Show the new or revised curriculum as it should appear in the Course Catalog. If this is a revision, be sure to indicate the changes being made to the current curriculum and **include a side-by-side comparison** of the credit distribution before and after the proposed change.)



DEPARTMENT OF CHEMISTRY
AND BIOCHEMISTRY

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OFFICE OF THE ASSOCIATE CHAIRMAN

DEGREE: BACHELOR OF SCIENCE
MAJOR: BIOCHEMISTRY

BISC 411	Experimental Molecular Biology	2
BISC 413	Advanced Genetics Laboratory	2
BISC 601	Immunochimistry	4

CURRICULUM

CREDITS

UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing
(minimum grade C) 3

First Year Experience (see page 68) 0-4

Discovery Learning Experience (see page 68) 3

Three credits in an approved course or courses stressing multi-cultural, ethnic,
and/or gender-related course content (see pages 69-71) 3

COLLEGE REQUIREMENTS

Writing: (minimum grade C) 3

A second writing course involving significant writing experience including two
papers with a combined minimum of 3,000 words to be submitted for extended
faculty critique of both composition and content. This course must be taken after
completion of 60 credit hours. Appropriate writing courses are normally
designated in the semester's Registration Booklet. (See list of courses approved for
second writing requirement, pages 93-95.) ENGL 410 highly recommended.

Foreign Language: 0-12

Completion of the intermediate-level course (107 or 112) in a modern foreign
language. Number of credits needed and initial placement depends on number of
years of high school study of foreign language. Students with four or more years of
high school work in a single modern foreign language may attempt to fulfill the
requirement in that language by taking an exemption examination.

BREADTH REQUIREMENTS (See pages 95-99)

A total of twenty-one credits from Groups A, B and C is required with a minimum
of six credits in each group 21

The six credits from each group could be from the same area.

Group A: Understanding and appreciation of the creative arts and humanities.

Group B: The study of culture and institutions over time.

Group C: Empirically based study of human beings and their environment.

MAJOR REQUIREMENTS

Minimum 46 credits total in CHEM

CHEM 165	Freshman Majors Seminar	(delete) 0
CHEM 111/112	General Chemistry	6
CHEM 120	Quantitative Chemistry	3
CHEM 331/332	Organic Chemistry	6
CHEM 333/334	Organic Chemistry Majors Laboratory I and II	4
CHEM 342	Introduction to Biochemistry	3
CHEM 418	Introductory Physical Chemistry I	3
or		
CHEM 443	Physical Chemistry	4
CHEM 437/438	Instrumental Methods and Laboratory	3
CHEM 641	Biochemistry	3
CHEM 419	Introductory Physical Chemistry II	3
or		
CHEM 444	Physical Chemistry	1
CHEM 445	Physical Chemistry Laboratory	3
CHEM 642	Biochemistry	3
CHEM 643	Intermediary Metabolism	3

Two Advanced Chemistry courses at 600-level 6-8

Two Biology courses selected from the following:

BISC 300	Introduction to Microbiology	4
BISC 306	General Physiology	3
BISC 401	Molecular Biology of the Cell	3
BISC 403	Genetic and Evolutionary Biology	3
BISC 601	Immunochimistry	4
BISC 654	Biochemical Genetics	3
BISC 679	Virology	3

CHEM 465 Seminar (two semesters, fall and spring) 2

CHEM 468 Undergraduate Research 6

Two Biology laboratory courses selected from the following: 4-8

BISC 300	Introduction to Microbiology	4
BISC 315	Experimental Cell Biology	2
BISC 316	Experimental Biochemistry	2

RELATED WORK

MATH 241	Analytic Geometry and Calculus A	4
MATH 242	Analytic Geometry and Calculus B	4
	(strongly recommended)	4
BISC 207/208	Introductory Biology I and II	8
PHYS 201/202	Introductory Physics I and II	8

ELECTIVES

After required courses are completed, sufficient elective credits must be taken to
meet the minimum credit requirement for the degree.

CREDITS TO TOTAL A MINIMUM OF 124

Candidates for a BS in biochemistry must achieve a cumulative GPA of at least
2.00 for all chemistry courses taken. Repeated Chemistry courses are counted only
once in the calculation of the Chemistry GPA. The calculation of the chemistry
course GPA (2.00 minimum required for graduation) for candidates for the BS
degree in Chemistry or Biochemistry will not include grades earned for lower level
subdisciplinary courses taken after a higher level course in the same subdiscipline
has been taken and passed with a grade of C or higher. Likewise, freshman-level
courses may not be used by upperclassmen as GPA enhancers after those required
for graduation has been taken. CHEM 342 and CHEM 100 will be regarded as
exceptions to the foregoing prohibitions, since their subject matter coverage is
considerably different than that found in higher level courses.

Example: A grade earned in CHEM 214 subsequent to a C or better grade
earned in CHEM 527 (or CHEM 641/642) would not be counted in the chemistry
GPA calculation for BS chemistry or biochemistry majors.

ADD: CHEM 115 Introduction to Chemical Sciences 3

ROUTING AND AUTHORIZATION: (Please do not remove supporting documentation.)

Department Chairperson Walter K. Kupered Date 8/15/08

Dean of College _____ Date _____

Chairperson, College Curriculum Committee _____ Date _____

Chairperson, Senate Com. on UG or GR Studies _____ Date _____

Chairperson, Senate Coordinating Com. _____ Date _____

Secretary, Faculty Senate _____ Date _____

Date of Senate Resolution _____ Date to be Effective _____

Registrar _____ Program Code _____ Date _____

Vice Provost for Academic Affairs & International Programs _____ Date _____

Provost _____ Date _____

Board of Trustee Notification _____ Date _____

Revised 10/23/2007 /khs