

To: Undergraduate Curriculum Committee

Through: Dr. Gordon L. Nelson, Dean, College of Science and Liberal Arts
and Dr. Michael W. Babich, Head, Department of Chemistry
Dr. Gary N. Wells, Head, Department of Biological Sciences

From: Dr. J. Clayton Baum, Department of Chemistry

Date: August 13, 2004

Subject: Biochemistry Curriculum Changes

As you are aware, the Biochemistry program is jointly administered by the departments of Biological Sciences and Chemistry. A knowledge of computer programming is becoming less important for the biochemistry major as the variety and sophistication of available computer software increases. We would like to shift the computer component in the biochemistry program towards introducing majors to the software and computer methods that are essential to the discipline. With this in mind, we propose the following changes to the Biochemistry degree requirements.

Replace CSE 1503 (Introduction to Software Development with FORTRAN, 3 credits) and MTH 2401 (Probability and Statistics, 3 credits) with BIO 2801 (Biometry, 4 credits). BIO 2801 satisfies the computer literacy requirement because of its emphasis on computer applications and also eliminates the need to take a separate course in statistics. To maintain the current number of total credits (128) required for the Biochemistry degree, the number of Restricted Elective (BIO, CHM) credits would be increased by two to a total of 21.

When the Biochemistry degree was first introduced, distribution guidelines regarding the Restricted Electives for Biochemistry were included in the catalog. This was to ensure some breadth between biology and chemistry while focusing on the emphasis (biology or chemistry) chosen by the biochemistry major. These guidelines disappeared with the switch to the semester system at Florida Tech, and although we have continued to follow unwritten guidelines, we believe it is important for the student to see them in the catalog. We propose to include the following statement under the "Restricted Electives" heading: "At least 12 credits must be selected from the student's field of emphasis and at least 6 credits from the alternate field."

All of the proposed changes are shown on the following page from the 2004-2005 University Catalog.

The addition or removal of any graduation requirement in a major requires that this form, accompanied by any supporting documentation, be completed and approved as indicated below.

College/School Science and Liberal Arts Department Biological Sciences/Chemistry

Degree level B.S. Program title Biochemistry

To be initiated with catalog year 20 05 /20 06

Brief description of requested changes (attach a more detailed description and any supporting documentation)

Replace CSE 1503 (Introduction to Software Development with FORTRAN, 3 credits) and MTH 2401 (Probability and Statistics, 3 credits) with BIO 2801 (Biometry, 4 credits).

Increase the number of Restricted Elective (BIO, CHM) credits by two to a total of 21 to leave the total number of credits required for graduation unchanged at 128.

Include the following statement under the "Restricted Electives" heading: "At least 12 credits must be selected from the student's field of emphasis and at least 6 credits from the alternate field."

APPROVALS

On completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee, for approval below and forward to the Office of the Registrar.

Signature of Originator: J. Clay Ben Date: 8/20/04 Chair, Graduate Council Date

Signature of Department Head/Program Chair: M. B. Brown Date: 8/20/04 OR

Signature of Dean or Associate Dean: Date: 8/20/04 Chair, Undergraduate Curriculum Committee Date

Registrar's Use Only Operator Init Date

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Degree Requirements

Candidates for a Bachelor of Science in Biochemistry must complete the minimum course requirements as outlined in the following curriculum. Electives are selected in consultation with the faculty adviser to reflect the knowledge a student needs either for employment or graduate school. Deviation from the stipulated program may occur only under unusual circumstances and requires approval of the chair. The bachelor's degree in biochemistry requires 128 credit hours for graduation.

Freshman Year

	CREDITS
FALL	
BIO 1010 Biological Discovery 1	4
CHM 1101 General Chemistry 1	4
COM 1101 Composition and Rhetoric	3
MTH 1001 Calculus 1	4
	15
SPRING	
BIO 1020 Biological Discovery 2	4
CHM 1102 General Chemistry 2	4
COM 1102 Writing about Literature	3
MTH 1002 Calculus 2	4
	15

Sophomore Year

	CREDITS
FALL	
BIO 2110 General Genetics	4
CHM 2001 Organic Chemistry 1	3
CHM 2011 Organic Chemistry Laboratory 1	2
MTH 2001 Calculus 3	4
PHY 1001 Physics 1	4
PHY 2091 Physics Laboratory 1	1
	18
SPRING	
CHM 2002 Organic Chemistry 2	3
CHM 2012 Organic Chemistry Laboratory 2	2
CSE 1515 Introduction to Software Development	3
with FORTRAN	3
HUM 2051 Civilization 1	3
PHY 2002 Physics 2	4
PHY 2092 Physics Laboratory 2	1
<i>BIO 2001 Biochemistry</i>	<i>4</i>
	17

Junior Year

	CREDITS
FALL	
COM 2223 Scientific and Technical Communication	3
HUM 2052 Civilization 2	3
Program Core Course (BIO, CHM)	4-5
Restricted Elective (BIO, CHM)	3
Technical Elective	3
	16-17
SPRING	
MTH 2401 Probability and Statistics	3
Program Core Course (BIO, CHM)	4-5
Humanities Elective	3
Restricted Elective (BIO, CHM)	6
	14-15

Senior Year

	CREDITS
FALL	
Program Core Course (BIO, CHM)	4-5
Liberal Arts Elective	3
Restricted Electives (BIO, CHM)	6
Social Science Elective	3
	16-17
SPRING	
Program Core Course (BIO, CHM)	4-5
Liberal Arts Elective	3
Restricted Electives (BIO, CHM)	6
Free Elective	3
	16-17
TOTALS CREDITS REQUIRED	128

Program Core Courses by Emphasis

Biological Sciences

Junior Year

FALL
BIO 4010 Biochemistry 1

SPRING
BIO 4110 Biochemistry 2

Senior Year

FALL
CHM 3001 Physical Chemistry 1
CHM 3011 Physical Chemistry Laboratory 1

SPRING
CHM 3002 Physical Chemistry 2
CHM 3012 Physical Chemistry Laboratory 2

Chemistry

Junior Year

FALL
CHM 3001 Physical Chemistry 1
CHM 3011 Physical Chemistry Laboratory 1

SPRING
CHM 3002 Physical Chemistry 2
CHM 3012 Physical Chemistry Laboratory 2

Senior Year

FALL
BIO 4010 Biochemistry 1

SPRING
BIO 4110 Biochemistry 2

Restricted Electives

Biological Sciences

BIO 2010 Microbiology	4
BIO 3210 Mammalian Physiology	4
BIO 3220 Developmental Biology	4
BIO 4101 Molecular Biology	3
BIO 4120 Genetic Engineering Techniques	4
BIO 4130 Nucleic Acid Analysis	4
BIO 4201 Immunology	3
BIO 4210 Plant Physiology	4
BIO 4301 Cell Biology	3

Chemistry

CHM 3301 Analytical Chemistry 1	3
CHM 3302 Analytical Chemistry 2/Instrumentation	3
CHM 3311 Analytical Chemistry Laboratory 1	2
CHM 3312 Analytical Chemistry Instrumentation Lab 2	2
CHM 4001 Inorganic Chemistry 1	3
CHM 4002 Inorganic Chemistry 2	3
CHM 4111 Advanced Physical Chemistry	3
CHM 4304 Advanced Analytical Chemistry	3
CHM 4500 Advanced Organic Chemistry	3
CHM 4550 Polymer Chemistry	3
COM 2012 Research Sources and Systems	1

Senior Thesis

The biochemistry curriculum allows for significant undergraduate research experience, culminating in a senior thesis for those students who wish to pursue postgraduate studies and are maintaining a grade point average of 3.0 or better in all science and mathematics courses. A qualified student wishing to participate in the senior thesis program must notify the appropriate department (either biological sciences or chemistry, depending on the student's research interests and curriculum emphasis) no later than the end of the fall semester of the junior year. A thesis committee, consisting of one or more faculty members from each department, will be formed to consider the thesis proposal, which must be submitted during the spring semester of the junior year. After

At least 12 credit hours must be selected from the student's field of emphasis and at least 6 credits from the alternate file.