

5-17-1989

Resolution to Allow Chemistry / Biochemistry and the Chemistry Education Tracks to Conform to ACS Certification

The College at Brockport, College Senate

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Resolution 22 1988-89

Faculty Senate

TO: President John E. Van de Wetering

FROM: The Faculty Senate Meeting on 5-17-89
(Date)

RE: X I. Formal Resolution (Act of Determination)
II. Recommendation (Urging the fitness of)
III. Other (Notice, Request, Report, etc.)

SUBJECT: Resolution to Allow Chemistry/Biochemistry and the
Chemistry/Education Tracks to Conform to ACS
Certification



Signed *John E. Van de Wetering*
(For the Senate)

Date Sent 5-22-89

TO: The Faculty Senate

FROM: President John E. Van de Wetering

RE: I. Decision and Action Taken on Formal Resolution

- a. Accepted. Effective Date *Fall 89*
- b. Deferred for discussion with the Faculty Senate on _____
- c. Unacceptable for the reasons contained in the attached explanation

II, III.

- a. Received and acknowledged
- b. Comment:

DISTRIBUTION: Vice Presidents: _____

Others:

Distribution Date *5/22/89* Signed: *John E. Van de Wetering*
(President of the College)

BROCKPORT

State University of New York
College at Brockport
Brockport, New York 14420

Chemistry
(716) 398-2202

TO: Faculty Senate

FROM: Chemistry
J. Emory Morris, Chairman

SUBJ: New options for American Chemical Society Certification
for Brockport Chemistry graduates

The American Chemical Society (ACS) Committee on Professional Training (CPT) is the certifying agency for undergraduate majors in chemistry in the United States. When a college requests initial approval of its chemistry program, the CPT examines the curriculum, faculty credentials, facilities, equipment, budget support, institutional context, and library holdings, by documents the college submits and by an on-site visit. If the program meets the standards of the CPT, then it is added to the American Chemical Society's list of schools with approved programs. Subsequent reviews are conducted at 5 year intervals and are based on submitted documents. Our chemistry program at Brockport was added to the list of approved programs in 1972, and our last review was completed in 1987 with a favorable result.

Our chemistry major may take any pattern that we believe suits our institutional needs, but we must also offer students the opportunity to fulfill the CPT specified requirements for ACS certification. In March, 1988 the CPT published extensions of the 1983 Guidelines (the most recent general revision). In these extensions, the CPT for the first time will recognize for ACS certification up to four tracks within Chemistry:

- 1> CHEMISTRY (the traditional professional major)
- 2> CHEMISTRY/BIOCHEMISTRY
- 3> CHEMISTRY/EDUCATION
- 4> CHEMISTRY/POLYMERS

At Brockport we have for 20 years offered institutionally endorsed certification in chemistry and general science (7-12), and for about 10 years a biochemistry track within the chemistry major. We are hereby proposing a revision of our ACS certification program for CHEMISTRY, and programs to be submitted to the CPT for newly recognized ACS certification of our existing programs in CHEMISTRY/BIOCHEMISTRY and CHEMISTRY/EDUCATION. After these programs receive local approval we will submit them to the American Chemical Society Committee on Professional Training for that agency's approval.

Please find enclosed

- omitted
Catalog
1. A copy of the Extension of the 1983 Guidelines, dated March, 1988
 2. Description of the current liberal arts major in chemistry. We do not propose or seek any change in this program, it is included for the reader's convenience.
 3. Description of our proposed revision to Brockport's requirements for students who seek American Chemical Society Certified Major CHEMISTRY.
 4. Description of our proposed certified major CHEMISTRY/BIOCHEMISTRY. This is exactly the program listed in the 1987-1989 Undergraduate Catalog, except that BIO 415 is now a 3 credit course and 4 additional credits of instrumental methods is required.
 5. Description of our proposed certified major CHEMISTRY/EDUCATION. This is exactly our currently registered secondary chemistry teacher certification pattern with the added options of minors in math or computer science. When this program is approved locally, we will file with New York State Education Department to amend our registered secondary teacher certification pattern to include the math and the computer science options. These amendments have the enthusiastic support of the Department of Education and Human Development.

These program descriptions received unanimous approval of the Chemistry Faculty.

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0760 1985 2182

Chairman: Kenneth D. Schlichter, Professor; Staff: Fisher, Hill, Kahan, Meenti, Peterson, Schneider, Sommer, Associate Professors: Schlichter, Ventling

Major in Chemistry

The student must earn a minimum of 33 semester hours in chemistry, complete one year of college-level physics with laboratory, and take three semesters of calculus.

Required Courses

The following courses are required of all majors:

CHM 205-206	College Chemistry I & II	8 hours
CHM 301	Chemical Safety	1 hour
CHM 303	Quantitative Analysis	4 hours
CHM 305-306	Organic Chemistry I & II	8 hours
CHM 402-404	Physical Chemistry I, II, & III	9 hours
CHM 408-409	Physical Chemistry Laboratory I & II (elective)	3 hours

Credits in Chemistry

MTH 201-202	Calculus I, II, III	9 hours
PHS 201-202	College Physics I & II	8 hours

TOTAL: 33 hours

Other Math and Science Requirements

1/2 credit of elective from the 100 and 400 level in chemistry, excluding CHM 370. Students completing two majors may, by petition to the chemistry department, substitute a relevant upper-division course in another natural or mathematical science for 1/2 credit of chemistry elective.

To make normal progress in the major, a student should complete CHM 205-206 in the freshman year, and CHM 301, 303, 305-306, PHS 201-202, and MTH 201, 202, 203 before entering the junior year.

American Chemical Society (ACS) Certification

The American Chemical Society, through its Committee on Professional Training, establishes a professional standard for the undergraduate curriculum in chemistry. This committee also evaluates undergraduate programs and approves those departments which meet its standards. The Brockport Chemistry Department is on the list of approved departments.

Students whose goal is employment as a chemist or entry into chemistry graduate programs are advised to complete the program outlined below, which meets the requirements of the Committee on Professional Training for certification. Candidates who do not complete the program are also eligible for immediate election to membership in the ACS.

ACS Certified Major in Chemistry

Required courses for the major in chemistry (first 30 hours listed previously), plus:

CHM 341	Advanced Organic Chemistry Laboratory I	1 hour
CHM 414	Instrumental Methods 11	3 hours
CHM 416	Instrumental Laboratory	1 hour
CHM 431	Inorganic Chemistry	3 hours
CHM 432	Inorganic Chemistry Laboratory	1 hour
CHM 434	Electives	4 hours
CHM 435	Advanced Organic Laboratory II or	1 hour
CHM 470	Biotechnology Laboratory	1 hour

TOTAL: 46 hours

1/4 credit of electives chosen from the 300 and 400 level in chemistry, excluding CHM 370. These credits are earned either by an approved course in chemistry or a course for which credit is recommended by the chemistry department, a relevant upper-division course in another of the natural and mathematical sciences, or a course recommended by the student who develops a reading knowledge of scientific German and proficiency in computer programming.

Major in Chemistry—Biotechnology Track

Required courses for the major in chemistry, plus:

CHM 465-466	Biotechnology I & II	6 hours
CHM 470	Biotechnology Laboratory	1 hour

Credits in Chemistry

BIO 201	Biology	4 hours
BIO 202	Zoology	4 hours
BIO 301	Cell Biology	4 hours
BIO 302	Genetics	4 hours
BIO 415	Molecular Biology	4 hours

TOTAL: 37 hours

Major in Chemistry

The student must complete CHM 205-206 and a minimum of 10 additional hours of chemistry chosen from courses having CHM 206 as a prerequisite, normally CHM 301, 303, 305-306, or CHM 402-404, 408-409 are included in this program.

CHEMISTRT (ACS certified) Revised

Below the new program is described. Changes result in 42 credits in Chemistry being required (currently 46 credits are required).

- a. currently we require 6 credits of elective. This becomes 3 credits of elective
- b. currently we require 2 credits of lab chosen from CHM 341, 342, 470. This becomes 1 credit of lab chosen from CHM 341, CHM 470 or independent study.

Core Program	sem. hours	Laboratory elect. hours
PLUS	30	330

Advanced and complementary courses (required)

CHM 414/416	Instrumental Meth & Lab	4	6x13	-52
CHM 431/432	Inorganic & Lab	4	4x13	-52
Lab	choose 1 CHM 341, 470, 399, 499	1	4x13	-52

Advanced course(s)(elective) any course or courses chosen from

CHM 413, 415, 439, 440, 444	1 each	
CHM 467, 468	3 each	
advanced physics or math or computer science for which calculus is prerequisite	variable	
CHM 399, 499	variable	
additional credit in laboratory courses	variable	

CHM	42 sem. hr.	485
PHS	8	78
MTH	9	--
TOTAL	59 sem. hr.	564

DEPARTMENT OF CHEMISTRY

07160 395-2202

Chaperson, Kenneth D. Schlecht, Professors; Biber, Finley, III, Kallen, Morris, Peterson, Schneider, Sommer, Associate Professors; Schleich, Vestling

Major in Chemistry

The student must complete a minimum of 33 semester hours in chemistry, complete one year of college-level physics with laboratory, and take three semesters of calculus.

Required Courses

The following courses are required of all majors

CHM 305-306 College Chemistry I, II	8 hours
CHM 301 Chemistry of Solids	1 hour
CHM 303 Quantitative Analysis	4 hours
CHM 305-306 Organic Chemistry I, II	8 hours
CHM 400-401 Chemistry Seminar I, II	1 hour
CHM 405-406 Physical Chemistry I, II	6 hours
CHM 408-409 Physical Chemistry Laboratory I, II	2 hours
*Electives	3 hours
Credits in Chemistry	TOTAL: 33 hours

MTH 201-202-203 Calculus I, II, III
 PHS 201-202 College Physics I, II

Other Math and Science Requirements

TOTAL: 17 hours
 *1 credit of electives from the 300 and 400 level in chemistry, excluding CHM 370, substitute a relevant upper-division course in another natural or mathematical science for 3 credits of chemistry elective.

To make normal progress in the major, a student should complete CHM 305-306 in the freshman year, and CHM 301, 303, 305-306, PHS 201-202, and MTH 201, 202, 203 before entering the junior year.

American Chemical Society (ACS) Certification

The American Chemical Society, through its Committee on Professional Training, establishes a professional standard for the undergraduate curriculum in chemistry. This committee also evaluates undergraduate programs and approves those departments which meet its standards. The Biochem Chemistry Department is on the list of approved departments.

Students whose goal is employment as a chemist or entry into chemistry graduate programs are advised to complete the program outlined below, which meets the requirements of the Committee on Professional Training for certification. Graduates who complete the program are also eligible for immediate election to membership in the ACS.

ACS Certified Major in Chemistry

Required courses for the major in chemistry (first 30 hours listed previously), plus:

CHM 341 Advanced Organic Chemistry	1 hour
CHM 414 Laboratory Methods 11	3 hours
CHM 416 Instrumental Laboratory	1 hour
CHM 431 Inorganic Chemistry	3 hours
CHM 432 Inorganic Chemistry Laboratory	1 hour
*Electives	6 hours
CHM 342 Advanced Organic Laboratory II or	1 hour
CHM 470 Biochemistry Laboratory	1 hour
Credits in Chemistry	TOTAL: 46 hours

*6 credits of electives chosen from the 300 and 400 level in chemistry, excluding CHM 370. Three credits of elective may be satisfied either by an advanced course in mathematics or physics for which calculus is a prerequisite or, by petition to the chemistry department, a relevant upper-division course in another of the natural and mathematical sciences. It is strongly recommended that the student also develop a reading knowledge of scientific German and proficiency in computer programming.

Major in Chemistry-Biochemistry Track

Required courses for the major in chemistry, plus:

CHM 462-468 Biochemistry I, II	6 hours
CHM 470 Biochemistry Laboratory	1 hour
Credits in Chemistry	TOTAL: 37 hours
BIO 201 Botany	4 hours
BIO 202 Zoology	4 hours
BIO 301 Cell Biology	4 hours
BIO 302 Genetics	4 hours
BIO 415 Molecular Biology	4 hours
Credits in biology	TOTAL: 20 hours

Minor in Chemistry

Proposed CHEMISTRY/BIOCHEMISTRY (to become ACS Certified program)

Core Program	sem. hours	laboratory clock hours
PLUS	30	330
CHM 467/468 Biochem I, II	6	0
CHM 470 Biochem Lab	1	4x13 -52
CHM 414/416	4	4x13 -52
or		
choose 4 credits from	4	4x13 -52
BIO 431, 432, 433, 441, 442, 443	4	
Total nominal chemistry hours	41	434
BIO 415 Molecular Biol	3	0
BIO 301 Cell Biol	4	3x12 -36
BIO 302 Genetics	4	3x12 -36
BIO 201 Botany	4	3x12 -36
BIO 202 Zoology	4	3x12 -36
Total biology hours	19	144

Note: BIO 301-202 are prerequisites for BIO 301, 302
 BIO 301 or BIO 302 is prerequisite for BIO 415

60 sem. hr.
 plus 17 MTH & PHS
 77 sem. hr.

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Proposed CHEMISTRY/EDUCATION (to become ACS certified program)

sem. hours	hours
Core Program 30	330
Plan chem elec- 3	(any course(s) numbered above
live 33	306 except courses with I suffix)
17	HH & PHS
<u>50</u>	Total

Education requirements

PSH 101, 110 or 112 General Psych	3 or 4
PSH 484 Adolescence	3
MLP 370 Drug Ed for Teach	1
EDI 433 Methods of Teach Sec Scl	3
EDI 440 Practicum	12
EDI 441 Problems in Sec Ed	3
SOC 412 Schools, Learning & Soc.	3
SOC 100/101 Intro. to Sociol	3

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Plan one of the following minors

Physics	or	Biology
PHS 201-202 8		BIO 201 Botany 4
PHS 209 Modern 3		BIO 202 Zoology 4
PHS 301 Math Meth 3		BIO 302 Genetics 4
PHS 304 Mechanics I 3		BIO 303 Ecology 4
or		elective by advisement 3-4
PHS 305 E & M		recommended: cell biology
PHS 307 Phys Measurements		physiology
or PHS 308 Lab I, II I		evolution
<u>18</u>		biochemistry
		molecular
		biology

Gen Ed

Worst case(s)	99-101
Chem 33	
Phys 8	
Calc 9	
BIOL/ESC/CSC 18-20	
Educ 31	

or Earth Science

CEL 101 Our Earth 4	
ESC 211 Weather 4	
ESC 201 Oceanography 4	
AST 201 Astronomy 4	
elective by advisement 3-4	
mant	
<u>19-20</u>	

or Math

MTH 201-203 Calc 9	
MTH 245 Finite 3	
or	
MTH 281 Discrete I 3	
MTH 432 w course 3	
433 in 890-	
MTH 424 Linear Alg. 3	
MTH 345 Prob & Stat I 3	
<u>21</u>	

or Computer Science

CSC 203 Fundamentals I 3	
CSC 205 II 3	
CSC 311 Assembly 3	
electives by advisement 9	
<u>18</u>	

Plus Education courses required for certification.