

CHEMISTRY & BIOCHEMISTRY MAJOR (2008 - 2009)

INTELLECTUAL FOUNDATIONS PROGRAM (I.F.P.) (except science) and FOREIGN LANGUAGE REQUIREMENTS and ELECTIVES

ENGLISH COMPOSITION (6 credits, 2 courses, **must get a C or better**)

ENC 1101	College Writing 1 (Gordon Rule Writing) (3 credits)
ENC 1102	College Writing 2 (Gordon Rule Writing) (3 credits)

MATHEMATICS (please see next page)

SOCIAL SCIENCES (9 credits, 3 courses, from 3 different departments) ♦

ANT 2000 (D)	Introduction to Anthropology (3 credits)
ANT 2410	Culture and Society (3 credits)
GEA 2000 (D)	World Geography (3 credits)
ECO 2023*	Microeconomic Principles (3 credits)
ECO 2013*	Macroeconomic Principles (3 credits)
ECP 2002	Contemporary Economic Issues (3 credits) – Recommended for non-business majors
PAD 2258	Changing Environment of Society, Business & Government (3 credits)
POS 1041	The Government of the United States (3 credits)
INR 2002	Introduction to world Politics (3 credits)
PSY 1012	General Psychology (3 credits)
SYG 1000	Introductory Sociology (3 credits)
SYG 2010	Social Problems (3 credits)

* *Sophomore standing is a prerequisite*

HUMANITIES (9 credits, 3 courses) Choose **TWO** courses from two departments ♦

LIT 2010	Interpretation of Fiction (Gordon Rule Writing, C or better) (3 credits)
LIT 2030	Interpretation of Poetry (Gordon Rule Writing, C or better) (3 credits)
LIT 2040	Interpretation of Drama (Gordon Rule Writing, C or better) (3 credits)
WOH 2012 (D)	History of Civilization (Gordon Rule Writing, C or better) (3 credits)
PHI 2010 (D)	Introduction to Philosophy (Gordon Rule Writing, C or better) (3 credits)

and choose **ONE** from the following five courses.

ARC 2208	Culture and Architecture: Master Builder (3 credits)
ARH 2000 (P/F)	Art Appreciation (3 credits)
MUL 2010	History and Appreciation of Music (3 credits)
THE 2000	Appreciation of Theater (3 credits)
FIL 2000 (D)	Film Appreciation (3 credits)
DAN 2100	Appreciation of Dance (3 credits)

FOREIGN LANGUAGE (4 - 8 credits, 1 or more courses in the same language) **REQUIRED FOR MAJOR**

Students with more than one year of foreign language in high school should enroll in Beginning Language and Culture 2 (FOL/FRE/GER/GRE/GRK/HBR/ITA/JPN/LAT/SPN 1121) or a higher-level course. Students can earn proficiency for a first-level course by successfully completing a second-level course. For questions related to this requirement, consult an academic advisor.

NOTE: Native speakers of a foreign language must consult the Languages & Linguistics dept. regarding this requirement. CLEP exam credits meets this requirement, see catalog.

CLAST: Satisfy the College Level Academic Skills Test (CLAST) see Catalog for options.

♦ **NOTE: Honors Seminars SHALL BE ACCEPTED AS MEETING THE GORDON RULE WRITING REQUIREMENT.** See Freshman Academic Advising Services Office for details.

All course selections should be made in consultation with an advisor.

MAJOR COURSES AND COLLEGE REQUIREMENTS

BACHELOR OF ARTS DEGREE (B.A.) IN CHEMISTRY

The Bachelor of Arts is a liberal arts degree intended for students planning professional careers in chemistry-related professions; ex. health professions (medicine, dentistry, & pharmacy), environmental consulting, technical sales and secondary school teaching. In addition to the University and Charles E. Schmidt College of Science requirements, students seeking a Bachelor of Arts (B.A.) degree in Chemistry must complete the following program:

MATHEMATICS (6 credits minimum, 2 courses) (Gordon Rule, **must get a C or better**)

MUST TAKE A PLACEMENT TEST BEFORE REGISTERING FOR MATH COURSES

MAC 1105 & L	College Algebra (3 credits) – REQUIRED for BA
MAC 2233	Methods of Calculus (3 credits) – REQUIRED for BA

CHEMISTRY (33 credits minimum, 9 or more courses plus labs)

CHM 2045 & L	General Chemistry I and lab (3 + 1 = 4 credits)
CHM 2046 & L	General Chemistry II and lab (3 + 1 = 4 credits)
CHM 3120 & L	Quantitative Analysis - <i>CHM 2045 & 2046 w/labs are prerequisites</i> (2 + 2 = 4 credits)
CHM 2210 & D	Organic Chemistry I with discussion - <i>CHM 2045 & 2046 w/labs are prerequisites</i> (3 credits)
CHM 2211	Organic Chemistry II - <i>CHM 2210 is a prerequisite</i> (3 credits)
CHM 2211 Lab	Organic Chemistry II Lab - <i>CHM 2210 is a prerequisite</i> (2 credits)
BCH 3033	Biochemistry I - <i>CHM 2210 & 2211 w/lab is a prerequisites</i> (3 credits)
BCH 3103 L	Biochemistry Laboratory <i>BCH 3034 is a corequisite</i> (3 credits)
CHM 3400	Introduction to Physical Chemistry - <i>8 credits of Gen Chem. are prerequisites</i> (3 credits)
CHM 3609 & L	Inorganic Chemistry & Lab - <i>8 credits of Gen Chem. are prerequisites</i> (3 + 1 = 4 credits)

PHYSICS (10 credits, 2 lectures and 2 labs)

PHY 2053* & 2054	College Physics I & II (4 credits each) <i>*Prerequisite of a "C" in one these math course: MAC 1114 / 1147 / 2233 / 2253 / 2241 / 2311</i>
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and PHY 2048L & 2049L General Physics LABS I & II (1 credit each, Total - 2 credits)

ELECTIVES (39 credits) - *needed to meet the 120 credit minimum required for the degree*

—	Upper Division Electives (28 credits)
—	Other Electives - (11 credits) Elective courses decided upon by student, advisor and department.

38 credits	Intellectual Foundations Program (I.F.P.) (without Science) and Foreign Language
33 credits	Chemistry (17 of which are upper division)
10 credits	College of Science (Physics)
28 credits	Upper Division Electives
11 credits	Other Electives
120 CREDITS	TOTAL

BACHELOR OF SCIENCE (B.S.) WITH MAJOR IN CHEMISTRY: COMPREHENSIVE PROGRAM

The Bachelor of Science degree is designed for students planning professional careers as chemists in industry, government, or academic research. Students interested in advanced graduate studies in chemistry, biochemistry, or related fields should also follow one of the B.S. degree programs. In addition to the University and Charles E. Schmidt College of Science requirements, the Comprehensive B.S. degree program requires the following courses:

MATHEMATICS (8 credits 2 courses) (Gordon Rule, **must get a C or better**)

MUST TAKE A PLACEMENT TEST BEFORE REGISTERING FOR MATH COURSES

MAC 1114	<i>Trigonometry (3 credits) - Recommended if not ready for MAC 2311</i>
MAC 2311	Calculus with Analytical Geometry I (4 credits) – REQUIRED for BS
MAC 2312	Calculus with Analytical Geometry II (4 credits) – REQUIRED for BS

PHYSICS (10 credits)

PHY 2048 & L	General Physics I & Lab (4 + 1 = 5 credits) (MAC 2311 is a prerequisite)
PHY 2049 & L	General Physics II & Lab (4 + 1 = 5 credits)

CHEMISTRY (45 credits – 32 credits upper division in major with ACS certified & 13 credits upper division electives)

CHM 2045 & L	General Chemistry I and lab (3 + 1 = 4 credits)
CHM 2046 & L	General Chemistry II and lab (3 + 1 = 4 credits)
CHM 3120 & L	Quantitative Analysis - <i>CHM 2045 & 2046 w/labs are prerequisites</i> (4 credits)
CHM 2210 & D	Organic Chemistry I with discussion - <i>CHM 2045 & 2046 w/labs are prerequisites</i> (3 credits)
CHM 2211	Organic Chemistry II - <i>CHM 2210 is a prerequisite</i> (3 credits)
CHM 2211 Lab	Organic Chemistry II Lab - <i>CHM 2210 is a prerequisite</i> (2 credits)
CHM 3060	Chemical Literature (1 credit)
BCH 3033	Biochemistry I (3 credits)
CHM 3609 & L	Inorganic Chemistry and lab (3 + 1 = 4 credits)
CHM 3410 & L	Physical Chemistry I and lab (3 + 2 = 5 credits)
CHM 3411 & L	Physical Chemistry II and lab (3 + 2 = 5 credits)
CHM 4139 & L	Bioanalytical Instrumentation and lab (2 + 2 = 4 credits)
CHM 4905	Directed Independent Study (3 credits)

BACHELOR OF SCIENCE (B.S.) WITH MAJOR IN CHEMISTRY: ACS Approved PROGRAM

The ACS-approved B.S. program offers similar rigorous training in all aspects of chemistry as the basic track, but includes some additional requirements corresponding with the certification guidelines of the Committee on Professional Training of the American Chemical Society (ACS). An ACS-certified degree can offer advantages in job placement and graduate school admission. The ACS approved program requires all courses in the Comprehensive program, plus one of the following courses:

BCH 3034	Biochemistry II (3 credits)
CHM 4422	Advanced Physical Chemistry (3 credits)
CHM 4220	Advanced Organic Chemistry (3 credits)
CHM 4610	Advanced Inorganic Chemistry (3 credits)

BACHELOR OF SCIENCE DEGREE WITH MAJOR IN CHEMISTRY: BIOCHEMISTRY PROGRAM (B.S.)

The Biochemistry program is designed for students pursuing careers in biochemistry and related disciplines such as molecular biology, biophysics, and pharmacology. Additionally premedical students who wish to pursue a research-oriented curriculum might be interested in it. In addition to the University and Charles E. Schmidt College of Science requirements, the B.S. in Chemistry (Biochemistry) degree program requires the following courses:

MATHEMATICS (8 credits - 2 courses) **Gordon Rule - must get a "C" or better** **MUST TAKE A PLACEMENT TEST BEFORE REGISTERING FOR MATH COURSES**

MAC 1114	Trigonometry (3 credits) - Recommended if not ready for MAC 231
MAC 2311	Calculus with Analytical Geometry I (4 credits) – REQUIRED for BS
MAC 2312	Calculus with Analytical geometry II (4 credits) – REQUIRED for BS

BIOCHEMISTRY AND BIOLOGY COURSES (20 credits)

BSC 1010 & L	Biological Principles & Lab (4 credits)
BCH 3033	Biochemistry I (3 credits)
BCH 3034	Biochemistry II (3 credits)
BCH 3103L	Biochemistry Lab (3 credits)
BCH 4035	Advanced Biochemistry (3 credits)
CHM 4139 & L	Bioanalytical Instrumentation & lab (2 + 2 = 4 credits)

PHYSICS (10 credits)

PHY 2048 & L	General Physics I & Lab (5 credits) - Prerequisite of a "C" in MAC 2311 or MAC 2253
PHY 2049 & L	General Physics II & Lab (5 credits)

CHEMISTRY (34 credits)

CHM 2045 & L	General Chemistry I & Lab (4 credits)
CHM 2046 & L	General Chemistry II & Lab (4 credits)
CHM 3120 & L	Quantitative Analysis I & Lab (4 credits)
CHM 2210 & D	Organic Chemistry I with discussion (3 credits)
CHM 2211	Organic Chemistry II - <i>CHM 2210 is a prerequisite</i> (3 credits)
CHM 2211 Lab	Organic Chemistry II Lab - <i>CHM 2210 is a prerequisite</i> (2 credits)
CHM 3060	Chemical Literature (1 credit)
CHM 3410 & L	Physical Chemistry I & Lab (5 credits)
CHM 3411 & L	Physical Chemistry II & Lab (5 credits)
CHM 4905	Directed Independent Study (3 credits or approved substitute)

Biology/Biochemistry Elective Choose **one (1)** of the following courses (3 credits).

MCB 3020	General Microbiology (3 credits)
PCB 4023	Cell Biology (3 credits)
BCH 5415	Biochemistry of the Gene (3 credits)

PREMEDICAL/PREPROFESSIONAL COURSES FOR CHEMISTRY MAJORS

BSC 1011 & L	Biodiversity & Lab (4 credits)	BSC 1010 & L	Biological Principles (4 credits)
BCH 3034	Biochemistry II (3 credits)	MCB 3020 & L	General Microbiology & Lab (3 credits)

And ONE of the following:

ZOO 4690	Comparative Vertebrate Morphogenesis (3 credits)
PCB 3063	Genetics (4 credits)

	BS (Chemistry)	BS (ACS approved)	BS (Biochemistry)
Intellectual Foundations Program (I.F.P.) (without Science) and Foreign Language	40	40	40
Electives (upper division)	16	13	7
General Electives	9	9	8
Major Credits	55	58	65
CREDITS TOTAL	120	120	120

NOTE: See the catalog for specific requirements, course descriptions and additional information. The requirements for some Intellectual Foundations Program (I.F.P.) courses & other courses may be satisfied by passing the appropriate AP or CLEP exam. Check with your advisor and college.

The College of Science has the following requirements: (1) Any course work in the major field transferred from another institution must be approved by the major dept; (2) No major course may be taken pass/fail; (3) The maximum amount of credit which may be earned through co-op is 10 credits, some departments allow some of these credits to substitute for major courses, check with dept for specifics.

STUDENTS ASSUME ALL RESPONSIBILITY FOR MEETING ALL GRADUATION REQUIREMENTS. (05/08)