



ADVISING WORKSHEET: BIOCHEMISTRY

GENERAL NOTES

- A minimum of 123 credits are required for graduation.
- Credits earned for COM 100 and MAT 100 do not count toward the 123 credits required for graduation; however, COM 100 students may petition for elective credit.
- Where appropriate, courses required for the major can be used to satisfy General Education requirements. However, the credits earned for these courses are applied to either Gen Ed requirements or the major, not both.
- Paths of Knowledge coursework may count towards major or minor requirements, but may not fulfill a second Mid-Level Liberal Arts Exploration requirement.
- Students are expected to follow the catalog requirements for General Education, the major, and additional requirements.
- A minor or second major within the areas listed under Paths of Knowledge automatically fulfills that area of the Gen Ed requirements.

OPPORTUNITIES FOR MAJORS

Science Association

The object of this club is to afford an opportunity for the students of science to become better acquainted, to secure the intellectual stimulation that arises from professional association, to obtain experiences in preparing and presenting technical material before chemical audiences, to foster a professional spirit among the members, to instill a professional pride in the sciences, and to build an awareness of the responsibilities and challenges facing the modern scientist. Membership of this association is open to students pursuing their study in the area of science and related fields. The advisors, Dr. Rosemarie Chinni and Mr. Kevin Burns, can be reached by email at rosemarie.chinni@alvernia.edu and kevin.burns@alvernia.edu or by telephone at 610-568-1492 (R.C.) and 610-790-2865 (K.B.).

Pre-Health Club

The Pre-Health Professions Club includes, but is not limited to, Pre-Medical, Pre-Dental, Physician Assisting, Occupational Therapy, Nursing, and Pre-Veterinary students. It provides a setting in which students who are working toward future careers in the health professions can get together, share information, learn more about the health professions in general, and develop friendships with students who share some of their interests. Members of this organization are composed of students pursuing study in several areas of science and related health fields.

Environmental Club

The purpose of this student organization is to maintain the temperate deciduous forest, riparian, and freshwater ecosystems about Alvernia University and the community it serves. The organization does this by recruiting new members, educating the public, and holding events that draw attention to the environment. Such events are Eco-Fun Day, trail clean-up days, and hosting public speaker seminars.

Beta Kappa Chi

Beta Kappa Chi is the National Science Honor Society composed of chapters which seek to encourage and advance scientific education through original education, the dissemination of scientific knowledge and the stimulation of high scholarship in pure and applied science.

Epsilon Gamma Chapter of the Delta Epsilon Sigma Honor Society

This is a National Scholastic Honor Society for students, faculty, and alumni of colleges and universities with a Catholic tradition.

The Washington Center Experience

Alvernia students have an opportunity to earn college credit by spending a semester or summer in Washington, D.C. where they serve as interns in a congressional office, government agency, major corporation, newspaper or news network, or agencies devoted to legal affairs, international relations, or business and economics. They also may intern with one of several non-profit groups dealing with the environment, women's issues, the arts, education, science, or labor relations among others. Participants are customarily juniors or seniors who have achieved grade point averages of 2.5 or better and who have the endorsement of the appropriate academic area. In addition to their internship, students select one seminar dealing with the arts and humanities, communication, public policy, the legal system, business, and government. Interested students should see their academic advisor.

General Education

First Year Curriculum: Enduring Questions	Credits Required	Course	Term	Grade	Credits Earned
SRH 101: Search Sem-Enduring Questions or HNR 160: Honor Search-Enduring Questions	3	SRH 101 / HNR 160			
COM 101: Composition & Research (Must earn a C or higher)	3	COM 101			
THE 105: Foundations of Theology	3	THE 105			
PHI 105: Introduction to Philosophy	3	PHI 105			

Mid-Level Liberal Arts Exploration	Credits Required	Course	Term	Grade	Credits Earned
EXPLORING THE NATURAL WORLD (6-8 credits)					
Lab Science (BIO 103: Principles of Biology I)	4	BIO 103 required			
Math (MAT 209: Probability & Statistics) (not Math 100)	3	MAT 209 required			
INDIVIDUALS & COMMUNITIES (6 credits)					
History or Political Science	3				
PSY 101, HIS, POS, SOC, SSC, or ECON	3				
CULTURE & LANGUAGE (9 credits)					
Communication (Not COM 100 or 101)	3				
World Language – 2 courses in sequence	3				
	3				
CREATIVE EXPRESSIONS (6 credits)					
Literature (ENG)	3				
Art, Music, or Theatre	3				

Ethical Leaders and Followers	Credits Required	Course	Term	Grade	Credits Earned
Theology or Philosophy (200-400 level)	3				
Theology or Philosophy (Ethics/Morality @ 200 level)	3				

Paths of Knowledge – Choose 1 Path		PoK may count towards minor or Related Requirements, but not Mid-Level Arts Exploration requirements.			
<p>_____PATH 1:</p> <p>Interdisciplinary Study (IS) Three courses, at least two from Liberal Arts disciplines, not the major, at the 200-400 level from the interdisciplinary minors of Women & Gender Studies, Digital Media, Community & Environmental Sustainability, Community Engagement, Cultural Studies, Leadership Studies or Pre-Law.</p>	<p>_____PATH 2:</p> <p>Multi-disciplinary Study (MS) Three courses, at least two from Liberal Arts disciplines, not the major, at the 200-400 level employing multiple disciplinary perspectives to explore the Enduring Questions in one of the following themes: Cultural & Global Studies, Imagination & Creativity, Peace & Conflict, Poverty & Wealth or Sustainability, Science & Technology.</p>	<p>BIOLOGY REQUIRED PATH 3: In-depth Disciplinary Study (DS) Three courses at the 200-400 level in one Liberal Arts discipline other than one's major, guided by common ideas and methods of inquiry. Students choose from Art, Biology, Chemistry, Communication, Computer Science, Economics, English, History, Mathematics, Music, Philosophy, Political Science, Psychology, Sociology, Theology, Theatre or World Languages. This path may be used to give students a firm foundation in a discipline supporting their chosen major, or to pursue an interest in one of the Liberal Arts disciplines.</p>			
Course (See Catalog for lists of approved courses for each area.)		Area or Discipline	Term	Grade	Credits Earned
BIO 221 (REL AREA)					
BIO 303/309 (REL AREA)					
BIO 304/ 311 or BIO 409 (REL AREA)					

BS BIOCHEMISTRY (69-72 credits) REQUIRED COURSES				
Course	Pre-Requisites	Co-Requisites	Grade	Credits
CHE 104: General Chemistry I		CHE 110		3
CHE 105: General Chemistry II	CHE 104, 110	CHE 111		3
CHE 107: Laboratory Safety				1
CHE 110: General Chemistry Lab I		CHE 104		1
CHE 111: General Chemistry Lab II	CHE 104, 110	CHE 105		1
CHE 201: Organic Chemistry I	CHE 105, 111	CHE 210		3
CHE 202: Organic Chemistry II	CHE 201, 210	CHE 211		3
CHE 210: Organic Chemistry Lab I	CHE 105, 111	CHE 201		1
CHE 211: Organic Chemistry Lab II	CHE 201, 210	CHE 202		1
CHE 301: Physical Chemistry I	CHE 104, 105, 110, 111	CHE 310		3
CHE 302: Physical Chemistry II	CHE 301	CHE 311		3
CHE 310: Physical Chemistry Lab I	CHE 105 and 111	CHE 301		1
CHE 311: Physical Chemistry Lab II	CHE 301 and 310	CHE 302		1
CHE 401: Biochemistry	CHE 104, 105, 110, 111, 201, 210, 202, 211	CHE 410		3
CHE 410: Biochemistry Lab	CHE 104, 105, 110, 111, 201, 210, 202, 211	CHE 401		1
Select one 6-credit option =>	6 credits Research Sequence: SCI 406: Research I (3 credits) SCI 407: Research II (3 credits)			6
	OR			
	6 credits of Internship: SCI 480: Internship			

RELATED REQUIREMENTS				
Course	Pre-Requisites	Co-Requisite	Grade	Credits
BIO 103: Principles of Biology I	Met in General Education requirements			4
BIO 104: Principles of Biology II	BIO 103 or Permission on instructor			4
BIO 221: General Microbiology	Prereq. include any of the following: BIO 103, 104, 107,117 or permission of instructor			4
BIO 303: Genetics & BIO 309: Molecular Genetics Lab	BIO 103 or permission of instructor	BIO 309		4
Select ONE =>	BIO 304/311: Cell Biology & Lab	BIO 103, CHE 105, 202		3 or 4
	BIO 409: Immunology	BIO 104, 220 or 221 and CHE 105 or permission of instructor		
PHY 200: General Physics I	MAT 230 (or Co-Requisite)	MAT 230		4
PHY 201: General Physics II	PHY 200			4
MAT 209: Probability & Statistics	Met in General Education requirements / Satisfactory score on Math Placement test			3
MAT 220: Math/Statistics Computer Lab				1
MAT 230: Calculus I	MAT 131 or satisfactory score on Math Placement test			4
SCI 402: Seminar				2

REQUIRED MAJOR ELECTIVE (3-4 credits): Select one course from the following:				
Course	Pre-Requisites	Term	Grade	Credits
CHE 212: Analytical Chemistry	CHE 104, 105, 110, 111			4
CHE 221: Instrumental Analysis	CHE 212			4
CHE 315: Forensic Toxicology	CHE 212, 221			3
BIO 205: Botany				4
BIO 315: Forensic Medicine	BIO 104			3
BIO 405: Pharmacology	6 credits BIO or instructor permission			3
BIO 409: Immunology	BIO 104, 304, CHE 105, or instructor permission			3
MAT 231: Calculus II	MAT 230			4

RECOMMENDED (3 credits)				
Course	Pre-Requisites	Term	Grade	Credits
MAT 131: Pre-Calculus	2 years of high school algebra or satisfactory math placement			3

*** Please be advised to double check the 22-23 Course Catalog to ensure that you meet all prerequisite expectations for all required and related classes for this major.***

EIGHT SEMESTER PLAN

During the first 4 semesters, it is important for students to make substantial progress toward completing those BIO and CHE courses that are pre-requisites for other required science courses (in red).

Semester 1	Credits	Semester 2	Credits
SRH 101: Search Sem-Enduring Questions or HNR 160: Honor Search-Enduring Questions	3	CHE 105 – General Chemistry II	3
BIO 103 – Principles of Biology w/ lab	4	CHE 111 – General Chemistry Lab II	1
CHE 104 - General Chemistry I	3	MAT 230 – Calculus I	4
CHE 110 – General Chemistry Lab I	1	COM 101 (if not taken) or THE 105/PHI 105	3
CHE 107 – Laboratory Safety	1	BIO 104-Principles of Biology II	4
COM 101 or MAT 131 if needed	3		
TOTAL	15	TOTAL	15
Semester 3	Credits	Semester 4	Credits
CHE 201 – Organic Chemistry I	3	CHE 202 – Organic Chemistry II	3
CHE 210 – Organic Chemistry Lab I	1	CHE 211 – Organic Chemistry Lab II	1
MAJOR ELECTIVE	3-4	PHY 201 – Physics II with lab	4
PHY 200 –Physics I with lab	4	THE 105/PHI 105 (if needed) or Gen Ed SEARCH	3
THE 105/PHI 105	3	Gen Ed SEARCH	3
Gen Ed SEARCH	3	Gen Ed SEARCH	3
TOTAL	17-18	TOTAL	17
Semester 5	Credits	Semester 6	Credits
***NOTE: Math & Science students can enroll for an optional Math & Science internship for 6 credits any time after they reach Junior standing.			
BIO 303/309 – Genetics w/ lab	4	BIO 304/311 or BIO 409: Immunology (Fall course) or Gen Ed SEARCH	3-4
MAT 209 – Probability & Statistics	3	BIO 221 – General Microbiology w/ lab	4
MAT 220 – Math/Statistics Computer Lab	1	Gen Ed SEARCH	3
Gen Ed SEARCH	3	Gen Ed SEARCH	3
Gen Ed SEARCH	3	Gen Ed SEARCH	3
Gen Ed SEARCH	3	Gen Ed SEARCH	3
TOTAL	17	TOTAL	16-17
Semester 7	Credits	Semester 8	Credits
CHE 401 - Biochemistry	3	SCI 402 – Senior Seminar	2
CHE 410 – Biochemistry Lab	1	SCI 407 – Research II or SCI 480 Internship	3
CHE 301 – Physical Chemistry I	3	Gen Ed SEARCH	3
CHE 310– Physical Chemistry I lab	1	Elective	3
SCI 406 – Research I or SCI 480 Internship	3	CHE 302 – Physical Chemistry II	3
Gen Ed SEARCH or BIO 409 (if BIO 304/311 was not taken)	3	CHE 311 – Physical Chemistry II Lab	1
Gen Ed SEARCH	3		
TOTAL	17	TOTAL	15
ADDITIONAL GRADUATION REQUIREMENTS	RESIDENCY REQUIREMENTS	GRADUATION CREDITS EARNED	
___ SRH 101/HNR 160: Search Seminar-Enduring Questions	___ Minimum of 123 non-remedial credits earned	Liberal Arts Core credits earned	
___ HUMAN DIVERSITY	___ 45 of last 60 credits	Major and Related Area credits earned	
___ COMMUNITY SERVICE HOURS	___ Minimum of 12 Alvernia credits in the major	Elective and/or Minor credits earned	
___ OVERALL GPA = 2.0 or higher	___ Minimum of 9 Alvernia credits in the minor (if applicable)	SUBTOTAL	
___ GPA IN MAJOR = 2.0 or higher		SUBTRACT CREDITS EARNED FOR MAT 100, and if applicable COM 100	
___ SENIOR CAPSTONE: (Will be met with SCI 406/407)		TOTAL GRADUATION CREDITS	
___ WRITING ENHANCED COURSE: (Will be met with CHE 211)			

Academic Policy on Eligibility for Participation of May Commencement Ceremony

The academic policy, which the Registrar follows, is: A student who has 6 or less credits remaining to complete the degree may participate in the May Commencement Ceremony.

*Application Deadlines: August Graduation - December 1; December Graduation - March 1; May Graduation - October 1.
Any questions, please call the Registrar's Office.*