

## APPLIED BIOTECHNOLOGY

### Required Coursework and Graduation Checklist for U of A Degree

#### 2022 Cohort Only

**NOTE:** In order to graduate, students must satisfy all general education and foundational coursework in addition to satisfying all graduation policies and protocols. Requirements for the Northern Kazakhstan University degree may vary. Please consult with your NKU advisor on the NKU degree requirements.

#### Graduation Checklist (Check if applicable):

1. Have you completed ALL of the required coursework below with a “passing” grade? (Students must obtain at least a “C” grade in courses taught by NKU and U of A.) ☐
2. Did you receive a “D” or “E” in any of your courses? Contact your Academic Advisor to discuss your next steps. ☐
3. Have you completed the Mid-Career Writing Assessment by earning at least a “B” grade in ENGL 108 (if you earned lower than a “B” grade, please consult with your U of A advisor)? ☐
4. Have you met the English Writing Requirement by earning at least a “B” grade in ENGL 108? Students may meet MCWA with a B grade in ENVS 408. ☐
5. Have you completed 120 total units towards your degree? (You can view this total on the U of A Advisement Report on UAccess Student) ☐
6. Have you completed 42 upper division units (300-400 level) towards your degree? (You can view this total on the U of A Advisement Report on UAccess Student) ☐
7. Have you completed 30 residence units (U of A taught courses) towards your degree? (You can determine this in Course History in UAccess Student) ☐
8. Is your final cumulative University of Arizona GPA a minimum of 2.0? (You can view this GPA on the U of A Advisement Report on UAccess Student) ☐
9. Is your final major University of Arizona GPA a minimum of 2.0? (You can view this GPA on the U of A Advisement Report on UAccess Student) ☐

**NOTE:** Grades earned in courses from NKU **are not** included in the cumulative, major, or term University of Arizona GPA calculation, but the transfer credits **are** included in the upper division units and total units requirements.

#### GENERAL EDUCATION COURSES:

There are multiple subject areas for General Education courses. Within each subject area, students must take a certain number of courses. The number of courses and course options are indicated below:

Courses written in **red** are U of A courses.

Course Number	NKU Course Title	U of A Requirements or Equivalent Course Title	Credits	Grade
EXPLORING PERSPECTIVES (12 CREDITS REQUIRED)				
Phi3109	Philosophy	Exploring Perspectives: Humanist	2.5	ACC required
HK1102	Modern History of Kazakhstan	Additional EPH Units	2.5	ACC required
IT4110	Introduction to Theatre	Exploring Perspectives: Artist	3	ACC required

MSPK1103	Module of Socio-Political Knowledge	Exploring Perspectives: Social Scientist	4	ACC required
GC1204	General Chemistry I	Exploring Perspectives: Natural Scientist	4	ACC required
BUILDING CONNECTIONS (9 CREDITS REQUIRED) Substitution will be made to add 0.5 additional credit to reach 9 credits.				
<b>Choose 1</b>				
BLAC1106	Bases of Law and Anticorruption Culture			
EFE1106	Economics and Fundamentals of Enterp.			
MSR1106	Methods of Scientific Research	General Education: Building Connections I	2.5	ACC required
ESD1106	Ecology and Sustainable Development			
BLS1106	Fundamentals of Life Safety			
CC1106	Climate Change			
NSC 310	Human Nutrition in the Prevention and Treatment of Disease – U of A taught	General Education: Building Connections 2	3	ACC required
FEA4219	Features of Entrepreneurial Activity	General Education: Building Connections 3	3	ACC required
MATH (3 CREDITS)				
HM1202	Higher Mathematics	MATH 122B	Calculus I	3
ENGLISH (9 CREDITS)				
ENGL 106	Foundations Writing for English – U of A taught			3
ENGL 107	Foundations Writing for English – U of A taught			3
ENGL 108	Foundations Writing for English – U of A taught			3

## REQUIRED SUPPORTING COURSEWORK – 43 credits total

Courses written in **red** are U of A courses.

NKU Course Number	NKU Course Title	U of A Equivalent Course	U of A Degree Requirements	Credit	Grade
PHY2208	Physics I	PHYS 141	Physics I	4	
PHY3216	Physics 2	PHY 240	Physics 2	4	
GC1204	General Chemistry I	CHEM 151	General Chemistry I	4	
TFIC2110	Theoretical Foundations of Inorganic Chemistry	CHEM 152	General Chemistry 2	4	
OCC2211	Organic Chemistry I	CHEM 241A+243A	Organic Chemistry I	4	
OC3220	Organic Chemistry 2	CHEM 241B+243B	Organic Chemistry 2	4	
IB1206	Introduction to Biology I	MCB 181R+181L	Introduction to Biology I	4	
EEB2212	Evolutionary and Ecological Biology	ECOL 182R+182L	Evolutionary and Ecological Biology	4	
STA2210	Statistics	AREC 239	Intro to Stats & Data Analysis	3	

## EMPHASIS IN APPLIED BIOTECHNOLOGY MAJOR CORE COURSES – 20 credits total

Courses written in **red** are U of A courses.

NKU Course Number	NKU Course Title	U of A Equivalent Course	U of A Degree Requirements	Credit	Grade
MIC2213	Microbiology	MIC 285R+285L	Microbiology	4	
BIO3215	Biochemistry	BIOC 384	Biochemistry	3	
FB3311	Food Biotechnology	NSC 371R	Food and Beverage Fermentation	3	
	Writing and Defending a Diploma OR Preparation and Passing of a Comprehensive Exam	PLS 498C	Senior Capstone	4	
		PLS 340	Introduction to Biotechnology	3	
		ENVS 408 OR ALC 422	Communication	3	

## EMPHASIS IN GENERAL APPLIED BIOTECHNOLOGY COURSES – 26 credits total

Courses written in **red** are U of A courses.

NKU Course Number	NKU Course Title	U of A Equivalent Course	U of A Degree Requirements	Credit	Grade
		PLS 340L	Biotechnology Laboratory	2	
FB3311	Food Biotechnology	NSC 371L	Brewing and Food Fermentation Lab	3	
		PLP 312	Genetics Core	4	
BP3312	Biotechnology of Plants	PLS 424R	Plant Products and Biotechnology	3	
		PLS 434	Industrial Biotechnology	3	
		PLP 428R	Microbial Genetics	3	
		MIC 350	Molecular Microbiology	3	
		PLS 449A OR PLS 358 OR MIC 328R	Plant Genetics and Genomics OR Plant Molecular Biology OR Microbial Physiology	3	
		PLS 428L	Microbial Genetics Laboratory	2	

**STUDENT SUCCESS COURSES:** Student Success Courses are taught by U of A. HED 102A and 102B are taught for every cohort.

University of Arizona – Student Success Courses	Grade	NKU
HED 102A: Succeeding as a Global Wildcat I	P	
HED 102B: Succeeding as a Global Wildcat II		