Curriculum

Name of the Program	Pharmacy
Academic degree to be awarded / qualification	**Bachelor of Pharmacy**
Name of the Faculty	Faculty of Medicine
Program Manager / Supervisors / Coordinator	Professor Mikheil Samsonia Mikheil.samsonia@atsu.edu.ge
Duration / content of the program (terms, number of credits)	Program Duration - 4 academic years, 8 semesters. Number of credits - 240 ECTS credits.
Language of learning and teaching	Georgian
Program development and update dates	Decision of the Accreditation Council: №862040 18.09.2020 Decision of the Academic Council №1 (21/22) 17.09.2021 Resolution of the Academic Council No. 5 14.09.2023

Prerequisites for admission to the program (requirements)

- General Education Certificate - results of the Unified National Examinations/ Certificate;
- The Bachelor's program can be entered into directly after high school without the Unified National Examinations (in compliance with the rules and within the timeframe established by the Ministry of Education and Science of Georgia) by the following applicants :
- A) foreign nationals and stateless persons who have received full general or equivalent education in a foreign country;
- B)Persons who study/studied and have accumulated ECTS credits from a foreign country's high educational institution recognized in accordance with the legislation of the country ;
- C) Citizens of Georgia who have a high school or equivalent education in a foreign country and those who were given an opportunity to complete general education course and studied at least for two yeas in a foreign country.
- External and internal mobility.

The objectives of the program

The program's major purpose is to develop certified bachelors of pharmacy with the values, knowledge, and abilities necessary to engage in decent professional activities in the pharmaceutical industry:

1. To conduct qualitative and quantitative analysis of medicinal substances;
2. to develop effective and safe medicines;
3. To recognize the significance of the pharmaceutical service as the governmental structure in charge of medicine quality control;
4. To follow the requirements for registering, storing, using, and distributing a pharmaceutical product (medicinal product) from the second group;
5. To assess the efficacy of a pharmaceutical facility's management systems;
6. To provide population support in a clinical setting, as well as to improve patient-centered pharmaceutical care and treatment procedures.

Opportunity to continue learning

The bachelor's program provides a sound basis to go in for further cycle of education - to pursue a master's degree.

Learning outcomes
Bachelor of pharmacy isable to:

Knowledge and understanding	1. Demonstrate theoretical understanding of natural, medical, and fundamental pharmaceutical sciences; 2. Recognize the significance of the Pharmaceutical Service as a governmental structure responsible for medication quality control and the distribution of effective and safe medicines to the general public.
skills	3. Differentiation of medications into pharmacological classes and prediction of effectiveness in various diseases (based on the mechanism of action of a drug,

	recommendations for indications, side effects, contraindications, and compatibility); 4. Carrying out qualitative and quantitative analysis of medicinal products, as well as isolation of toxic substances from biological material and conducting chemical-toxicological research on poisons (with a strictly defined algorithm); 5. Primary processing of medicinal plant raw materials, drying, drawing conclusions on authenticity and quality; 6. Production, preparation, testing, and dispensing of medications in various forms (powders, mixes, ointments, suspensions, emulsions, injectable solutions including colloidal and high molecular weight components) based on the recipe 7. Submitting a research / practical project / paper (in the form of a report) with pre-defined instructions, defending one's position on key issues, both in one's native language and in one of the foreign languages; 8. Using the latest approaches, identify risk factors affecting the activities of the pharmaceutical organization and look for new ways to solve problems.
Responsibility and autonomy	9.Study of current processes in the field of pharmacy, use of scientific sources in good faith and deepen knowledge; 10.Support the state policy and take effective measures regarding psychotropic and poison-drug drugs, their legal circulation, registration and issuance rules.

Teaching methods

- Interactive lectures (using visual material);
- Research seminars;
- Discussion / debate;
- Group work on the research problem and process analysis;
- Brain Storming;
- Problem-based learning (PBL);
- Case study - (Case study);
- Method of written work;
- Method of demonstration.

Program structure

The bachelor's degree program in pharmacy lasts **4 years** and requires **240 credits** (220 credits for mandatory training, 10 credits for elective courses, and 10 credits for free elective courses) as well as passing a complex qualification exam (test). The qualification exam covers key issues in fundamental pharmaceutical disciplines (pharmaceutical technology; pharmacology, clinical pharmacy; social pharmacy; pharmaceutical business management and marketing; pharmaceutical chemistry; pharmacognosy key issues), and he or she will only be awarded the academic degree of Bachelor of Pharmacy if he or she receives a positive assessment (minimum competency threshold is 51%).

Student Knowledge Assessment System and Criteria

At Akaki Tsereteli State University, the academic performance of higher education students is assessed using modern indicators by the orders as of №785 (05.01.2007), №3 (21.09.2009) and №102 / N as of August 18, 2016, as prescribed by the Minister of Education and Science of Georgia as well as according to the principles of (№12; 30.10.2009; Resolution№35; 10.11.2010, № 1, 17/18 15.09. 2017) as envisaged by the decisions of the Academic Council of Akaki Tsereteli State University.

According to the the study component envisaged by the curriculum of the educational program, a student can get credits as a result of achieving learning outcomes, which is reflected in one of the positive assessments provided by the credit system

A) **Mid-term assessments**, which in its part involves: the component of student attendance at lectures and internships as well as daily academic activity (survey, discussion, testing, presentation, essays), assessment of practical skills and ongoing mid-term assessment. The mid-term evaluation may include other components.

B) **final exam ssessment**

The total grade point is obtained on the basis of midterm assessments and final exam assessments. A student whose minimum competency threshold (in the components of midterm assessments) is **at least 24 points** is eligible to take the final exam, provided that he / she has not missed more than 50% of the number of contact hours.

The maximum grade of the course / module / subject block is equal to 100 points, of which 40 points are allocated to the maximum grade of the final exam. The most commonly used assessment methods are: Test, Oral or Combined Summative Exam.

There are five types of positive and two types of negative evaluations.

The evaluation system provides for the following:

A) There are five different forms of positive evaluations:

A.a) (A) Excellent - 91-100 points;

A.b) (B) very good - 81-90 points;

A.c) (C) Good - 71-80 points;

A.d.) (D) Satisfactory - 61-70 points;
A.e) (E) Sufficient - 51-60 points.
B) Two types of negative evaluation:
Failed) (FX) - 41-50 points, which means that the student needs more work harder to pass and is allowed to retake an additional exam once by working independently;
Bb) (F) Interrupted - 40 or less points, indicating that the student's effort is insufficient and that he or she must re-study the discipline.
The minimum grade point average obtained by a student in the final exam is set at 24 points.
In the educational component of the educational program, in case of receiving FX, an additional exam will be scheduled not less than 5 days after the announcement of the final exam results.
The grade obtained on the supplementary examination is the final grade of the student, which does not take into account the negative score obtained on the main final examination.
The student will receive an F-0 if the final grade of the educational component is 0-50 points, taking into account the grade attained on the additional test.
The course syllabi fully describe the assessment components and requirements.

Areas of employment

- Private national and international pharmaceutical companies (managers, coordinators);
- Authorized pharmacies, chemical-pharmaceutical profile enterprises,
- Drug quality control and standardization laboratories;
- Public Service for Regulation of Pharmaceutical Activities;
- Medical insurance companies;
- Forensic medical centers;

Supporting conditions / resources necessary for learning

Material resources necessary for the educational program's implementation include: The process of preparation for the Bachelor of Pharmacy is provided by Akaki Tsereteli State University specialists with the relevant profile - professors, associate and assistant professors, whose qualifications are approved and confirmed by experience, pedagogical and scientific-methodological work experience and **publications in international peer-reviewed journals of medical or pharmaceutical profile**. The bachelor program is implemented using the following material and technical resources:

Lecture-teaching auditoriums equipped with modern equipment of the University;
• Laboratories of the relevant profile of the training courses;
• Atsu Library, reading halls of I, II, III and XXII buildings (students have the latest educational-scientific literature and a unique electronic medical library at their disposal);
• Pharmacy network of the pharmaceutical company "PSP" (based on the memorandum);
• Pharmaceutical company "GMP" (based on the memorandum);
• Pharmaceutical company "Impexpharm" (based on a memorandum)
• Medical Corporation "Evex" (based on the memorandum);
• Batumi Shota Rustaveli State University (based on a memorandum);
• Neopharm + Ltd (based on a memorandum);
• Legion provisus Ltd (based on the memorandum);
• Medical Treatment Center "Gergili +" (based on the agreement);
• "Green Pharmacy" Ltd (based on the contract);
• Pharmacy N4 Ltd (based on the contract). This institution purchases, registers, stores, issues and sells pesticides, narcotics, potent substances and preparations under special control, as well as manufactures solutions, ointments, liniments, suppositories and powders, and distributes them internally.

Annex 1.



Curriculum
Bachelor's Degree Program "Pharmacy"
(Qualification awarded "Bachelor of Pharmacy")

№	course	Hours per week	Lecture / Practice./ Seminar /laboratory work	Number of credits	Number of hours			terms								precondition
					Contact *	independent სწავლება	total	I	II	III	IV	V	VI	VII	VIII	
1	General and Inorganic Chemistry	3	1/0/0/2	4	45/3	52	100	4								
2	Medical Biology, Genetics, Teratology	3	1/2/0/0	4	45/3	52	100	4								
3	Cytology, Embryology, General histology	3	1/2/0/0	5	45/3	77	125	5								
4	Human Anatomy and Physiology - 1	4	2/2/0/0	6	60/3	87	150	6								
5	Latin Language and Medical Terminology	2	0/2/0/0	3	30/3	42	75	3								
6	Pharmaceutical Ethics and Deontology	3	1/2/0/0	5	45/3	77	125	5								
7	Methods of Mathematics and Statistics in Medicine	2	1/1/0/0	3	30/3	42	75	3								
				30	**321**	**429**	**750**	**30**								
8	Organic Chemistry	4	2/0/0/2	6	60/3	87	150		6							1
9	Biophysics	2	1/1/0/0	3	30/3	42	75		3							
10	Legal basis of pharmaceutical activity	2	1/1/0/0	3	30/3	42	75		3							6
11	Human Anatomy and Physiology–2	3	1/2/0/0	4	45/3	52	100		4							4
12	Foreign Language - 1	4	0/4/0/0	5	60/3	62	125		5							
13	Botany	3	1/2/0/0	4	45/3	52	100		4							
14	**Free Electives -1**	3	1/2/0/0	5	45/3	77	125		**5**							
				30	**336**	**414**	**750**		**30**							

15	Physical Chemistry	3	1/0/0/2	4	45/3	52	100			4						
16	Medical Microbiology, Virology, Parasitology - 1	3	1/0/0/2	5	45/3	77	125			5						11
17	Analytical Chemistry–1	3	1/0/0/2	5	45/3	77	125			5						
18	Medical biochemistry	4	2/0/0/2	6	60/3	87	150			6						11
19	Pharmacognosy– 1	4	1/3/0/0	5	60/3	62	125			5						
20	Foreign Language –2	4	0/4/0/0	5	60/3	62	125			5						12
				30	**333**	**417**	**750**			**30**						
21	Medical Microbiology, Virology, Parasitology –2	3	1/0/0/2	4	45/3	52	100				4					16
22	General Immunology	2	1/1/0/0	3	30/3	42	75				3					11
23	Analytical Chemistry–2	3	1/0/0/2	4	45/3	52	100				4					17
24	Pathology – 1	2	1/1/0/0	3	30/3	42	75				3					11, 18
25	Pharmacognosy –2	3	1/2/0/0	4	45/3	52	100				4					5, 13,19
26	Foreign Language–3	4	0/4/0/0	5	60/3	62	125				5					20
27	Instrumental methods of drug analysis	3	1/2/0/0	4	45/3	52	100				4					17
28	Introductory practice of pharmaceutical institutions	–		3	30/2	43	75				3					
				30	**353**	**397**	**750**				**30**					
29	General Hygiene	2	1/1/0/0	3	30/3	42	75					3				21
30	Pathology – 2	3	1/2/0/0	4	45/3	52	100					4				24
31	Pharmacology – 1	4	2/2/0/0	5	60/3	62	125					5				5, 24
32	Pharmacognosy – 3	3	1/2/0/0	4	45/3	52	100					4				25
33	Pharmaceutical Technology - 1 (Drug Pharmacy Technology)	4	1/0/0/3	5	60/3	62	125					5				5,10,25
34	Pharmaceutical Chemistry–1	3	1/0/0/2	4	45/3	52	100					4				8,27
35	Elective courses– 1**	2	0/2/0/0	5	30/3	92	125					5				
				30	**336**	**414**	**750**					**30**				
36	**Free Electives - 2**	3	1/2/0/0	5	45/3	77	125						5			
37	Pharmacology –2	4	2/2/0/0	5	60/3	62	125						5			31
38	Pharmaceutical Technology-2 (Drug Pharmaceutical Technology)	3	1/0/0/2	4	45/3	52	100						4			33
39	Pharmaceutical Chemistry–2	3	1/0/0/2	4	45/3	52	100						4			34
40	Social Pharmacy– 1	3	1/1/0/0	3	30/3	42	75						3			6,7,10
41	Elective courses – 2**	2	0/2/0/0	5	30/3	92	125						5			
42	Training practice in Pharmacognosy	–	–	2	30/2	18	50						2			32

43	Training practice in Pharmaceutical Technology	–	–	2	30/2	18	50						2			38
				30	**337**	**413**	**750**						**30**			
44	Pharmaceutical cosmetology and perfumery	3	1/2/0/0	4	45/3	52	100							4		37-38
45	Medical and Pharmaceutical commodities	3	1/2/0/0	4	45/3	52	100							4		40
46	Pharmaceutical Biotechnology	2	1/1/0/0	3	30/3	42	75							3		32, 37-38
47	Pharmacotherapy – 1	3	1/2/0/0	5	45/3	77	125							5		37
48	Pharmaceutical technology - 3 (drug factory technology)	4	1/0/0/3	5	60/3	62	125							5		38
49	Pharmaceutical Chemistry– 3	3	1/0/0/2	4	45/3	52	100							4		39
50	Social Pharmacy– 2	2	1/1/0/0	3	30/3	42	75							3		40
51	Training practice in Social pharmacy	–	–	2	30/2	18	50							2		40
				30	**353**	**397**	**750**							**30**		
52	Pharmacotherapy – 2	3	1/2/0/0	4	45/3	52	100								4	47
53	Pharmaceutical Technology - 4 (Pharmaceutical Factory Technology)	3	1/0/0/2	4	45/3	52	100								4	48
54	Pharmaceutical Chemistry–4	3	1/0/0/2	4	45/3	52	100								4	49
55	Social Pharmacy- 3	2	1/1/0/0	3	30/3	42	75								3	50
56	Toxicological chemistry	3	1/0/0/2	4	45/3	52	100								4	32, 37, 49
57	Pharmaceutical business management and marketing	2	1/1/0/0	3	30/3	42	75								3	10, 50
58	Clinical Pharmacy	3	1/2/0/0	4	45/3	52	100								4	47
59	Industrial practice in the Pharmaceutical Manufacturing Technology	–	–	2	30/2	18	50								2	48
60	Training practice in Pharmaceutical Chemistry	–	–	2	30/2	18	50								2	49
				30	**370**	**380**	**750**								**30**	
1	**Elective course - 1**															
1.1	Academic writing	2	1/1/0/0	5								5				
1.2	Additional foreign language course – 1	2	0/2/0/0	5								5				
1.3	Historyof Pharmacy	2	1/1/0/0	5								5				
1.4	Geriatric Pharmacology (in English)	2	1/1/0/0	5								5				
1.5	History of World Religions (in English)	2	1/1/0/0	5								5				
2	**Elective course - 2**															
2.1	First aid training	2	1/1/0/0	5									5			
2.2	Medical Psychology and Psychiatry	2	1/1/0/0	5									5			
2.3	Additional foreign language course – 2	2	0/2/0/0	5									5			
2.4	Chemical and Biological Weapons, Bioterrorism (in English)	2	1/1/0/0	5									5			

2.5	History of Europe (in English)	2	1/1/0/0	5									5			
სულ				**240**	**2739**	**3261**	**6000**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	

*Note: * - contact hours/lecture hours are separated from hours for midterm and final exams.*

*** - The student chooses only one subject from the mentioned course.*