

**MINISTRY OF HEALTH OF UKRAINE**  
**BOGOMOLETS NATIONAL MEDICAL UNIVERSITY**

**GUIDELINES**  
**to lectures**

Academic discipline	Actual Problems of Pharmacy Education
Branch of knowledge	22 “Health care”
Specialty	226 “Pharmacy, industrial pharmacy”
Specialization	226.01 “Pharmacy”
Department	Analytical, physical and colloid chemistry

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“Pharmacy, industrial pharmacy”  
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## Lecture N 1 “Perspectives of higher education”

**Type of lecture:** traditional (informational).

### **Competencies:**

– **integral competence:** ability to solve tasks of research and/or innovative nature in the field of pharmacy;

– **general competencies (GC):**

1. Ability for abstract thinking, analysis and synthesis (GC 01).
2. Knowledge and understanding of the subject area; understanding of professional activity (GC 02).
3. Ability to work in a team (GC 06).
4. The ability to make decisions and act in compliance with the principle of inadmissibility of corruption and any other manifestations of dishonesty (GC 10).

– **professional competences of the specialty (PC):**

1. Ability to integrate knowledge and solve complex problems of pharmacy / industrial pharmacy in broad or multidisciplinary contexts (PC 01).
2. Ability to collect, interpret and apply data necessary for professional activity, carrying out research and implementation of innovative projects in the field of pharmacy (PC 02).
3. Ability to clearly and unambiguously communicate one's own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, in particular to persons who are studying (PC 04).

### **Purposes:**

- 1) didactic purpose – to form systematized knowledge about the diverse goals of higher education institutions, the needs of students, and the demands of society; to analyze higher education as a pivotal component in shaping the future by educating the next generation of leaders, innovators, and informed citizens.
- 2) educational purpose – to contribute to the formation of a scientific outlook;
- 3) developmental purpose – to develop intellectual abilities, thinking, independence.

**Lecture equipment:** multimedia system, appropriate software.

### **Tasks of the lecture:**

- 1) to discuss the current trends and challenges in higher education;
- 2) to analyze key perspectives of higher education.

### **Lecture plan:**

Stage of the lecture	Content of stages	Educational purpose of the stage	Time
Introduction	The perspectives of higher education encompass	Reveal the relevance of the topic of the lecture;	5 minutes

	<p>various views and approaches regarding the role, purpose, and future direction of post-secondary education. These perspectives reflect the diverse goals of higher education institutions, the needs of students, and the demands of society. They also highlight the challenges and opportunities faced by higher education in a rapidly changing world.</p>	familiarize students with the lecture plan.	
Main part	<p>1. Key perspectives of higher education:</p> <ul style="list-style-type: none"> <li>– traditional academic perspective,</li> <li>– professional and vocational perspective,</li> <li>– social and civil perspective,</li> <li>– economic perspective,</li> <li>– global perspective,</li> <li>– technological perspective,</li> <li>– lifelong learning perspective,</li> <li>– sustainability perspective.</li> </ul> <p>2. Current trends and challenges in higher education:</p> <ul style="list-style-type: none"> <li>– digital transformation,</li> <li>– equity and inclusion,</li> <li>– cost and affordability,</li> <li>– globalization,</li> <li>– workforce alignment,</li> <li>– focus on outcomes,</li> <li>– innovation in curriculum.</li> </ul>	<p>Acquire knowledge about the key perspectives of higher education.</p> <p>Acquire knowledge about the current trends and challenges in higher education.</p>	30 minutes
Results	Highlight the challenges and opportunities faced by higher education in a rapidly changing world.	Summarize the presented material about perspectives of higher education.	5 minutes
Answers to questions	Active dialogue / discussion.	Explain the most difficult and unclear	5 minutes

**Recommended literature:***Basic*

1. Law of Ukraine “On Higher Education” URL: <https://zakon.rada.gov.ua/laws/show/en/1556-18?lang=en#Text> (date of access: 20.08.2024).

2. Anderson, C., & Arakawa, N. (2021). Pharmacy education development. *Pharmacy*, 9(4), 168-172. URL: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8544723/> (date of access: 20.08.2024).

3. Skyba, M. (2018). The main tendencies of higher education in Ukraine in the context of the current challenges of European integration. *International Entrepreneurship*, 4(2), 43-54. URL: <https://ier.uek.krakow.pl/index.php/pm/article/view/1627/> (date of access: 20.08.2024).

*Additional*

1. Kushnir, I. (2016). The role of the Bologna Process in defining Europe. *European Educational Research Journal*, 15(6), 664-675. URL: <https://journals.sagepub.com/doi/full/10.1177/1474904116657549> (date of access: 20.08.2024).

*Information resources*

1. <https://nmuofficial.com/en/zagalni-vidomosti/kafedri/department-medical-general-chemistry/>

2. <https://likar.nmu.kiev.ua/md/course/view.php?id=7410>

**Questions for student self-preparation for the lecture:**

1. Key perspectives of higher education.
2. Current trends and challenges in higher education.

**The methodical instruction is developed by Yaroslava Pushkarova** – Associate Professor of Analytical, Physical and Colloid Chemistry Department, PhD in Chemistry, Associate Professor

## Lecture N 2 “Factors of sectoral restructuring of higher education”

**Type of lecture:** traditional (informational).

### **Competencies:**

- **integral competence:** ability to solve tasks of research and/or innovative nature in the field of pharmacy;
- **general competencies (GC):**
  1. Ability for abstract thinking, analysis and synthesis (GC 01).
  2. Knowledge and understanding of the subject area; understanding of professional activity (GC 02).
  3. Ability to work in a team (GC 06).
  4. The ability to make decisions and act in compliance with the principle of inadmissibility of corruption and any other manifestations of dishonesty (GC 10).
- **professional competences of the specialty (PC):**
  1. Ability to integrate knowledge and solve complex problems of pharmacy / industrial pharmacy in broad or multidisciplinary contexts (PC 01).
  2. Ability to collect, interpret and apply data necessary for professional activity, carrying out research and implementation of innovative projects in the field of pharmacy (PC 02).
  3. Ability to clearly and unambiguously communicate one's own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, in particular to persons who are studying (PC 04).

### **Purposes:**

- 1) didactic purpose – to form systematized knowledge about the sectoral restructuring of higher education: influenced factors; to analyze educational levels according with National Qualifications Framework in Ukraine;
- 2) educational purpose – to contribute to the formation of a scientific outlook;
- 3) developmental purpose – to develop intellectual abilities, thinking, independence.

**Lecture equipment:** multimedia system, appropriate software.

### **Tasks of the lecture:**

- 1) to analyze the key factors, which is driving the sectoral restructuring of higher education;
- 2) to know educational levels according with National Qualifications Framework in Ukraine;
- 3) to discuss a specific set of competencies, knowledge, and skills that are corresponded to each level of the National Qualifications Framework.

### Lecture plan:

Stage of the lecture	Content of stages	Educational purpose of the stage	Time
Introduction	Sectoral restructuring of higher education refers to the changes and realignments within the higher education sector in response to various internal and external factors. This process can involve shifts in the focus of academic programs, changes in the organization and governance of institutions, and the reallocation of resources.	Reveal the relevance of the topic of the lecture; familiarize students with the lecture plan.	5 minutes
Main part	<p>1. Key factors, which is driving the sectoral restructuring of higher education:</p> <ul style="list-style-type: none"> <li>– economic factors,</li> <li>– technological advancements,</li> <li>– demographic changes,</li> <li>– globalization,</li> <li>– policy and regulatory changes,</li> <li>– social and cultural shifts,</li> <li>– institutional strategy and competition,</li> <li>– environmental sustainability,</li> <li>– demand for interdisciplinary education,</li> <li>– impact of global crises (e.g., pandemics),</li> <li>– research and innovation.</li> </ul> <p>2. National Qualifications Framework in Ukraine.</p>	<p>Acquire knowledge about the key factors, which is driving the sectoral restructuring of higher education.</p> <p>Acquire knowledge about the educational levels according with National Qualifications Framework.</p>	30 minutes
Results	Highlight that each level of	Summarize the	5 minutes

	the National Qualifications Framework corresponds to a specific set of competencies, knowledge, and skills that are expected to be attained by the learner. These competencies include cognitive skills (such as problem-solving and critical thinking), practical skills (such as technical and professional abilities), and social skills (such as communication and teamwork).	presented material about National Qualifications Framework in Ukraine.	
Answers to questions	Active dialogue / discussion.	Explain the most difficult and unclear points of the lecture.	5 minutes

### **Recommended literature:**

#### *Basic*

1. OECD (2017), “Definition and classification of educational programmes: The practical implementation of ISCED 2011”, in OECD Handbook for Internationally Comparative Education Statistics: Concepts, Standards, Definitions and Classifications, OECD Publishing, Paris. URL: <https://www.oecd-ilibrary.org/docserver/9789264279889-8-en.pdf?expires=1661516332&id=id&accname=guest&checksum=1B2B4854B46BB2F99ECFCBA949A5CB33> (date of access: 20.08.2024).

2. International Standard Classification of Education. Fields of education and training 2013 (ISCED-F 2013) – Detailed field descriptions. UNESCO Institute for Statistics, Canada, 2015, 96 p. URL: <https://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-fields-of-education-and-training-2013-detailed-field-descriptions-2015-en.pdf> (date of access: 20.08.2024).

3. Quality assurance in higher education institutions in Ukraine 2016 through the prism of European Guidelines and Standards ESQ 2015 / Edited by Mazurkiewicz, EXANTE, Wroclaw, 2016. URL: <https://projects.lnu.edu.ua/quaere/wp-content/uploads/sites/6/2018/03/QA-in-Ukraine-reports.pdf> (date of access: 20.08.2024).

#### *Additional*

1. Law of Ukraine “On Higher Education” URL: <https://zakon.rada.gov.ua/laws/show/en/1556-18?lang=en#Text> (date of access: 20.08.2024).



2. Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). (2015). Brussels, Belgium. URL: [https://enqa.eu/wp-content/uploads/2015/11/ESG\\_2015.pdf](https://enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf) (date of access: 20.08.2024).

*Information resources*

1. <https://nmuofficial.com/en/zagalni-vidomosti/kafedri/department-medical-general-chemistry/>

2. <https://likar.nmu.kiev.ua/md/course/view.php?id=7410>

**Questions for student self-preparation for the lecture:**

1. Key factors, which is driving the sectoral restructuring of higher education.
2. Educational levels according with National Qualifications Framework.

**The methodical instruction is developed by Yaroslava Pushkarova** – Associate Professor of Analytical, Physical and Colloid Chemistry Department, PhD in Chemistry, Associate Professor

## Lecture N 3 “Improvement of organization of independent work of students”

**Type of lecture:** traditional (informational).

### **Competencies:**

– **integral competence:** ability to solve tasks of research and/or innovative nature in the field of pharmacy;

– **general competencies (GC):**

1. Ability for abstract thinking, analysis and synthesis (GC 01).
2. Knowledge and understanding of the subject area; understanding of professional activity (GC 02).
3. Ability to work in a team (GC 06).
4. The ability to make decisions and act in compliance with the principle of inadmissibility of corruption and any other manifestations of dishonesty (GC 10).

– **professional competences of the specialty (PC):**

1. Ability to integrate knowledge and solve complex problems of pharmacy / industrial pharmacy in broad or multidisciplinary contexts (PC 01).
2. Ability to collect, interpret and apply data necessary for professional activity, carrying out research and implementation of innovative projects in the field of pharmacy (PC 02).
3. Ability to clearly and unambiguously communicate one's own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, in particular to persons who are studying (PC 04).

### **Purposes:**

- 1) didactic purpose – to analyze the role, types and organization of independent students’ work; to discuss the possible ways for improvement of organization of independent work of students;
- 2) educational purpose – to contribute to the formation of a scientific outlook;
- 3) developmental purpose – to develop intellectual abilities, thinking, independence.

**Lecture equipment:** multimedia system, appropriate software.

### **Tasks of the lecture:**

- 1) to know the types of independent activities of students;
- 2) to know the classification of students’ individual work;
- 3) to analyze the role of independent students’ work;
- 4) to discuss the possible ways for improvement of organization of independent work of students.

### Lecture plan:

Stage of the lecture	Content of stages	Educational purpose of the stage	Time
Introduction	<p>The organization and role of independent work for students are crucial aspects of modern education, particularly in fostering self-directed learning, critical thinking, and the ability to apply knowledge in various contexts. Independent work allows students to take ownership of their learning process, develop problem-solving skills, and gain a deeper understanding of the subject matter.</p>	<p>Reveal the relevance of the topic of the lecture; familiarize students with the lecture plan.</p>	5 minutes
Main part	<p>1. Classification and types independent activities of students:</p> <ul style="list-style-type: none"> <li>– based on level guidance,</li> <li>– based on learning objectives,</li> <li>– based on context of the work,</li> <li>– based on type type of activity,</li> <li>– based on assessment methods.</li> </ul> <p>2. Role and possible ways for improvement of organization of independent work of students:</p> <ul style="list-style-type: none"> <li>– clear expectations and guidelines;</li> <li>– structured planning and time management;</li> <li>– access to resources and tools;</li> <li>– development of research and study skills;</li> <li>– regular feedback and</li> </ul>	<p>Acquire knowledge about the different classification and types of independent activities of students.</p> <p>Reveal the actuality independent work of students for future professional activity.</p>	30 minutes

	<p>support;</p> <ul style="list-style-type: none"> <li>– encourage collaboration and peer learning;</li> <li>– foster motivation and engagement;</li> <li>– adaptability and flexibility;</li> <li>– promote reflection and self-assessment.</li> </ul>		
Results	<p>Highlight that the organization and role of independent work in education are fundamental to developing self-directed, critical thinkers who are prepared for the challenges of higher education and the professional world. By carefully designing and supporting independent tasks, educators can help students build essential skills such as autonomy, time management, research, and application of knowledge. This not only enhances academic performance but also prepares students for lifelong learning and success in their future careers.</p>	<p>Summarize the presented material about independent work of students.</p>	5 minutes
Answers to questions	<p>Active dialogue / discussion.</p>	<p>Explain the most difficult and unclear points of the lecture.</p>	5 minutes

**Recommended literature:**

*Basic*

1. Walkington, H. (2015). Students as researchers: Supporting undergraduate research in the disciplines in higher education. *The higher education academy, 1*, 1-34. URL: <https://info.lse.ac.uk/staff/divisions/Teaching-and-Learning-Centre/Assets/Documents/URI-documents/HEA-Students-as-researchers-1.pdf> (date of access: 20.08.2024).

2. Law of Ukraine “On Higher Education” URL: <https://zakon.rada.gov.ua/laws/show/en/1556-18?lang=en#Text> (date of access: 20.08.2024).

*Additional*

1. Sattarov, A. R. (2021). Mobile learning technology for organizing independent work in the educational process of higher education. *Novateur Publications*, 7(2), 260-266. URL: <https://repo.journalnx.com/index.php/nx/article/view/2355> (date of access: 20.08.2024).

2. Elisafenki, M. K., Kruglikova, G. A., & Protasova, E. E. (2019). Digital technologies for organizing an independent work of students // *Advances in economics, Business and Management Research* (1st International Scientific Conference “Modern Management Trends and the Digital Economy: from Regional Development to Global Economic Growth” (MTDE 2019), 81, 644-646. URL: <https://www.atlantispress.com/proceedings/mtde-19/125908910> (date of access: 20.08.2024).

*Information resources*

1. <https://nmuofficial.com/en/zagalni-vidomosti/kafedri/department-medical-general-chemistry/>
2. <https://likar.nmu.kiev.ua/md/course/view.php?id=7410>

**Questions for student self-preparation for the lecture:**

1. Types and organization of independent students' work.
2. Role of independent work in education.

**The methodical instruction is developed by Yaroslava Pushkarova** – Associate Professor of Analytical, Physical and Colloid Chemistry Department, PhD in Chemistry, Associate Professor

## Lecture N 4 “Pharmacy education and training: current trends and future directions”

**Type of lecture:** traditional (informational).

### **Competencies:**

– **integral competence:** ability to solve tasks of research and/or innovative nature in the field of pharmacy;

– **general competencies (GC):**

1. Ability for abstract thinking, analysis and synthesis (GC 01).  
2. Knowledge and understanding of the subject area; understanding of professional activity (GC 02).

3. Ability to work in a team (GC 06).

4. The ability to make decisions and act in compliance with the principle of inadmissibility of corruption and any other manifestations of dishonesty (GC 10).

– **professional competences of the specialty (PC):**

1. Ability to integrate knowledge and solve complex problems of pharmacy / industrial pharmacy in broad or multidisciplinary contexts (PC 01).

2. Ability to collect, interpret and apply data necessary for professional activity, carrying out research and implementation of innovative projects in the field of pharmacy (PC 02).

3. Ability to clearly and unambiguously communicate one's own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, in particular to persons who are studying (PC 04).

### **Purposes:**

1) didactic purpose – to analyze the current trends in pharmacy education and training; to analyze the future directions in pharmacy education and training;

2) educational purpose – to contribute to the formation of a scientific outlook;

3) developmental purpose – to develop intellectual abilities, thinking, independence.

**Lecture equipment:** multimedia system, appropriate software.

### **Tasks of the lecture:**

1) to discuss the current trends in pharmacy education and training;

2) to discuss the future directions in pharmacy education and training;

### **Lecture plan:**

Stage of the lecture	Content of stages	Educational purpose of the stage	Time
Introduction	Pharmacy education and training are evolving rapidly due to advances in	Reveal the relevance of the topic of the lecture; familiarize students	5 minutes

	healthcare, technology, and changes in the roles of pharmacists. Understanding current trends and future directions in this field is essential for adapting curricula and training programs to prepare future pharmacists for the challenges and opportunities ahead.	with the lecture plan.	
Main part	<p>1. Current trends in pharmacy education and training:</p> <ul style="list-style-type: none"> <li>– integration of technology and digital health;</li> <li>– patient-centered care and clinical training;</li> <li>– interprofessional education;</li> <li>– emphasis on research and evidence-based practice;</li> <li>– focus on personalized medicine;</li> <li>– regulatory and ethical training;</li> <li>– global health and cultural competency.</li> </ul> <p>2. Future directions in pharmacy education and training:</p> <ul style="list-style-type: none"> <li>– expansion of the pharmacist’s role;</li> <li>– continued integration of artificial intelligence and data analytics;</li> <li>– emphasis on lifelong learning;</li> <li>– sustainability and environmental considerations;</li> <li>– integration of social determinants of health.</li> </ul>	<p>Form an understanding of the current trends in pharmacy education and training.</p> <p>Form an understanding of the future directions in pharmacy education and training.</p>	30 minutes
Results	Highlight that the pharmacy	Summarize the	5 minutes

	education and training are undergoing significant transformation, driven by technological advancements, expanding roles for pharmacists, and a greater emphasis on patient-centered care. As these trends continue, pharmacy curricula will need to adapt to prepare students for the evolving demands of the profession. Future pharmacists will be expected to be not only experts in medication management but also skilled in technology, research, communication, and cultural competency.	presented material about the current trends and future directions of pharmacy education.	
Answers to questions	Active dialogue / discussion.	Explain the most difficult and unclear points of the lecture.	5 minutes

### Recommended literature:

#### *Basic*

1. Anderson, C., & Arakawa, N. (2021). Pharmacy education development. *Pharmacy*, 9(4), 168-172. URL: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8544723/> (date of access: 20.08.2024).
2. Skyba, M. (2018). The main tendencies of higher education in Ukraine in the context of the current challenges of European integration. *International Entrepreneurship*, 4(2), 43-54. URL: <https://ier.uek.krakow.pl/index.php/pm/article/view/1627/> (date of access: 20.08.2024).

#### *Additional*

1. Quality assurance in higher education institutions in Ukraine 2016 through the prism of European Guidelines and Standards ESQ 2015 / Edited by Mazurkiewicz, EXANTE, Wroclaw, 2016. URL: <https://projects.lnu.edu.ua/quaere/wp-content/uploads/sites/6/2018/03/QA-in-Ukraine-reports.pdf> (date of access: 20.08.2024).

#### *Information resources*

1. <https://nmuofficial.com/en/zagalni-vidomosti/kafedri/department-medical-general-chemistry/>
2. <https://likar.nmu.kiev.ua/md/course/view.php?id=7410>

### Questions for student self-preparation for the lecture:

1. Current trends in pharmacy education and training.



2. Future directions in pharmacy education and training.

**The methodical instruction is developed by Yaroslava Pushkarova** – Associate Professor of Analytical, Physical and Colloid Chemistry Department, PhD in Chemistry, Associate Professor

## Lecture 5 “Leadership in pharmacy education”

**Type of lecture:** traditional (informational).

### **Competencies:**

– **integral competence:** ability to solve tasks of research and/or innovative nature in the field of pharmacy;

– **general competencies (GC):**

1. Ability for abstract thinking, analysis and synthesis (GC 01).
2. Knowledge and understanding of the subject area; understanding of professional activity (GC 02).
3. Ability to work in a team (GC 06).
4. The ability to make decisions and act in compliance with the principle of inadmissibility of corruption and any other manifestations of dishonesty (GC 10).

– **professional competences of the specialty (PC):**

1. Ability to integrate knowledge and solve complex problems of pharmacy / industrial pharmacy in broad or multidisciplinary contexts (PC 01).
2. Ability to collect, interpret and apply data necessary for professional activity, carrying out research and implementation of innovative projects in the field of pharmacy (PC 02).
3. Ability to clearly and unambiguously communicate one's own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, in particular to persons who are studying (PC 04).

### **Purposes:**

- 1) didactic purpose – to analyze the importance of leadership for pharmacy education;
- 2) educational purpose – to contribute to the formation of a scientific outlook;
- 3) developmental purpose – to develop intellectual abilities, thinking, independence.

**Lecture equipment:** multimedia system, appropriate software.

### **Tasks of the lecture:**

- 1) to discuss the competencies of a leader;
- 2) to analyze the role of leadership for future professional activity;

### **Lecture plan:**

Stage of the lecture	Content of stages	Educational purpose of the stage	Time
Introduction	Leadership in pharmacy education plays a critical role in shaping the future of the profession. As the	Reveal the relevance of the topic of the lecture; familiarize students with the lecture plan.	5 minutes

	<p>pharmacy field evolves, the development of leadership skills among educators, students, and practicing pharmacists is becoming increasingly important. Leadership in pharmacy education involves guiding, inspiring, and preparing individuals to meet the challenges of modern healthcare, innovate in their practice, and contribute to the advancement of the profession.</p>		
Main part	<p>1. Key aspects of leadership in pharmacy education:</p> <ul style="list-style-type: none"> <li>– leadership training for students;</li> <li>– leadership in advancing the profession;</li> <li>– leadership competencies;</li> <li>– challenges and opportunities.</li> </ul> <p>2. Future directions in leadership in pharmacy education:</p> <ul style="list-style-type: none"> <li>– leadership across all levels;</li> <li>– global leadership in pharmacy;</li> <li>– technological integration.</li> </ul>	<p>Acquire knowledge about the main characteristics of leadership.</p> <p>Discuss future directions in leadership in pharmacy education.</p>	30 minutes
Results	<p>Highlight that leadership in pharmacy education is essential for the continued advancement of the profession and the effective preparation of future pharmacists. By focusing on leadership development for both faculty and students, integrating leadership into the curriculum, and addressing the challenges of</p>	<p>Summarize the importance role of leadership training for pharmacy students.</p>	5 minutes

	modern healthcare, pharmacy education can ensure that its graduates are not only skilled practitioners but also visionary leaders who will shape the future of healthcare.		
Answers to questions	Active dialogue / discussion.	Explain the most difficult and unclear points of the lecture.	5 minutes

### Recommended literature:

#### *Basic*

1. Reed, B. N., Klutts, A. M., & Mattingly II, T. J. (2019). A systematic review of leadership definitions, competencies, and assessment methods in pharmacy education. *American Journal of Pharmaceutical Education*, 83(9), 1873-1885. URL: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6920635/> (date of access: 20.08.2024).

2. Van Diggele, C., Burgess, A., Roberts, C., & Mellis, C. (2020). Leadership in healthcare education. *Medical Education*, 20, 456-462. URL: <https://bmcmededuc.biomedcentral.com/articles/10.1186/s12909-020-02288-x> (date of access: 20.08.2024).

#### *Additional*

1. Owens, C. T., & Baergen, R. (2021). Pharmacy practice in high-volume community settings: barriers and ethical responsibilities. *Pharmacy*, 9(2), 74. URL: <https://www.mdpi.com/2226-4787/9/2/74> (date of access: 20.08.2024).

#### *Information resources*

1. <https://nmuofficial.com/en/zagalni-vidomosti/kafedri/department-medical-general-chemistry/>
2. <https://likar.nmu.kiev.ua/md/course/view.php?id=7410>

### Questions for student self-preparation for the lecture:

1. Concept of leadership.
2. Leadership competencies.

**The methodical instruction is developed by Yaroslava Pushkarova** – Associate Professor of Analytical, Physical and Colloid Chemistry Department, PhD in Chemistry, Associate Professor

## Lecture N 6 “Factors of insuring the quality of pharmacy education in Ukraine and abroad”

**Type of lecture:** traditional (informational).

### **Competencies:**

– **integral competence:** ability to solve tasks of research and/or innovative nature in the field of pharmacy;

– **general competencies (GC):**

1. Ability for abstract thinking, analysis and synthesis (GC 01).  
2. Knowledge and understanding of the subject area; understanding of professional activity (GC 02).

3. Ability to work in a team (GC 06).

4. The ability to make decisions and act in compliance with the principle of inadmissibility of corruption and any other manifestations of dishonesty (GC 10).

– **professional competences of the specialty (PC):**

1. Ability to integrate knowledge and solve complex problems of pharmacy / industrial pharmacy in broad or multidisciplinary contexts (PC 01).

2. Ability to collect, interpret and apply data necessary for professional activity, carrying out research and implementation of innovative projects in the field of pharmacy (PC 02).

3. Ability to clearly and unambiguously communicate one's own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, in particular to persons who are studying (PC 04).

### **Purposes:**

1) didactic purpose – to discuss ensuring the quality of pharmacy education; to analyze the factors of insuring the quality of pharmacy education in Ukraine and abroad;

2) educational purpose – to contribute to the formation of a scientific outlook;

3) developmental purpose – to develop intellectual abilities, thinking, independence.

**Lecture equipment:** multimedia system, appropriate software.

### **Tasks of the lecture:**

1) to understand the importance of the quality of pharmacy education;

2) to discuss the factors of insuring the quality of pharmacy education in Ukraine and abroad.

### **Lecture plan:**

Stage of the lecture	Content of stages	Educational purpose of the stage	Time
Introduction	Ensuring the quality of	Reveal the relevance of	5 minutes

	<p>pharmacy education is critical for producing competent and skilled pharmacists who can meet the healthcare needs of the population. The quality of pharmacy education in Ukraine and abroad is influenced by several factors, which encompass curriculum development, accreditation processes, faculty qualifications, student assessment, and the integration of modern educational methodologies.</p>	<p>the topic of the lecture; familiarize students with the lecture plan.</p>	
Main part	<p>Factors of insuring the quality of pharmacy education in Ukraine and abroad:</p> <ul style="list-style-type: none"> <li>– accreditation and regulatory standards;</li> <li>– curriculum design and content;</li> <li>– qualified faculty and continuous professional development;</li> <li>– modern teaching and learning methodologies;</li> <li>– clinical and experiential training;</li> <li>– research and innovation in pharmacy education;</li> <li>– assessment and evaluation;</li> <li>– globalization and international collaboration;</li> <li>– supportive learning environment;</li> <li>– continuous quality improvement.</li> </ul>	<p>Discuss the factors of insuring the quality of pharmacy education in Ukraine and abroad.</p>	<p>30 minutes</p>
Results	<p>Highlight that the ensuring the quality of pharmacy education in Ukraine and abroad requires a multifaceted approach that</p>	<p>Summarize the presented material about factors of insuring the quality of pharmacy education in</p>	<p>5 minutes</p>

	includes adherence to accreditation standards, a competency-based curriculum, qualified faculty, modern teaching methodologies, and comprehensive clinical training. Continuous evaluation and improvement, along with international collaboration, are essential for maintaining high standards and preparing future pharmacists to meet the evolving demands of healthcare.	Ukraine and abroad.	
Answers to questions	Active dialogue / discussion.	Explain the most difficult and unclear points of the lecture.	5 minutes

### Recommended literature:

#### *Basic*

1. Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). (2015). Brussels, Belgium. URL: [https://enqa.eu/wp-content/uploads/2015/11/ESG\\_2015.pdf](https://enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf) (date of access: 20.08.2024).

2. The main tendencies of higher education in Ukraine in the context of the current challenges of European integration. *International Entrepreneurship*, 4(2), 43-54. URL: <https://ier.uek.krakow.pl/index.php/pm/article/view/1627/> (date of access: 20.08.2024).

#### *Additional*

1. Quality assurance in higher education institutions in Ukraine 2016 through the prism of European Guidelines and Standards ESQ 2015 / Edited by Mazurkiewicz, EXANTE, Wroclaw, 2016. URL: <https://projects.lnu.edu.ua/quaere/wp-content/uploads/sites/6/2018/03/QA-in-Ukraine-reports.pdf> (date of access: 20.08.2024).

2. Kushnir, I. (2016). The role of the Bologna Process in defining Europe. *European Educational Research Journal*, 15(6), 664-675. URL: <https://journals.sagepub.com/doi/full/10.1177/1474904116657549> (date of access: 20.08.2024).

#### *Information resources*

1. <https://nmuofficial.com/en/zagalni-vidomosti/kafedri/department-medical-general-chemistry/>

2. <https://likar.nmu.kiev.ua/md/course/view.php?id=7410>

### Questions for student self-preparation for the lecture:

1. Importance of the quality of pharmacy education.

2. Factors of insuring the quality of pharmacy education in Ukraine and abroad.

**The methodical instruction is developed by Yaroslava Pushkarova** – Associate Professor of Analytical, Physical and Colloid Chemistry Department, PhD in Chemistry, Associate Professor



## Lecture N 7 “Innovative education development”

**Type of lecture:** traditional (informational).

### **Competencies:**

– **integral competence:** ability to solve tasks of research and/or innovative nature in the field of pharmacy;

– **general competencies (GC):**

1. Ability for abstract thinking, analysis and synthesis (GC 01).
2. Knowledge and understanding of the subject area; understanding of professional activity (GC 02).
3. Ability to work in a team (GC 06).
4. The ability to make decisions and act in compliance with the principle of inadmissibility of corruption and any other manifestations of dishonesty (GC 10).

– **professional competences of the specialty (PC):**

1. Ability to integrate knowledge and solve complex problems of pharmacy / industrial pharmacy in broad or multidisciplinary contexts (PC 01).
2. Ability to collect, interpret and apply data necessary for professional activity, carrying out research and implementation of innovative projects in the field of pharmacy (PC 02).
3. Ability to clearly and unambiguously communicate one's own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, in particular to persons who are studying (PC 04).

### **Purposes:**

- 1) didactic purpose – to consider concept of innovative education; to analyze the top innovative technologies in education; to discuss the role of information technology in education process;
- 2) educational purpose – to contribute to the formation of a scientific outlook;
- 3) developmental purpose – to develop intellectual abilities, thinking, independence.

**Lecture equipment:** multimedia system, appropriate software.

### **Tasks of the lecture:**

- 1) to know the concept of innovative education;
- 2) to analyze the top innovative technologies in education;
- 3) to discuss the influence of information technology on education quality.

### **Lecture plan:**

Stage of the lecture	Content of stages	Educational purpose of the stage	Time
Introduction	Innovative education development refers to the process of incorporating new	Reveal the relevance of the topic of the lecture; familiarize students	5 minutes

	<p>methods, technologies, and approaches into educational systems to enhance learning outcomes, foster creativity, and better prepare students for the future. In the context of pharmacy education and beyond, innovation in education is essential to meet the evolving needs of society, the workforce, and the healthcare sector.</p>	with the lecture plan.	
Main part	<p>1. Key components of innovative education development:</p> <ul style="list-style-type: none"> <li>– integration of technology;</li> <li>– active and experiential learning;</li> <li>– interdisciplinary and interprofessional education;</li> <li>– customization and personalization;</li> <li>– global and cross-cultural education;</li> <li>– sustainability and social responsibility;</li> <li>– lifelong learning and professional development;</li> <li>– inclusive and accessible education.</li> </ul> <p>2. Top innovative technologies in education and their role in education:</p> <ul style="list-style-type: none"> <li>– artificial intelligence;</li> <li>– virtual reality and augmented reality;</li> <li>– interactive learning platforms;</li> <li>– cloud computing;</li> <li>– big data and learning analytics;</li> <li>– blockchain technology;</li> <li>– 3D printing;</li> <li>– mobile learning;</li> </ul>	<p>Acquire knowledge about the key components of innovative education development.</p> <p>Analyze characteristics, fields of application and role of most popular innovative technologies in education.</p>	30 minutes

	<ul style="list-style-type: none"> <li>– online and blended learning;</li> <li>– speech recognition and natural language processing.</li> </ul>		
Results	Highlight that the innovative education development is essential for preparing students to meet the demands of the 21st century. By integrating technology, promoting active and experiential learning, fostering interdisciplinary collaboration, and ensuring inclusivity and accessibility, educational institutions can enhance the quality and relevance of their programs. Leadership support, strategic planning, and continuous evaluation are key to successfully implementing and sustaining innovation in education.	Summarize the presented material about innovative education and innovative technologies in education.	5 minutes
Answers to questions	Active dialogue / discussion.	Explain the most difficult and unclear points of the lecture.	5 minutes

**Recommended literature:**

*Basic*

1. Ivzhenko, I., Sokol, I., Kochyna, V., Noskova, M., Yeromina, L., & Blokhina, V. (2020). Information and innovative technologies in distance learning in higher education institutions of Ukraine. *Systematic Reviews in Pharmacy*, 11(9). 462-465. URL: <https://www.sysrevpharm.org/abstract/information-and-innovative-technologies-in-distance-learning-in-higher-education-institutions-of-ukraine-66253.html> (date of access: 20.08.2024).

2. Digital technologies for organizing an independent work of students // Advances in economics, Business and Management Research (1st International Scientific Conference “Modern Management Trends and the Digital Economy: from Regional Development to Global Economic Growth” (MTDE 2019), 81, 644-646. URL: <https://www.atlantis-press.com/proceedings/mtde-19/125908910> (date of access: 20.08.2024).

### *Additional*

1. Mobile learning technology for organizing independent work in the educational process of higher education. *Novateur Publications*, 7(2), 260-266. URL: <https://repo.journalnx.com/index.php/nx/article/view/2355> (date of access: 20.08.2024).

### *Information resources*

1. <https://nmuofficial.com/en/zagalni-vidomosti/kafedri/department-medical-general-chemistry/>
2. <https://likar.nmu.kiev.ua/md/course/view.php?id=7410>

### **Questions for student self-preparation for the lecture:**

1. Development and application of innovative technologies in the process of online education.
2. Top innovative technologies in education.

**The methodical instruction is developed by Yaroslava Pushkarova – Associate Professor of Analytical, Physical and Colloid Chemistry Department, PhD in Chemistry, Associate Professor**

## Lecture N 8 “Importance of research to students”

**Type of lecture:** traditional (informational).

### **Competencies:**

– **integral competence:** ability to solve tasks of research and/or innovative nature in the field of pharmacy;

– **general competencies (GC):**

1. Ability for abstract thinking, analysis and synthesis (GC 01).
2. Knowledge and understanding of the subject area; understanding of professional activity (GC 02).
3. Ability to work in a team (GC 06).
4. The ability to make decisions and act in compliance with the principle of inadmissibility of corruption and any other manifestations of dishonesty (GC 10).

– **professional competences of the specialty (PC):**

1. Ability to integrate knowledge and solve complex problems of pharmacy / industrial pharmacy in broad or multidisciplinary contexts (PC 01).
2. Ability to collect, interpret and apply data necessary for professional activity, carrying out research and implementation of innovative projects in the field of pharmacy (PC 02).
3. Ability to clearly and unambiguously communicate one's own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, in particular to persons who are studying (PC 04).

### **Purposes:**

- 1) didactic purpose – to form systematized knowledge about key aspects of student research work; to analyze importance of research work for students;
- 2) educational purpose – to contribute to the formation of a scientific outlook;
- 3) developmental purpose – to develop intellectual abilities, thinking, independence.

**Lecture equipment:** multimedia system, appropriate software.

### **Tasks of the lecture:**

- 1) to know the types of research;
- 2) to know the research methodologies;
- 3) to know the research process;
- 4) to analyze the importance of research work for students.

### **Lecture plan:**

Stage of the lecture	Content of stages	Educational purpose of the stage	Time
Introduction	Research work of students is a critical component of	Reveal the relevance of the topic of the lecture;	5 minutes

	higher education, fostering critical thinking, problem-solving skills, and a deeper understanding of their field of study. Engaging in research allows students to contribute to knowledge creation, develop expertise, and prepare for professional and academic careers.	familiarize students with the lecture plan.	
Main part	<p>1. Key aspects of student research work:</p> <ul style="list-style-type: none"> <li>– types of research;</li> <li>– research methodologies;</li> <li>– research process.</li> </ul> <p>2. Benefits of student research work:</p> <ul style="list-style-type: none"> <li>– skill development;</li> <li>– academic and professional growth;</li> <li>– contributing to the field.</li> </ul>	<p>Acquire knowledge about types of research, research methodologies and research process.</p> <p>Discuss the role of student research work for future professional activity.</p>	30 minutes
Results	Highlight that the student research work is a vital aspect of higher education that fosters critical thinking, problem-solving, and professional development. By providing students with the resources, support, and opportunities they need, educational institutions can enhance the quality and impact of student research.	Summarize the presented material about the student research work.	5 minutes
Answers to questions	Active dialogue / discussion.	Explain the most difficult and unclear points of the lecture.	5 minutes

### Recommended literature:

#### Basic

1. Walkington, H. (2015). Students as researchers: Supporting undergraduate research in the disciplines in higher education. *The higher education academy*, 1, 1-34.  
 URL: <https://info.lse.ac.uk/staff/divisions/Teaching-and-Learning-Centre/Assets/Documents/URI-documents/HEA-Students-as-researchers-1.pdf> (date of access: 20.08.2024).

2. Skyba, M. (2018). The main tendencies of higher education in Ukraine in the context of the current challenges of European integration. *International Entrepreneurship*, 4(2), 43-54. URL: <https://ier.uek.krakow.pl/index.php/pm/article/view/1627/> (date of access: 20.08.2024).

*Additional*

1. Anderson, C., & Arakawa, N. (2021). Pharmacy education development. *Pharmacy*, 9(4), 168-172. URL: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8544723/> (date of access: 20.08.2024).

*Information resources*

1. <https://nmuofficial.com/en/zagalni-vidomosti/kafedri/department-medical-general-chemistry/>
2. <https://likar.nmu.kiev.ua/md/course/view.php?id=7410>

**Questions for student self-preparation for the lecture:**

1. Tasks and objectives of research work of students.
2. Importance of research work for students.

**The methodical instruction is developed by Yaroslava Pushkarova – Associate Professor of Analytical, Physical and Colloid Chemistry Department, PhD in Chemistry, Associate Professor**

## Lecture N 9 “Modern trends for higher education in Ukraine”

**Type of lecture:** traditional (informational).

### **Competencies:**

– **integral competence:** ability to solve tasks of research and/or innovative nature in the field of pharmacy;

– **general competencies (GC):**

1. Ability for abstract thinking, analysis and synthesis (GC 01).

2. Knowledge and understanding of the subject area; understanding of professional activity (GC 02).

3. Ability to work in a team (GC 06).

4. The ability to make decisions and act in compliance with the principle of inadmissibility of corruption and any other manifestations of dishonesty (GC 10).

– **professional competences of the specialty (PC):**

1. Ability to integrate knowledge and solve complex problems of pharmacy / industrial pharmacy in broad or multidisciplinary contexts (PC 01).

2. Ability to collect, interpret and apply data necessary for professional activity, carrying out research and implementation of innovative projects in the field of pharmacy (PC 02).

3. Ability to clearly and unambiguously communicate one's own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, in particular to persons who are studying (PC 04).

### **Purposes:**

1) didactic purpose – to analyze modern trends for higher education in Ukraine and factors forced them;

2) educational purpose – to contribute to the formation of a scientific outlook;

3) developmental purpose – to develop intellectual abilities, thinking, independence.

**Lecture equipment:** multimedia system, appropriate software.

### **Tasks of the lecture:**

1) to analyze modern trends for higher education in Ukraine;

2) to analyze the factors forced modern trends for higher education in Ukraine.

### **Lecture plan:**

Stage of the lecture	Content of stages	Educational purpose of the stage	Time
Introduction	Modern trends in higher education in Ukraine reflect both global shifts and unique national priorities. These trends are shaping the	Reveal the relevance of the topic of the lecture; familiarize students with the lecture plan.	5 minutes



	landscape of Ukrainian higher education, aiming to enhance quality, accessibility, and relevance in a rapidly changing world.		
Main part	<p>Modern trends for higher education in Ukraine:</p> <ul style="list-style-type: none"> <li>– digital transformation and technology integration;</li> <li>– competency-based education;</li> <li>– internationalization;</li> <li>– research and innovation;</li> <li>– quality assurance and accreditation;</li> <li>– student-centered learning;</li> <li>– lifelong learning and continuing education;</li> <li>– inclusivity and accessibility;</li> <li>– sustainability and social responsibility;</li> <li>– government and policy initiatives;</li> <li>– entrepreneurial education;</li> <li>– health and well-being.</li> </ul>	Analyze modern trends for higher education in Ukraine: characteristic, fields of application and factors forced them.	30 minutes
Results	Modern trends in higher education in Ukraine are shaping the future of learning and research, with a strong emphasis on digital transformation, internationalization, and competency-based education. By embracing these trends, Ukrainian institutions aim to improve the quality and relevance of education, better prepare students for the global workforce, and contribute to societal development.	Summarize the presented material about the modern trends in higher education in Ukraine.	5 minutes
Answers to questions	Active dialogue / discussion.	Explain the most difficult and unclear points of the lecture.	5 minutes

## Recommended literature:

### Basic

1. Reed, B. N., Klutts, A. M., & Mattingly II, T. J. (2019). A systematic review of leadership definitions, competencies, and assessment methods in pharmacy education. *American Journal of Pharmaceutical Education*, 83(9), 1873-1885. URL: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6920635/> (date of access: 20.08.2024).
2. Anderson, C., & Arakawa, N. (2021). Pharmacy education development. *Pharmacy*, 9(4), 168-172. URL: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8544723/> (date of access: 20.08.2024).
3. Skyba, M. (2018). The main tendencies of higher education in Ukraine in the context of the current challenges of European integration. *International Entrepreneurship*, 4(2), 43-54. URL: <https://ier.uek.krakow.pl/index.php/pm/article/view/1627/> (date of access: 20.08.2024).
4. Ivzhenko, I., Sokol, I., Kochyna, V., Noskova, M., Yeromina, L., & Blokhina, V. (2020). Information and innovative technologies in distance learning in higher education institutions of Ukraine. *Systematic Reviews in Pharmacy*, 11(9), 462-465. URL: <https://www.sysrevpharm.org/abstract/information-and-innovative-technologies-in-distance-learning-in-higher-education-institutions-of-ukraine-66253.html> (date of access: 20.08.2024).

### Additional

1. Voloshinov, S., Kruglyk, V., Osadchy, V., Osadcha, K., & Symonenko, S. (2020). Realities and prospects of distance learning at higher education institutions of Ukraine. *Ukrainian Journal of Educational Studies and Information Technology*, 8(1), 1-16. URL: <https://uesit.org.ua/index.php/itse/article/view/265> (date of access: 20.08.2024).

### Information resources

1. <https://nmuofficial.com/en/zagalni-vidomosti/kafedri/department-medical-general-chemistry/>
2. <https://likar.nmu.kiev.ua/md/course/view.php?id=7410>

## Questions for student self-preparation for the lecture:

1. Examples of modern trends for higher education in Ukraine.
2. Trends in the development of the educational environmental in the context of globalization.

**The methodical instruction is developed by Yaroslava Pushkarova** – Associate Professor of Analytical, Physical and Colloid Chemistry Department, PhD in Chemistry, Associate Professor

## Lecture N 10 “Code of ethics for pharmacists”

**Type of lecture:** traditional (informational).

### **Competencies:**

– **integral competence:** ability to solve tasks of research and/or innovative nature in the field of pharmacy;

– **general competencies (GC):**

1. Ability for abstract thinking, analysis and synthesis (GC 01).

2. Knowledge and understanding of the subject area; understanding of professional activity (GC 02).

3. Ability to work in a team (GC 06).

4. The ability to make decisions and act in compliance with the principle of inadmissibility of corruption and any other manifestations of dishonesty (GC 10).

– **professional competences of the specialty (PC):**

1. Ability to integrate knowledge and solve complex problems of pharmacy / industrial pharmacy in broad or multidisciplinary contexts (PC 01).

2. Ability to collect, interpret and apply data necessary for professional activity, carrying out research and implementation of innovative projects in the field of pharmacy (PC 02).

3. Ability to clearly and unambiguously communicate one's own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, in particular to persons who are studying (PC 04).

### **Purposes:**

1) didactic purpose – to analyze the key components commonly found in Codes of ethics for pharmacists;

2) educational purpose – to contribute to the formation of a scientific outlook;

3) developmental purpose – to develop intellectual abilities, thinking, independence.

**Lecture equipment:** multimedia system, appropriate software.

### **Tasks of the lecture:**

1) to know the importance of Codes of ethics for pharmacists;

3) to analyze the key components commonly found in Codes of ethics for pharmacists.

### **Lecture plan:**

Stage of the lecture	Content of stages	Educational purpose of the stage	Time
Introduction	The Code of ethics for pharmacists is a set of principles and guidelines	Reveal the relevance of the topic of the lecture; familiarize students	5 minutes

	designed to ensure that pharmacists conduct their professional activities with integrity, responsibility, and respect for the welfare of patients and society. This code serves as a foundation for ethical practice and helps pharmacists navigate complex situations in their daily work.	with the lecture plan.	
Main part	Key components commonly found in codes of ethics for pharmacists: <ul style="list-style-type: none"> <li>– respect for patients;</li> <li>– professional competence;</li> <li>– integrity and honesty;</li> <li>– patient safety;</li> <li>– professional relationships:</li> <li>– legal and regulatory compliance;</li> <li>– social responsibility;</li> <li>– professional integrity.</li> </ul>	Discuss key components commonly found in codes of ethics for pharmacists: definition, explaining and examples.	30 minutes
Results	Highlight that the Code of Ethics for pharmacists serves as a guide for ethical practice, ensuring that pharmacists act with integrity, respect, and professionalism in their interactions with patients and colleagues. By adhering to these principles, pharmacists contribute to the overall quality of care, maintain public trust, and support the advancement of the pharmacy profession.	Summarize the presented material about the Code of ethics for pharmacists.	5 minutes
Answers to questions	Active dialogue / discussion.	Explain the most difficult and unclear points of the lecture.	5 minutes

## **Recommended literature:**

### *Basic*

1. Costa, R. C. (2019). The place of the humanities in today's knowledge society. *Palgrave Communications*, 5(38), 1-5. URL: <https://www.nature.com/articles/s41599-019-0245-6> (date of access: 20.08.2024).
2. Owens, C. T., & Baergen, R. (2021). Pharmacy practice in high-volume community settings: barriers and ethical responsibilities. *Pharmacy*, 9(2), 74. URL: <https://www.mdpi.com/2226-4787/9/2/74> (date of access: 20.08.2024).

### *Additional*

1. Reed, B. N., Klutts, A. M., & Mattingly II, T. J. (2019). A systematic review of leadership definitions, competencies, and assessment methods in pharmacy education. *American Journal of Pharmaceutical Education*, 83(9), 1873-1885. URL: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6920635/> (date of access: 20.08.2024).
2. Van Diggele, C., Burgess, A., Roberts, C., & Mellis, C. (2020). Leadership in healthcare education. *Medical Education*, 20, 456-462. URL: <https://bmcomeduc.biomedcentral.com/articles/10.1186/s12909-020-02288-x> (date of access: 20.08.2024).

### *Information resources*

1. <https://nmuofficial.com/en/zagalni-vidomosti/kafedri/departament-medical-general-chemistry/>
2. <https://likar.nmu.kiev.ua/md/course/view.php?id=7410>

## **Questions for student self-preparation for the lecture:**

1. Examples of Code of ethics for pharmacists.
2. Main principles of Codes of ethics for pharmacists.

**The methodical instruction is developed by Yaroslava Pushkarova** – Associate Professor of Analytical, Physical and Colloid Chemistry Department, PhD in Chemistry, Associate Professor