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«ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ ПРОСВЕЩЕНИЯ»
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Кафедра иностранных языков

УТВЕРЖДЕН
на заседании кафедры
Протокол от « 18 » марта 2026 г., № 9

Зав. кафедрой  /Сарычева Л.В.

ФОНД
ОЦЕНОЧНЫХ СРЕДСТВ

по дисциплине (модулю)
Иностранный язык в профессиональной коммуникации (английский язык)

Направление подготовки

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Программа подготовки:
Биоинформатика и анализ больших данных в экологическом мониторинге

Москва
2026

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1. Перечень компетенций с указанием этапов их формирования в процессе освоения образовательной программы

Код и наименование компетенции	Этапы формирования
УК-4. Способен применять современные коммуникативные технологии, в том числе на иностранном(ых) языке(ах), для академического и профессионального взаимодействия	1. Работа на учебных занятиях. 2. Самостоятельная работа студентов.
УК-5. Способен анализировать и учитывать разнообразие культур в процессе межкультурного взаимодействия	1. Работа на учебных занятиях. 2. Самостоятельная работа студентов.

2. Описание показателей и критериев оценивания компетенций на различных этапах их формирования, описание шкал оценивания

Оцениваемые компетенции	Уровень сформированности	Этапы формирования	Описание показателей	Критерии оценивания	Шкала оценивания
УК-4	Пороговый	1. Работа на учебных занятиях. 2. Самостоятельная работа студентов.	<u>Знать</u> особенности делового профессионального общения в академической/научной среде; стереотипы поведения и общения, формулы этикетной речи. <u>Уметь</u> анализировать научные события с оценкой их значимости, высказывать собственное мнение по проблемам, связанным с научной и профессиональной деятельностью, осуществлять межкультурные контакты с зарубежными коллегами, создавать собственные образцы речи в сфере научной и профессиональной коммуникации	Практическое задание	Шкала оценивания практического задания
	Продвинутый	1. Работа на учебных занятиях. 2. Самостоятельная работа студентов.	<u>Знать</u> особенности делового профессионального общения в академической/научной среде; стереотипы поведения и общения, формулы этикетной речи. <u>Уметь</u> анализировать научные события с оценкой их значимости, высказывать собственное мнение	Практическое задание, сообщение	Шкала оценивания практического задания Шкала оценивания сообщения

			по проблемам, связанным с научной и профессиональной деятельностью, осуществлять межкультурные контакты с зарубежными коллегами, создавать собственные образцы речи в сфере научной и профессиональной коммуникации. <u>Владеть</u> Иноязычной коммуникативной компетенцией в области академического и профессионального дискурса		
УК-5	Пороговый	1. Работа на учебных занятиях. 2. Самостоятельная работа студентов.	<u>Знать</u> особенности делового профессионального общения в академической/научной среде; стереотипы поведения и общения, формулы этикетной речи. <u>Уметь</u> анализировать научные события с оценкой их значимости, высказывать собственное мнение по проблемам, связанным с научной и профессиональной деятельностью, осуществлять межкультурные контакты с зарубежными коллегами, создавать собственные образцы речи в сфере научной и профессиональной коммуникации	Практическое задание	Шкала оценивания практического задания
	Продвинутый	1. Работа на учебных занятиях. 2. Самостоятельная работа студентов.	<u>Знать</u> особенности делового профессионального общения в академической/научной среде; стереотипы поведения и общения, формулы этикетной речи. <u>Уметь</u> анализировать научные события с оценкой их значимости, высказывать собственное мнение по проблемам, связанным с научной и профессиональной деятельностью, осуществлять межкультурные контакты с зарубежными коллегами, создавать собственные образцы речи в сфере научной и	Практическое задание, сообщение	Шкала оценивания практического задания Шкала оценивания сообщения

			профессиональной коммуникации. <u>Владеть</u> иноязычной коммуникативной компетенцией в области профессионального межкультурного общения		
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Шкала оценивания практического задания и сообщения

Вид работы	Шкала оценивания
1. Практическое задание	6 баллов , если задание выполнено полностью, даны ответы на все вопросы, не допущено ни одной ошибки.
	4 балла , если задание выполнено полностью, даны не полные ответы на все вопросы, допущены незначительные ошибки.
	2 балла , если задание выполнено частично, допущены серьёзные ошибки при формулировке ответов на поставленные вопросы.
	0 баллов , если задание не выполнено.
2. Сообщение	20 баллов , если представленное сообщение свидетельствует о проведенном самостоятельном исследовании с привлечением различных источников информации; логично, связно и полно раскрывается тема; заключение содержит логично вытекающие из содержания выводы.
	15 баллов , если представленное сообщение свидетельствует о проведенном самостоятельном исследовании с привлечением двух-трех источников информации; логично, связно и полно раскрывается тема; заключение содержит логично вытекающие из содержания выводы.
	10 баллов , если представленное сообщение свидетельствует о проведенном исследовании с привлечением одного источника информации; тема раскрыта не полностью; отсутствуют выводы.
	0 баллов , если сообщение отсутствует.

3. Контрольные задания или иные материалы, необходимые для оценки знаний, умений, навыков и (или) опыта деятельности, характеризующих этапы формирования компетенций в процессе освоения образовательной программы

УК-4. Способен применять современные коммуникативные технологии, в том числе на иностранном(ых) языке(ах), для академического и профессионального взаимодействия
 УК-5. Способен анализировать и учитывать разнообразие культур в процессе межкультурного взаимодействия.

Знать особенности делового профессионального общения в академической/научной среде; стереотипы поведения и общения, формулы

этикетной речи.

Задания, необходимые для оценивания сформированности УК-4, УК-5 на пороговом уровне:

Match parts of the word-combinations:

- | | |
|---------------|--|
| 1. dedicated | a. student |
| 2. look | b. a decision |
| 3. university | c. science |
| 4. aspect | d. researcher |
| 5. to make | e. close into the advantages and disadvantages |
| 6. to do | f. graduate |
| 7. master's | g. of the problem |

Put the words in the correct word order:

1. will / prevent you / relatives / and / friends / your work / from seeing / from visiting /?

.....

2. that / absolutely sure / researcher / you will make / should be / you / a dedicated /.

.....

3. a decision / is the time / now / for making /.

.....

4. university graduate / every / is / faced with making / on a career / a decision /?

.....

5. other people / your mind / avoid / to make up / consulting / and try /.

.....

6. appealing / a master's / the idea of / is certainly / course / taking /.

.....

7. a scientist / regret / the career of / do you / having chosen /?

.....

8. capable of doing / are / scientific / you / work /?

Choose the correct word or word combination:

1. The first ... is to find out who you're going to be presenting to. A. step B. note C. key
2. You should find out how much the ... knows about the subject. A. speaker B. audience C. expert
3. You should ... your language so that everybody can understand. A. record B. memorise C. adjust
4. Visit the room where you'll be giving the presentation A. finally B. firstly C. beforehand
5. Stage one is the A. opening B. summary C. recommendations
6. You should ... the opening as if you were an actor. A. select B. use C. memorise
7. You should ... during the presentation. A. feel frightened B. feel confident C. feel nervous
8. Buy some small cards and write no more than one or two of the ... onto each one. A. openings B. subjects C. key points
9. Always ... the audience. A. ask B. select C. face

Complete the sentences with the words from the table.

To investigate, scientist, joined efforts, science, to shape one's view, scientific

1. Galen described the body of the human being that helped ... about human anatomy.
2. There are some scientific problems that can be solved by ... of science and humanities.
3. ... investigation deals with theory and practice.
4. The role of chance in discovery is to give the opportunity and the ... has to recognize it.
5. The history of ... shows that there is an element of chance in some new findings.
6. In the field of psychology scientists ... why people act the way they do.

Complete the dialogue using the words from the box. There are two words which you don't need to use. experience, advertisement, interview, appointment, qualifications, applicant, specification

JAMES: Hello, James Brown speaking.

BRIAN: Good morning. My name is Brian Carpenter. I've just seen an __
__(1) in the „International Herald Tribune“. It said you were looking for a Sales
Manager, I 'm very interested in this _____(2)_____.

JAMES: Well, would you please give me some details about yourself. What did
you say your name was? BRIAN: Brian Carpenter.

JAMES: Fine. And what about your _____(3)_____, Mr. Carpenter?

BRIAN: I got my BSc in Management. I went to Columbia University.

JAMES: OK. Then tell me please about your work (4)_____.

BRIAN: My last position was a Sales Manager for Brown & Brown. Before that I
worked for Cornway Motors for 8 years.

JAMES: Good. I think, we can invite you for an _____(5)_____ on Tuesday
morning, 10 a.m.

BRIAN: Thank you. Good-bye.

JAMES: Good-bye. Thank you for calling.

Choose the correct word or word combination:

1. Every employee needs to learn certain communication skills before entering the
... . a) conference b) workplace c) meeting
2. There are seven communication skills: clarity, ..., good listening skills,
confidence, empathy, ... and to learn. a) respect, ability to speak publicly b) clarity,
ability to speak publicly c) respect, empathy
3. Misunderstandings can cause conflicts and negatively affect a) politics b)
friendship c) a business
4. Respecting your customers and your ... is also essential. a) co-workers b)
relatives c) clients
5. You should ... that people are interested in sharing their opinion. a) show
concern b) take into account c) pay attention to

6. Displaying ... is a necessary skill in the workplace. a) contempt b) love c) confidence

7. Above all else, one of the most ... types of communication skills is to continue to learn. a) valuable b) favourite c) confident

Match the following words with their definitions:

- | | |
|----------------|--------------------------|
| 1. boundaries | a. encouragement |
| 2. confident | b. suitable, relevant |
| 3. valuable | c. to abstain, hold back |
| 4. concise | d. limits, borders |
| 5. support | e. precious |
| 6. to refrain | f. brief, short |
| 7. appropriate | g. sure, certain |

Put the words in the correct word order:

1. the / step / first / what / in / presentation / preparing / is / a / ?

.....

2. should / find out / you / your / knows / audience / what / the / subject / about / .

.....

3. adjust / should / language / you / your / .

.....

4. in / a / part / the / important / most / what / presentation / is / ?

.....

5. can / how / make / you / a / opening / good / very / ?

.....

6. the / stage / last / is / of / what / a / presentation / ?

.....

7. should / remember / you / talking / while / what / ?

.....

8. for / cards / need / do / you / what / ?

.....

9. can / using / when / you / start / notes / your / ?

.....

10. a / is / like / a / performance / presentation / .

.....

11. should / opening / the / memorise / you / .

.....

12. audience / the / times / all / at / face / .

.....

Match the following English words with their synonyms:

1. topic

a scientist

2. brief

b decision, resolution

3. to include

c theme, subject

4. research paper

d main, basic, major

5. skill

e to carry out

6. suggestion

f scholarly paper

7. key

g to comprise

8. scholar

h short, laconic

9. solution

i ability, mastery

10. to conduct

j proposal, recommendation

Put the words in the correct word order:

1. of the main / introduction is / a brief / presentation / topic / .

.....

2. in the paper / body / part / the longest / is / main / .

.....

3. is the one / research / remember / paper / is finished / a good / that / .

.....

4. indicate / focus / should / a title / of the research / the main /.

.....

5. findings / includes / a scholarly paper / interpretation / of / analysis / and / research /.

.....

6. writing / paper / a piece / academic / of / a research / is .

.....

7. provides / summary / an abstract / of the paper / a brief /.

.....

8. covers / and results / work / the conclusions / of the whole / conclusion /.

.....

9. of the research / describes / aspects / body / key / a main /.

.....

Complete the words or phrases using the words below:

Social, proceedings, rejection, volumes, confirm, breaks, plenary, time, submit, committee

1. conference

2 a paper

3. scientific

4 message

5. designated

6. stand-alone

7payment

8 events

9. coffee

10 sessions

Choose the correct word or word combination:

1. Effective professional communication is ... nowadays. a) useful b) critical c) dangerous
2. Successful professional communication is an art that ... a smooth flow of ideas, facts, and right decisions. a) ensures b) consists c) reflects
3. There are three main kinds of professional communication – ..., written and digital. a) formal b) vital c) verbal
4. Effective verbal communication is the ability to speak ... and listen to comments from those you are talking to and observe their reactions. a) loudly b) fluently c) cheerfully
5. You should also ... your emails. a) send b) read c) pay attention to
6. You should review what you plan to post, not only for ... but also for factual errors. a) information b) fun c) typos
7. Professionals must understand and ... all forms of social networking, emailing, blogging, internet and teleconferencing. a) master b) delete c) haunt

Задания, необходимые для оценивания сформированности УК-4, УК-5 на продвинутом уровне:

Choose the correct option.

1. The contacts of our scientists with their colleges in other countries _____.
a) are c) are steadily growing b) is growing
2. Our research group _____ the problem of environmental protection for five years now. a) has been investigating c) has been b) investigating
3. I didn't _____ his paper particularly interesting. a) didn't c) didn't find b) found
4. We _____ much scientific literature lately. a) have c) read b) have read
5. The Celsius scale is the scale _____ in most scientific experiments. a) is c) is used b) used

6. The builders _____ a twelve-story house for the workers by the end of the year. a) will c) will have constructed b) have constructed
7. Tsiolkovsky's works and his ideas _____ the basis of the modern theory of jet-propulsion. a) works c) have become b) have
8. When heated to the boiling point water _____. a) heated c) evaporates b) boiling
9. The elements _____ by Mendeleyev were later discovered by scientists from different countries. a) predicted c) were discovered b) were later discovered
10. Unless tested the machine _____ into operation. a) put c) must not be put b) tested
11. Steam _____ in a boiler by a fire. a) is c) is usually generated b) are generated
12. When electrified bodies _____. a) electrified c) may repel b) may
13. After a heated discussion the laboratory _____ the method improved by doctor N. a) heated c) improved b) applied
14. His lectures _____ by heated discussions. a) are always followed c) heated b) are followed
15. The problem of scientific classification _____ from several viewpoints. a) can c) can be approached b) be approached
16. The results _____ disagreed with earlier data reported by Dr. D. a) obtained c) reported b) disagreed
17. The model _____ in many practical solutions. a) is being used c) is used b) is now being used
18. The _____ results were compared with the data obtained earlier. a) analyzed c) obtained b) were compared
19. The heads of the laboratories _____ questions formulated by a group of sociologists. a) were asked c) formulated b) were formulated
20. Automatized information processing radically _____ the method devised. a) automatized c) modified b) processing

Уметь

анализировать научные события с оценкой их значимости, высказывать собственное мнение по проблемам, связанным с научной и профессиональной деятельностью, осуществлять межкультурные контакты с зарубежными

коллегами, создавать собственные образцы речи в сфере научной и профессиональной коммуникации

Владеть

Иноязычной коммуникативной компетенцией в области академического и профессионального дискурса

Задания, необходимые для оценивания сформированности УК-4, УК-5 на пороговом уровне:

Пример статьи по специальности
Prospects of Russian studies and Russian regional
studies as new disciplines in higher education
system

One of the important and multifaceted areas of modern domestic and international humanities is Russian Studies. The conceptual emergence of Russian studies (“otechestvovedeniye”) refers to the 1990’s. In that period Russian researchers turned to the study of Russian civilization as an integral and independent scientific object. Russian studies explore socio-cultural, political, economic and many other aspects of Russian “civilization portrait”, thereby forming a multidisciplinary knowledge of the Russian different historical periods. In this regard, historical knowledge is a kind of “backbone axis” in Russian studies, and historical discourse is a mandatory attribute of this research area (Rossika, 2010). Institutionalization of Russian studies as a new research field was at the turn of the 20th and 21th centuries. It was connected with the establishment of scientific centers of Russian studies and the implementation of disciplines “Russian studies” and “Russian regional studies” in higher education system. These courses are taught within the Master’s programs. The close interaction of scientific and educational activities was initially formed in the field of Russian studies. For instance, tutorials contain the latest scientific findings and the recently published monographs and collections of works are actively used in training courses. The aim of the study is to determine the role of such disciplines as “Russian studies” and “Russian regional studies” in the system of modern Russian higher education. The authors attempt to identify the differences between these educational courses and traditional historical and cultural courses such as local history, regional history, area studies and others. Problems and prospects of the implementation of “Russian studies” and “Russian regional studies” in bachelor’s and master’s educational programs are considered through the prism of the transformation of “Russian Studies” concept in Russian socio-humanitarian knowledge in 1990s and 2010s.

The term “Russian studies” has undergone significant transformation over the past two decades. At the end of the 1990s the term refers to the study of “features of modern Russian civilization in its difference from other civilizations, in past and

present” (Shapovalov, 2001). A decade later, the Russian humanities confirmed understanding of Russian studies as a branch of interdisciplinary knowledge that studies “the basic parameters of the Russian cultural field without the purpose to indicate “the exclusivity of Russian way”, but to obtain new keys to understanding contemporary trends of global development” (Rossika, 2010). Currently it dominates the view, according to which Russian studies is a complex multidisciplinary study of the Russian civilization as a “living interethnic unity on the basis of the world traditions of the civilization approach” (Bolshakova, 2009). The starting point for the study of Russian studies is a recognition of the need to rehabilitate the country and overcoming the crisis of national identity, receive “real scientific knowledge about Russia” (Ageev & Ageeva, 2015). Nowadays, the major Russian national centers of fundamental research in Russian studies are the Institute of Scientific Information on Social Sciences and Russian State Humanitarian University. The disciplines “Russian studies” and “Russian regional studies” are presented in many bachelor’s and master’s educational programs. The results of analysis demonstrate wide range of aims and scope of these two disciplines in Russian universities.

Extremely wide subject field of Russian studies allows studying both historical and present-day Russia in all its diversity and changeability. Russian studies as a field of scientific knowledge is intended to “contribute to the establishment of the Russian society as a subject of history, overcoming all sorts of social myths: from “the peculiarities of Russian historical path” to “totally heroic Soviet past” (The History, 2015; Ageev, Zinovyev, Netesova, Ageeva & Mironova, 2015). According to the Hungarian historian Svak, “Rossiyevedenie” is “something similar to Russian studies adopted in Western universities, but it is more comprehensive, covering more areas and more focused on the present.” One of the current trends in the development of the domestic Russian studies is the increased emphasis on regional studies and local history issues. Historiographical interest in Russian local perspective contributed to the expansion of Russian studies subject to the history of a particular city or architectural monument. Regionalism as a field of Russian studies research comes from the fact that the major trend of country development not only directly or indirectly affect the fate of a region, but they formed themselves to a large extent in regional communities (Erygin, 2010). Simultaneously with the development of regional research in Russian Studies there is the formation of Russian-studies expert knowledge which aims at “the forecast situation”. For a long time growing interest in Russian studies was observed in Russia in the periods of active reform efforts while international actualization of Russian studies was during the international confrontation or conflicts. Today Russian study are becoming more practice-oriented, implementing both scientific and applied problems (International, 2013, p. 75). Russian academic community actively cooperates with politicians and businessmen. Examples of the institutionalization of the expert community in the field of Russian studies can be considered as the Russian Institute of Strategic Research, Information and Analytical Center for the Study of Social and Political Processes in the post-Soviet space, based at the Department of

History of the CIS countries of the Historical faculty in Moscow State University as well as Effective Policy Foundation. One of the most dynamic areas of contemporary historical Russian studies can be justly regarded as a foreign Russian studies, which is characterized by close attention to historiographical approach developed by Western research traditions of Russian Studies (Russian history, 2010).

Задания, необходимые для оценивания сформированности УК-4, УК-5 на продвинутом уровне

Примерная тематика сообщений:

1. Ведущие университеты страны изучаемого языка – программы магистратуры по профилю подготовки.
2. Структура научной статьи IMRAD.
3. Основные научные журналы в России и стране изучаемого языка в области научной работы.
4. Научная конференция: информация, заявка, подготовка тезисов.

Промежуточная аттестация

УК-4. Способен применять современные коммуникативные технологии, в том числе на иностранном(ых) языке(ах), для академического и профессионального взаимодействия

УК-5. Способен анализировать и учитывать разнообразие культур в процессе межкультурного взаимодействия

Зачет:

Зачет по дисциплине «Иностранный язык в профессиональной коммуникации (английский язык)» состоит из частей:

- 1) чтение, перевод и реферирование текста профессиональной тематики.
- 2) сообщение (тезисы) научной конференции.

Экзамен:

Экзамен по дисциплине «Иностранный язык в профессиональной коммуникации (английский язык)» состоит из двух частей:

- 1) сообщение о научной работе (согласно теме диссертационного исследования);
- 2) реферирование научной статьи по специальности.

Тексты для реферирования на зачете

DOING SCIENCE

Making a decision on a career is not easy. Every university graduate is faced with it. There are many opportunities that are worth trying, and one of them is doing science. The idea of taking a master's course is certainly very appealing and inviting. But not everyone is capable of withstanding all the difficulties involved in doing research. If you intend to become a master's student you are advised to consider all

pros and cons, to look close into the advantages and disadvantages of a scientific career. It is no use asking for other people's advice in this matter. Avoid consulting other people and try to make up your mind. And think hard. You should realize there are many aspects of the problem. First of all, you should be absolutely sure that you will make a dedicated researcher, that you will give all your time and efforts to studying. Then you must ask yourself if you are interested enough in doing research. Try to analyze where your interests lie, make sure you will enjoy dedicating your life to science. Having embarked on the field of science, you will know no peace of mind, no leisure, no rest day after day. Your work will prevent you from visiting friends, from playing with your children, from seeing relatives. If you are a true scientist and enjoy working and living like that, if your work means everything to you, you will not give it up; you will never regret having chosen the career of a scientist. 8 Now is the time for making a decision, for making up your mind, for thinking it over. Once you have started, you must keep going, never resting, never satisfied with yourself, always busy, worried and very often tired.

Science

Science (from Latin *scientia*, meaning "knowledge") is a systematic enterprise that builds and organizes knowledge in the form of testable explanations and predictions about the universe. Contemporary science is typically subdivided into the natural sciences, which study the material universe; the social sciences, which study people and societies; and the formal sciences, which study logic and mathematics. The formal sciences are often excluded as they do not depend on empirical observations. Science in a broad sense existed before the modern era and in many historical civilizations. Modern science is distinct in its approach and successful in its results, so it now defines what science is in the strictest sense of the term. Science in its original sense was a word for a type of knowledge rather than a specialized word for the pursuit of such knowledge. For example, knowledge about the working of natural things was gathered long before recorded history and led to the development of 6 complex abstract thought. This is shown by the construction of complex calendars, techniques for making poisonous plants edible, and buildings such as the Pyramids. However, no consistent conscientious distinction was made between knowledge of such things, which are true in every community, and other types of communal knowledge, such as mythologies and legal systems. Just as importantly, science is also a process of discovery that allows us to link isolated facts into coherent and comprehensive understandings of the natural world. Very few questions are off-limits in science – but the sorts of answers science can provide are limited. Science can only answer in terms of natural phenomena and natural processes. Answers that are outside of the natural world are outside of science. Science as a collective institution aims to produce more and more accurate natural explanations of how the natural world works.

Classically, science's main goal has been building knowledge and understanding, regardless of its potential applications – for example, investigating the chemical reactions that an organic compound undergoes in order to learn about its structure. However, increasingly, scientific research is undertaken with the explicit goal of

solving a problem or developing a technology, and along the path to that goal, new knowledge and explanations are constructed. The knowledge that is built by science is always open to question and revision. Only testable ideas are within the purview of science. For an idea to be testable, it must logically generate specific expectations – a set of observations that we could expect to make if the idea were true and a set of observations that would be inconsistent with the idea and lead you to believe that it is not true. A scientific idea may require a lot of reasoning to work out an appropriate test, may be difficult to test, may require the development of new technological tools to test, or may require one to make independently testable assumptions to test – but to be scientific, an idea must be testable, somehow, somehow. Ultimately, scientific ideas must actually be tested – preferably with many different lines of evidence by many different people. This characteristic is at the heart of all science. Scientists actively seek evidence to test their ideas. The progress of science depends on interactions within the scientific community – that is, the community of people and organizations that generate scientific ideas, test those ideas, publish scientific journals, organize conferences, train scientists, distribute research funds, etc. This scientific community provides the cumulative knowledge base that allows science to build on itself. It is also responsible for the further testing and scrutiny of ideas and for performing checks and balances on the work of community members. Science is an ongoing endeavor. So long as there are unexplored and unexplained parts of the natural world, science will continue to investigate them. Most typically in science, answering one question inspires deeper and more detailed questions for further research. Science is sometimes misconstrued as an elite endeavor in which one has to be a member of “the club” in order to be taken seriously. That’s a bit misleading. In fact, science is now open to anyone and benefits tremendously from the expanding diversity of perspectives offered by its participants.

Types Of Degrees

Bachelor’s degree The bachelor’s degree, usually representing completion of a four-year course of study on a collegiate level, is the oldest and best-known academic degree, particularly under the designation of Bachelor of Arts. Some varieties of bachelor’s, or baccalaureate degree is currently offered by about 750 institutions, most of which offer a Bachelor of Arts degree. Next in frequency and availability is the Bachelor of Science, of which the most frequent variety is the Bachelor of Science in Education. Other baccalaureate degrees offered by a large number of institutions are Bachelor of Education, Bachelor of Music, Bachelor of Business Administration, Bachelor of Divinity, and Bachelor of Home Economics. Most institutions offer more than one variety of baccalaureates, but about one tenth report use of the Bachelor of Arts only, regardless of the particular curriculum completed. Currently about 900,000 baccalaureate degrees are awarded annually, about 46 percent to women. It is estimated that more than 12 million degrees have been conferred to date.

Master’s Degree The earned master’s degree in general represents one year of work beyond the baccalaureate, but in a few institutions or in a few fields it requires

two years of graduate work. The most frequently awarded master's degrees are Master of Arts, Master of Science, Master of Education, Master of Business Administration, Master of Music, and Master of Fine Arts. The Master of Philosophy degree is conferred on those who have completed all requirements for the Doctor of Philosophy degree except the doctoral dissertation. About 45 varieties of Master of Arts and 40 varieties of Master of Science degrees are reported. Currently 317,000 individuals receive the master's degree annually, about 47 percent of them women. Nearly 3 million master's degrees were awarded from 1880 to 1972.

SCIENTIFIC STUDY

The word "science" is derived from the Latin word "scientia" and it means "knowledge". Science deals with a broad field of knowledge, with facts and the relationship among these facts. Scientists investigate a wide variety of subjects.

Some scientists search for clues to the origin of the universe and examine the structure of the cells of living plants and animals. Other researchers investigate why we act the way we do, or try to solve complicated philosophical problems. Scientists use systematic methods of study to make observations and collect facts. They carry out different experiments. They develop theories that help them order and unify facts. Scientific theories consist of general principles or laws that attempt to explain how and why something happens or has happened. A theory is considered to become a part of scientific knowledge if it has been tested experimentally and proved to be true. Scientific study can be divided into three major groups: the natural, social, and technical sciences. As scientific knowledge has grown and become more complicated, many new fields of science have appeared. At the same time, the boundaries between scientific fields have become less and less clear. Numerous areas of science overlap each other and it is often hard to tell where one science ends and another begins. All sciences are closely interconnected. Science has great influence on our lives. It provides the basis of modern technology, the tools and machines that make the life and work easier. The discoveries and inventions of scientists also help shape our view about ourselves and place in the universe. Technology means the use of people's inventions and discoveries to satisfy their needs. Since people have appeared on the earth, they have had to get food, clothes, and shelter. Through the ages, people have invented tools, machines, and materials to make work easier. Nowadays, when people speak of technology, they generally mean industrial technology. Industrial technology began about 200 years ago with the development of the steam engine, the growth of factories, and the mass production of goods. It influenced different aspects of people's lives. The development of the car influenced where people lived and worked. Radio and television changed their leisure time. The telephone revolutionized communication. Science has contributed much to modern technology. Science attempts to explain how and why things happen. Technology makes things happen. But not all technology is based on science. For example, people had made different objects from iron for centuries before they learnt the structure of the metal. But some modern technologies, such as nuclear power production and space travel, depend

heavily on science.

Why Do We Choose Postgraduate Studies?

What does choosing the postgraduate course mean for a person? It is going up the level higher than the first degree. What are the reasons for taking postgraduate studies? The first one is the stimulus of the intellectual challenge: working with concepts, approaches, methods and ideas, developing skills of analysis and research among the researchers and academics. The second reason is the personal challenge. What is the difference between the undergraduate and the postgraduate level? Undergraduate level develops study skills and the ability of independent studies, and the postgraduate course specifies skills perfection, responsibility, independence in one's own learning, ability to work with complex ideas and concepts and developing them. Next, there is the serious problem of career prospects, more interesting and highly paid jobs. PhD degree or degree of Doctor of Science can be an obligatory requirement for entering the career, the researcher career or securing promotion to higher levels. In some professional fields the joint programs of universities and employers are undertaken both at undergraduate and postgraduate level and these programs are defined as the first stage of learning for the trainees. For a number of postgraduates entering academic career as the university teacher and researcher is important. Besides, with rapid extension of higher education in some countries high-status academic position is available only with the Doctorate. It means the increase of the demand for people educated to Doctorate level.

THE CONFERENCE

The main reasons for researchers to participate in scientific conferences are the following:

- to get informed about the state-of-the-art;
- to present their own research, and get reactions from peers;
- to have their paper published in the conference proceedings;
- to meet others working in the same domain.

If you are interested to participate in the conference, you will submit a paper to the organizers. They will pass it on the members of the scientific committee and decide whether your paper can be accepted or not. You should get an acceptance or rejection message before a fixed deadline. With your letter of acceptance, you can ask for funding for travel, accommodation, and conference registration, all of which can be pretty expensive. Sometimes papers can be accepted either for oral presentation, or as posters. At a designated time, you will be expected to stand near your poster in order to be able to answer eventual questions about it. If your paper/poster is accepted, you may be asked to prepare a final document version of it for publication in the conference proceedings. Proceedings are typically published as standalone volumes, though sometimes they are turned into special issues of journals, or published only electronically on the web. The conference

organizers produce a detailed conference program which typically includes the following sections:

- registration: where you pay or confirm payment of the registration fee, and in return receive a badge identifying you as participant, plus documentation such as the latest program, invitations to social events, etc;
- plenary sessions: general opening and closing of the conference, panel discussions, and talks by "invited" speakers, the so-called renowned experts in the domain;
- parallel sessions: more specialized sessions with "contributing" speakers that take place simultaneously in different rooms (such sessions or "symposia" are organized by their chairperson, who is responsible for the focus and the selection of contributors);
- social events: coffee breaks, lunches, receptions, conference dinner, excursions, etc.

Typical international conferences last 3-5 days, starting around noon on the first day to give participants the time to register, and ending on the afternoon of the last day, with sometimes a half-day break in the middle for a touristic excursion. Smaller conferences (workshops) may not have parallel sessions, social events.

Postgraduate Study in Great Britain

In recent years, postgraduate study in the UK has experienced phenomenal growth. This increase reflects the United Kingdom's extraordinary range of taught and research opportunities at higher education institutions, both for students in the UK and from overseas. A quick look through the postgraduate prospectus of any UK university will reveal that there are two distinct types of study possible, the first is by instruction or a taught course, the second is by research. There may be a combination of both too, as an increasing number of postgraduate courses now contain both research and taught elements, although the traditional division between the two modes of delivery still exists. The most common type of course in terms of the number of people undertaking them are taught courses, or courses by instruction. Taught courses usually last one academic year full-time or two years part-time and lead to a higher degree such as a Master of Science (MSc) or a Master of Arts (MA). Applicants usually hold a degree in the same subject as the intended area of study. Degrees by instruction are very similar to undergraduate courses in that most of the time is devoted to attending lectures. The course is followed by written examinations and the production of the thesis. Finally, an oral examination is held to test the knowledge accumulated throughout the year. It is important to perform satisfactorily in every part of this assessment procedure. The different courses on the programme are coordinated so that students' workload is manageable and evenly spread throughout the year. The courses are taught intensively through lectures and small group tutorials, and rapidly bring students to an advanced level of understanding. A postgraduate's progress is continually

assessed and students regularly contact with teaching staff adding to the vital interchange of ideas. In addition to lectures and tutorials, most courses include projects and practical work, essays, and problem classes. Case studies on – and visits to – relevant organizations are a feature of many courses. Dissertations or supervised projects – major components of Master’s courses – are essentially research-based and are a valuable preparation for a research Doctorate. The nature of a research course is completely different, however, from that taken through a taught course. First of all, it lasts longer. The most popular qualification is Doctor of Philosophy (PhD), which usually takes three years. There is a shorter version called Master of Philosophy (MPhil), but minimum amount of time, which this takes, is usually two years. Both of these qualifications require the student carry out a piece of innovative research in a particular area of study. It is essential that the work has never been done before. Students are given training in research methods as well as the opportunity to pursue independent research under the guidance of experienced academics and, if studying a technical subject, to use highly sophisticated equipment. The start of a research degree involves a very extensive survey of all previous work undertaken in that area. It is important to note that the process of keeping up to date with other work going on in the subject must continue throughout the entire period of the research. The next stage of a research course usually involves collecting information in some way. The important thing is that something new must be found. The research is written up in the form of a thesis. Typically, this will contain an introduction, methodology, findings and discussion. The work should be an original piece of research which is to make a substantial contribution to knowledge in a specific area, followed by a defence of the dissertation in front of a panel. A PhD thesis should be produced over three or four years’ full-time study and will take longer for part-time completion.

University and Higher Degrees in Great Britain

In England, Wales and Northern Ireland the most usual titles for a first or an undergraduate degree are Bachelor of Arts (BA) or Bachelor of Science (BSc). A first degree is usually awarded at the end of a three-year course, which most people start at the age of 18/19, after leaving school, a second degree is Master of Arts (MA) or Master of Science (MSc) and the highest degree is Doctor of Philosophy (PhD). A higher degree is one which is awarded after further study, usually, although not always, involving research. It is sometimes also called a further degree. The range of second or further degrees in Britain is huge and complex – and depends on the arrangements of each autonomous university. There are MPhil (Master of Philosophy), MEng (Master of Engineering), MArch (Master of Architecture), and many others. Although some students take their second degree in the same university as their first degree, many more move to another university.

12 The award of a Master's degree is the culmination of what is normally one-year full time or two-years of part-time taught study and demonstrates the attainment of mastery in the chosen subject area. Until recently, postgraduate Master's degrees were awarded without grade or class. Nowadays, however, Master's degrees are classified into categories of Pass, Merit and Distinction – commonly 50+, 60+, and 70+ percent marks, respectively. The most common types of research postgraduate Masters are MPhil and MRes. The Master of Philosophy (MPhil) is a research degree awarded for the completion of a thesis. It is a shorter version of the PhD but is of a lower standard. The Master of Research (MRes) degree is a more structured and organized version of the MPhil, usually designed to prepare a student for a career in research. For example, an MRes may combine individual research with periods of work placement in research institutions. The Universities of Oxford, Cambridge and Dublin award MA degree to BAs without further examination, when a certain number of years have passed and (in some cases but not all cases) upon payment of a nominal fee. The MAs awarded by Oxford and Cambridge are colloquially known as the Oxbridge MA. The doctorate generally requires an outstanding proficiency in some specialised branch of research. It is regarded as the highest degree. The degree of Doctor of Philosophy (PhD) is awarded after a minimum of two or three years' research and indicates a higher level of attainment than a Master's degree. The degree often leads to careers in academia as a lecturer or researcher. The use of the word philosophy does not mean that the degree is restricted to philosophy. The name is the same for all faculties, and one may have a DPhil in English, or mathematics, or geography. From a practical point of view philosophy here means the same as *наук* in the names *кандидат или доктор наук*. Uniformity of standards between universities is promoted by the practice of employing outside examiners for all examinations, and the general pattern of teaching (a combination of lectures, small group seminars or tutorials with practical classes where necessary) is fairly similar throughout Britain.

PRESENTATION

In making presentations the key is preparation. You should first of all find out how much the audience know about the subject. Are they experts or do they know very little? And adjust your language so that everybody can understand. If possible, visit the room where you'll be giving the presentation beforehand and organize it precisely to your own requirements. Once you know who you are presenting to and where, you're ready to start preparing what you're going to say. So stage one is the opening – the first few moments that can make or break the presentation. Then stage two, a brief introduction about the subject of your talk. Stage three – the main body of the presentation. And four, the conclusion, which should include a summary of your talk and your recommendations. Finally, the question and answer session. I suggest that people memorize the opening as if they were actors. Write down the opening, record it, listen to it, and practice it again and again. If it is properly done, you'll get the audience's attention

immediately, and you'll feel confident during the rest of the presentation. After that, start using your notes. To make notes write the presentation out just like essay, select key points, read the full version over and over until it's imprinted on your mind. Use small postcards but write no more than one or two key points on each. When talking, face the audience at all times. Finally, remember that what you say is as important as how you say it. A good presentation is very much a performance.

University and Higher Degrees in the USA

An academic degree is a title conferred upon an individual by colleges that officially recognizes completion of a prescribed academic curriculum undertaken at the undergraduate or graduate academic level. The Bachelor of Arts (B. A.) degree is typically conferred by institutions of higher learning that are designated as four-year colleges, many of which are part of universities. In general, completion of a B.A. degree means that students successfully complete course work and fulfill certain requirements. Most bachelor's degree programs require at least 120 credits to graduate. According to the US Department of Education as for graduate education, it falls into the following categories: master's degree education, research doctoral degree education and postdoctoral training. The Master's degree Graduate degrees vary, but the most commonly completed graduate degree is the Master's degree. The master's degree is awarded upon completion of one to two years of advanced graduate study beyond the Bachelor's degree, depending on the field of study and conferring institution. It recognizes heightened expertise in an academic discipline or professional field of study, gained through intensive course work; the preparation of a culminating project or scholarly paper or thesis; or successful completion of a comprehensive examination which tests students on foundational knowledge in the field of study.

Master's degrees can be separated into two types: the research master's degree (academic) and the professional master's degree (professional). Popular graduate degrees include the Master's of Business administration (M.B.A.), Fine arts (M.F.A.), Social work (M.S.W.), Law (LL.M.), and specialist in education (Ed.S.). The research doctorate is the highest academic degree conferred upon an individual in the US system of graduate education. Course work and examinations play important roles in the first stages of a research doctoral degree program of study.

However, what distinguishes this degree from all others (in particular, from first professional doctoral degrees) is its recognition of the recipient's proven ability to conduct independent research at a professional level in either an academic or professional discipline. This independent research, typically presented in the form of a thesis, dissertation, or other major culminating project, must pass the review of a committee of scholars from both within and outside the field of study.

Because of the comprehensive nature of this independent research and because it must be deemed to represent an important contribution to the body of knowledge in the field of study, research doctoral degrees take an average seven years to complete. In some cases, the doctoral candidate must also complete a supervised internship. The most commonly known research doctoral degree is the Doctor of Philosophy (PhD). It is the highest academic credential that a student can earn in the USA, making it the most prestigious. However, there are a number of other doctoral degrees (professional) that enjoy the same status and represent variants of the PhD within certain fields. Examples are the Doctor of education (EdD), the Doctor of dental science (DScS), the Doctor of architecture (DArch) and others.

Postdoctoral Education Many persons who have earned PhD or similar degrees enroll in postdoctoral training programs or internships. Lasting one or more years, these programs do not usually confer a degree, but they are often considered necessary for those hoping to launch a professional or academic career in a given field of study.

Honorary Degrees Honorary degrees are awarded by institutions of higher education primarily in recognition of some significant achievement rather than the completion of an academic course of study. For this reason, honorary degrees are not generally considered comparable to their academic counterparts.

Research Work

Higher education is becoming an extremely important element in the organization of modern society. New dimensions of economic and technological competition at the regional and global levels have led to new demands on education in the areas of research. In order to become a top-level specialist one must learn to be a researcher. Research is a process that includes thinking up interesting projects to work on and discovering ways of finding answers to questions. Research is hard work but challenging, interesting, creative and sometimes frustrating. In fact many people are confused about research. They have fantastic ideas and crazy notions about what research is and who conducts it. When many of us think of research, images of scientists or of chemists in labs or of physicists with gigantic particle accelerators probably pop into our minds. Is that really so? Let us suggest that research covers a much wider sphere of activity than you might at first imagine. The term “research” comes from the French word “rechercher”, which means to investigate something thoroughly, to search for information, to try to find out about something that is of interest. Research is also, to the extent possible, objective, carefully done, and conducted using methods that can be repeated. Some of the basic questions we ask when we do research are the “who” question, the “why” question, the “why” question, the “how” question, the “what” question, the “when” question, the “which” question, the “where” question and a researcher must be able to figure out how to estimate the weight to be given to “why” and “how” and “when” and “which” elements. In research there is always a task, there are rules, and there is need for imagination and creativity. Research involves curiosity, accuracy, honesty and ingenuity. Research is a process, an activity that includes thinking up interesting projects to work on and discovering ways of finding answers to questions. When we characterize the main peculiarities of

the research we must mention observation first, it's a key factor, and correct observation involves, among other things, knowing what to look for, what to focus attention on, and what to ignore. Researches also use concept – ideas that help humans organize and make sense of things. Concepts do several things. They help us to see relationship between and among elements that may have previously escaped us, and they lead us to insights. We must be aware of the fact that in conducting research we are concerned with the typicality or atypicality of whatever it is we are studying. Is what we are investigating unique and unusual or is it part of normal, everyday life? At the same time we must interpret our findings correctly and try to derive some kind of conclusion or generalization that is logical and reasonable. When somebody is engaged in any researches he is usually expected to present her / his findings and to discuss the results of the research. The purpose of the research report is to offer a clear and unambiguous statement of what was done, how it was done, and what was found. There is a standard format for research papers; this includes an introduction and sections on methods, findings, and discussion.

The European Higher Education Area and the Bologna Process

The Bologna Process is a voluntary higher education reform process, which commenced in 1998/99, with the aim of making higher education systems compliant, and enhancing their international visibility. The European University Association (EUA) plays an active role in the Bologna Process representing views of the universities, and participates in practically all its events and activities. EUA has also contributed to explaining and promoting the Bologna Reforms around the globe. The Bologna Process was launched in 1998 (Sorbonne Declaration) by four countries (France, Germany, Italy, the UK). Since then, more countries have joined. 2010 was a milestone for the Bologna Process: at the Vienna-Budapest Ministerial Conference the European Higher Education Area was established. At the same time, it was decided to continue the Bologna Process, at least until 2020. The Bologna Process is a rather unique approach to reform and internationalise higher education systems and institutions. At its heart is the partnership between national governments. The main issues in the Bologna Process include: a converged degree structure: three study cycles of Bachelor, Masters and Doctorates; a joint credit system, usually the European credit transfer system (ECTS) or a compliant system; mobility of students and staff; internationalisation of higher education systems and institutions, the international visibility of the European Higher Education Area (EHEA), also named “Bologna in a global setting” or “international attractiveness”; social dimension, lifelong learning and widening access and participation; recognition of study periods, based on the credit system, and degrees, in line with the Lisbon Recognition Convention. In 2005, Belarus announced the intention to make its higher education system similar to the ideas proclaimed in the Bologna Declaration and in 2012, made the first attempt to join the Bologna process. To become a member of the Bologna process, Belarus was advised to meet some 19 requirements on the following paragraphs: academic freedom, institutional autonomy and integration of student community into the higher education management system. In 2015, Belarus was

accepted to the Bologna Process and the European Higher Education Area. However, further reforms are needed to make Belarusian higher education more compatible, competitive and attractive.

Academic Conference

Conference as a form of organization of scientific activity has been known for many centuries. The first historically recorded conference was in 416 BC in Greece. A conference is a meeting of people that “confer” about a topic. An academic conference is a conference for researchers to present and discuss their work. Together with academic or scientific journals, conferences provide an important channel for exchange of information between researchers. Conferences are usually organized either by a scientific society or by a group of researchers with a common interest. The meeting is announced by way of a “Call For Papers” or a “Call For Abstracts”, which lists the meeting’s topics and tells prospective presenters how to submit their abstracts or papers. A call for papers (CfP) is a method used for collecting articles or conference presentations. A CfP is usually sent to interested parties, describing the broad theme, the occasion for the CfP, formalities such as what kind of abstract (summary) has to be submitted to whom and a deadline. Prospective presenters are usually asked to submit a short abstract of their presentation, which will be reviewed before the presentation is accepted for the meeting. (An abstract is a brief summary of a research article, thesis, review, or any in-depth analysis of a particular subject or discipline, and is often used to help the reader quickly ascertain the paper’s purpose). Generally, work at the conference is presented in the form of short, concise presentations lasting about 10 minutes, usually including discussion. The work may be published in the conference proceedings, the latter being the collection of academic papers that are published in the context of an academic conference. They are usually distributed as printed books after the conference has closed. Proceedings contain the contributions made by researchers at the conference. They are the written record of the work that is presented to fellow researchers. Often there are one or more keynote speakers (usually scholars of some standing), presenting a lecture that lasts an hour or so, and which is likely to be advertised before the conference. Panel discussions, roundtables on various issues, workshops may be part of the conference. A large meeting will usually be called a conference, while a smaller is termed a workshop. They might be single track or multiple track, where the former has only one session at a time, while a multiple track meeting has several parallel sessions with speakers in separate rooms speaking at the same time. 44 Conference activity forms an important part of the career of any researcher. For postgraduates it is an important way of participating in academic debate, and “showcasing” their own work. Conference is a way of raising their individual profiles, and a springboard for future publications. “Conference culture” acquisition suggests the development of communication and oral presentation skills of postgraduates, abilities of delivering material in a public forum and defending their ideas.

WRITING A RESEARCH PAPER

A research paper is a piece of academic writing based on its author's original research on a particular topic. It includes analysis and interpretation of research findings. It requires good writing skills, excellent research skills, a lot of time and attention. A research paper basically has the following structure:

- **Title.** In fact, this is the most important part of any research paper. It should indicate the main focus of the research. Approximately the title must comprise from 5 to 10 words.
- **Abstract.** The purpose of this section is to provide the reader with a brief summary of the paper. After reading its abstract the reader will recognize if this paper is of his interest or not. It includes the purpose of the study, research questions and suggestions, and also main findings with conclusions.
- **Introduction.** The introduction is a brief presentation of the main topic combined with a review of the current state of the problem in the present scientific community.
- **Main body.** This is the longest part in the paper that provides detailed information about the research. It usually includes the analysis of past studies or 29 scholarly papers, describes key aspects of the research, techniques and methods of studies, conducted experiments, presents and illustrates the obtained findings.
- **Conclusion.** This section covers the conclusions and results of the whole work. In this section scholars propose potential solutions or new ideas based on obtained results.
- **Reference List.** A section where scientists provide all used sources in a specific format. To be an effective and efficient researcher you will need to plan your research project carefully to make the most of your time and research opportunities. Remember, a good research paper is the one that is finished.

WHAT IS PROFESSIONAL COMMUNICATION?

Effective professional communication is critical nowadays. Today we all need communication skills not only in daily personal life, but also in the profession, workplace and business. Successful professional communication is an art that ensures a smooth flow of ideas, facts, and right decisions. Professional communication refers to the various forms of speaking, listening, writing, and responding carried out in the workplace, in person or electronically. There are three main kinds of professional communication – verbal, written and digital. Effective verbal communication is the ability to speak fluently and listen to comments from those you are talking to and observe their reactions. You must also know how to make public speaking or a formal presentation to a group of people. Written communication includes writing letters, memos, project plans, articles, technical scientific reports, posters and many more.

You should also pay attention to your emails. Professionals who excel at written communication understand how to use language to get their message across. You should review what you plan to post, not only for typos but also for factual errors. It is advisable to reread your message before it would be forwarded to higher levels of the company or to human resources. Digital communication is getting more widespread. Every professional must learn which types of digital communication are the most effective for him or her. Professionals must understand and master all forms of social networking, emailing, blogging, internet and teleconferencing. You must remember that what is sent in an email or posted on the Internet is impossible to completely delete. Be careful of what you post on your personal sites and pages, as they can come back to haunt you professionally, especially if you deal with the public or customers in your job.

HOW TO MAKE A PRESENTATION

Pamela Pickford trains business people to make presentations. Here's what she says. The key is preparation. So the first step is to find out who you're going to be presenting to. You should find out how much the audience know about the subject. Are they experts or do they know very little? Are you presenting to a group from the same or from different countries? And adjust your language so that everybody can understand. If possible, visit the room where you'll be giving the presentation beforehand and organize it precisely to your own requirements. You must feel comfortable in it. Now you're ready to start preparing what you're going to say. So stage one is the opening – the first few moments that can make or break the presentation. Then stage two, a brief introduction about the subject of your talk.

Stage three – the main body of the presentation. And four, the conclusion, which should include a summary of your talk and your recommendations.

Finally, the question and answer session. I suggest that people memorise the opening as if they were actors. Write down the opening, record it, listen to it, and practice it again and again. If it's properly done, you'll get the audience's attention immediately, and you'll feel confident during the presentation. After that, write the whole presentation out. Then select the key 19 points. The next step is to buy some small cards and write one or two of the key points on each one. When talking, face the audience at all times. Finally, remember that what you say is as important as how you say it. A good presentation is very much a performance.

SEVEN TIPS FOR SUCCESSFUL PROFESSIONAL COMMUNICATION

Every employee needs to learn certain communication skills before entering the workplace. There are seven communication skills vital for successful professional communication: clarity, respect, good listening skills, confidence, empathy, ability to speak publicly and to learn. Clarity is an important communication skill that every employee needs to learn to communicate with others. Misunderstandings can cause conflicts and negatively affect a business. To avoid misunderstandings it is advisable

to refrain from providing too much general information. It is necessary to be concise and direct when you communicate with customers, co-workers, and especially your employer. Respecting your customers and your co-workers is also essential. Respect is usually shown in an appropriate tone and knowing your boundaries. You must also respect your employer even if you don't agree with his/her personal opinion. Good listening skills are one of the most valued communication skills found in the workplace. You should take into account that people are interested in sharing their opinion rather than listening to others. Part of listening is asking questions. For instance, if you don't know how to fulfill your boss's task – don't guess, ask. Displaying confidence is a necessary skill in the workplace. You should learn to speak in a clear and direct tone to individuals and to larger groups, but refrain from sounding arrogant. Empathy shows concern for other people's needs and it's also a great way to maintain good relationships. If a customer is upset about a personal situation, it is important to express your support. Another important communication skill to learn is how to speak more comfortably in front of large groups of people, such as in conferences or at seminars. Learning to look at different members of the audience and express your ideas correctly are also valuable speaking skills that will help you in your career. Above all else, one of the most valuable types of communication skills is to continue to learn. That means acquiring knowledge and new experience which will be useful in your job.

Communication skills in the office provide you with tools to become the best employee. They will also help you to make a successful career, learn a new trade or get a degree.

Transferable skills and beyond

Some might view a Masters course as endowing you with the same skills set as a first degree, albeit with greater depth. It is true that, much like Bachelor's degree graduates, your Masters course will have endowed you with skills such as:

- Written and oral communication
- Problem-solving
- Project management
- Time management
- Working with others in a team

A Masters course develops these qualities, and adds many more of its own. Indeed, by the account of many Masters-qualified workers, it is often the skills more than the subject-specific knowledge that has helped them to get ahead in their profession. These skills include:

- Critical thinking
- Ability to analyse
- Ability to work independently

- Ability to motivate others

Your course has no doubt given you other specific skills depending on your chosen subject. Don't be shy about listing these attributes too. Included could be such things as:

- Foreign languages
- Scientific knowledge
- Business knowledge
- Conducting field research

There's virtually no limit to the skills that you can develop through your Masters course. If you can demonstrate how you have learnt these skills, and how they have benefited you, transferable skills will enhance your CV and make you more employable.

The Scientific Method As man's knowledge of natural phenomena increased, there came a time when he recognized that his growing knowledge of nature was the result of his application of a particular method of investigation. This rather well defined procedure has come to be known as the Scientific Method. Consequently the emphasis passed from the knowledge itself to the method by which that knowledge was obtained. Let us explore the possibilities and implications of the scientific method. The steps in the procedure may be listed as follows: First – The recognition of the problem. Second – Collection of experimental facts or data.

Third – Analysis of data and setting up of a tentative hypothesis. Fourth – Performance of test experiments. Fifth – Substantiation, modification, or abandonment of the hypothesis in the light of the results of the test experiments. If the hypothesis is discarded as the result of the test experiments, a new one will be set up and steps three, four and five will be repeated until an explanation is found which accounts satisfactorily for all the known experimental facts. As the amount of substantiating data becomes larger and larger, the hypothesis advances to the rank of a theory and eventually may be accepted as true. It should be noted that in general one adopts first the most obvious hypothesis; that is, one that at the moment seems to offer the simplest explanation of the observed facts. This hypothesis may or may not prove to be satisfactory in the light of later evidence. 114 In coming to a conclusion about any hypothesis, the true scientist is swayed only by experimental evidence. He is not, for instance, governed principally by what he or anyone else wants the results to be, by the reputation of the man who advanced the hypothesis, by what the majority of people think about it, or by any similar emotional reaction to the problem. He will constantly check his conclusions and hypotheses by experiment and be guided solely by the results thus obtained.

How British Science is organized

John B.S. Haldane

The British Association for the Advancement of Science was founded in 1831, and at that time almost every serious scientist in Britain belonged to it. There were so few of them that most of the year's work in a given branch of science could be discussed in a few days. In fact it merited the title of "Parliament of Science" which is still bestowed on it by some newspapers. Since then the situation has completely changed. At present there are a number of societies, for example the Royal Astronomical Society, the Chemical Society, the Genetical Society, the Geological Society and the Physiological Society which are composed of scientists only. Finally there is the Royal Society of London for Improving Natural Knowledge. This has 384 scientific fellows, 49 foreign members, and 15 British fellows. When it was founded nearly 300 years ago, it included every scientist in England, who was interested in science. But now it only includes a small fraction of scientists, and its discussions are less likely than those of the societies concerned with individual sciences. On the other hand, the British Association is concerned with 201 matters other than science. It has sections devoted to psychology, education and economics. But except for the Royal Society, the scientific societies have no money to subsidize research. This is done by universities, the government, industrial firms, and endowed bodies. There is no organization of research on a national scale. Some of the government and industrial research is secret, and therefore of no value to science. For science means knowledge. The British Association is able to spare a few hundred pounds yearly for grants in aid of research. But its main function now is discussion. New results are generally announced at meetings of smaller societies, and the public hears very little of them. Both in Russia and in Scandinavia the press has far better scientific news than in Britain. If science is to advance in this country as it should, we need more democracy in the laboratories, and also more democratic control of expenditure on research. This will only be possible if the people are educated in science, and they are at present deliberately kept in the dark. For knowledge of science leads to a realization of the huge amount of knowledge which could be applied to the public benefit in industry, agriculture and transport were organized for use and not for profit.

Sample of introductory speech

TITLE OF THE THESIS

1) *Present the idea of the research.*

It is acknowledged that Following this, In particular, the attention should be drawn to.... However,.... Therefore, it is worth analyzing the context in which... .

2) *Aim and objectives*

The main objective of this thesis is to provide The possibility to approach this topic by means of regulatory theories, in particular by self-regulatory modes, is to a large

extent ignored, Thus, this thesis goes one step further

Following the main aim of the research we plan to deal with several objectives:

- to analyze theoretical literature
- to compare foreign and domestic experience
- to formulate the basic principles...

3) ***Methods***

This thesis presents a qualitative research, which to a large extent is based on the technique of desk research which results in a systematic literature review.

The significance of the thesis lays in the application of a good regulation test, which conceptualizes a theoretical framework Based on the application of different methods and topics covered, the thesis is divided into three chapters, which eventually answer the central thesis question:.... ?

4) ***Description of each chapter***

The first chapter introduces.... . The chapter briefly introduces recent empirical data Although the chapter primarily focuses on

The second chapter provides insights to the ongoing debate on.... The chapter is organized in the following structure. This chapter is unique because of the methodology applied; it is based on the empirical experience gathered by participating in.... The firsthand experience provides the thesis with insights

The third chapter is of a decisive importance as it presents the core problems.... In particular, the chapter provides a

Статья по специальности

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BIOGEN: evidence-grounded multi-agent reasoning framework for transcriptomic interpretation in antimicrobial resistance

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Abstract

Introduction:

Interpreting gene clusters derived from RNA sequencing (RNA-seq) remains

difficult in functional genomics, particularly in antimicrobial resistance studies where mechanistic context is needed for downstream hypothesis generation.

Methods:

We present BIOGEN, an evidence-grounded multi-agent framework for *post hoc* interpretation of RNA-seq transcriptional modules that integrates biomedical retrieval, structured interpretation, and multi-critic verification. BIOGEN organizes knowledge from PubMed and UniProt into traceable cluster-level explanations with explicit evidence reporting and confidence tiering.

Results:

On the primary *Salmonella enterica* dataset, BIOGEN achieved strong grounding and biological coherence, with BERTScore 0.689, Semantic Alignment Score 0.715, KEGG Functional Similarity 0.342, and a non-verifiable identifier rate of 0.000, compared with 0.100 for the LLM-only baseline. Across four additional bacterial RNA-seq datasets, BIOGEN preserved zero ungrounded outputs under the identifier-based criterion. In a controlled multi-dataset comparison against representative open-source agentic AI baselines, BIOGEN was the only framework that consistently produced zero non-verifiable identifier outputs across all five datasets.

Discussion:

These results indicate that retrieval access alone is insufficient to ensure reliable biological interpretation. Evidence-grounded orchestration is essential for transparent, source-traceable transcriptomic reasoning under distribution shift.

1 Introduction

Interpreting RNA-seq gene clusters remains a central challenge in transcriptomics (Kiselev et al., 2019; Williams et al., 2014; Finotello and Di Camillo, 2015), with continuing methodological development in single-cell and bulk RNA-seq cluster interpretation in recent years (Vandereyken et al., 2023; Zhang et al., 2023). Clustering methods such as K-means and spectral clustering can group genes with similar expression patterns into transcriptional modules, but the downstream biological interpretation of these modules still relies primarily on enrichment-based analyses, including Gene Ontology over-representation analysis and Gene Set Enrichment Analysis (GSEA) (Subramanian et al., 2005; Zhao and Rhee, 2023; Chen et al., 2023). These methods provide useful summaries at the level of predefined pathways or categories, yet they often offer limited insight when signals are weak, diffuse, or poorly represented in existing annotation resources (Subramanian et al., 2005; Zhao and Rhee, 2023). As a result, cluster-specific mechanistic interpretation frequently still depends on manual literature review and expert curation, which limits scalability, reproducibility, and traceable hypothesis generation (Subramanian et al., 2005; Chen et al., 2023).

Large language models (LLMs) have recently emerged as powerful tools for biomedical text synthesis and knowledge-intensive reasoning (Singhal et al., 2023; Tian et al., 2024). However, fluency alone does not ensure factual reliability. When used without external grounding, LLMs can generate plausible but unsupported biological statements, omit verifiable provenance, and introduce hallucinated content, including fabricated or misleading references (Roustan and Bastardot, 2025). Retrieval-augmented

generation (RAG) addresses part of this limitation by conditioning generation on external evidence rather than relying solely on parametric memory (Lewis et al., 2020). Recent biomedical reviews similarly suggest that retrieval-augmented workflows can improve factuality and updateability, while also emphasizing continuing challenges in evaluation, attribution, and reliability (Liu et al., 2025). Even so, evidence-grounded, role-specialized agentic systems for transcriptomic cluster interpretation remain underexplored, especially in settings that require explicit critic-based verification and direct comparison with conventional enrichment pipelines.

This gap is particularly important in antimicrobial resistance research involving *Salmonella enterica*, a major foodborne pathogen associated with a growing global resistance burden and substantial implications for public health, food safety, and treatment effectiveness (Kumar et al., 2025; Wang et al., 2025). RNA-seq can reveal genome-wide transcriptional programs related to virulence, resistance, and metabolic adaptation, but interpreting these programs still depends largely on statistical summaries followed by manual biological contextualization (Chen et al., 2023; Stévenin et al., 2024). A framework that systematically links gene clusters to verifiable evidence, while also quantifying what is recovered beyond standard enrichment analysis, could therefore support more reliable and reproducible biological hypothesis generation.

To address this need, we introduce BIOGEN, a role-specialized multi-agent framework for evidence-grounded interpretation of RNA-seq transcriptional modules. BIOGEN formulates interpretation as a verification-constrained reasoning process involving three specialist components: (i) a Retriever that gathers supporting evidence from PubMed and UniProt, (ii) an Interpreter that produces cluster-level explanations grounded in retrieved sources, and (iii) a set of Critic Agents that evaluate factual grounding, semantic coherence, and adversarial consistency. BIOGEN also employs a data-adaptive evidence-tiering strategy that assigns interpretations to High confidence, Moderate confidence, or Suggestive categories based on the empirical distribution of consensus critic scores, thereby avoiding manually selected thresholds.

BIOGEN is intended as an interpretive support layer rather than a standalone discovery engine. It does not claim novel biological discoveries or replace experimental validation. Instead, it organizes existing biomedical knowledge into transparent, cluster-specific interpretations that complement standard transcriptomic workflows and make the evidential basis of each interpretation explicit. Although BIOGEN is methodologically applicable to broader bacterial RNA-seq interpretation, the present evaluation is scoped to antimicrobial-resistance-relevant bacterial transcriptomic datasets, namely, the primary multi-omics AMR cohort in *S. enterica* and four external bacterial-stress datasets that involve antibiotic perturbation, biofilm formation, and stress-response programs.

The main contributions of this work are as follows:

- We formulate *post hoc* RNA-seq cluster interpretation as an evidence-grounded, verification-aware reasoning problem and introduce BIOGEN, a modular multi-agent framework that integrates retrieval, structured interpretation, and critic-based validation.
- We present a reproducible local implementation that combines per-cluster gene selection, literature and protein retrieval, data-adaptive evidence tiering, and traceable cluster-level reporting without relying on proprietary inference services.
- We evaluate BIOGEN across five bacterial RNA-seq datasets using grounding- and relevance-oriented metrics, including BERTScore, Semantic Alignment

Score, KEGG Functional Similarity where available, the identifier-based hallucination rate (defined as the proportion of interpretations lacking a verifiable PMID, DOI, or UniProt accession; [Section 5.3.4](#)), and evidence-tier distributions, and analyze how retrieval and critic modules affect identifier-level source traceability and interpretive reliability under distribution shift.

- We compare BIOGEN with standard enrichment baselines and representative open-source agentic AI frameworks under a shared local setup, showing that BIOGEN consistently provides the strongest identifier-level traceability and produces zero non-verifiable identifier outputs across datasets under the strict identifier-based criterion, while generic agentic frameworks may achieve higher similarity-based scores but with substantially weaker grounding reliability.

The remainder of the paper is organized as follows. [Section 2](#) reviews related work. [Sections 3, 4](#) introduce the BIOGEN framework and its design rationale. [Section 5](#) describes the experimental setup. [Section 6](#) presents results on the primary dataset, design sensitivity analyses, complementarity with enrichment analysis, cross-organism generalization, and comparison with representative open-source agentic AI frameworks. Finally, [Sections 7, 8](#) discuss limitations, implications, and future directions.

4. Методические материалы, определяющие процедуры оценивания знаний, умений, навыков и (или) опыта деятельности, характеризующих этапы формирования компетенций.

В ходе освоения дисциплины предусмотрены следующие формы отчетности: сообщения и практические задания. В рамках освоения дисциплины предусмотрен текущий контроль и промежуточная аттестация.

Текущий контроль стимулирует студентов к непрерывному овладению учебным материалом, систематической работе в течение всего семестра и осуществляется по темам практических занятий.

Максимальное количество баллов, которое магистрант может получить за освоение дисциплины в каждом семестре 100 баллов. За текущий контроль максимальное количество баллов 70, за промежуточную аттестацию: зачет – до 20 баллов, экзамен – до 30 баллов.

В ходе освоения дисциплины, за текущий контроль, магистранту нужно набрать не менее 50 баллов.

В конце каждого семестра по дисциплине предусмотрена промежуточная аттестация:

зачет в 1 семестре проводится устно и состоит из двух частей:

1. чтение, перевод и реферирование текста профессиональной тематики.
2. сообщение (тезисы) научной конференции.

Шкала оценивания зачета

Критерий оценивания	Баллы
Студент чётко излагает предложенный текст и демонстрирует его содержания, читает бегло, без ошибок, переводит отрывок на русский язык адекватно содержанию оригинала, грамотно составил диалог по пройденной тематике	11-20
Студент чётко излагает предложенный текст и демонстрирует его содержания, читает бегло, с допущением незначительных ошибок, переводит отрывок на русский язык адекватно содержанию оригинала с незначительными ошибками, диалог по пройденной тематике составлен с незначительными ошибками	1-10
Студент демонстрирует непонимания прочитанного текста, читает с допущением множества ошибок, переводит отрывок на русский язык неадекватно содержанию оригинала, составил диалог по пройденной тематике с допущением большого числа лексических и грамматических ошибок	0

Итоговая шкала по дисциплине

Итоговая оценка по дисциплине выставляется по приведенной ниже шкале. При выставлении итоговой оценки преподавателем учитывается работа магистранта в течение всего срока освоения дисциплины, а также оценка по промежуточной аттестации.

Баллы, полученные магистрантом по текущему контролю и промежуточной аттестации	Оценка в традиционной системе
81 - 100	Зачтено
61 - 80	Зачтено
41 - 60	Зачтено
0 - 40	Не зачтено

экзамен во 2 семестре проводится устно и состоит из двух частей:

1. сообщение о научной работе;
2. реферирование научной статьи по специальности.

Шкала оценивания экзамена

Критерий оценивания	Баллы
Студент может грамотно, уверенно ответить на предложенный вопрос (вопросы), предоставил подготовленное сообщение	20-30
Студент грамотно, уверенно отвечает на предложенный вопрос (вопросы) с незначительными ошибками, предоставил подготовленное сообщение с незначительными ошибками	1-19
Студент не может ответить ни на один из предложенных вопросов, не предоставил (или предоставил выполненное частично, или с большим количеством ошибок) подготовленное сообщение	0

Итоговая шкала по дисциплине

Итоговая оценка по дисциплине выставляется по приведенной ниже шкале. При выставлении итоговой оценки преподавателем учитывается работа магистранта в течение всего срока освоения дисциплины, а также оценка по промежуточной аттестации.

Оценка по 100-балльной системе	Оценка по традиционной системе
81 – 100	отлично
61 - 80	хорошо
41 - 60	удовлетворительно
0 - 40	неудовлетворительно