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Preface

Предисловие

Учебное пособие “Learn to effectively communicate your research ideas and findings” предназначено для бакалавров 3-4 курсов, магистров и аспирантов университетов. Его целью является формирование иноязычной коммуникативной компетенции в сфере учебной и научной деятельности студентов, что предполагает успешное овладение английским языком как средством их дальнейшего профессионального развития.

Предлагаемое учебное пособие ориентированно на создание условий для приобретения студентами опыта работы с научными статьями на английском языке, а также написания собственных научных статей на старших курсах бакалавриата, в магистратуре и аспирантуре. Также работа с материалами двух разделов пособия нацелена на развитие и совершенствование навыков публичного выступления в сфере профессиональной и научной коммуникации.

Данное учебное пособие включает 4 раздела:

- Unit 1 – What is the structure of a scientific paper?
- Unit 2 – How to read a scientific paper?
- Unit 3 – Improving Power Point Presentations
- Unit 4 – Why Don’t the Mathematicians Learn to Speak?

Каждый раздел содержит материалы для развития навыков чтения, аудирования и говорения, а также различные упражнения, направленные на введение, отработку и закрепление ключевой лексики по тематике раздела. Развитие навыков аудирования строится на основе работы с тематическими видео, что является существенным преимуществом, поскольку создает полезное и облегчающее понимание визуальное подкрепление для вербального контента.

Кроме основных четырех разделов (Units 1-4), в пособии имеются дополнительные разделы – Pronunciation Practice и Grammar Reference.

Pronunciation Practice предлагает студентам самостоятельно фонетически отработать две категории заимствованных слов (international words & false friends). Для этой цели студентам рекомендуется использовать как традиционные, так и онлайн словари. Слова отобраны из каждого раздела (Units 1-4) и представлены не в алфавитном порядке, а в той же последовательности как они встречаются в заданиях разделов. Схожесть звучания данной категории слов с русским языком относительна, зачастую обучающиеся переносят гласные и согласные звуки, а также ударения из таких же заимствований в родном языке на английский язык, что приводит к ошибкам в произношении. Поэтому с методической точки зрения является целесообразным чтобы студенты работали над заимствованиями последовательно и систематически.

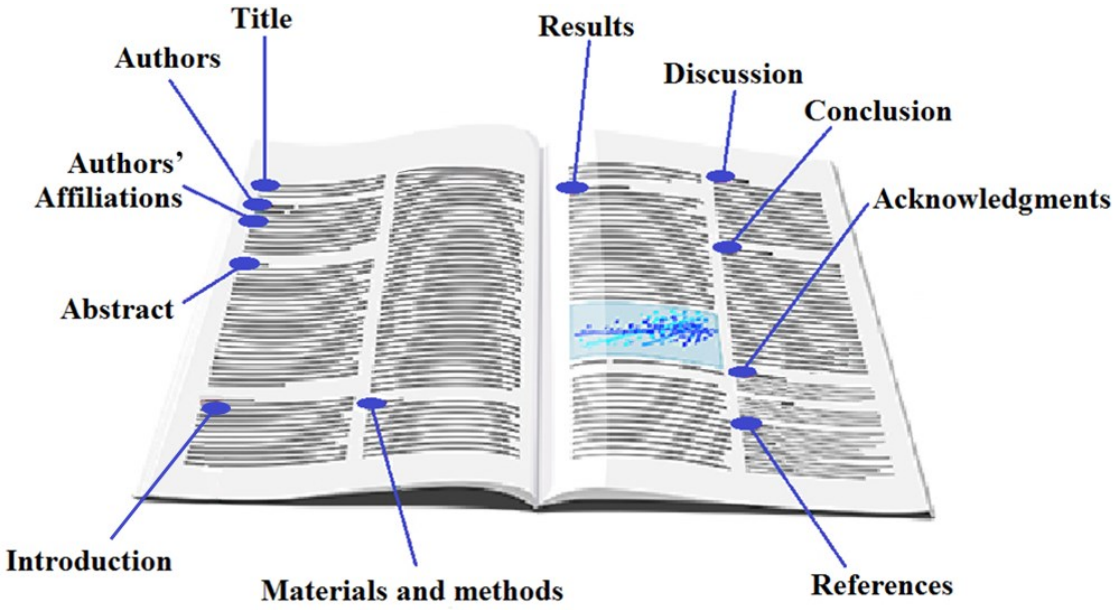
Grammar Reference включает справочный материал и упражнения на отработку Passive Voice, Infinitives, Participles и Gerund. Выбор обусловлен тем, что страдательный залог и неличные формы глагола характерны для стилистики научных статей.

В конце учебного пособия находятся видео скрипты (текстовая основа к видео) и ключи к заданиям в четырех разделах.

Учебное пособие разработано с использованием аутентичных материалов, при подборе которых учитывались такие характеристики, как новизна информации, ее познавательная ценность, соответствие учебным и профессиональным потребностям студентов.

Unit 1

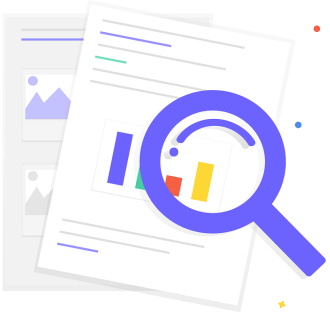
What is the structure of a scientific paper?



Unit 1. What is the structure of a scientific paper?

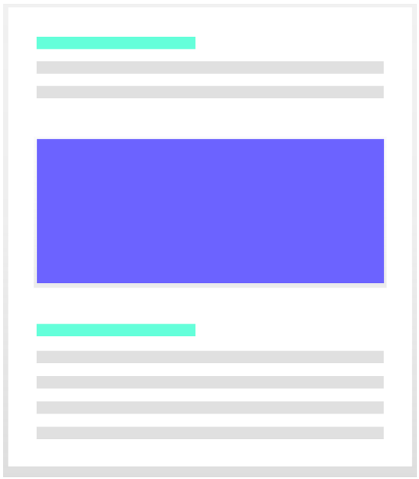
Task A

Read the text below and choose, from paragraphs A-J, the one which fits each parenthesis 1-9 as a description. There is one paragraph which you do not need to use.



What is the structure of a scientific paper?

All scientific papers have the same general format. They are divided into distinct sections and each section contains a specific type of information. The number and the headings of sections may vary among journals, but for the most part a basic structure is maintained. Typically, scientific papers are comprised of the following parts:



1. (____) Title
2. (____) Abstract
3. (____) Introduction
4. (____) Methods
5. (____) Results
6. (____) Discussion
7. (____) Acknowledgments (optional)
8. (____) References / Literature cited / Bibliography
9. (____) Appendix / Appendices (optional)

Because scientific papers are organized in this way, readers know what to expect from each part of the paper, and they can quickly locate a specific type of information.

Let's examine the content in each section of a scientific paper, and discuss why each section may be useful to you as a reader.

A. This section contains the data collected during experimentation. It is the heart of a scientific paper. In this section, much of the important information may be in the form of tables and graphs. When reading this section, do not readily accept the author's statements about the findings. Rather, carefully analyze the raw data in tables and figures to draw your own conclusions.

B. You will find background information and a statement of the author's hypothesis in this section. It usually describes the theoretical background, indicates why the work is important, states a specific research question, and poses a specific hypothesis to be tested.

C. Authors often use this section to describe what their work suggests and how it relates to other studies. In this section, authors can anticipate and address any possible objections to their work and suggest areas of improvement for future research.

D. If it's well-written it will help you to determine if a paper is interesting and relevant for your project.

E. This section describes both specific techniques and the overall experimental strategy used by the scientists. Generally, it does not need to be read in detail. Refer to this section if you have a specific question about the experimental design.

F. This part contains information in greater detail than can be presented in the main body of the paper, but which may be of interest to a few people working specifically in this field.

G. This section provides the sources referred to throughout the paper. It is also helpful for generating a list of background reading on the topic under study.

H. This part of the paper contains brief statements of the purpose, methods, results, and conclusions of a study. It is often included in article databases, and is usually free to a large audience. Thus it may be the most widely read portion of a scientific paper.

Unit 1. What is the structure of a scientific paper?

I. The format of a scientific paper has been defined by centuries of developing tradition, editorial practice, scientific ethics and the interaction with printing and publishing services.

J. It tells you what people or institutions, in addition to the authors, contributed to the work. Reading this section, you can sometimes see what sources provided financial support for the study.

Task B

Match the words from the text on the left with their definitions on the right. There is one definition which you don't need to use.

1. format
2. heading
3. reference
4. graph
5. figure
6. hypothesis
7. technique

A. an often numbered drawing or diagram used in a book to explain something

B. a shortened form of a statement, speech etc.

C. a method of doing something that needs skill

D. the words written as a title at the top of a piece of writing, or at the top of each part of it

E. something that tells a reader where the information came from that is used in a piece of writing

F. the size, shape etc. in which something, especially a book or a journal is produced

G. an idea which is suggested as a possible way of explaining facts, proving an argument etc.

H. a drawing, such as a curved line, which shows how different values are related to each other

Task C

Find in the text one more synonym for each group of the words below.

1. well-defined, well-written, clear, unmistakable, _____.
2. to contain, to include, to consist of, _____.
3. nonobligatory, not required, noncompulsory, _____.
4. to study, to examine, to investigate, _____.
5. to expect, to predict, to foresee, _____.
6. to define, to identify, to find out, to specify, _____.
7. section, part, segment, _____.
8. to help in sth, to have a hand in sth, to provide support for sth, _____.

Unit 1. What is the structure of a scientific paper?

Task D *Skim the ABSTRACTS of the papers 1-4 and match them with the REFERENCES sections of these papers A-F.*

A

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- Kettner, L., Näher, S., Goodman, J. E., & O'Rourke, J. (2004). Two computational geometry libraries: LEDA and CGAL. In Handbook of discrete and computational geometry (pp. 1435–1463). Chapman & Hall/ CRC.

B

- Antoniades, I.P., Samoladas, I., Stamelos, I., Angelis, L., and Bleris, G.L., (2005). Dynamic Simulation Models of the Open Source Development Process, in S. Koch (ed.), Free/Open Source Software Development, 174-202, Idea Group Publishing, Hershey, PA.
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C

- P. Duysinx, M.P. Bendsøe, Topology optimization of continuum structures with local stress constraints, Internat. J. Numer. Methods Engrg.43 (8) (1998) 1453–1478.
- C. Le, J. Norato, T. Bruns, C. Ha, D. Tortorelli, Stress-based topology optimization for continua, Struct. Multidiscip. Optim. 41 (2010) 605–620.
- M.P. Bendsoe, O. Sigmund, Topology Optimization - Theory, Methods and Applications, Springer Verlag, Berlin Heidelberg, 2003.

1 **Stress-based shape and topology optimization with the level set method**

R.Picelli, S.Townsend, H.A.Kim, C.Brampton, J.Norato

This paper proposes a level set method to solve minimum stress and stress-constrained shape and topology optimization problems. The method solves a sub-optimization problem every iteration to obtain optimal boundary velocities. A p-norm stress functional is used to aggregate stresses in a single constraint. The shape sensitivity function is derived and a computational procedure based on a least squares interpolation approach is devised in order to compute sensitivities at the boundaries. Adaptive constraint scaling is used to enforce exact control of stress limits. Numerical results show that the method is able to solve the problem efficiently for single and multiple load cases obtaining solutions with smooth boundaries. [2]

2 **Stochastic Discontinuous Galerkin Methods based on fluctuation-dissipation balance**

W. Pazner, N. Trask, P.J. Atzberger

We introduce a general framework for approximating parabolic Stochastic Partial Differential Equations (SPDEs) based on fluctuation-dissipation balance. Using this approach we formulate Stochastic Discontinuous Galerkin Methods (SDGM). We show how methods with linear-time computational complexity can be developed for handling domains with general geometry and generating stochastic terms, handling both Dirichlet and Neumann boundary conditions. We demonstrate our approach on example systems and contrast with alternative approaches using direct stochastic discretizations based on random fluxes. We show how our Fluctuation-Dissipation Discretizations (FDD) framework allows us to compensate for discrepancies in dissipative properties between the continuous operators and their discretized versions. This allows us to handle general heterogeneous discretizations, accurately capturing statistical relations. Our FDD framework provides a general approach for formulating SDGM discretizations and other numerical methods for robust approximation of stochastic differential equations. [1]

Unit 1. What is the structure of a scientific paper?

3 **Sparse representation of 3D images for piecewise dimensionality reduction with high quality reconstruction**

Laura Rebollo-Neira, Daniel Whitehouse

Sparse representation of 3D images is considered within the context of data reduction. The goal is to produce high quality approximations of 3D images using fewer elementary components than the number of intensity points in the 3D array. This is achieved by means of a highly redundant dictionary and a dedicated pursuit strategy especially designed for low memory requirements. The benefit of the proposed framework is illustrated in the first instance by demonstrating the gain in dimensionality reduction obtained when approximating true color images as very thin 3D arrays, instead of performing an independent channel by channel approximation. The full power of the approach is further exemplified by producing high quality approximations of hyper-spectral images with a reduction of up to 371 times the number of data points in the representation. [4]

4 **"Together we are better": Professional learning networks for teachers**

Torrey Trust, Daniel G. Krutka, Jeffrey Paul Carpenter

In recent years, many educators have turned to professional learning networks (PLNs) to grow in their craft with peers who are more accessible online because of reduced temporal and spatial constraints. While educators have cultivated PLNs, there is a dearth of research about the effects of PLNs. This manuscript reports the findings of a qualitative study that investigated PLN experiences through the analysis of survey data from 732 P-12 teachers. Data analysis suggests that the anytime, anywhere availability of expansive PLNs, and their capacity to respond to educators' diverse interests and needs, appear to offer possibilities for supporting the professional growth of whole teachers. These findings have implications for defining the present and future of teacher learning in a digital age. [3]

D

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E

- Gou J, Hou B, Ou W, Mao Q, Yang H, Liu Y. Several robust extensions of collaborative representation for image classification. Neurocomputing 2018. https:// doi.org/10.1016/j.neucom.2018. 06.089.
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- Gou J, Wang L, Yi Z, Lv J, Mao Q, Yuan Y-H. A new discriminative collaborative neighbor representation method for robust face recognition. IEEE Access 2018;6:74713–27. https://doi.org/10.1109/ACCESS. 2018.28835 27. 2018.

F

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- Koski T, Loges W. Asymptotic statistical inference for a stochastic heat flow problem. Stat Probab Lett July 1985; 3(4): 185e9.10.1016/0167 -7152 (85)90015-x.
- Lototsky SV. Statistical inference for stochastic parabolic equations: a spectral approach. Publications Matematiques Jan. 2009;53:3e45. https://doi.org/10.5565/publmat_53109_01.

Unit 1. What is the structure of a scientific paper?

Task E

Skim the ACKNOWLEDGMENTS sections from several research papers A-E. Decide which of them:

1. ***inform about people who in addition to the authors contributed to the work,***
2. ***inform about the contribution of institutions,***
3. ***inform about the sources of financial support,***
4. ***inform about all of them: people, institutions and sources of financial support.***

A

We are also indebted to P. Getreuer, for making available the waveletcdf97 MATLAB function that we have used for the transformation of each single channel image to the wavelet domain. [4]

B

The authors are grateful for an anonymous referee, for valuable comments and alerting us that the global efficiency measure is the Harary index divided by $\binom{n}{2}$. Research was supported by a National Science Foundation Research Experience for Undergraduates Site Award #1062128. [5]

C

The research described in this chapter has been supported by grants #0083075, #0205679, #0205724, #0350754, and #0534771 from the U.S. National Science Foundation. No endorsement implied. Mark Ackerman at University of Michigan, Ann Arbor; Les Gasser at University of Illinois, Urbana-Champaign; John Noll at Santa Clara University; Margaret Elliott, Chris Jensen, and others at the UCI Institute for Software Research are collaborators on the research described here. [6]

D

This research is supported by the British Heart Foundation (grant number PG/15/71/31731). SN, VMF and SKP acknowledge support from the Oxford NIHR Biomedical Research Centre and from the Oxford British Heart Foundation Centre of Research Excellence. VMF is supported by the British Heart Foundation. Part of the code is protected by the US patent US20120078084A1. There are two Tomato version available: TomatoOpenSource compiled with publicly available code and TomatoFull containing additionally private code used for AmoebaPrivateNr2 fitting algorithm using Nelder–Mead algorithm based on Numerical Recipes. Due to Numerical Recipes licence limitations this code cannot be made publicly available. [8]

E

We appreciate the insightful comments from James Noble, Mary Shaw, Richard Gabriel, the anonymous reviewers, and the participants of Dagstuhl Seminar 18061. This material is based upon work supported by the US Department of Defense, by NSF grants CNS-1734138 and CNS-1423054, by NSA lablet contract H98230-14-C-0140, by the Software Engineering Institute, and by AFRL and DARPA under agreement #FA8750-16-2-0042. Michael Coblenz is supported by an IBM PhD fellowship. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the sponsors. [7]

Unit 1. What is the structure of a scientific paper?

Task F

Read the paragraph and choose the right word from the box to fill in the gaps. There are more words in the box than you need to use.

to improve	poster	ability	communication	
quality	accurate	to create	facility	knowledge

Leading scientists are identified as much by their 1_____ to communicate ideas and results as by the 2_____ of their research. Ideas and results that are not communicated effectively will not contribute to new 3_____, so it is important that scientists learn 4_____ their communication skills. There are many types of scientific 5_____, the principal ones being journal papers and popular science articles, as well as oral and 6_____ presentations. In each case, the ABC of science communication is that it should be 7_____ and audience-adapted, brief and clear.

Lexical bank

Task 1

Skim the text in Task A and find the English equivalents for the Russian collocations 1-18.

1. научные статьи
2. иметь одинаковый общий формат
3. количество разделов и их названия
4. быстро находить конкретную информацию
5. содержать данные/информацию, полученные в процессе эксперимента
6. в форме таблиц и графиков/диаграмм
7. тщательно анализировать необработанные данные в таблицах и на рисунках
8. делать свои собственные выводы
9. описывать теоретическую основу
10. реагировать на возможные возражения
11. предлагать области для усовершенствования/развития при дальнейшем исследовании
12. имеющий отношение к вашему проекту
13. описывать как специфические методы, так и общую экспериментальную стратегию
14. содержать более детальную информацию
15. представлять интерес только для людей, работающих непосредственно в данной области
16. содержать краткую формулировку цели, описание методов, результатов и выводов исследования
17. самый читаемый раздел научной статьи
18. предоставлять финансовую поддержку для исследования

Unit 1. What is the structure of a scientific paper?

Signposting

Signposting means using phrases and words to guide the reader through the content of your essay/ research paper/dissertation.

Task 2

Look through the sections from different research papers in Task D and Task E and highlight signposting language 1-20. Translate the sentences with these signposts into Russian.

1. This paper proposes a method to solve …
2. Numerical results show that the method is able to solve the problem efficiently for …
3. We introduce …
4. Using this approach we formulate …
5. We show how methods with … can be developed for …
6. We demonstrate our approach on example systems and contrast with alternative approaches using …
7. This allows us to …
8. … is considered within the context of …
9. The goal is to produce …
10. This is achieved by means of …
11. The benefit of the proposed framework is illustrated in the first instance by demonstrating …
12. The full power of the approach is further exemplified by …
13. This manuscript reports the findings of a qualitative study that investigated …
14. Data analysis suggests that …
15. These findings have implications for …
16. The authors are grateful for an anonymous referee for valuable comments and …
17. … are collaborators on the research described here.
18. This research is supported by …
19. We appreciate the insightful comments from the anonymous reviewers …
20. This material is based upon work supported by …

Task 3

For questions 1-10, read the text below. Use the word given in capitals at the end of some of the lines to form a word that fits in the gap in the same line. There is an example at the beginning (0).

Example: 0 SCIENTIFIC

Writing a scientific research paper

Writing a (0) _____ research paper requires more than	**SCIENCE**
(1) _____ about your study. It means explaining the	**KNOW**
important methods, findings, and (2) _____ of your study	**IMPLY**
to other researchers and (3) _____ . It also means	**READ**

(4) _____ a paper at an academic level that will get your paper published in (5) _____ journals. In order to do that, (6) _____ need to understand what to include in their papers, where to put it, and how to convey the most important information in their research studies in the most effective way.

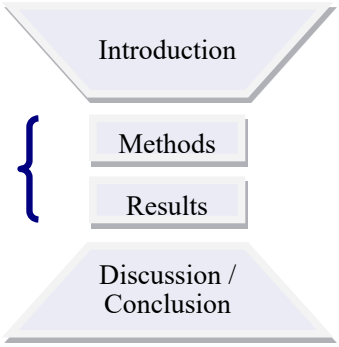
COMPOSITION
REPUTATION
RESEARCH

The scientific research paper follows a specific order and structure, and the core parts that compose this structure are the (7) _____ , Materials & Methods, Results, and Discussion sections, or IMRD. One of the most important components of a research paper is its TITLE. The title is the first thing viewers, even the journal editor and (8) _____ , see when they come across a research paper. Not only should your title be (9) _____ but it should also capture the (10) _____ of your research.

INTRODUCE
REVIEW
ATTRACTION
ESSENTIAL

Video

Video 1.1 *Watch the video and answer the questions below.*



- What does IMRAD stand for?
- What variations are possible in the names of the main sections of a research paper?
- Why does the diagram of the four main parts in a research paper have such a shape?

Video 1.2 ***Watch the video and compare the information about different sections of a research paper with the description of the same sections in the text in Task A. Fill in the chart and use your notes to briefly describe the mission of each section in a research paper.***

Section	What is similar?	What is different?
Introduction		
Method		
Results		

Unit 1. What is the structure of a scientific paper?

Section	What is similar?	What is different?
Discussion		
References		

After you watch: ***Find the research paper which has maximum relevance and value for the research project you are doing in this semester.***

- Speak about its structure. Does it follow the standard format? If not, what is different?
- Which section contains the most relevant and valuable information for your academic and research purposes? Why?
- Select and highlight the essential terms in each section of the paper. Make sure you can translate them into your language.
- Highlight the signposting language in each section. Be ready to translate the sentences with signposts into your language.

Unit 2

How to read a scientific paper?

Unit 2. How to read a scientific paper?



Read the text below and complete Task A to check your comprehension.

How to read a scientific paper?

Whenever you pick up any scientific paper, it's worthwhile breaking your reading of the paper into three steps.

■ Step 1: An overview

Start by 'skimming' the paper. What journal published the paper? Who wrote it? How many sections are there in the article? What are their headings? Take a look at the references. Do the authors cite other papers you know? Books you are familiar with? What fields are represented in the citations?

Finally, read the abstract. A well-written abstract should clearly reveal the type of paper you are reading.

Let's have a look at some types of scientific papers you are most likely to encounter in the table.

■ Step 2: Read for understanding

The most important thing to remember when reading science is to *read actively*. This can be an exhausting experience! Don't be surprised if reading a 2-3 page paper takes you 3-4 hours. If you are reading a mathematical paper and working through each proof, it can take even longer. It is useful to read with a pen in hand. Jot notes, underline key phrases, note words you do not know, etc.

It is likely that there will be many words in an article that you do not know. You need to decipher the meaning of these words. You can work from context, or you may need to look the words up. Depending on the field of the paper, a specialized dictionary may be necessary. Many such dictionaries are now available online.

■ Step 3: Reflect

Up till now you have been working to understand what the author is saying. Once you have understood the paper, it is time to assess it and to determine the level of the relevance of the paper to your research interests.

As with almost every field of human endeavor, practice makes perfect. The more you read scientific literature and the greater the effort you make to read actively, the easier the process will become. Keep reading!

Unit 2. How to read a scientific paper?

TYPES OF SCIENTIFIC PAPERS	DESCRIPTIONS
Experimental	Report on the results of experimental studies.
Pure Mathematics	A paper with a purely mathematical focus, written in a theorem-proof style.
Applied Mathematics	Can be further divided into two categories: papers that are applications oriented, and those that are mathematically oriented. In the first type the author tries to use mathematical tools to answer important questions about a specific application. In the second type the author attempts to develop mathematical tools that are important in analyzing multiple applied problems.
Theoretical	Usually distinguished by the fact that they do not present the results of experiments, but rather attempt to explain experimental work, or predict the results of future experiments. The theoretical description may be very mathematical in nature, it may rely on computer simulations, it may be more of a descriptive theory, setting forth hypothesis to describe observed data.
Review	Usually provide a broad, sometimes detailed, overview or summary of work in a given area. Identifying a review article on a topic of interest to you is a very useful way of navigating the literature on the subject.
Expository	Usually lack technical details, but communicate the essence of a field. They differ from review articles in the almost total lack of technical detail and lack of reference to the primary literature. Other types of expository articles include transcripts of talks and articles written for the "general" journals of a scientific society. For example, articles appearing in Physics Today, SIAM Review, or AMS Notices are often expository in nature.

Task A *Mark the statements 1-8 True (T) or False (F).*

1. (___) If you want to make your reading of the scientific paper more efficient break the process into stages.
2. (___) On stage one you should focus on reading and understanding the INTRODUCTION section of the paper.
3. (___) An ABSTRACT helps a reader to define the type of the paper they are reading.
4. (___) In Applied Mathematics papers the authors either try to use or to develop mathematical tools for different applied problems.
5. (___) Theoretical papers are difficult to distinguish from Pure Mathematics papers.
6. (___) Review articles make the best choice if you want to get up-to-date on current trends in the field of your research interest.
7. (___) Expository articles contain major technical details and provide a detailed description of the problem.
8. (___) Active reading means taking notes, highlighting key phrases and figuring out the meaning of new words.

Unit 2. How to read a scientific paper?

Task B

Match the words from the text on the left with their definitions on the right. There is one definition which you don't need to use.

1.	overview	A.	a computer program that carries out a step-by-step representation of the actions of something in the real world
2.	review	B.	a usually short account of something which gives a general picture but no details
3.	experiment	C.	a written or printed copy of words that have been spoken
4.	experience	D.	knowledge or skill which comes from practice in an activity or doing something for a long time, rather than from books
5.	citation	E.	something that tells a reader where the information came from that is used in a piece of writing
6.	simulation	F.	words or lines taken from a book or a speech
7.	transcript	G.	a scientific test that is done in order to study what happens and to gain knowledge
		H.	a report in a newspaper or magazine, or on the Internet in which somebody gives their opinion of a book, play, film etc.

Task C

Find in the text one more synonym for each group of the words below.

1. to look through, to scan, to browse, _____.
2. acquainted with, informed of, aware of, _____.
3. to meet, to face, to come upon, _____.
4. to identify, to characterize, to specify, _____.
5. core, heart, nucleus, _____.
6. original, initial, authentic, _____.
7. explanatory, interpretive, descriptive, _____.
8. to decode, to translate, to interpret, _____.
9. an effort, an attempt, a try, _____.

Unit 2. How to read a scientific paper?

Task D *Skim parts from different types of scientific papers A-G. Decide which of them are:*

1. *Experimental*
2. *Pure Mathematics*
3. *Applied Mathematics*
4. *Theoretical*
5. *Review*
6. *Expository*

Explain your choice by providing convincing arguments. Refer to the description of the types of the scientific papers in the text in Task A.

A

Interdisciplinary Programming Language Design

M. Coblenz, J. Aldrich, B. A. Myers, J. Sunshine

Abstract

Approaches for programming language design used commonly in the research community today center around theoretical and performance-oriented evaluation. Recently, researchers have been considering more approaches to language design, including the use of quantitative and qualitative user studies that examine how different designs might affect programmers. In this paper, we argue for an interdisciplinary approach that incorporates many different methods in the creation and evaluation of programming languages. We argue that the addition of user-oriented design techniques can be helpful at many different stages in the programming language design process. [10]

B

A Sideways Look at Hilbert's Twenty-three Problems of 1900

Ivor Grattan-Guinness

As the nineteenth century drew to its close, David Hilbert (1862–1943), then regarded as a leading mathematician of his generation, presented a list of twenty-three problems, which he urged upon the attention of his contemporaries. They have entered the folklore of professional mathematicians; even a partial solution of one of them has given its author(s) much prestige. Two compendia have reviewed progress to the date of their publication: in the former Soviet Union, where study of the problems has been a speciality, and in the United States. In addition, individual problems have been examined in various other books and special articles. Now, at the centenary of the lecture, it is opportune to compare the range of Hilbert's problems against the panoply then evident in mathematics. [12]

C

A Prototype Live Virtual Classroom for Shared Tertiary Instruction

Brenda Justine Mallinson

Abstract

The Departments of Computer Science and Information Systems at Rhodes University currently share certain honours-level (fourth year) courses with students from the corresponding departments at the previously disadvantaged University of Fort Hare. These lectures are currently delivered using videoconferencing, which was found to present a number of problems. In order to address these problems and to provide an engaging and collaborative learning environment, a customized live virtual classroom (LVC) was developed. An evaluation of the prototype indicated that, although the LVC did not entirely solve the identified problems, it did offer some distinct advantages. [13]

D

What can topology tell us about the neural code?

Carina Curto

Abstract

Neuroscience is undergoing a period of rapid experimental progress and expansion. New mathematical tools, previously unknown in the neuroscience community, are now being used to tackle fundamental questions and analyze emerging data sets. Consistent with this trend, the last decade has seen an uptick in the use of topological ideas and methods in neuroscience. In this paper I will survey recent applications of topology in neuroscience and explain why topology is an especially natural tool for understanding neural codes. [14]

E

Big data need big theory too

P. V. Coveney, E. R. Dougherty, R.R. Highfield

The current interest in big data, machine learning and data analytics has generated the widespread impression that such methods are capable of solving most problems without the need for conventional scientific methods of inquiry. Interest in these methods is intensifying, accelerated by the ease with which digitized data can be acquired in virtually all fields of endeavour, from science, healthcare and cybersecurity to economics, social sciences and the humanities. In multiscale modelling, machine learning appears to provide a shortcut to reveal correlations of arbitrary complexity between processes at the atomic, molecular, meso- and macroscales. Here, we point out the weaknesses of pure big data approaches with particular focus on biology and medicine, which fail to provide conceptual accounts for the processes to which they are applied. No matter their 'depth' and the sophistication of data-driven methods, such as artificial neural nets, in the end they merely fit curves to existing data. Not only do these methods invariably require far larger quantities of data than anticipated by big data aficionados in order to produce statistically reliable results, but they can also fail in circumstances beyond the range of the data used to train them because they are not designed to model the structural characteristics of the underlying system. We argue that it is vital to use theory as a guide to experimental design for maximal efficiency of data collection and to produce reliable predictive models and conceptual knowledge. Rather than continuing to fund, pursue and promote 'blind' big data projects with massive budgets, we call for more funding to be allocated to the elucidation of the multiscale and stochastic processes controlling the behaviour of complex systems, including those of life, medicine and healthcare. [9]

F

Finite Element Homogenization Models of Bulk Mixed Piezocomposites with Granular Elastic Inclusions in ACELAN Package

A.B. Kudimova, D.K. Nadolin, A.V. Nasedkin, P.A. Oganesyan, A.N. Soloviev

Abstract

The paper presents the methods for solving the homogenization problems for two-phase piezoelectric composites, which are implemented in ACELAN-COMPOS finite element package, developed by the authors. The considered composites consist of piezoelectric skeleton and elastic inclusions. The effective moduli method is used to determine the effective properties of the composite. In this method, the static electroelasticity problems with special boundary conditions are set for a representative volume of the composite. These problems are solved numerically using the finite element method. The developed algorithm for generating representative volumes for the composites with granular inclusions is described in detail. The work of the algorithm is illustrated by an example of a composite made of PZT-4 piezoceramic with inclusions of α-corundum. [15]

G

Global efficiency of graphs

B.Ek, C. VerSchneider, D. A. Narayan

Abstract

The distance $d(i, j)$ between any two vertices i and j in a graph is the number of edges in a shortest path between i and j. If there is no path connecting i and j, then $d(i, j) = \infty$. In 2001, Latora and Marchiori introduced the measure of efficiency between vertices in a graph (Latora and Marchiori, 2001). The efficiency between two vertices i and j is defined to be $\in_{i,j} = \frac{1}{d(i,j)}$ for all $i \neq j$. The global efficiency of a graph is the average efficiency over all $i \neq j$. The concept of global efficiency has been applied to optimization of transportation systems and brain connectivity. In this paper we determine the global efficiency for complete multipartite graphs $K_{m,n}$, star and subdivided star graphs, and the Cartesian Products $K_n \times P_n^m$, $K_n \times C_n^m$, $K_m \times K_n$, and $P_m \times P_n$. [11]

Unit 2. How to read a scientific paper?

Task E

Read the paragraph and choose the right word from the box to fill in the gaps. There are more words in the box than you need to use.

graduate	certainly	colleges	likely	
primary	number	specialist	nature	

If you walk into a bookstore, you are not 1_____ to find Newton's Principia, anything by Marcus Aurelius, or even any of Einstein's popular works. If you make your way to the shelf with magazines you'll find Time, but not Nature, and Scientific American, but not Science. Why? One clue lies in the 2_____ of the skills required to read Newton, Marcus Aurelius, or Einstein, to read Nature or Science, skills that are not generally needed to read Newsweek, Time, or People. These skills are not to be found in the particular knowledge of the scientific 3_____ but rather are to be found in the general skills of reading possessed by any educated person. Unfortunately, these skills are not often taught in high schools and 4_____. It is perfectly possible, even typical, to reach 5_____ school or beyond and still be lacking many of the basic skills necessary for reading the 6_____ literature in almost every field of knowledge.

Lexical bank

Task 1

Skim the text in Task A and find the English equivalents for the Russian collocations 1-18.

1. бегло просмотреть статью
2. посмотреть список литературы
3. быть представленным в цитатах
4. прочитать аннотацию
5. типы научных статей, которые с большой вероятностью вам попадутся
6. читать математическую статью и прорабатывать каждое доказательство
7. читать с карандашом в руках
8. может понадобиться специализированный словарь
9. определить уровень значимости статьи для ваших научных интересов
10. почти каждая область человеческой деятельности
11. сообщать о результатах экспериментального исследования
12. написанный в стилистике «теорема-доказательство»
13. создавать математические инструменты, которые важны для анализа многочисленных прикладных задач / проблем

14. опираться на компьютерное имитационное моделирование
15. формулировать / выдвигать гипотезу для описания наблюдаемых данных
16. предоставлять обширный, иногда детальный обзор или краткое изложение работ в данной области
17. полное отсутствие технических деталей и отсутствие ссылок на исходную литературу / первоисточники
18. включать расшифровку стенограммы выступлений

Signposting

Signposting means using phrases and words to guide the reader through the content of your essay/ research paper/dissertation.

Task 2

Look through the parts from different types of scientific papers in Task D and highlight signposting language 1-16. Translate the sentences with these signposts into Russian.

1. Recently, researchers have been considering more approaches to …
2. In this paper, we argue for an interdisciplinary approach that incorporates many different methods in …
3. We argue that …
4. In addition, individual problems have been examined in various …
5. In order to address these problems and to provide …
6. New mathematical tools are now being used to tackle fundamental questions and analyze emerging …
7. In this paper I will survey recent applications of topology in …
8. Interest in these methods is intensifying, accelerated by …
9. Here, we point out the weaknesses of …
10. We argue that it is vital to use theory as a guide to experimental design for maximal efficiency of …
11. The paper presents the methods for solving …
12. These problems are solved numerically using …
13. The developed algorithm for … is described in detail.
14. The work of the algorithm is illustrated by an example of …
15. The concept of … has been applied to optimization of …
16. In this paper we determine …

Unit 2. How to read a scientific paper?

Task 3

For questions 1-10, read the text below. Use the word given in capitals at the end of some of the lines to form a word that fits in the gap in the same line. There is an example at the beginning (0).

Example: 0 INTELLIGENCE

Can Machine Translation Replace Human Translation?

In the world of digitization and artificial (0) _____ , there is	**INTELLIGENT**
always a race to (1) _____ human role in as many areas as possible.	**ELIMINATION**
Translation is one area where the prospects do look (2) _____	**PROMISE**
(3) _____ translation may take the place of professional translation	**AUTOMATE**
sooner or later. Many technology companies worldwide are investing (4) _____	**GENEROUS**
in machine translation. This (5) _____ and recent advancements in deep	**INVEST**
learning have yielded major improvements in translation quality. According to	
Google, switching to deep learning produced a 60% increase in translation	
(6) _____ compared to the phrase-based approach previously used in	**ACCURATELY**
Google Translate. Today, Google and Microsoft can translate over 100 (7) _____	**DIFFER**
languages and are approaching human-level accuracy for many of them.	
The same is true for Yandex Translate. As soon as the (8) _____ enters	**USEFUL**
text to translate, Yandex Translate sends this text to both systems: the (9) _____	**NEURON**
network and the statistical translator. The results obtained from both systems are	
evaluated by an algorithm based on the CatBoost machine learning method. The	
algorithm (10) _____ dozens of factors, from sentence length to syntax. The	**ANALYSIS**
two translations are compared across all factors, and the best one is shown to the	
user. However, while machine translation has made lots of progress, it's still	
not perfect.	

Video

Video 2.1

Watch the first part of the video (0.00 – 03.13). Answer the questions and complete the chart.

- What is the first step in choosing the right reading strategy?
- What reading approaches can students use as part of their university reading habits?

Reading approach	Purpose	Description of the reading process
1. Skimming		
2. Scanning		
3. Close reading		

Unit 2. How to read a scientific paper?

Video 2.2

Watch the second part of the video (03.14 - 04.18). Complete the information about the structure and language of the material you might read. You might need to use from one to three words to fill in the gaps 1-10.

What do you think? Do you need to read journal article, textbooks and (1) _____ the same way? True or False? Well, both answers are right – why? Because it depends on your purpose which will help (2) _____ . You have always read for content. Try now to also read looking at the structure. How has the author constructed (3) _____ work? Look at the subheadings, (4) _____ , tables. Then read looking at the language used. Try making a glossary of new or (5) _____ words. What (6) _____ or verbs are commonly used? The structure and language that you (7) _____ can also be used in your assignments. Finally, what are the main (8) _____ when starting your reading? Be clear about your purpose and what you are (9) _____ . Choose the best strategy of skimming, scanning or close reading and then you will be more efficient with your reading and find more (10) _____ information. Happy reading!

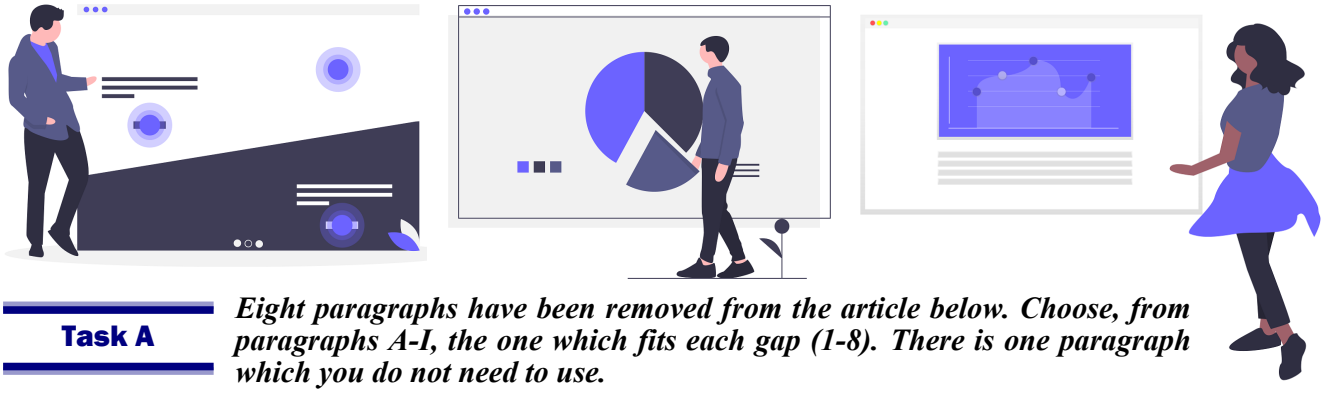
After you watch: ***Speak about your own experience of doing academic reading. Use the questions as the guidelines for your talk.***

- How much weekly reading do you have to do for your university studies in this semester?
- What kind of sources and resources do you usually read from?
- Speak about your experience of using publications for doing your course paper in the third year of study. Which research papers have you already used or are going to use for doing your Bachelor's or Master's thesis? Have you faced any challenges?
- Do you find your academic reading skills efficient? Why? Why not?

Unit 3

Improving
Power Point Presentations

Unit 3. Improving Power Point Presentations



Task A

Eight paragraphs have been removed from the article below. Choose, from paragraphs A-I, the one which fits each gap (1-8). There is one paragraph which you do not need to use.

Improving Power Point Presentations

The *de facto* software for most meetings is computer-based presentation software, most commonly Microsoft Power Point. PowerPoint is a powerful tool to assist in communicating ideas and results to an audience. But how can one use this software more effectively and more efficiently?

The first step in creating a presentation is to decide what the main points are that you wish to communicate and just what you want your audience to remember.

The next step is to decide what data you will need to show to support those points.

The last step is to create the presentation.

Below are some points for consideration as you prepare for scientific presentations.

1. (____) Too much information on a slide
2. (____) Hard to read fonts
3. (____) Color
4. (____) Overusing bullet lists
5. (____) Animations
6. (____) Slide transitions
7. (____) Pointing tools
8. (____) Equipment used for presentation

Great presentations don't happen by accident. They require careful planning and preparation. Certainly, the most important element of a successful presentation is the content itself, including how it is organized. As we improve our use of presentation software, the quality of our scientific meetings will also improve.

A. Animated graphic images might be fun for some projects, but in a scientific meeting presentation they tend to draw attention to themselves and obscure the message.

B. Laser pointers are handy for directing attention to items on a slide. Don't wave a pointer at an object very quickly because it will make it hard for the audience to clearly know what is being emphasized.

C. Avoid slides cluttered with too much, or irrelevant information. A title along with three to four rows of information is usually sufficient.

D. To the extent possible, you also want to know your room layout ahead of time so you can plan how you will move about during your presentation. Consider, for example, using a remote-controlled mouse that enables you to advance your slides without having to be tied to the computer keyboard, thus helping you interact more naturally with your audience.

E. Stick to fonts that are likely to be found on any computer, such as Arial or Times New Roman. Use bold fonts for emphasis, not for general text. Limit the use of decorative fonts, which are hard to read when projected. Try to limit yourself to two to three fonts during a presentation.

F. Use the Color/Grayscale button on PowerPoint's main toolbar to preview a slide in gray tones to see if there's enough contrast without color. Avoid using

photos as a background for text except perhaps for title slides.

G. We suggest using a single subtle transition effect between slides throughout the presentation. Sound effects with transitions tend to distract from the information being presented.

H. Using only slide after slide of bullet lists will cause your audience to lose interest. When you use bullets, don't put too much text in them; a single word or two is sufficient to be a cue for the audience and the presenter. Try mixing bullet lists with graphics, charts, or other types of slides.

I. Arrive at the room early to leave enough time for the moderator to load your presentation onto the computer and to make sure it works properly. Even better, contact moderators ahead of time and provide them with a CD or perhaps e-mail the presentation to ensure it will function properly on their equipment.

Task B

Match the words from the text on the left with their definitions on the right. There is one definition which you don't need to use.

1.	software	A.	a printed symbol, such as a square or circle, that appears before important things on a list, used in order to emphasize each thing
2.	font	B.	information in a form that can be processed by and stored in a computer system
3.	toolbar	C.	the subject matter, especially the ideas, of a book, speech etc.
4.	bullet list	D.	a small image used by Windows to identify a file or application
5.	content	E.	a strip of icons across the top of most Windows applications, used to provide quick access to certain important features
6.	data	F.	a set of letters, numbers and other symbols in a particular style
		G.	the set of systems in the form of programs which is stored on disk and controls the operation of a computer

Task C

Find in the text one more synonym for each group of the words below.

1. strong, potent, robust, _____.
2. instrument, device, implement, _____.
3. public, attendees, spectators, _____.
4. effectively, productively, proficiently, _____.
5. to confuse, to mislead, to disorient, _____.
6. convenient, helpful, useful, _____.

7. to underline, to highlight, to stress, _____.

8. unrelated, inapplicable, inappropriate, _____.

9. enough, adequate, satisfactory, _____.

10. to draw one's attention from, to take the mind off, to sidetrack, _____.

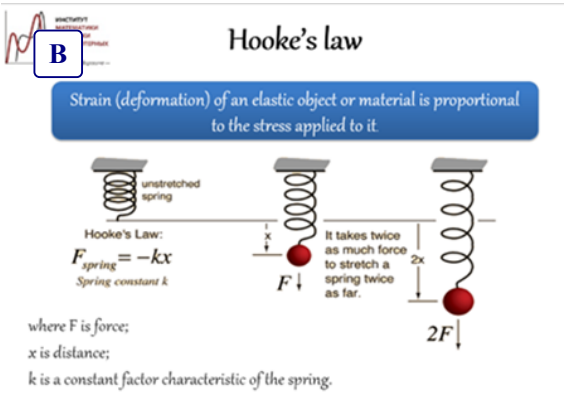
Task D ***Look at the slide screenshots from real students' presentations (A-M).***

Discuss the following points:

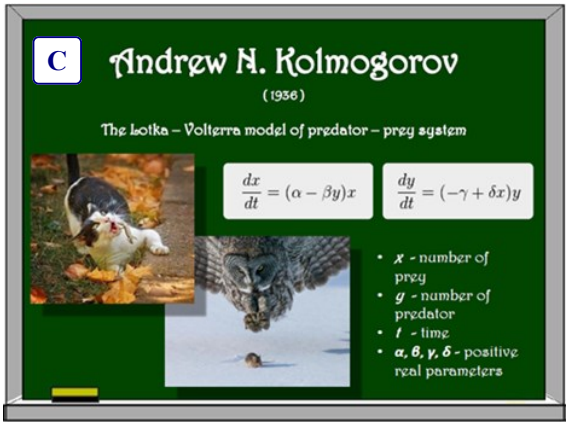
- ***Does each slide have a clear visual message? Is it possible to reconstruct the verbal part of the presentation for each of them?***
- ***What are the strong sides of each slide? And what could or should be improved? Why?***
- ***Have you got an experience of making presentations on the similar topics in different years of your study?***

A

B

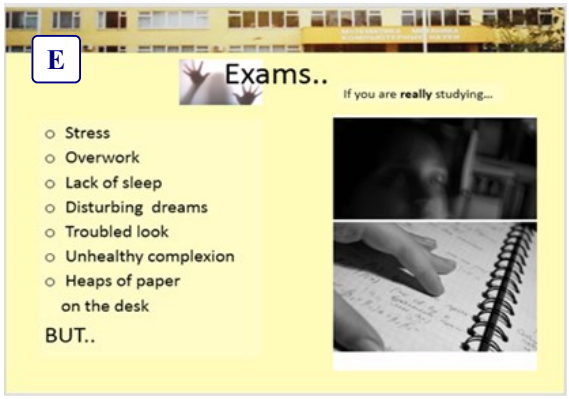


C

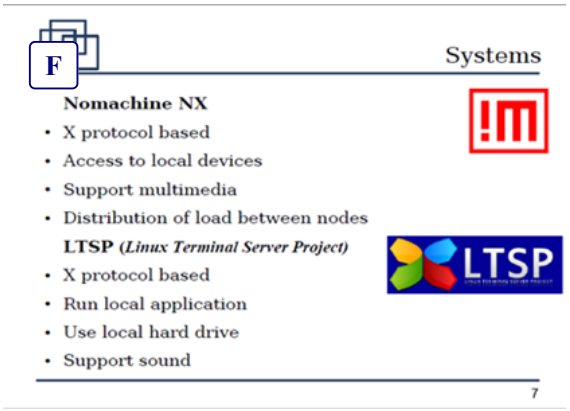


D

E


Exams..
If you are really studying...
Stress
Overwork
Lack of sleep
Disturbing dreams
Troubled look
Unhealthy complexion
Heaps of paper on the desk
BUT..

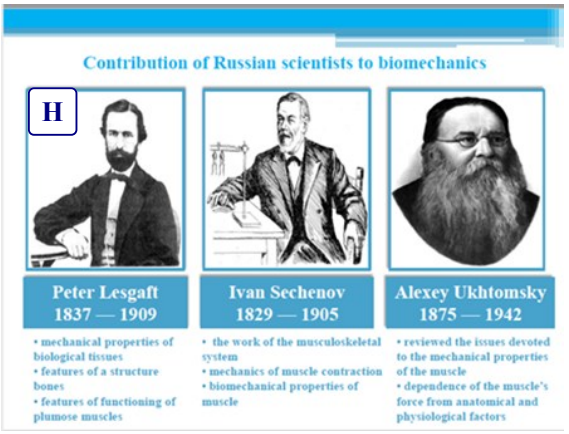
F


Systems
Nomachine NX
X protocol based
Access to local devices
Support multimedia
Distribution of load between nodes
LTSP (Linux Terminal Server Project)
X protocol based
Run local application
Use local hard drive
Support sound
LTSP
7

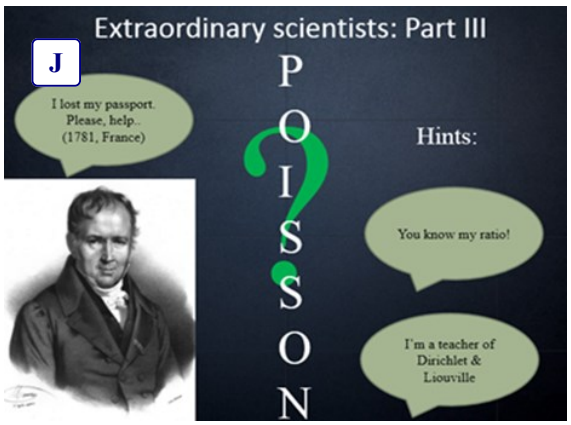
G


"Within ten years a digital computer will discover and prove an important mathematical theorem"
- Allen Newell, 1958.
"Machines will be capable, within twenty years, of doing any work a man can do."
- Herbert A. Simon, 1965
"Within from three to eight years we will have a machine with the general intelligence of an average human being."
- Marvin Minsky, 1970
Some optimism…

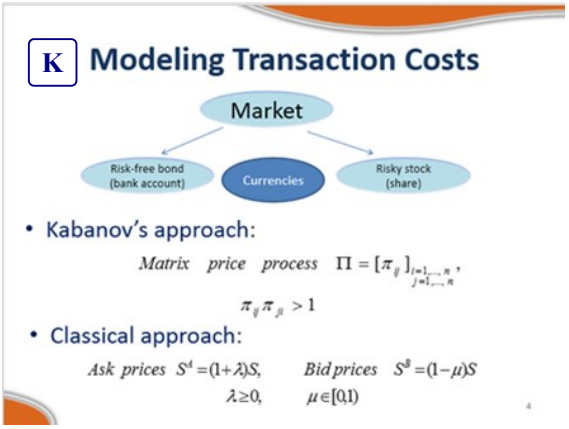
H


Contribution of Russian scientists to biomechanics
Peter Lesgaft
1837 — 1909
• mechanical properties of biological tissues
• features of a structure bones
• features of functioning of plumose muscles
Ivan Sechenov
1829 — 1905
• the work of the musculoskeletal system
• mechanics of muscle contraction
• biomechanical properties of muscle
Alexey Ukhtomsky
1875 — 1942
• reviewed the issues devoted to the mechanical properties of the muscle
• dependence of the muscle's force from anatomical and physiological factors

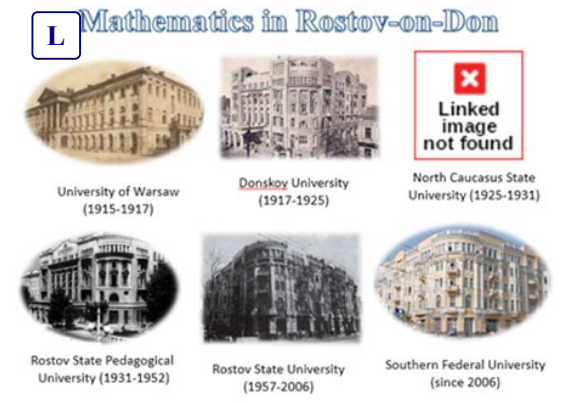
J


Extraordinary scientists: Part III
I lost my passport. Please, help.. (1781, France)
POISSON
Hints:
You know my ratio!
I'm a teacher of Dirichlet & Liouville

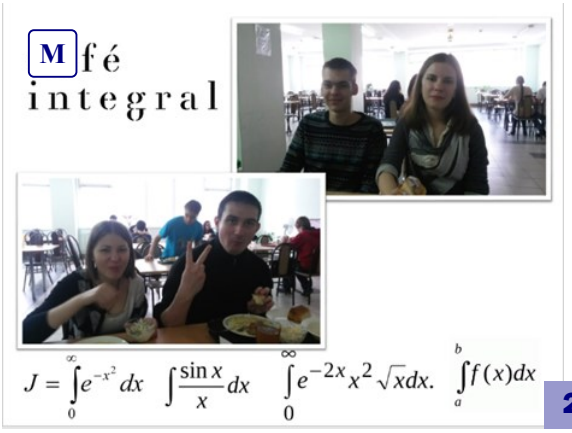
K


Modeling Transaction Costs
Market
Risk-free bond (bank account)
Currencies
Risky stock (share)
• Kabanov's approach:
Matrix price process $\Pi = [\pi_{ij}]_{i=1,\dots,n;\ j=1,\dots,n}$,
$\pi_{ij}\pi_{ji} > 1$
• Classical approach:
Ask prices $S^A = (1+\lambda)S$, $\lambda \geq 0$,
Bid prices $S^B = (1-\mu)S$ $\mu \in [0,1)$

L


Mathematics in Rostov-on-Don
University of Warsaw (1915-1917)
Donskoy University (1917-1925)
Linked image not found
North Caucasus State University (1925-1931)
Rostov State Pedagogical University (1931-1952)
Rostov State University (1957-2006)
Southern Federal University (since 2006)

M


fé
integral
$J = \int_0^\infty e^{-x^2}dx \quad \int \frac{\sin x}{x}dx \quad \int_0^\infty e^{-2x}x^2\sqrt{x}dx. \quad \int_a^b f(x)dx$

Unit 3. Improving Power Point Presentations

Task E

Read the paragraph and choose the right word from the box to fill in the gaps. There are more words in the box than you need to use.

handouts	expensive	complex	remote control
support	slide show	USB flash drive	transparencies

If you are going in for PowerPoint 1_____ presentations, remember you'll need to set it all up. At best you simply slip a CD or 2_____ into an existing machine, and your show is on the screen in seconds. But there may not be a computer, or a projector, or a 3_____, or a mouse, or any power! If you are using PowerPoint for your presentation, it is good insurance to print three-slides-per-page or six-slides-per-page 4_____ as well, so that you can at least use the materials you've prepared if you can't get your show on the screen on the day. Check out whether there will be any technical 5_____ on the day. Such support can take a lot of the worry out of the technical side of your presentation when you are using 6_____ media.

Lexical bank

Task 1

Skim the text in Task A and find the English equivalents for the Russian collocations 1-18.

1. компьютерное ПО для презентаций
2. сообщать идеи и результаты слушателям
3. использовать программное обеспечение более эффективно и продуктивно
4. некоторые пункты для рассмотрения, когда вы готовитесь к научной презентации
5. трудные для чтения шрифты
6. чрезмерное использование маркированных списков
7. требовать тщательного планирования и подготовки
8. самый важный элемент успешной презентации
9. анимированные графические изображения
10. направлять внимание на пункты/ вопросы на слайде
11. слайды, переполненные избыточной или не относящейся к делу информацией
12. заранее знать планировку помещения
13. листать слайды без необходимости быть привязанным к компьютерной клавиатуре
14. ограничивать использование декоративных шрифтов
15. предварительно просматривать слайд в серых тонах, чтобы увидеть наличие достаточного контраста цветов

16. использовать единообразный ненавязчивый эффект перехода между слайдами на протяжении всей презентации
17. сочетать маркированные списки с графическими средствами, таблицами или другими типами слайдов
18. загрузить презентацию на компьютер и убедиться, что она работает должным образом

Task 2

For questions 1-10, read the text below. Use the word given in capitals at the end of some of the lines to form a word that fits in the gap in the same line. There is an example at the beginning (0).

Example: 0 HIGHLIGHTING

Designing slides for your presentation

Good presentation design should complement what you are communicating, (0) _____ key points and data that support what you are saying. There are	**HIGHLIGHT**
several key elements to designing a good set of slides. (1) _____ is certainly	**CLARIFY**
important. Remember that your (2) _____ aids should support your message,	**VISION**
not distract from it. Focus on communicating just one key message per screen. Limit the use of animations to (3) _____ they have impact.	**SURE**
Keep text to a (4) _____ ; your audience can't read lots of text and listen to	**MINIMIZE**
you at the same time. If you want to have your audience read a key quotation or piece of text, stop talking and give them a moment to do so before (5) _____	**CONTINUE**
Choose a simple colour scheme and stick to it. Avoid using (6) _____	**PATTERN**
backgrounds. Consider the contrast of your colours; you need to ensure that the content on your slide is easily (7) _____ . If in doubt, a pale off-white	**READ**
background with dark text works well. Pick two good fonts and use them (8) _____ throughout your presentation.	**CONSISTENT**
To emphasise a word, use bold, rather than (9) _____ or italicising it.	**LINE**
Consider the context of your presentation when choosing your fonts. Fonts have (10) _____ ; make sure that the fonts you choose convey the appropriate tone for your audience and purpose.	**PERSONALISE**

Unit 3. Improving Power Point Presentations

Video

Video 3.1

Watch the video "Life after death by PowerPoint" presented by comedian Don McMillan. As you watch mark (✓) the points discussed in the video and mark (✗) the points not discussed in the video. Put the discussed points in the correct order.

1. Too much information on a slide
2. Hard to read fonts
3. Color ✓
4. Overusing bullet lists
5. Animations
6. Slide transitions
7. Pointing tools
8. Equipment used for presentation ✗

Watch the video again and take necessary notes that will help you to speak about each point discussed by the presenter.

Video 3.2

Before watching the video about creative presentation ideas work in pairs and brainstorm possible options that could complete videoscript below. You might need to use from one to three words to fill in the gaps 1-10. Compare your ideas.

Creative Presentation Ideas

The first on our list is simple and quite frankly it makes your life easier. Have you ever heard: "Less is more"? Well, being minimal is just there. You find just the right amount of visuals and information to get your point across without overdoing it. Look at these slides here. They look clean; they make you (1) _____ . Too much information or visuals everywhere can create (2) _____ . The trick – not being boring you must find the right (3) _____ between simple yet intriguing.

Now, one rule that (4) _____ is having one standard transition between slides. I get it. You want to be creative and have fun when creating your slides but do your audience a (5) _____ and have all of your slides transition (6) _____ just like we have here. Whatever you do, don't have one transition moving (7) _____ , the next backwards, the next faded in. You get the point. By having one (8) _____ transition style you create a flow that will be easy for your (9) _____ to adjust to. And why keep it to just your slides? Once you're comfortable, try adding horizontal transitions through text and visual elements as well - for added appeal.

When your presentation starts to become flooded with information, a good idea is to throw in a slide of a related quote. It helps break up your presentation giving your viewers a breather of sorts. Think of it as a (10) _____ on TV. Just make sure that the quote fits in with the rest of your presentation. It's supposed to be a breather not a range confusing your onlookers.

Now watch the video and check your answers.

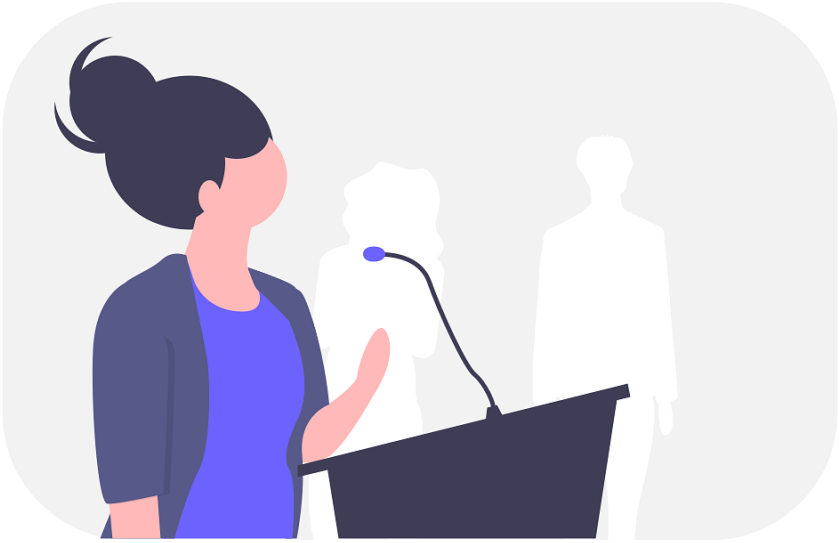
After you watch: ***Speak about your own experience of creating visual aids for your presentation. Use the questions as the guidelines for your talk.***

Unit 3. Improving Power Point Presentations

- What computer-based presentation software have you used? Which of those do you prefer? Why?
- Which recommendations from Task A and Video 3.1 do you find most challenging to follow? And which of them should be an absolute must? Why?
- Do you find your skills at creating presentation slides efficient? Why? Why not?
- In which subjects do you have to create presentations as part of your assignments in this semester? How much time does it usually take you?
- Speak about your experience of public speaking in real life, e.g. at a conference? How do you feel about it? Are you planning to do so in the future?

Unit 4

Why Don’t the Mathematicians Learn to Speak?



Unit 4. Why Don't the Mathematicians Learn to Speak?

Read the text below and complete Task A to check your comprehension.

Why Don't the Mathematicians Learn to Speak?

The weekly colloquium in mathematics department is an opportunity for faculty and students to learn about developments in mathematics outside of their own area. Although some colloquia succeed very well in enlightening the audience, all too many fail to do so.

Why is this? The speakers are highly able mathematicians, extremely knowledgeable and enthusiastic about their subject, yet the audience leaves the lecture disappointed.

The reason is, I think, that the speaker is not addressing the real audience in the room, but an imaginary audience existing in his or her mind. The imaginary audience knows all the terminology in the field, knows all but the most recent results, remembers the meaning of all the symbols introduced (and then quickly erased) by the speaker, and can follow complicated arguments and calculations on the board with ease.

The real audience is different. With luck, it has a general mathematical education (say, one or two years of graduate study in algebra, analysis, geometry, and topology). It really would like to learn something from the speaker. The speaker soon leaves it in his wake and goes steaming ahead for the rest of the hour. An opportunity is wasted.

It does not have to be this way. The particular branch of mathematics is irrelevant to the problem. One can be incomprehensible in any field. One can also communicate successfully in any field with the real audience, sitting there in all its ignorance. Necessary conditions for success are (1) discussion of some examples, (2) some explanation of how the problem arises from the classical body of mathematics, (3) avoidance of all but a few key calculations, and (4) ruthless elimination of most details.

I remember a talk I heard as a graduate student. My lack of knowledge of geometry and topology was broad and deep. The speaker was Heinz Hopf, and he was talking about the existence of an almost complex structure on certain manifolds. When he started, I didn't know what a tensor field was, or a complex manifold, or an almost complex structure. Nonetheless, he succeeded in teaching us enough of these things during his hour that it was an exciting and delightful occasion for me.

John Wermer, Brown University

Task A *Choose the best version A, B, C or D to complete each statement (1-5).*

1. The purpose of the colloquia in mathematics department is…
   - A. to test students' knowledge
   - B. to educate the audience in the new fields
   - C. to network with colleagues
   - D. all the statements above
2. Sometimes the audience leaves the lecture disappointed because…
   - A. the speaker is not knowledgeable
   - B. the speaker has little idea about the audience's knowledge in the subject
   - C. the speaker is not well prepared for the lecture
   - D. all the statements above

3. According to the author the real audience…

   A. knows all the terminology in the field
   B. remembers the meaning of all the symbols
   C. would like to learn something from the speaker
   D. all the statements above

4. According to the author the necessary conditions for success are…

   A. discussion of some examples
   B. elimination of most details
   C. only key calculations
   D. all the statements above

5. The author remembers the lecture by Heinz Hopf because …

   A. the speaker succeeded in teaching the audience and made his lecture into an exciting and delightful event
   B. he was greatly interested in topology and geometry
   C. the speaker was talking about the existence of an almost complex structure on certain manifolds
   D. all the statements above

Task B

Match the words from the text on the left with their definitions on the right. There is one definition which you don't need to use.

1.	department	A.	system of specialized words and expressions used in a particular science, profession, activity etc.
2.	faculty	B.	studies that are done at a university after one has received one's first degree
3.	terminology	C.	a group of similar subject departments in a university / *in American English* all the teachers and other professional workers of a school, university, or college
4.	symbol	D.	any of the important divisions or branches of a government, business, college etc.
5.	graduate study	E.	a university course taken by a student for receiving a Bachelor's Degree
6.	elimination	F.	a letter, sign, or figure which expresses a sound, operation, number, chemical substance etc.
		G.	removing or getting rid of completely

Task C

Find in the text one more synonym for each group of the words below.

1. achievement, advancement, progress, _____.
2. to teach, to educate, to inform, _____.
3. well-informed, educated, expert, _____.
4. not real, untrue, _____.
5. complex, difficult, hard, _____.
6. unrelated, inapplicable, not connected with, _____.
7. unclear, illogical, difficult for understanding, _____.
8. lack of information, lack of knowledge, unawareness, _____.
9. event, experience, case, _____.

Unit 4. Why Don't the Mathematicians Learn to Speak?

Task D

Read the paragraph and choose the right word from the box to fill in the gaps. There are more words in the box than you need to use.

pause	reason	select	stages	comparison
headings	contrast	graphs	example	emphasize

The lecturer may help students to 1_____ and record the main points by writing 2_____ and key words on a board, by repetition, a change of voice, a meaningful 3_____, or by using such phrases as: *most important, note that,* and *remember that,* to 4_____ things that you may wish to record. Words such as *first, second, also, further-more, moreover, therefore,* and *finally,* indicate 5_____ in an argument. *But* and *however* indicate a qualification. *Because* indicates a 6_____. *On the one hand* and *on the other hand* indicate a 7_____. *Illustrated by, for example,* and *as seen in,* indicate an 8_____. All these words, although students may not record them, help them to make good notes.

Lexical bank

Task 1

Skim the text in Task A and find the English equivalents for the Russian collocations 1-18.

1. еженедельный коллоквиум на кафедре математики
2. узнавать о достижениях в математике, выходящих за пределы собственной сферы знаний
3. добиваться успехов в обучении / просвещении слушателей
4. в высшей степени знающий и любящий свой предмет
5. обращаться не к реальным слушателям в аудитории, а к воображаемым
6. знать всю терминологию в области
7. помнить значение всех символов, вводимых лектором / докладчиком
8. с легкостью следить за всеми сложными аргументами и вычислениями на доске
9. два года магистратуры по алгебре, анализу, геометрии и топологии
10. конкретная отрасль математики
11. не относящийся к данной математической задаче
12. успешно общаться с реальными слушателями
13. обсуждение некоторых примеров
14. немного объяснения того, как эта задача возникает из классической математики

15. избежание всех, кроме ключевых вычислений
16. безжалостное исключение большинства деталей
17. тензорное поле, комплексное многообразие
18. интересное и восхитительное событие

Signposting in speaking

Speakers make use of special words to help introduce ideas and to provide a framework for what they are saying, especially in formal speech, such as a lecture or a talk. We can think of these words as 'signpost words' because they direct our listening: in other words, they warn us that more information is coming and suggest what kind of information this may be: e.g. additional, positive, negative, similar, different. They may also introduce examples of a main point made earlier.

Task 2

Look at the language signposts which could be useful for giving a talk at the conference or any other kind of public speaking. Translate these signposts into Russian.

1. Good morning, dear colleagues. (formal) / Good afternoon / Hello, everyone. (less formal)
2. My purpose today is to ... / I'm here today to....
3. Firstly, I'd like to look at ...
4. Then I'll be talking about ...
5. Finally, I'll be looking at…
6. Let's now move on to/turn to…
7. So far, we have looked at.... Now I'd like to talk about...
8. Let me give you an example.
9. Let me just try and sum that up before we move on to ...
10. I'd like you to look at this slide/diagram ...
11. As you can see ...
12. This table /diagram /chart /slide shows ...
13. I'd like to finish by emphasizing ...
14. In conclusion I'd like to say ...
15. If you have any questions or comments, I'll be happy to answer them.
16. Are there any more questions?
17. Let me just check that I've understood your question. You're asking ...
18. I'm afraid I don't know the answer to that one. Perhaps someone here can help us out?
19. Does that answer your question?
20. If there are no other questions, I'll finish there. Thank you very much.

Task 3

For questions 1-10, read the text below. Use the word given in capitals at the end of some of the lines to form a word that fits in the gap in the same line. There is an example at the beginning (0).

Example: 0 REGULATE

Unit 4. Why Don't the Mathematicians Learn to Speak?

Nonverbal communication matters

Eye contact: This helps to (0) _____ the flow of communication. It signals interest in others and increases the speaker's (1) _____ . Speakers who make eye contact, open the flow of communication and convey interest, concern and (2) _____

REGULATION
CREDIBLE
WARM

Facial Expressions: Smiling is a (3) _____ cue that transmits friendliness and liking. So, if you smile frequently you will be perceived as more likable, friendly, warm, and (4) _____ . Smiling is often contagious, and others will react (5) _____ . They will be more comfortable around you and will want to listen to you more.

POWER
APPROACH
FAVOUR

Gestures: If you fail to gesture while speaking, you may be perceived as (6) _____ and stiff. A lively speaking style captures attention and makes the material more interesting and (7) _____ understanding.

BORE
FACILITY

Posture and body orientation: You communicate numerous messages by the way you talk and move. Standing erect and leaning forward communicates that you are approachable, receptive, and friendly. Speaking with your back turned or looking at the floor or ceiling should be avoided as it communicates (8) _____

INTERESTING

Voice: One of the major (9) _____ of speakers is that they speak in a monotone voice. Listeners perceive this type of speaker as boring and dull. People report that they learn less and lose interest more quickly when listening to those who have not learned to (10) _____ their voices.

CRITICAL
MODULATION

Video

Video 4.1

Watch the video about body language and compare the information in it with the description of nonverbal communication in the Lexical bank Task 3. Fill in the chart and use your notes to briefly describe the importance of nonverbal communication for a successful presentation.

Tip	What is similar?	What is different?
Eye contact and smile		
Posture and gestures		
Pause		
Facial expressions		
Voice		

Unit 4. Why Don't the Mathematicians Learn to Speak?

Video 4.2 ***Watch the video and complete the notes below.***

Presenting and public speaking tips

#1 – Focus on the audience. Have clear purposes about your impact on the audience. Decide on what you want them to (1) _____ after your presentation.

#2 – Delete all excess text from your slides. Don't waste your listeners' time by putting (2) _____ on your slides. They are not going to read them but will most likely start (3) _____ . Don't use slides as your (4) _____ If you want to effectively get your message across use powerful (5) _____ Instead.

#3 – Keep it simple. Include only relevant and essential material in your presentation. Learn to (6) _____ which doesn't suit your purposes. Also avoid complicated and sophisticated language. Rather use (7) _____ to make your talk clear and understandable.

#4 – Rehearse. You need to get serious about rehearsing if you'd like to succeed as a presenter. If you don't prepare, then (8) _____ .

After you watch: ***Speak about your own experience of public speaking. Use the questions as the guidelines for your talk.***

- When was the last time that you had to make a presentation and speak before your fellow students at the university? What was the subject of the presentation? Was it in Russian or in English? How did you feel about it?
- Have you ever been a speaker at a real life event but not just presenting your home assignment in the classroom? What kind of event was that? Was is it a successful and enjoyable experience for you? Why?
- Which recommendations about body language and nonverbal communication do you find most challenging to follow? And which of them should be an absolute must? Why?
- Do you find your public speaking skills efficient? Why? Why not?
- Are you planning to do public speaking in the future? What kind of occasion might that be?

Pronunciation practice – international words & false friends

Осторожно! Интернациональные слова и ложные друзья переводчика

К интернациональным словам (international words) относятся слова, заимствованные из других языков – греческого и латинского, а также из современных языков. В основном это терминология: музыкальная из итальянского, балетные термины из французского, компьютерная и бизнес-терминология из английского. Такие слова сходны по звучанию, написанию и **значению** в нескольких языках.

Эти слова являются нашими абсолютными друзьями с точки зрения значения, т. е. понимания и перевода. Но вот схожесть звучания относительна, **что приводит к неправильному произношению заимствованных слов**. Зачастую обучающиеся переносят гласные и согласные звуки, а также ударения из таких же заимствований в родном языке на английский язык. Например, в словах b**i**oinformatics, m**i**crobiology, c**o**mpany, **au**thor возникают проблемы с правильным произношением гласных, а в словах te**ch**nology, me**ch**anics, pro**c**essor очень часто вместо английских ошибочно звучат русские согласные звуки.

Поэтому во избежание досадных фонетических ошибок необходимо тщательно выверять и отрабатывать произношение заимствованных слов!!!!

Для русскоязычного человека, изучающего английский язык, ложные друзья переводчика (false friends) – это английские слова, **похожие** на русские **произношением**, но имеющие **иное значение**. Научное название этого явления – межъязыковые омонимы.

Существует несколько групп ложных друзей переводчика, в зависимости от того, насколько сильно их значение отличается от созвучных слов в родном языке. Условно можно говорить о двух основных группах:

- **Абсолютно ложные** - слова с полным несовпадением значений.
- **Смешанные** – слова с частичным несовпадением значений, т. е. в одном контексте они заимствованные, а в другом ложные друзья переводчика.

International words		Absolute False Friends		Mixed – international / false friends		
английское слово	***значение***	***английское слово***	***правильное значение***	***английское слово***	***совпадающее значение***	***дополнительное значение***
theory	теория	actually	фактически	effect	эффект	результат, влияние
process	процесс	probe	зонд	technique	техника	метод, способ
experiment	эксперимент	brilliant	блестящий	realize	реализовывать	осознавать
crisis	кризис	fabric	ткань	session	сессия	заседание, сеанс
component	компонент	data	данные	department	департамент	факультет; кафедра
journal	журнал	application	приложение	figure	фигура	рисунок
observatory	обсерватория	prospect	перспектива	goal	гол	цель
electron	электрон	complexion	цвет лица	fiction	фикция	выдумка, вымысел
microscope	микроскоп	accurate	точный	master	мастер	хозяин; магистр
molecule	молекула	intelligent	умный	expertise	экспертиза	знание дела
identical	идентичный	magazine	журнал	mixture	микстура	смесь

Pronunciation practice – international words & false friends

Make sure you can pronounce these words correctly. They are not given in the alphabetic order but in the order, you come them across in each of the Units (1-4). Identify false friends and words with mixed meaning and comment on their translation.

Unit 1

Task A	strategy	function	spectral
paragraph	detail	procedure	**Task E**
structure	design	interpolation	transformation
general	interest	adaptive	anonymous
format	experimental	iteration	analysis
section	specifically	optimal	electronic
specific	generating	functional	methodology
type	list	control	classification
information	databases	numerical results	asymptotic
journal	audience	stochastic	parabolic
basic	portion	balance	referee
typically	tradition	parabolic	comments
title	practice	formulate	global
abstract	ethics	complexity	index
methods	interaction	demonstrate	national
results	services	systems	grants
discussion	institutions	contrast	biomedical
literature	financial	alternative	patent
bibliography	**Task B**	discretization	version
appendix	diagram	compensate	private code
organized	idea	operators	algorithm
locate	facts	versions	licence
examine	argument	accurately	seminar
discuss	line	statistical	material
data	**Task D**	differential	contract
experimentation	models	context	recommendations
form	computer graphics	approximations	sponsors
graphs	international conference	elementary	**Task F**
author	geometry	components	poster
analyze	discrete	strategy	communication
figures	dynamic	illustrated	accurate
hypothesis	simulation models	demonstrating	identified
theoretical	process	channel	ideas
indicate	production	professional	effectively
address	topology	cultivated	principal
interesting	optimization	effects	popular
relevant	minimum stress	manuscript	presentations
project			
techniques			

Pronunciation practice – international words & false friends

Unit 2

Task A	detailed	professional	intensifying
journal	identifying	author	virtually
publish	navigating	prestige	economics
sections	subject	progress	social
authors	technical	publication	humanities
familiar	physics	speciality	modelling
citations	**Task B**	individual	correlations
finally	program	special	complexity
abstract	actions	lecture	atomic
type	real	mathematics	molecular
actively	activity	department	focus
surprised	information	computer	biology
mathematical	lines	information	medicine
phrases	speech	systems	conceptual
decipher	test	university	produce
context	order	courses	statistically
specialized	magazine	students	results
relevance	film	videoconferencing	model
interests	**Task C**	address	structural
human	scan	collaborative	characteristics
practice	browse	customized	theory
literature	characterize	virtual	maximal
experimental	original	prototype	collection
results	initial	indicate	projects
mathematics	authentic	identified	massive
focus	interpret	period	budgets
theorem	**Task D**	experimental	stochastic
categories	programming	mathematical	controlling
applications	design	fundamental	complex
mathematically	community	analyze	homogenization
oriented	center	data	piezoelectric
specific	theoretical	trend	composites
analyzing	oriented	decade	element
problems	examine	topological	elastic
theoretical	affect	ideas	inclusions
fact	programmers	applications	effective
experiments	incorporate	topology	static
nature	methods	natural	electroelasticity
computer	techniques	neural codes	numerically
simulations	process	interest	algorithm
theory	mathematician	machine	granular
hypothesis	problems	analytics	detail
data	folklore	generated	illustrated

Pronunciation practice – international words & false friends

distance	**Lexical bank**	effectiveness	specific
graph	**Task 3**	university	details
measure	intelligence	concepts	lecturer
global	role	analysis	detailed
concept	prospects	content	author
optimization	technology	structure	photocopy
transportation	companies	list	comments
products	investing	false	paraphrase
Task E	accuracy	identify	website
colleges	text	material	documents
specialist	statistical	information	journal
popular	factors	dictate	diagrams
typical	syntax	lecture	glossary
basic	**Video**	idea	discipline
	strategies	abstract	

Unit 3

Task A	object	system	materials
presentation	plan	identify	technical
communicating	computer	file	**Lexical bank**
ideas	naturally	application	**Task 2**
results	general	icons	design
audience	text	style	visual
effectively	limit	disk	focus
data	decorative	control	minimize
information	tones	operation	moment
slide	contrast	**Task C**	scheme
animations	photos	instrument	context
planning	effect	public	**Video**
element	interest	productively	effect
organized	presenter	confuse	balance
animated	graphics	stress	intriguing
graphic	moderator	adequate	standard
images	contact	**Task E**	creative
projects	function	complex	horizontally
message	**Task B**	slide show	comfortable
laser	symbol	machine	commercial
slide	list	projector	

Pronunciation practice – international words & false friends

Unit 4

Task A	details	qualification	position
colloquium	complex	**Lexical bank**	practice
mathematics	structure	**Task 1**	finish
department	tensor	colleagues	person
faculty	colleagues	slide	scan
students	author	diagram	robotic
audience	**Task B**	comments	emotionally
speaker	profession	**Task 2**	minute
mathematician	activity	regulate	normal
enthusiastic	professional	nonverbal	physiology
subject	university	communication	nervous
lecture	college	signals	naturally
addressing	business	interest	start
terminology	course	contact	pause
results	figure	comfortable	idea
symbols	operation	gesture	actually
arguments	chemical	material	production
calculations	substance	orientation	industries
real	**Task C**	message	presenter
general	progress	critical	guarantee
mathematical	inform	criticism	objective
algebra	expert	monotone	text
analysis	**Task D**	type	mechanism
geometry	pause	modulation	effective
topology	contrast	**Video**	process
problem	graphs	presentation	content
communicate	lecturer	videos	local
discussion	repetition	channel	serious
classical	phrases		

The Passive Voice
Перевод конструкций страдательного залога (Passive Voice)

Страдательный залог в английском языке образуется при помощи глагола **be** в соответствующем времени и 3-ей формы смыслового глагола, которую еще называют причастием прошедшего времени (Past Participle) или Participle 2.

BE + Verb 3 (Past Participle)

Глаголы в страдательном залоге могут употребляться во всех тех же временах и формах, в каких употребляются глаголы в действительном залоге за исключением форм *Future Continuous*, *Present Perfect Continuous* и *Past Perfect Continuous*.

Вместо этих форм в страдательном залоге употребляются соответственно *Future Simple*, *Present Perfect* и *Past Perfect*. Также следует иметь в виду что предложения в *Future Perfect Passive* встречаются крайне редко.

При переводе предложений страдательного залога с английского языка на русский следует иметь в виду, что ***русскому настоящему времени*** в английском языке соответствует *два грамматических времени (Tenses) – Present Simple & Present Continuous + Present Perfect может переводиться как настоящим так и прошедшим временем в зависимости от контекста*, ***русскому прошедшему времени*** — *три грамматических времени (Tenses) - Past Simple, Past Continuous, Past Perfect + Present Perfect может переводиться как настоящим так и прошедшим временем в зависимости от контекста* и **русскому будущему времени** — *два грамматических времени (Tenses) - Future Simple и Future Perfect. Предложения в страдательном залоге* ***с модальными глаголами*** *переводятся по тем же правилам, что и аналогичные предложения в действительном залоге – с обязательным отражением модальности в переводе. (см. таблицу ниже)*

Present Simple Passive	is covered are covered	покрыт(ы)
Present Continuous Passive	is being covered are being covered	покрывается покрываются
Past Simple Passive	was covered	покрылся (лись) / был(и) покрыт(ы)
Past Continuous Passive	was being covered were being covered	покрывался покрывались
Present Perfect Passive	has been covered have been covered	покрыт(ы) / был(и) покрыт(ы)
Past Perfect Passive	had been covered	был(и) покрыт(ы)
Future Simple Passive	will be covered	будет (будут) покрываться
Future Perfect Passive	will have been covered	будут покрыты
Modal verbs	can be covered must be covered etc.	могут быть покрыты / могут покрываться должны быть покрыты / должны покрываться

Grammar reference – Passives

Некоторые глаголы в страдательном залоге при переводе принимают различные оттенки значений. Например, глагол **to follow -** *следовать за* в составе страдательного залога переводится ***за этим последовало, это сопровождалось.***

К наиболее часто употребляемым в пассивной конструкции глаголам, требующим предложного дополнения, относятся:

to act on (upon) *действовать на, влиять на,*
to account for *объяснять,*
to agree upon *договориться о,*
to arrive at - *достигать чего-либо,*
to depend on – *зависеть от,*
to insist on - *настаивать на,*
to provide for - *предусмотреть,*
to refer to – *ссылаться на,*
to rely on (upon) - *полагаться на,*
to interfere with - *мешать чему-нибудь / кому-нибудь, вмешиваться во что-либо,*
to deal with – *иметь дело с, рассматривать*

а также глагольные фразеологические сочетания типа:

to make mention of - *упоминать,*
to make use of - *использовать,*
to put an end to - *прекратить,*
to take care of – *позаботиться о,*
to take notice of - *заметить,* и др.

Страдательные обороты этого типа далеко не всегда могут быть переведены на русский язык при помощи страдательного залога. Чаще они переводятся соответствующими действительными оборо-тами (неопределенно-личными) или глаголами, оканчивающимися на - **ся:**

Example: *No account is taken of price changes in this article. – В этой статье не учитываются изменения цен. / Изменения цен в этой статье не учитываются.*

Task 1

Identify and underline the passive structures in Present Tenses and translate the sentences into Russian as shown in the example.

Example: Leading scientists are identified as much by their ability to communicate ideas and results as by the quality of their research. — Ведущих ученых определяют в равной степени как по их способности доносить аудитории свои идеи и результаты так и по качеству их научных исследований.

1. The number and the headings of sections in research papers may vary among journals, but for the most part a basic structure is maintained.
2. The format of a scientific paper has been defined by centuries of developing tradition, editorial practice, scientific ethics and the interaction with printing and publishing services.
3. Because scientific papers are organized in this way, readers know what to expect from each part of the paper, and they can quickly locate a specific type of information.
4. Section Abstract is often included in article databases and is usually free to a large audience.
5. On the bad side, given that college and university faculty hastily moved courses online without much support, online learning is being done poorly in many quarters of the United States.
6. The Covid-19 crisis has caused havoc in universities, where face-to-face teaching has been abandoned and courses shifted online, which students report has happened with varying degrees of success.

7. But should students wait and watch or maximize the use of the internet and explore everything that is being offered by the education industry online?
8. According to UNESCO, since the outbreak of COVID-19 began, about 1.37 billion students in 138 countries worldwide have been affected by school and university closures.
9. The illustrated lectures are stored on a server so that students can retrieve them and replay the content outside of class, clicking along to the exact section they need to review.
10. This research and student support is made possible by grants from the National Science Foundation and by private donations.
11. Another term that has been recently coined for malware is badware which includes computer viruses, worms, Trojan horses, spyware and other malicious and unwanted software.
12. The idea has often been floated that many computer manufacturers preinstall backdoors on their systems to provide technical support for customers, but this has never been reliably verified.

Task 2

Identify and underline the passive structures in Past Tenses and translate the sentences into Russian as shown in the example.

Example: The experiment was being watched with great interest. — За экспериментом наблюдали с большим интересом.

1. Certain special steps were taken to reduce the weight of the mechanical part.
2. Many possibilities for practical applications of this software product were analyzed.
3. This issue had been touched upon at the seminar.
4. This newly developed model was followed by a number of others.
5. All is known is that mistakes had been committed during that period.
6. An unidentified flying object was being recorded by many observers from around the globe.
7. Systematic reviews were conducted in the nineties and early 2000's on online learning research.
8. Online learning research was categorized into twelve themes and a framework across learner, course and instructor, and organizational levels was developed.
9. Sodium was being dissolved into the liquid for three minutes.
10. Back at the time of our grandparents, going to university had always been considered a sort of an elitist thing to do and not everyone went because it was quite expensive.

11. Eight popular clustering methods were selected to cover three categories of clustering algorithms (i.e., partitional, density -based, and hierarchical) and three distance measures (i.e., Euclidean, Dynamic time warping, and shape-based).

12. When the first Apple laptops were produced in 1999, Apple realized they had a problem with their logo – when the laptop was put on a table, the customer saw the Apple logo on the top of the laptop but when the laptop was open, the logo was upside down.

Task 3

Identify and underline the passive structures with modals and in Future Tenses. Translate the sentences into Russian as shown in the example.

Example: Section Appendix contains information in greater detail than can be presented in the main body of the research paper, but which may be of interest to a few people working specifically in this field. – Раздел Приложение содержит более детальную информацию, которая не может быть представлена в основных разделах статьи, но может представлять интерес для людей, работающих конкретно в данной области.

1. Generally, section Methods does not need to be read in detail, and you might want to refer to it if you have a specific question about the experimental design.

2. Counteracting the threat of further loss of biodiversity can only succeed if we know exactly what local climate change – for example in nature reserves – will be caused by global trends.

3. Malware should not be confused with defective software, that is, software which has legitimate purpose but contains harmful bugs.

4. We show how methods with linear-time computational complexity can be developed for handling domains with general geometry and generating stochastic terms, handling both Dirichlet and Neumann boundary conditions.

5. It must be admitted that the problem of classification can be approached from different viewpoints.

6. Due to Numerical Recipes licence limitations this code cannot be made publicly available.

7. The disagreement may be accounted for by an improved experimental technique of the present investigation.

8. Researchers' focus was on the question of what deviations from current climate conditions these areas will be exposed to over the next five decades, and how this will impact local plant and animal species.

9. It should be borne in mind that the "system" under attack may be of various types, e.g. a single computer and operating system, a network or an application.

10. There is no doubt that in the course of further scientific development extensive use will be made of modern electronic devices.

11. Originally, PCs had to be booted from floppy discs, and until recently it was common for this to be the default boot device.

12. Many changes will be realised to our education system in order to keep up with technology and an ever more developed society.

13. The new drug will have been implemented within the pharmaceutical companies by this year.
14. The platform evidently does not need to be used solely for educational materials dealing with technology but could be used to create and share any kind of educational content.

Task 4

Identify and underline the passive structures with phrasal verbs and set expressions. Translate the sentences into Russian as shown in the example.

Example: The data cannot be accounted for by the existing theory. – Эти данные нельзя объяснить существующей теорией.

1. There are fields which cannot be dealt with on a national scale only, such as environmental protection, space exploration and so on.
2. Some important conclusions were arrived at by the experimentation.
3. This method has been referred to in an earlier paper.
4. A new type of electronic equipment which is now being introduced in many railway transport enterprises is given much attention to.
5. This engine may be relied upon for it is of the latest design.
6. In an effort to overcome these difficulties a great deal of experimental work has been carried out by the specialists.
7. Some aspects of the problem are dealt with in the next chapter.
8. At present chemical methods of purifying water are extensively made use of.
9. Students whose courses have been thrown into chaos by the coronavirus pandemic should be reimbursed for the year or allowed to retake it at no further cost.
10. Particular attention is paid to some safety devices.
11. UK businesses are being exposed to ever-greater threats to their information systems as use of the Internet and wider connectivity among companies increases.
12. When the company was taken over by a much bigger firm, some people lost their jobs.

The Infinitive
Способы перевода предложений с инфинитивами на русский язык

Инфинитив (the Infinitive) относится к неличным формам глагола. Называя действие, он не указывает ни лица, ни числа, ни наклонения. Формальным признаком инфинитива является частица **to**, которая в некоторых случаях опускается. Значительные трудности при переводе возникают в связи с многообразием синтаксических функций инфинитива в предложении и наличием ряда конструкций, отсутствующих в русском языке.

Инфинитив имеет формы залога и времени (время, выраженное инфинитивом, носит относительный характер).

Tense	Active	Passive
Simple	to study	to be studied
Continuous	to be studying	———————
Perfect	to have studied	to have been studied
Perfect Continuous	to have been studying	———————

Инфинитив может выступать в роли 5 членов предложения и в зависимости от этого переводиться на русский язык:

1. подлежащего –
   а) инфинитивом / (неопределенной формой глагола),
   б) существительным
2. дополнения – инфинитивом / (неопределенной формой глагола)
3. определения –
   а) существительным,
   б) инфинитивом,
   в) причастным оборотом,
   г) определительным придаточным предложением, вводимым союзом который – при этом нужно помнить, что инфинитив в форме Simple можно переводить сказуемым в будущем времени и даже со словами должен, нужно, можно, независимо от времени сказуемого.
4. обстоятельства –
   а) инфинитивом с союзами для того чтобы или чтобы;
   б) существительным с предлогом
5. вводного члена предложения – обычно стоит в начале предложения, всегда выделяется запятыми и может переводиться деепричастием или инфинитивом.

Запомните инфинитивы, которые в сочетании с другими словами выступают в роли вводных членов предложения:

to begin (start) with — прежде всего

to judge by — судя по, если судить по

to make a long story short — короче говоря

to mention (only some) — если упомянуть (лишь некоторые)

to name (only a few) — если упомянуть (лишь немногие)

to put it another way — иначе говоря

to put it briefly — короче говоря
to put it mildly — мягко выражаясь
to put it simply — попросту говоря
needless to say — нет надобности говорить о...
to say nothing of — не говоря уже о...
suffice it to say — достаточно сказать
to be exact — точнее говоря
to say the least — мягко выражаясь
so to speak — так сказать
to sum up — если подвести итог, подводя итог
to quote (a single example) — если привести (один пример)
to return — если возвратиться
to take (an example) — если привести (пример)
to tell the truth — по правде говоря

Task 1

Identify and underline active infinitives and translate the sentences into Russian as shown in the examples.

Example: To appreciate the present try to look at it in historical perspective. — Для того, чтобы оценить настоящее, постарайтесь взглянуть на него с исторической перспективы. **или** Для оценки настоящего постарайтесь взглянуть на него с исторической перспективы.
To appreciate the present requires some historical perspective. — Оценка настоящего требует некоторой исторической перспективы.

1. In recent years, many educators have turned to professional learning networks (PLNs) to grow in their craft with peers who are more accessible online because of reduced temporal and spatial constraints.
2. The theory to account for these changes has not been developed yet.
3. To present some background material on theoretical and philosophical aspects of information processing is to give the user more profound understanding of computers' application.
4. Once you have understood the paper, it is time to assess it and to determine the level of the relevance of the paper to your research interests.
5. The first step in creating a presentation is to decide what the main points are that you wish to communicate and just what you want your audience to remember.
6. Limit the use of decorative fonts, which are hard to read when projected.
7. Engineers have long relied on public feedback of engineering failures to improve their designs.
8. To make a choice between these two alternatives is not an easy task.
9. This book has been written to review recent developments in this area of research.
10. To install backdoors crackers may use Trojan horses, worms, or other methods.
11. To solve an inverse problem, we need a physical model of the event – we need to understand what causes lead to what effects.
12. Carefully analyze the raw data in tables and figures to draw your own conclusions.

13. Malware is a general term used by computer professionals to mean a variety of forms of hostile, intrusive, or annoying software or program code.

14. The key idea of cognitive computing is to engineer mind-like intelligent machines by reverse engineering the structure, dynamics, function and behavior of the brain.

Task 2 ***Identify and underline passive infinitives and sentence starters with infinitives. Translate the sentences into Russian as shown in the example.***

Example: The technique of collecting information will differ according to the problem to be solved. — Методика подбора информации будет различаться в зависимости от проблемы, которую надо решить.

1. Each significant computation brings insights that suggest the next, usually much larger, computation to be done.

2. The advantages of such an approach are evident enough to be taken for granted.

3. An interesting distinction to be made here is between problems and techniques.

4. Another factor to be taken into consideration is the power of modern experimental techniques.

5. To sum up, we shall present the table.

6. An important point to be dealt with in the next chapter is different techniques of data-processing.

7. To begin with, no general method will be given here.

8. Section INTRODUCTION usually describes the theoretical background, indicates why the work is important, states a specific research question, and poses a specific hypothesis to be tested.

9. The concept was too advanced to be appreciated by contemporary scientists.

Перевод объектного инфинитивного оборота (Complex Object)

В английском языке после многих глаголов в действительном залоге употребляется так называемый «объектный инфинитивный оборот». Он представляет собой синтаксическую группу — **сложное дополнение**, которое состоит из **1)** существительного в общем падеже или местоимения в объектном падеже (me, us, you, him, her, it, them) и **2)** инфинитива. В русском языке такого оборота нет.

Объектный инфинитивный оборот переводится на русский язык чаще всего **придаточным предложением**.

Объектный инфинитивный оборот употребляется после глаголов, выражающих:

1. предположение:
to suppose - *полагать, предполагать*;
to assume - *допускать, предполагать*;
to consider - *считать*;
to think - *думать*;
to find - *считать, находить*;
to expect - *ожидать*;
to believe - *полагать, считать*;
to declare - *заявлять и некоторых других*;

2. желание:
to want - *хотеть*;
to wish, to desire - *желать*;
to like - *любить, нравиться*;
to hate - *ненавидеть*;

3. физическое восприятие:
to see - *видеть*;
to watch, to observe - *наблюдать*;
to hear - *слышать*;
to feel - *чувствовать*;
to notice - *замечать*;

4. приказание, разрешение, принуждение, просьбу:
to order, to command - *приказывать*;
to allow, to let - *позволять*;
to force, to compel, to make - *заставлять*;
to ask, to request - *просить* и после глаголов to cause, to stimulate, to permit, to enable, to tell и некоторых других.

Task 1

Identify and underline the infinitive constructions "Complex Object" and translate the sentences into Russian as shown in the example.

Example: Most scientists expect major development in the near future to take place in biology. — Большинство ученых ожидает, что основные открытия в ближайшем будущем произойдут в биологии.

1. We know Lobachevsky's ideas to have greatly influenced not only geometry, but mechanics, physics, astronomy as well.
2. The term computer virus is used for a program which has infected some executable software and which causes that software to spread the virus to other executable software.
3. Such systems permit the properties of a particular machine to be exploited to the full.
4. Robotic devices will probably help people with disabilities get around and extend the strength and endurance of soldiers, construction workers and medical professionals.
5. A fully interactive classroom system of desks and smartboards will also enable more disabled students to participate in lessons and allow more personalized learning.
6. We know this scientist to have established a school of his own.
7. Consider, for example, using a remote-controlled mouse that enables you to advance your slides without having to be tied to the computer keyboard, thus helping you interact more naturally with your audience.
8. The best lecture-capture solutions simply require the speaker to turn on a mike and push a button to start the recording.
9. One can hardly expect a true scientist to keep within the limits of one narrow long-established field, leaving most fascinating problems out of the scope of their inquiry.
10. It is possible that games do facilitate social interaction, since many require players to play together as a team and get to know each other.
11. The platform allows contributors to add and update a wide variety of educational materials, from simple articles to structured courses, and to collaborate on developing new training resources on diverse applications and subjects, from the Linux operating system to complex scientific programmes.

12. Seemingly innocuous programming errors can be exploited to force entry into a computer and also provide the weak spots that allow computer worms and viruses to proliferate.

13. These definitions lead to the observation that a virus requires user intervention to spread, whereas a worm spreads automatically.

14. If the TITLE is well-written it will help you to determine if a paper is interesting and relevant for your project.

Перевод субъектного инфинитивного оборота (Complex Subject)

Субъектный инфинитивный оборот — это сочетание **1)** - существительного в общем падеже или местоимения в именительном падеже, т. е. личного местоимения (I, we, you, he, she, it, they) с **2)** - инфинитивом. В предложении этот оборот выполняет функцию сложного подлежащего.

В предложениях, содержащих субъектный инфинитивный оборот, сказуемое чаще всего выражено и переводится:

1. личной формой глагола (сказуемым) в **страдательном залоге**. Из них наиболее распространенными являются глаголы: to know, to say, to report, to believe, to suppose, to think, to understand, to realize, to order, to expect, to see, to hear, to state, to consider, to declare, to assume, to require, to make, to force и другие. За таким сказуемым следует инфинитив.
При этом сказуемое в **страдательном залоге** при переводе выносится вперед, например, ***говорят*** - *say,* ***сообщают*** - *report,* ***известно*** - *know,* ***считают*** - *consider,* ***полагают*** – *believe, think,* ***ожидается*** - *expect, оказывается - find и др.*, за которым следует придаточное предложение, присоединяющееся к главному посредством союза что.

2. глаголами: to appear, to seem, to prove, to happen, to chance, to turn out в действительном залоге, которые переводятся **seem, appear** – кажется, похоже, по-видимому, очевидно; **prove, turn out** – оказывается; **happen, chance** – случаться.

3. личной формой глагола-связки **to be** (am, is, are, was, were) за которым следуют прилагательные: **likely, unlikely, certain, sure** и другие. А затем следует инфинитив.
Такие словосочетания в составе оборота переводятся: **to be likely** - вероятно; **to be unlikely** - маловероятно; **to be apt** – возможно, вероятно; **to be sure** - наверняка; **to be certain** – безусловно.

Task 1 ***Identify and underline the infinitive constructions "Complex Subject" in the sentences as shown in the examples. Translate the sentences into Russian.***

Example: Nowadays science **is known** to contribute to every aspect of our life. — **Известно**, что в наши дни наука вносит свой вклад во все аспекты нашей жизни.

With the advent of nuclear weapon some people **seemed** to be disappointed in science. — С появлением ядерного оружия некоторые люди, **по-видимому**, разочаровались в науке.

Nanotechnology **is likely** to dominate science in the years to come. — **Весьма вероятно**, что нанотехнологии займут в будущем доминирующее положение в науке.

1. As late as 1999, widespread viruses such as the Melissa virus appear to have been written chiefly as pranks.

2. In all things, success depends on previous preparation, and without such preparation there is sure to be failure (Confucius).

3. He is apt to succeed in solving this problem.
4. Nanoscale science is believed to be as important as steam engine, the transistor and the Internet.
5. Think of a biological cell as a tiny programmable device that happens to be alive and you have the basic idea behind an emerging field called synthetic biology.
6. The device known to be built by Charles Babbage is now considered to be the parent of modern computers.
7. They happen to be working at the same problem.
8. You seem to have taken advantage of the favourable conditions.
9. Some writers in the trade and popular press appear to misunderstand the distinction between a computer virus and a worm and use the terms interchangeably.
10. To shed some light on all that, we asked two experts in the development of both e-mail and IM (Instant Messaging) to discuss how those two worlds are apt to influence one another as both continue to evolve.
11. He doesn't seem to have attempted to set up a model to connect this strange behaviour with the previous observations.
12. To put it another way, inventions seem to appear at times when societies need them.
13. A technology that lets each individual design and build whatever they want doesn't appear to be compatible with centralized control.
14. This theory is known to be inadequate, so he suggested that it should be modified to be brought into better agreement with the observed facts.
15. Molecular scale positional devices are likely to resemble very small versions of their everyday macroscopic counterparts.
16. There was a time, a couple of decades ago, when computers were expected soon to behave intelligently – to talk to people in English, answer questions, and make complex decisions.
17. Self-cleaning or 'easy-to-clean' surfaces on ceramics and glasses prove to be the most prominent application of nanotechnology in the household appliances.
18. Nanotechnology is thought to make medical services much more inexpensive as well as much more effective.
19. When telephone banking proved to be successful, the system was soon introduced by all major banks.
20. Nanotechnology is expected to revolutionize essentially all manufactured products, from computers to medical instruments to solar cells to planes and rockets.

The Participle
Причастия, причастные обороты и их перевод.

Причастие относится к неличным формам глагола и обладает признаками как прилагательного (иногда наречия), так и глагола. Время, выраженное причастием, носит относительный характер, т. е. соотносится с действием глагола-сказуемого в предложении и выражает либо одновременность, либо предшествование этому действию.

Причастия в английском языке подразделяются на причастие I (Participle I) и причастие II (Participle II).

	Simple Participle 1	Perfect Participle 1	Participle 2
Active	operating	having operated	———
Passive	to be studying	having been operated	operated

Причастие 1 (Participle I) переводится на русский язык:

1. причастием / причастным оборотом
2. При + существительным - (While+Participle 1 / When+Participle 1)
3. деепричастием
4. придаточным предложением

Причастие 2 переводится на русский язык:

1. причастием
2. При / когда+существительным — (While+Participle 2 / When+Participle 2)
3. деепричастием
4. придаточным предложением

Запомните значения следующих словосочетаний с причастиями в функции вводного члена предложения:

allowing for – принимая во внимание
assuming that – предполагая, что
beginning with – начиная с
judging by – судя по
speaking of (for) – говоря о (в пользу)
as emphasized above — как подчеркивалось выше
as already mentioned — как уже упоминалось
as pointed out previously — как указывалось ранее
as stated earlier — как установлено ранее
roughly speaking — грубо говоря
generally (broadly) speaking — вообще говоря
strictly speaking — строго говоря
broadly considered — в широком смысле; вообще
put it another way — иначе говоря; другими словами
putting it another way — иначе говоря; другими словами

Task 1

Identify and underline Active Participle as shown in the examples. Translate the sentences into Russian.

Examples: The scientist applying the method .... - Ученый, применяющий этот метод....
Applying the method scientists .... - Применяя этот метод, ученые ....
Having applied the method, the scientists .... - Применив этот метод, ученые ...

Grammar reference – Participle

1. These online courses cost institutions 80% less per student than in-person classes, the study found, while blended classes combining online lectures with in-person discussions lowered the per-student cost by nearly 20%.
2. The goal is to provide the user with a single virtual machine encompassing widely networked processors and databases.
3. Electronic computers perform both arithmetical and logical operations making it possible to control the process under rather complicated conditions.
4. Colleges and universities have been thrown into very uncertain waters as they are forced to convert to online-only courses while struggling with a myriad of other issues, especially in the realm of finances.
5. Broadly speaking, a Trojan horse is any program that invites the user to run it but conceals a harmful or malicious payload.
6. Some viruses and worms cause serious damage, forcing companies around the globe to close down while infected computers are cleaned up.
7. Having discussed all the advantages and disadvantages of the new software product we spoke in its favour.
8. Having changed the traditional approach, they succeeded in solving the problem.
9. After class, students can pipe the lecture to their laptops or MP3 players and hear it again while looking at the slides that illustrate the talk.
10. Understanding that unpredictability and underlying physics is important to researchers developing the new technology.
11. Germany has pledged to phase out all of its nuclear facilities by 2021 because of the potential safety risks, replacing them with renewable power sources.
12. Researchers at the Technology-Enhanced Learning Research Group (TEL) are designing new learning environments using interactive multi-touch desks that look and act like a large version of an Apple iPhone.
13. The 'free' in free software refers to freedom of use, modification and distribution, resulting in programmes that tend to be more adaptable, scalable, transparent and frequently more cost-effective than their proprietary counterparts.
14. Roughly speaking, finite tensor categories are ribbon categories satisfying all reasonable finiteness conditions.

Task 2

Identify and underline Passive Participle as shown in the examples. Translate the sentences into Russian.

Examples: Being applied in chemistry, this method .... - Когда этот метод применяют в химии, он ....
Having been applied, the method .... - После того, как этот метод применили, он ....

1. The latest model now being tested accounts for many of the previously unknown phenomena.
2. The first worms appeared in the 1970s and spread slowly between computers connected to the same network.
3. Information systems being built, operated, and maintained today are often vulnerable to the same or similar flaws that they have been vulnerable to for years.
4. This paper describes some relevant insights gained from applying Survivable Network Analysis (SNA) to several significant real-world systems.
5. The scientist theoretically predicted complicated interaction between the components involved in the process.
6. The range of scientific problems being discussed at the conference was very extensive.
7. Given this state of affairs, users are warned only to open attachments they trust, and to be wary of code received from untrusted sources.
8. Having been tested, the new device was recommended for work.
9. Mind-reading software developed in the Netherlands can decipher the sounds being spoken to a person.
10. Through trial and error, his software gradually learned to tell cats and dogs apart, based on a statistical analysis of colour and texture in each photo.
11. If universities emerge from Covid-19 with trust won back from government – and, crucially, are willing to pass on that trust to frontline staff – post-pandemic higher education could look very different.
12. And while it's better than being completely disconnected, mobile-only access isn't ideal.
13. The university expected the replacement assessment to include "open-book exams, taken remotely and submitted online", and invited students to state their preferences in an online consultation.
14. A spokeswoman for Edinburgh University said: "First and second year students will be assessed on the basis of work already submitted as an alternative to exams. Those in third year and beyond will take their exams online."

Абсолютный (независимый) причастный оборот
Absolute Participle construction

Этот оборот состоит из существительного в общем падеже (или местоимения в именительном падеже) и Participle I или Participle II. Характерным признаком данного оборота является то, что он имеет свое подлежащее, к которому и относится действие, выраженное причастием. Подлежащее независимого причастного оборота стоит непосредственно перед причастием, и связь между ним и причастием аналогична связи, существующей между подлежащим и сказуемым в любом предложении.

Grammar reference – Participle

Основными ***формальными признаками*** независимого причастного оборота являются:

1. существительное в общем падеже (или местоимение в именительном падеже), стоящее перед причастием;
2. наличие запятой, которая всегда отделяет независимый причастный оборот.

При переводе такого независимого оборота на русский язык надо помнить, что:

- если оборот стоит в начале английского предложения, то в русском переводе придаточное предложение обычно присоединяется к главному подчинительными союзами типа **так как, когда, если, хотя, после того, как** и др. (союз подбирается по смыслу с учетом контекста).
- если независимый оборот стоит в конце английского предложения, в нем обычно (но не всегда) даются дополнительные сведения к тому, что сообщается глаголом-сказуемым в главной части, и поэтому в русском переводе такого оборота придаточное предложение присоединяется к главному сочинительными союзами типа **причем**, **а**, **и** и др.
- Абсолютный причастный оборот может вводиться служебным словом **with**, которое не переводится; кроме того, запятая в этом случае может отсутствовать.
- В абсолютных причастных оборотах **being** (как глагол-связка) иногда опускается, однако при переводе следует использовать глагол *являться* или другой, подходящий по смыслу, **например**: Performance observations were recorded, *with attention on the variables*. - Наблюдения за работой (механизма) регистрировались, *причем особое внимание уделялось переменным величинам*.

Task 3

Identify and underline Absolute Participle Construction as shown in the examples. Translate the sentences into Russian.

Examples: The device being repaired, we shall be able to use it. — **Когда** отремонтируют этот прибор, мы сможем его использовать.

The nucleus is made up of neutrons and protons, the number of protons being equal to the number of electrons. — Ядро состоит из нейтронов и протонов, **причем /при этом**, / **а**, **и** число протонов равно числу электронов.

With industrialization going on at its present rate, the world's fuel reserves will be exhausted within the near future. — **Теперь, когда** экономика развивается такими темпами, мировые запасы топлива будут израсходованы в ближайшем будущем.

1. The choice having been made, all the other alternatives have been rejected.
2. Only the first choice was hard to make, the rest of the choices causing no trouble.
3. Several extensions of the basic model having been made, we shall pursue the dynamic programming approach.
4. The project abandoned, the leadership in this field passed to another institute.
5. The experiment having been made, he checked up the data.
6. Computers and calculating machines can be conveniently subdivided into two classes, analogue and digital, the basic distinction being the way in which numbers are represented inside the machine for purposes of calculating.
7. A series of observations having been made, they created a new theory.

8. The new device showing promise, we began to develop it.

9. Some scientists do not distinguish between pure and applied mathematics, the distinction being, in fact, of recent origin.

10. Progress among elementary math students was particularly noteworthy, with student proficiency rising by more than 15 percentage points from one school year to the next.

11. Wireless mesh networks are dynamically self-organized and self-configured, with the nodes in the network automatically establishing an ad-hoc network and maintaining mesh connectivity.

12. A very basic syntax is used with assembler language, with each line of coding being composed of two basic files.

13. The session was over, with many aspects of the problem left unsolved.

14. With the question of representing information settled, the major design question becomes one of logic operations.

15. With the first question considered, we can pass over to the next one.

16. With new devices coming into use, scientists renewed their attempts to learn the phenomenon.

17. With campuses standing empty, those “wins” seem hollow.

18. Around 1,200 students at Edinburgh University have signed an open letter calling for final exams and coursework to be made optional, with finalists given the choice to have their degree grade determined on the basis of their assessments to date.

The Gerund
Герундий, герундиальные обороты и их перевод

Герундий – это неличная форма глагола. Он обладает свойствами, как глагола, так и существительного. По форме герундий совпадает с причастием I (Participle I). Его можно отличить от причастия по следующим признакам: глагольная форма с окончанием **ing** является герундием, а не причастием, если перед ней стоит *предлог, существительное в притяжательном падеже или притяжательное местоимение*.

Tense	Simple	Perfect
Active	researching	having researched
Passive	being researched	having been researched

Как и у других неличных форм глагола, время, выраженное герундием, носит относительный характер.

В большинстве случаев герундий в форме **Simple** (Simple Gerund) выражает действие, совпадающее по времени с действием, выраженным глаголом в личной форме, т. е. сказуемым в предложении.

Однако в отдельных случаях герундий в форме **Simple** и контекст в целом могут выражать действие, *последующее* по отношению к действию, выраженному сказуемым в предложении, или *предшествующее* ему.

Действие, выраженное **Perfect Gerund**, относится к прошедшему времени, поэтому он переводится на русский язык личной формой глагола в прошедшем времени в функции сказуемого в придаточном предложении.

Герундий переводится на русский язык:

1. инфинитивом
2. отглагольным существительным
3. деепричастием
4. личной формой глагола в функции сказуемого придаточного предложения, вводимого союзом *что (чтобы)* с предшествующим ему местоимением *то* в соответствующем падеже (*тем, о том* и др.).

Предлоги **in, on (upon)** перед герундием имеют временное значение: **in** — *при, во время, в процессе;* **on (upon)** — *по, после, при.* Предлог **by** — *путем, при помощи, посредством;* **through** — *благодаря, из -за, посредством*. Герундий переводится на русский язык отглагольным существительным. Иногда герундий с предшествующими предлогами **in, on (upon), by** удобно переводить деепричастием. **while** – одновременно + деепричастие, **without** – не + деепричастие, без + существительное.

Запомните значения следующих глаголов и глагольных словосочетаний с предлогами, после которых употребляется герундий:

account for — объяснять

aid in — способствовать

aim at — стремиться, ставить целью

be alike in / be similar in — быть похожим/ одинаковым

be capable of — быть способным, мочь

credit smb with smth — приписывать (кому-либо что -либо)

depend on (upon) — зависеть от

differ in — отличаться по

be fond of — любить, нравиться

insist on (upon) — настаивать на

be interested in — интересоваться

object to — возражать

prevent from — мешать; предохранять от;

препятствовать
rely on (upon) — полагаться на, опираться на
be responsible for — объяснять; являться причиной
result from — являться результатом (следствием); проистекать из
result in — давать в результате; приводить к
succeed in — удаваться; добиваться, научиться
think of — думать о; представлять себе

Запомните следующие сочетания слов, после которых употребляется герундий:

(I) cannot help — (я) не могу не, нельзя не
it is worth — стоит
it is worthwhile — стоит
it is no good — не стоит, бесполезно,
it is no use — нет смысла

Запомните значения следующих предлогов, после которых характерно употребление герундия:

on account of — из-за
apart from — помимо, кроме
aside from — помимо, кроме
in addition to — кроме, вдобавок
besides — кроме
because of — из-за; вследствие; по причине
despite — несмотря на
in spite of — несмотря на
due to — благодаря; вследствие
except (except for) — кроме, за исключением
instead of — вместо
owing to — благодаря
thanks to — благодаря

Task 1

Identify and underline Active Gerund as shown in the examples. Translate the sentences into Russian.

Examples: Solving the problem is very important. – Решение этой проблемы очень важно. / Решить эту проблему очень важно.

Mendeleev's having established a periodic law of nature has entered his name into the history book of the world science. — То, что Менделеев установил периодический закон природы, внесло его имя в книгу истории мировой науки.

1. We suggest discussing the problem.
2. Newton's having formulated his law of gravity was of great importance.
3. The success of the mathematical science in producing new analytical, statistical, and computational tools has increased the demand both for further development of new tools and for research teams capable of applying these techniques.
4. We rely on the experiment having been carried out correctly.
5. Other applications include forecasting the spread of invasive species, predicting genetic change, evaluating the likelihood of complex climate change scenarios, and improving the utility of market behaviour.
6. The story of radioactivity begins with Henry Bequerel's having reported his discovery of rays of unknown nature.
7. The success of any research depends largely on precisely defining its objective.
8. By having defined one's research objective one has already made the first, and the most important, step towards the final success.

9. This is a result of our not having specified input or output variables for the network.

10. In the ever-innovating realm of high-tech, companies have turned to disposables as a way of dealing with frequent technology upgrades.

11. It seems quite likely that robots will play an important role in providing physical assistance and even companionship for the elderly.

12. In many ways, growth of the global Internet and improvements in computing power are catalyzing completely new ways of doing research.

13. Corporate surveillance consists of logging everything employees do on their computers, from instant messaging, to emailing to browsing the web.

14. The goal of the Internet college fair was to give prospective students around the world a taste of far-away schools without having to invest the time and expense of travel.

15. Taking into account individual components resulted in a radical change of entire system.

16. Oxford and Cambridge universities are to replace this summer's exams with online assessments due to the coronavirus pandemic, amid calls by thousands of UK students to be allowed to opt out of doing their finals or restart their final year.

17. Many robots do jobs that are hazardous to people, such as exploring shipwrecks, helping out after disasters, studying other planets and defusing bombs or mines.

18. The updates are designed to prevent hackers from executing 'arbitrary code', stealing personal information, undertaking cross-site scripting and denial of service attacks as well as click jacking.

19. The current interest in big data, machine learning and data analytics has generated the widespread impression that such methods are capable of solving most problems without the need for conventional scientific methods of inquiry.

20. These findings have implications for defining the present and future of teacher learning in a digital age.

Task 2

Identify and underline Passive Gerund as shown in the example. Translate the sentences into Russian.

Examples: Immediate recognition of a discovery depends largely on its <u>being made</u> at a proper moment. — Немедленное признание открытия в значительной мере зависит от того, <u>что оно совершено</u> в нужный момент.

1. They insisted on the sample being tested repeatedly.

2. The problem deserves being discussed at the session.

3. The problem deserves having been discussed at that session.

4. The mistake resulted from the device not having been checked before the test.

5. A true scientist is prepared for his mistakes being pointed out to him.
6. In addition, they have been designed without sufficient consideration having been given to programming issues.
7. They insisted on being told the truth, no matter how upsetting it was.
8. For a malicious program to accomplish its goals, it must be able to do so without being shut down or deleted by the user or administrator.

Task 3

Identify and underline Gerund within set expressions as shown in the examples. Translate the sentences into Russian.

Examples: The problem is worth solving. - Эту проблему стоит решить. One cannot help solving the problem. - Нельзя не решить эту проблему. It is no good (no use) solving the problem. - Не имеет смысла /бесполезно/ решать эту проблему.

1. What is worth doing is worth doing well.
2. It is worthwhile thinking over the effects they have just described.
3. But one cannot help recognizing the importance of the research.
4. It is no use undertaking this research without initiating preliminary studies of the observational data.
5. It may well be worthwhile considering the purpose of the investigation.
6. It is worth proving the reliability of these data.
7. It is no good treating all the side effects.
8. It is no good providing the evidence in favour of this concept.
9. It is no use considering all the previous results.
10. It’s worth living in this dangerous yet wonderful world.
11. They couldn’t help discussing the situation with coronavirus in their city.
12. It’s no use doubting these results, they have been obtained and measured experimentally.

Unit 1

Video 1.1

Okay the purpose of this video is to teach you about the basic structure of scientific and medical research papers. The structure of these kinds of papers are so common that it has a name IMRAD as you can see here. And you can see there's even a Wikipedia page about it. IMRAD stands for INTRODUCTION, METHODS, RESULTS and DISCUSSION. Research papers have four main sections as shown in this diagram from Wikipedia. The sections are again INTRODUCTION, METHODS, RESULTS and DISCUSSION, although sometimes the names might be a little different. Sometimes the INTRODUCTION doesn't have a name in the paper- it's just the Beginning and the METHOD is sometimes called MATERIALS and METHODS. And the DISCUSSION might be a DISCUSSION only and a CONCLUSION after that or it might be RESULTS AND DISCUSSION together called "Results and Discussion". But basically these four parts are always there. Now you can also see in the shape of this diagram that it's wider at the top and more narrow in the middle. And the meaning of that is that at the beginning of the INTRODUCTION the paper is more general and then it becomes more specific to your topic of your study. And then in the DISCUSSION section it goes back from specifically about your experiment to going more general again. Here is an example of one research paper about "Contagious yawning in chimpanzees". If I highlight the different areas then you can see that there are the four main sections: here's the INTRODUCTION, here's the MATERIAL and METHODS, here's the RESULTS and here's the DISCUSSION in green. Before the INTRODUCTION up here you see that we have the ABSTRACT. The ABSTRACT is one paragraph that explains the main point of the study. And before that we have of course the TITLE and the names of the AUTHORS. Okay, here we have three authors Anderson, Myowa Yamakoshe and Tetsuro Matsuzawa.

Video 1.2

Okay, next I want to explain the main point of each of these sections.

The INTRODUCTION – this part of the paper answers the question: Why was this study done? And inside the INTRODUCTION it will introduce the main topic and then it will give a summary of previous research - what is already known about the topic, and it sets up your research, your study by formulating a clear problem to be solved, it explains the hypothesis and the logic leading to that hypothesis. And finally it explains the main purpose of the study. This section is also useful for learning about the subject if you don't know much about it because it should teach you the important background information and review the most important previous research about the topic. The end of the INTRODUCTION has the main purpose of the study, that's important to know if you're looking for that point.

Okay, the next section is the METHOD and this section answers the question: How was the study done? It explains the subjects or the things that the experiment was done on, it explains the conditions that are compared in the experiment and the treatment, it explains the procedure to do the experiment and what is measured. This section is usually kind of boring because it's very detailed but readers want to be able to check how someone did the experiment so that they know if they can trust the results. And they might have different interpretations of the results. So would you first read a paper you might skip this section if you just want to know the results and you don't have any particular questions that you want to answer.

Okay, the next section is the RESULTS. This section answers the question: What did the study find? So it explains the results of the study, it explains any problems with the data collection and it also will mention any other interesting trends in the data. It also usually contains figures and tables that show the result and in the sentences it will mention those figures or tables. An important point to know about the RESULTS is that this section explains the results without any interpretation, just the numerical facts and the statistical results so that readers can think for themselves about the meaning. The graphs as you see here are usually part of the RESULTS section. And notice that the graphs have a clear explanation called a caption. The purpose of this is that you can read the

caption and look at the graph and look at the figure, the graph or the picture - and you can understand it without having to read anything else.

The last section is the DISCUSSION section and this answers the question: What is the meaning of the results? It reviews the main results of the study, it compares the results to previous research – do they agree or contradict the previous research. It also discusses possible reasons and interpretations of the results and it gives suggestions for further research, possible applications and finally the conclusion. This is usually the most interesting section because it tells you the main points and what they mean. But to be able to trust these conclusions you're gonna need to read the rest of the paper to find out more of the details of how they did the study.

Last here is after the DISCUSSION the last part of the paper is the list of REFERENCES. And these are all of the references that are mentioned in the paper. So you might see like right here it says, you know, this point here reported by Anderson and Meno 2003. And you can look here and see Anderson, Meno 2003. By the way Anderson J.R. Anderson is also the author of this paper. Okay this is his own previous research. Okay, and that's it. Just to review these are the four main sections – INTRODUCTION, METHODS, RESULTS and DISCUSSION. And you know occasionally the METHODS will be last. But this is the standard structure, you'll find it in every research paper. And that makes it much easier to read them.

Unit 2

Video 2.1 - Part 1 - (0.00 - 03.13)

Efficient reading strategies (copyright of MONASH University Australia)

Welcome to a short video about using reading strategies to improve the efficiency and effectiveness of your weekly reading for university. We will cover three concepts today – the importance of task analysis, different reading approaches and lastly, reading for content, structure and language.

Do you think that this statement "I have to read every word of every book or article on my reading list." is true or false? Yes, it's false. So, let's now work out why. When faced with a reading task it is important to identify why you are reading the material. Use the information about your topic on Moodle and the learning outcomes in your Unit outline to help work out "why am I reading this?" Understanding your task dictates the reading strategy required.

We are going to look at three reading approaches that you can use as part of your university reading habits. Sometimes your purpose in reading may be just for background understanding of a concept for an assignment or pre-lecture reading. In this case, you may just skim the source to gain an overview of the main idea of the article. Read the ABSTRACT, the INTRODUCTION and the CONCLUSION to find the article's main points. You skim read material to get the general picture. You scan when looking for specific information. You may need to find specific details on a topic for an assignment or a task that your lecturer has set. There is little point in skimming a whole book for this purpose. You should scan the text for words related to your topic. Run your eyes down the page looking for these expressions – in chapter headings, sub-headings, or in the text itself. Sometimes you might need a very detailed understanding of a concept. This kind of reading is always more time consuming, but it can be combined with skimming and scanning for greater efficiency. By reading the INTRODUCTION first and then the CONCLUSION, you gain an overview of the author's main points, then read the RESULTS and DISCUSSION sections, or the middle text for the details based on your identified purpose and keywords. If the text you are reading is photocopy, on a screen or your own hard copy – highlight and transfer the concepts to your notebook and add your own comments or questions. Paraphrase the information for your assignments rather than just copying and pasting.

What do you think about this statement? Do you think that reading each book or article or website once is enough? Yes, reading each book or article or website once is enough - sometimes. Let's look at why. When trying to understand a concept sometimes it is easier to skim a number of documents to gain an overview of the main ideas being discussed. You may find that one of the readings is not as relevant to your topic as you first thought. In this case you do only need to read it once. However, once you find a source that is relevant to

your purpose and topic then you may need to re-read it a couple of times by scanning for key words and then a detailed close reading of the main concept.

Video 2.2 - Part 2 - (03.14 – 04.18)

What do you think? Do you need to read journal article, textbooks and web sites the same way? True or False? Well, both answers are right – why? Because it depends on your purpose which will help identify your approach. You have always read for content. Try now to also read looking at the structure. How has the author constructed their work? Look at the subheadings, diagrams, tables. Then read looking at the language used. Try making a glossary of new or discipline specific words. What sentence starters or verbs are commonly used? The structure and language that you note down can also be used in your assignments. Finally, what are the main things to remember when starting your reading? Be clear about your purpose and what you are trying to achieve. Choose the best strategy of skimming, scanning or close reading and then you will be more efficient with your reading and find more relevant information. Happy reading!

Unit 3

Video 3.1

Life after death by PowerPoint

by Don McMillan

There's some things I hate about PowerPoint and I think it's kind of my duty to point them out. So, here we go. There's common PowerPoint mistakes:

Number 1 – people tend to put every word they are going to say on their PowerPoint slides. (Applause and laughter) Although this eliminates the need to memorize your talk, ultimately this makes your slides crowded, wordy and boring. You'll lose your audience's attention before you even reach the bottom of your… first slide. Please don't do that anymore. Please.

Number 2 most common – Many people do not run spell check. Big mistake! Nothing makes you look stupider than spelling errors. If it's got a red line under it, recheck the spelling. And finally I hate this – avoid excessive bullet pointing. Only bullet key points. Too many bullet points and your key messages will not stand out. In fact the term "Bullet-Point" comes from people firing guns at annoying presenters. Hence the bullet point.

Bad colour schemes – not good. Clashing background and font colours can lead to: distraction, confusion, headache, nausea, vomiting and loss of bladder control. I can't stand that one too long.

Here's something I've noticed. The number of PowerPoint slides you have in your talk the less useful your talk actually is. Unfortunately my presentation is right there. I've also noticed this – people love to pack data in their presentation. And they show more and more data thinking it's better but it's not. The more data you have the harder it is to read your slide and the effectiveness plummets. Now you can improve the effectiveness by adding some shading and some 3D effects, and then some second order and third order effects. And I know let's add some labels, that'll help a lot. And that's pretty much every marketing slide I've ever seen right there. That's some like VP of Marketing standard and it's really clear in Q4. What the hell are you talking about?

Now I'm into an animation. People become animators in PowerPoint – you can have things flying all over the place and that can be good. If you are a visual learner, that will improve the effectiveness of your performance. But if you are easily distracted, more animations and people have no idea what you're talking about. They're just… wow. That is cool! Wow! And there's regions here by the way. There's the simple but effective region. There's the active but confusing, the effective but boring, the active but ineffective, the dull but static region, the busy but useless, the useful but abusing, the stupid but confusing. Triangle, hyper triangle, the sleepy square, the dizzying pentagon and everything else I just call pointless motion. That slide took me an hour and a half to make. PowerPoint can just suck life out of you. It's amazing!

I've also come up with this – it's a kind of a little science I've invented called Font Analysis. Basically, the font you choose says something about who you are as a person. There's a huge list of fonts and you choose one, and that says something about you. So be careful.

The font you choose … for example if you choose Courier New, it happens to be my favourite – you're probably organized and structured. If you choose Matiss it means you're artistic. And if you choose Times New Roman it means you're lazy, apathetic and unimaginative. And actually you always use the default.

Video 3.2

Creative Presentation Ideas

by Mike Ploger

The first on our list is simple and quite frankly it makes your life easier. Have you ever heard: "Less is more"? Well, being minimal is just there. You find just the right amount of visuals and information to get your point across without overdoing it. Look at these slides here. They look clean; they make you feel at ease. Too much information or visuals everywhere can create the opposite effect. The trick – not being boring you must find the right balance between simple yet intriguing.

Now, one rule that people often break is having one standard transition between slides. I get it. You want to be creative and have fun when creating your slides but do your audience a favour and have all of your slides transition horizontally just like we have here. Whatever you do, don't have one transition moving upwards, the next backwards, the next faded in. You get the point. By having one unified transition style you create a flow that will be easy for your viewers to adjust to. And why keep it to just your slides? Once you're comfortable try adding horizontal transitions through text and visual elements as well - for added appeal.

When your presentation starts to become flooded with information, a good idea is to throw in a slide of a related quote. It helps break up your presentation giving your viewers a breather of sorts. Think of it as a commercial on TV. Just make sure that the quote fits in with the rest of your presentation. It's supposed to be breather not a range confusing your onlookers.

Unit 4

Video 4.1

Body language for presentations

by Alex Lyon

When we stand and present, we want to come across as confident and composed. And one of the great ways to do that is by working on your body language. Let's look at three ways to improve your nonverbal body language in presentations. Coming up.

Hello again, friends. If you've never seen one of my videos, I'm Alex Lyon and this channel, Communication Coach, is here to help you increase your impact so you can lead your teams to higher levels of excellence. I believe that presentation skills are a really important part of leadership. You're going to be standing and presenting quite frequently if you're in any kind of leadership position. So, we want to get just a little bit better at this.

Let's look at three ways you can improve your nonverbal body language so that people can hear your message in a much more confident and composed way. And these tips by the way go together. So, each of the three tips have a couple of pieces as you'll see.

So, **the first tip** is eye contact and smile. So, eye contact - you have to look directly into somebody's eyes that's listening about 99% of the time. You don't want to look too much at your notes, you don't want to look back at your slides really, you certainly don't want to look at the floor or over their heads - a lot of bad habits out there in terms of eye contact. You want to look directly into somebody's eyes almost the whole time and that really takes quite a bit of practice. The other thing you want to do is to look directly into somebody's eyes long enough to finish a thought and then move on to the next person. So, you don't want to just stare at one person the whole time and you don't want to scan so that you're never locking in. A communication coach actually once told me, "One thought, one look." So long enough to finish about a sentence, feel that connection, and then you move on to another person.

So, what do you do with your face while you're making eye contact? You've got to smile. A lot of times people get overly robotic when they present. They might be making good eye contact, but their face is stern, and it doesn't look like anything is happening emotionally. You want to smile and warm your face up a little bit so that when you're making eye contact with somebody, they feel a connection with you that's welcoming and supportive. You don't want to come

across as a deer in the headlights.

Tip number two – posture and gestures. And these things go together. So in terms of what not to do for posture, you don't want to shuffle your feet back and forth, you don't want to sway your hips, you don't want to cross and uncross your legs repetitively, you don't want to pace around like a wild person. By the way, if you want to walk in a presentation, it's okay – walk a little bit but make sure, when you walk you stop, and you say a little bit before you walk again. So, walk with a purpose, stop, share your message, and then maybe a minute or so later walk again. Don't pace. So, once you have these don'ts out of the way, what should you do? You want to stand with your feet about shoulder width apart. This is how you would stand if you weren't self-conscious about how you're standing. We get self-conscious when we present but really all you have to do is stand like a normal person. Then you want to put just a tiny bit of weight on the front of your foot and a little tiny bit lighter on your heels. And your whole foot is still touching, but you have a little bit more of a ready responsive position. You also want to soften your knees a little bit; you don't want to have locked knees. Bad things happen when you lock your knees. I'm not sure of the physiology of it but when people lock their knees, they oftentimes pass out when they're nervous. And you don't want to do that in the middle of your presentation. So, soften those knees.

Now you've got your posture, let's add some gestures to it. You don't want to put your hands in your pockets, you don't want to put your hands behind your back, you don't want to grab on to different parts of your body for security. All that looks very distracting. So, here's what should do: you should loosely clasp your hands at about belt level and then you should just gesture naturally from there. You don't want to interlock your fingers; you don't want to wring your hands because then you'll get too locked in and it's hard to let go. But if you practice at home just loosely clasping your hands like this, then just start to gesture naturally from here and that's the way to do it. Small little gestures just like this, you can do this all day long and it's just going to add a nice emphasis to your words and it's not going to be distracting whatsoever.

Tip number three – you want to pause. And when you pause after a key idea, add a little tiny bit of a nod. I've seen some really convincing and persuasive speakers do this. And what you'll notice if you pause after a key idea and nod – that pause is really persuasive, but the nodding is contagious. You'll see that people listening to you actually start to nod a little bit with you. And that's one of the ways that you know you have them. It's a very subtle but powerful nonverbal body language tip. So those are my three tips for improving your nonverbal body language when you are presenting. But I'd like to hear your tips.

Video 4.2

Presenting and public speaking tips

by Rachel Willis

We've worked in the live events and production industries for over forty years and have worked with hundreds of presenters all over the world. In this video we are going to share with you out top ten tips – guarantee to make you a better presenter. So let's get started.

Number one – focus on the audience. You presentation is not about you, it's about the audience. What benefit will the audience get from listening to you? What do you want them to think, feel and do as a result of listening to you? Once you have these clear objectives in your mind, you are on your way to delivering a winning presentation.

Number two – delete all excess text from your slides. Loads of bullet points on your slides are a complete waste of time. Nobody actually reads them. The brain is a self-organizing mechanism. If you use slides like these you're sending a signal directly to the audience to start daydreaming. Your slides are not your speaker notes. Use powerful images and pictures; they are much more effective in getting your message across.

Number three – Keep it simple! Less really is more. Get used to cutting out material, include in your presentation only what really matters. This is a difficult process but think back to point one. What do you want the audience to think, feel and do? If your content doesn't match your answers to these questions, cut it out. Use the same language that you'd use while explaining your presentation to a friend in a local pub

over a pint and try to use simple wording too to make your content clear and easy to understand. Rules of three can be really effective.

Number four – rehearse. Always, always rehearse! The biggest single difference a presenter can make to their performance is to stand up in front of the bathroom mirror and rehearse. If you are serious about success, then you need to get serious about rehearsing. And if you don't prepare, then prepare to fail.

Answer key

Unit 1

Task A

1. D **2.** H **3.** B **4.** E **5.** A **6.** C **7.** J **8.** G **9.** F

Task B

1. F **2.** D **3.** E **4.** H **5.** A **6.** G **7.** C

Task C

1. distinct **2.** to be comprised of **3.** optional
4. to analyze **5.** to anticipate **6.** to determine
7. portion **8.** to contribute to

Task D

1 – C **2** – F **3** – E **4** – D **A&B** – distractors

Task E

1 – A, E **2** – C, D **3** – B, C, D, E **4** - C

Task F

1. ability **2.** quality **3.** knowledge **4.** to improve
5. communication **6.** poster **7.** accurate

Lexical bank

Task 1

1. scientific papers
2. to have the same general format
3. the number and the headings of sections
4. to quickly locate a specific type of information
5. contain the data collected during experimentation
6. in the form of tables and graphs
7. to carefully analyze the raw data in tables and figures
8. to draw your own conclusions
9. to describe the theoretical background
10. to address any possible objections
11. to suggest areas of improvement for future research
12. interesting and relevant for your project
13. to describe both specific techniques and the overall experimental strategy
14. to contain information in greater detail
15. to be of interest to a few people working specifically in this field
16. to contain brief statements of the purpose, methods, results and conclusions of a study
17. the most widely read portion of a scientific paper
18. to provide financial support for the study

Task 3

1. knowledge
2. implications
3. readers
4. composing
5. reputable
6. researchers
7. introduction
8. reviewer / reviewers
9. attractive
10. essence

Unit 2

Task A

1. true **2.** false **3.** true **4.** true **5.** false **6.** true
7. false **8.** true

Task B

1. b **2.** h **3.** g **4.** d **5.** f **6.** a **7.** c

Task C

1. to skim **2.** familiar with **3.** to encounter
4. to distinguish **5.** essence **6.** primary **7.** expository
8. to decipher **9.** endeavor / endeavour

Answer key

Task D

1 – C **2** – G **3** – A & F **4** – D **5** – E **6** - B

Task E

1. likely **2.** nature **3.** specialist **4.** colleges
5. graduate **6.** primary

Lexical bank

Task 1

1. to skim the paper
2. take a look at the references
3. be represented in the citations
4. to read the abstract
5. types of scientific papers you are most likely to encounter
6. to read a mathematical paper and work through each proof
7. to read with a pen in hand
8. a specialized dictionary may be necessary
9. to determine the level of the relevance of the paper to your research interests
10. almost every field of human endeavor
11. report on the results of experimental studies
12. written in a theorem-proof style
13. to develop mathematical tools that are important in analyzing multiple applied problems
14. to rely on computer simulations
15. to set forth hypothesis to describe observed data
16. provide a broad, sometimes detailed, overview or summary of work in a given area
17. total lack of technical detail and lack of reference to the primary literature
18. include transcripts of talks

Task 3

1. eliminate
2. promising
3. automated
4. generously
5. investment
6. accuracy
7. different
8. user
9. neural
10. analyzes BE / analyses AE

Video 2.1

Reading approach	Purpose	Description of the reading process
1. Skimming	to gain an overview of the main idea of the article	read the abstract, the introduction and the conclusion, reading only once could be enough
2. Scanning	to look for specific information, to find specific details on a topic for an assignment or a task	scan the text for words related to your topic in chapter headings, sub-headings, or in the text itself

Answer key

Reading approach	Purpose	Description of the reading process
3. Close reading	scan the text for words related to your topic in chapter headings, sub-headings, or in the text itself	always more time consuming, can be combined with skimming and scanning for greater efficiency, highlight and transfer the concepts to your notebook and add your own comments or questions. You may need to re-read it a couple of times

Video 2.2

1. web sites **2.** identify your approach
3. their **4.** diagrams **5.** discipline specific
6. sentence starters **7.** note down
8. things to remember **9.** trying to achieve
10. relevant

Unit 3

Task A

1. C **2.** E **3.** F **4.** H **5.** A **6.** G **7.** B **8.** I

Task B

1. G **2.** F **3.** E **4.** A **5.** C **6.** B

Task C

1. powerful **2.** tool **3.** audience **4.** efficiently
5. to obscure **6.** handy **7.** to emphasize **8.** irrelevant
9. sufficient **10.** to distract

Task E

1. slide show **2.** USB flash drive **3.** remote control
4. handouts **5.** support **6.** complex

Lexical Bank

Task 1

1. computer-based presentation software
2. communicate ideas and results to an audience
3. to use the software more effectively and more efficiently
4. some points for consideration as you prepare for scientific presentations
5. hard to read fonts
6. overusing bullet lists
7. require careful planning and preparation
8. the most important element of a successful presentation
9. animated graphic images
10. direct attention to items on a slide

Task 2

1. clarity
2. visual
3. ensure
4. minimum
5. continuing
6. patterned
7. readable
8. consistently
9. underlining
10. personality / personalities

Answer key

Task 1

11. slides cluttered with too much or irrelevant information

12. to know your room layout ahead of time

13. to advance your slides without having to be tied to the computer keyboard

14. limit the use of decorative fonts

15. to preview a slide in gray tones to see if there's enough contrast without color

16. to use a single subtle transition effect between slides throughout the presentation

17. to mix bullet lists with graphics, charts, or other types of slides

18. to load your presentation onto the computer and to make sure it works properly

Video 3.1

1. Too much information on a slide ✓- *3*

2. Hard to read fonts ✓- *5*

3. Color ✓- *2*

4. Overusing bullet lists ✓- *1*

5. Animations ✓- *4*

6. Slide transitions ✗

7. Pointing tools ✗

8. Equipment used for presentation ✗

Video 3.2

1. feel at ease **2.** the opposite effect **3.** balance
4. people often break **5.** favour **6.** horizontally
7. upwards **8.** unified **9.** viewers **10.** commercial

Unit 4

Task A

1. B **2.** B **3.** C **4.** D **5.** A

Task B

1. D **2.** C **3.** A **4.** F **5.** B **6.** G

Task C

1. development **2.** to enlighten **3.** knowledgeable
4. imaginary **5.** complicated **6.** irrelevant
7. incomprehensible **8.** ignorance **9.** occasion

Task D

1. select **2.** headings **3.** pause **4.** emphasize
5. stages **6.** reason **7.** contrast **8.** example

Lexical Bank

Task 1

1. the weekly colloquium in mathematics department

2. to learn about developments in mathematics outside of their own area

3. succeed in enlightening the audience

4. extremely knowledgeable and enthusiastic about their subject

Task 3

1. credibility

2. warmth

3. powerful

4. approachable

Answer key

Lexical Bank

Task 1

5. not to address the real audience in the room, but an imaginary audience
6. know all the terminology in the field
7. remember the meaning of all the symbols introduced by the speaker
8. follow complicated arguments and calculations on the board with ease
9. two years of graduate study in algebra, analysis, geometry, and topology
10. particular branch of mathematics
11. irrelevant to the problem
12. communicate successfully with the real audience
13. discussion of some examples
14. some explanation of how the problem arises from the classical body of mathematics
15. avoidance of all but a few key calculations
16. ruthless elimination of most details
17. tensor field, complex manifold
18. an exciting and delightful occasion

Task 3

5. favourably
6. boring
7. facilitates
8. disinterest
9. criticisms
10. modulate

Video 4.2

1. to think, feel and do **2.** loads of bullet points **3.** daydreaming **4.** notes **5.** images and pictures **6.** cut out material **7.** simple wording **8.** prepare to fail

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Internet resources

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https://towardsdatascience.com/language-translation-with-rnns-d84d43b40571

https://yandex.com/dev/translate/doc/dg/concepts/how-works-machine-translation.html/

Video links

The Structure of Scientific Research Papers
https://www.youtube.com/watch?v=BAS9I4tFgV8

Efficient reading strategies
https://www.youtube.com/watch?v=M3aZNaPY88Y

Life After Death by PowerPoint (Corporate Comedy Video)
https://www.youtube.com/watch?v=MjcO2ExtHso

31 Creative Presentation Ideas to Delight Your Audience
https://www.youtube.com/watch?v=BuB7IhWZnJs

Body Language for Presentations
https://www.youtube.com/watch?v=TmbQFWBvTtY

Presenting and Public Speaking Tips - how to improve skills & confidence
https://www.youtube.com/watch?v=Q5WT2vweFRY

Illustrations

Pages 28-29 Author's own photos

All other pages – from Open-source illustrations https://undraw.co/search