Writing articles

Scientific writing and publishing intop-ranked journals

Dr. Dan Csontos

Dr. Nick Campbell

A training course provided by Macmillan Scientific Communications in collaboration with the Russian Venture Company

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Публикации международного уровня: практические рекомендации

Казанский научный центр РАН, г. Казань

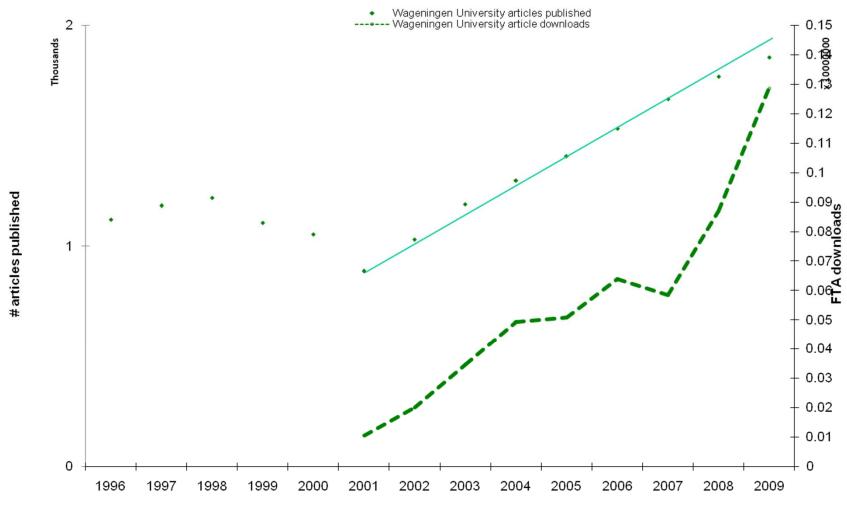
Галина П. Якшонок, Руководитель партнерских программ Elsevier в России и Беларуси

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Зависимость опубликованных работ от количества прочитанных статей



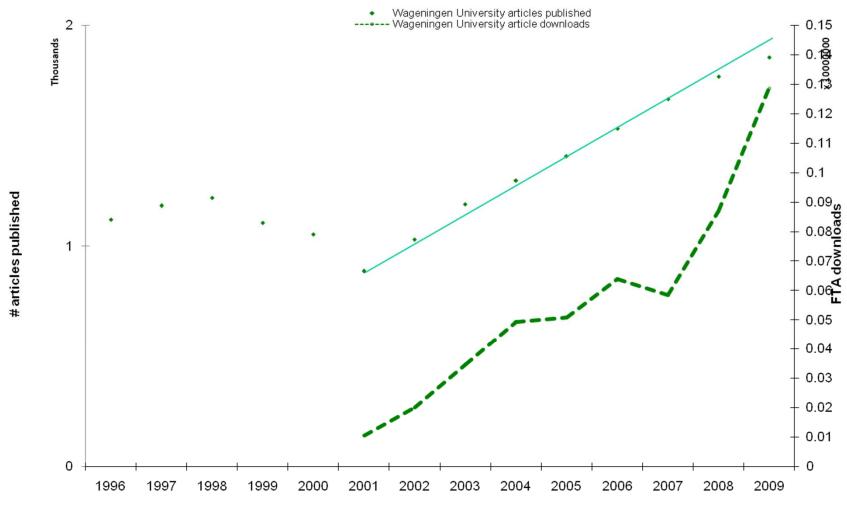


Source: Scopus and

ScienceDirect



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- By the end of this course you should be able to:
- Understand successful science writing techniques
- Know how to organize, outline and plan papers
- Be able to construct effective sentences and paragraphs
- Understand the elements of a paper and what they should contain
- Understand journal editorial processes and the peer-review system
- Know how to submit and publish papers
- Be aware of ethical issues associated with science writing and publishing
- Have an insight into what it takes to get published in top-ranked journals

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- How many of you have written a paper?
- How many have published a paper?
- How many have published in English?

Hands up.

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Публикуйтесь, если...

Публикация одна из необходимых составляющих, включенных в научно-исследовательский процесс

Публикуются:

- Для представления новых или оригинальных результатов или методов
- Для рационализации (уточнение или иная интерпретация) опубликованных результатов
- Для обзора области исследования или подведения итогов по определенной теме исследования
- Для того, чтобы расширить, не повторять!, знания и понимание в определенной, специфической области

Не надо публиковаться, если ваша работа:

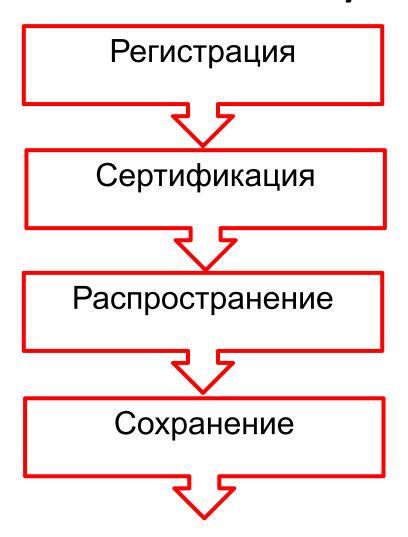
- Отчет не имеющий научного интереса
- Устаревшая
- Дублирование ранее опубликованных работ
- С ошибочным/не применимым заключением

Вам нужна ХОРОШАЯ статья для представления вашего вклада в научное сообщество

- How many of you have written a paper?
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Hands up.

Зачем публиковаться?





Два способа заявить о себе



Скорость публикации

Для некоторых авторов, скорость прохождения процессов рассмотрения статьи, рецензирования и редактирования является определяющей в выборе журнала

От подачи до принятия (недели)	От подачи до появления онлайн	От подачи до печатной версии
	(недели)	(недели)
22.6	31.4	47.3

Редакторы многих журналов предлагают процесс «Быстрого отклонения» ("Fast Rejection")

Метрики оценки для авторов

1-й год	5 лет	10 лет
Молодой ученый еще не публиковался	Молодой ученый публикует рецензируемые статьи	Ученый достиг «исследовательской независимости»
Проверка результатов и рецензии	С небольшим количеством статей метрики основанные на средних показателях могут не отражать полное представление об ученом. Лучше обратить внимание на активность чтения, использования, метрики журналов (IF, SJR или SNIP) или сотрудничество	Достаточное количество работ для мониторинга значимого h-index. А также подсчет количества и цитируемости, сравнение и соотношение цитируемые\не цитируемые документы

Think well ahead

- The publishing cycle starts with the experimental results and their importance – think about possible journals to submit to from then
- For publication in high-impact journals you need to be careful about publishing preliminary results too soon
- Resist temptation for quick publication
- Note: conference presentations on the content of your unpublished paper are typically alright, and many journals are also preprint servers
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Выбор типа публикации

Conference paper:

- Обычно 5-10 стр., 3 рисунка, 15 ссылок
- Подается организаторам конференции
- Хороший способ для начала научной карьеры

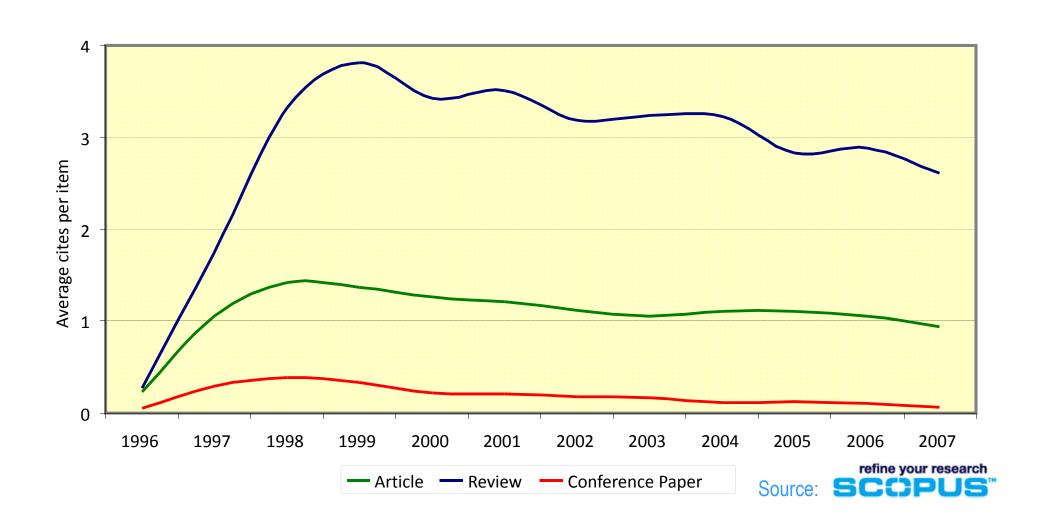
• Full Article:

- Стандартный формат для распространения завершенных научных изысканий
- Обычно 10-30 стр., 6-8 рис., 25-40 ссылок
- Подается в редакцию соотв. журнала
- Хороший способ для построения научной карьеры

Review paper:

- Критическое обобщение какой-то исследовательской темы
- Обычно от 10+ стр., от 6+ рис., 80 ссылок
- Обычно готовится по запросу редактора
- Хороший способ укрепления научной карьеры

Цитируемость по типу документа



Outline of the day Anatomy of **Planning** Outlines Motivation a paper Paragraphs Sentences Writing Type of Flow writing Science writing and publishing Fabrication Misconduct **Ethics** Citation Plagiarism **Practices** Choosing a Submitting a Editorial journal paper processes **Publishing** Publishing Getting Inside NPG accepted today

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- 09:15 Taking research from bench to paper
- 09:45 Elements of style and presentation
- 11:00 Deconstructing a paper
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How to write scientific papers

Start early!

"Nothing beats a comprehensive, thought-out experiment. Do that upfront and your writing will come much more easily."

Mark Blumberg, neuroscientist at University of Iowa and editor-in-chief of Behavioural Neuroscience

Steps to a great paper:

- Thoughtful research
- Thorough preparation
- Logical presentation

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Taking Research from Bench to Paper

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- "To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science."—

Albert Einstein and Leopold Infeld (1938)

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Idea

- Review and research previous work
- Identify the major questions
- Prepare a starting hypothesis
- Decide your approach: prove, disprove or provide supporting evidence
- Design your methodology
- Establish controls
- Collect and record your data
- Analyze and Interpret

KEEP THE PAPER IN MIND THROUGHOUT!

Idea

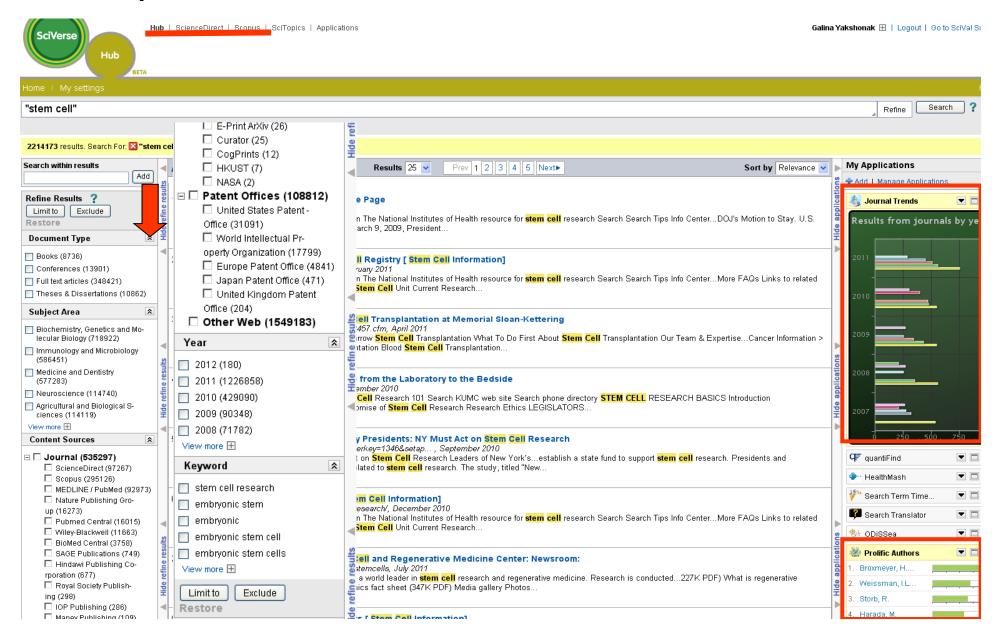
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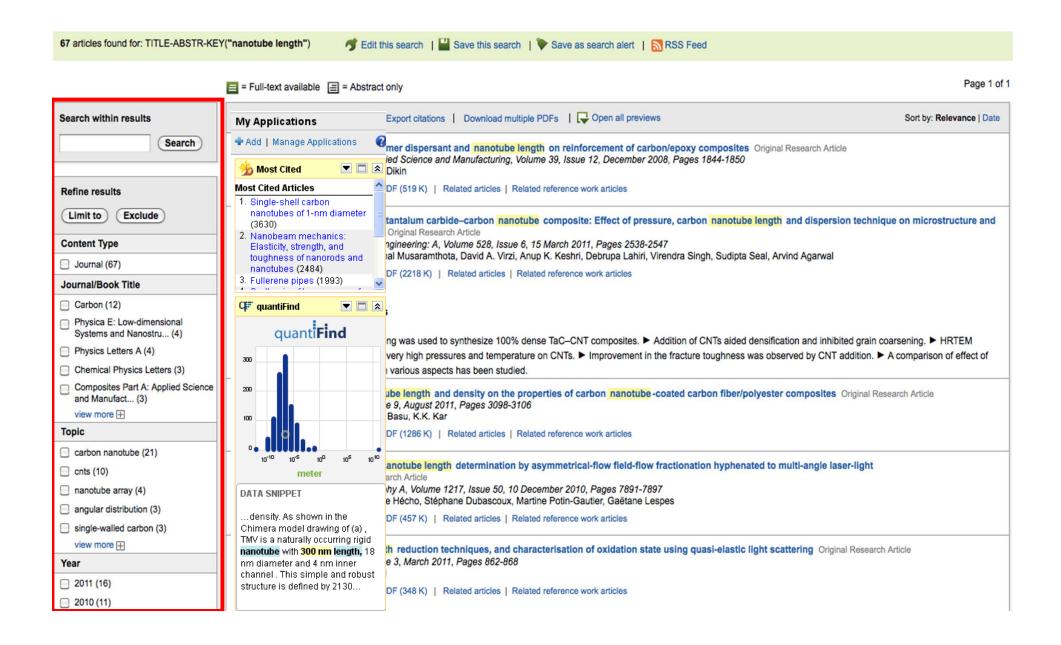
- Make frequent notes great raw material
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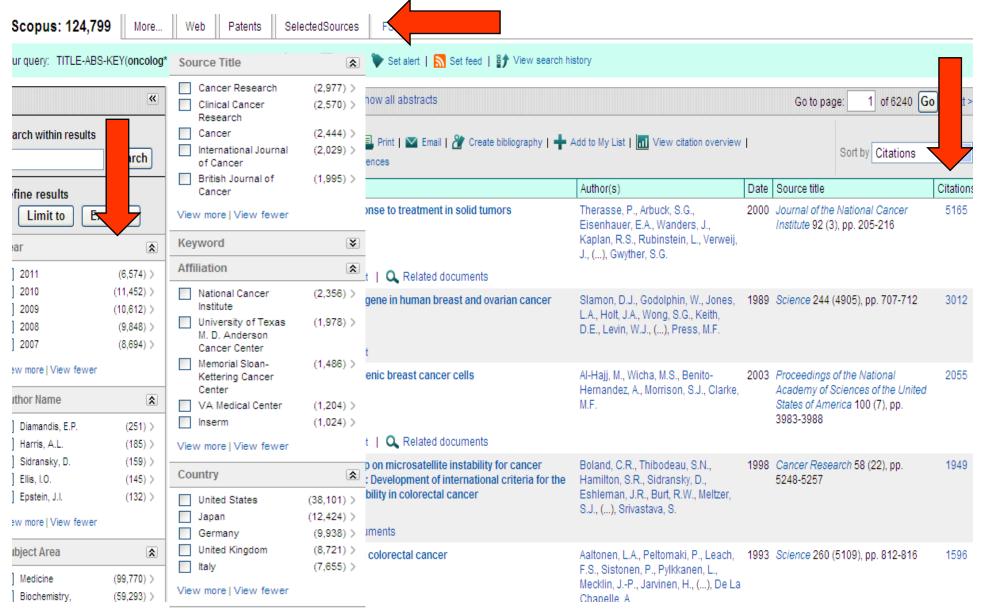
Обзор исследований по вашей теме: HUB



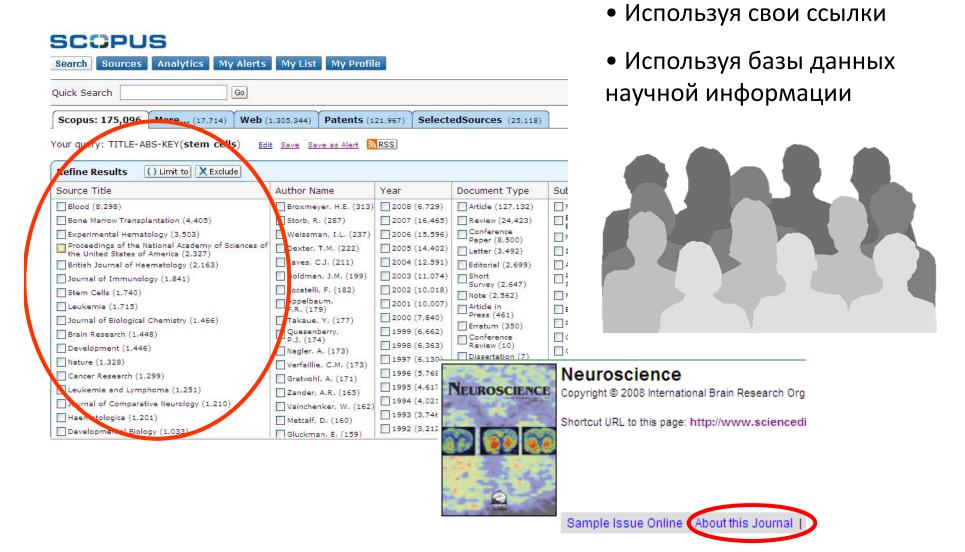
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Обзор исследований по вашей теме: Scopus



- Choose a focus for the manuscript
- Choose an audience
- What is the main message?
- Have you asked a good scientific question?
- Is the science original?



- Re-evaluate all the original data, not only data for publication figures
- What was thought / known / done before this work?
- How does the new data change thinking or support existing ideas?
- Does it open new avenues of research?

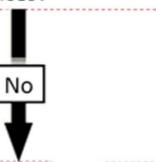
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Plan your paper



- 1. Create an outline
- Create the main figures the backbone of the paper
- List all ideas you want to include in the paper

Do you have a coherent story, substantiated by the results and references?





- Revise outline
- Revise figures
- Revisit ideas
- Perform more experiments if needed

Start writing!

Key questions

- What is the broader context of your work?
- What have you achieved in this context?
- How did you do it?
- What is the impact of your work?

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- Just start from the beginning
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- Ask the hard questions: why am I doing this?
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Elements of Style and Presentation

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General rules

- The ABC of writing style Be Accurate Be Brief - Be Clear
- Clarity Write for your reader and write clearly – Do not over-explain and avoid overstatement - Be accurate
- Language and grammar Use plain words and avoid jargon - Avoid long sentences - Use tense consistently through the paper

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Accuracy

- Avoid vague language
- Be precise

Original

This time of the year Florida is hot.

Improved

The average temperature in Florida during August is 30 degrees Celsius.

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Conciseness

- Less is more
- If you can say it with fewer words, do so

Original

We prepared our experiment thoroughly and the apparatus was cooled down with great care to 4 K.

Improved

The experimental apparatus was cooled down to 4 K.

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Conciseness - redundancies

- Redundancies:
- (already) existing
- (alternative) choices
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- (completely) eliminate
- (continue to) remain
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- (empty) space
- has done (previously)
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Conciseness – writing zeroes

- 'Writing zeroes':
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Sentences consist of SUBJECT, VERB and OBJECT

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Active versus Passive voice

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The data shows ...

VS.

It can be seen from the data ...

 Passive voice: - when subject undergoes the action of the verb- use when agent is not important - sometimes suitable for data and methods section

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Topic versus stress positions

Beginning of the sentence—topic position Introduce the subject of the sentence first Contains old information (context) - Links us
 backward

Bees disperse pollen ...(is about bees)

Pollen is dispersed by bees ... (is about pollen) • End of the sentence—stress position - Point of closure - Receives special emphasis - New information

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Transitional devices – sentences and paragraphs

- Sequence: again, and, besides, then, further, in addition ...
- Comparison and contrast: despite, in contrast, conversely, unlike, but ...
- Examples: for example, to illustrate, in this way, specifically ..
- Time: while, presently, by, throughout, during, usually ...
- Cause and effect: therefore, thus, consequently, because, despite.

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- Fundamental organizational unit
- One theme per paragraph
- Adequate ordering and relationship between sentences creates coherence
- Use transitions between paragraphs
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 - B. White, Pearson/Longman (2009).

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- Abstract The next 'hook', stand alone
- Introduction Set the scene; summarize the background; make the case; state the purpose
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- Results Include all the key information, honestly presented, appropriately analyzed, with commentary, clear useful figures and tables
- Discussion How does this build our knowledge
- Conclusions/Outlook The take-home message, impact
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Язык

Придерживайтесь ясности, четкости, объективности, точности, краткости

Используйте научный язык

• Пробуйте делать записи на английском при любой возможности, напр. во время исследования

Обратите внимание на:

- Последовательность предложений
- Логику высказываний
- Грамматику, правописание и опечатки

Используйте прямые и краткие предложения

В среднем 12-17 слов

Одна мысль – одно предложение. Избегайте нескольких утверждений в одном предложении

Избегайте использования **пассивного залога, союзов** (e.g., "because..., so...", "Although..., but...")

Избегайте сложноподчиненных предложений

Избегайте **смеси разного уровня параллелизмов,** связанных союзом «и» в одном предложении

Избегайте **использования незнакомых слов, сокращений** (кроме общепризнанных), **жаргона,** сленга, **замены букв цифрами** (напр. "Obviously")

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- –Repeat experiments
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Nature style:

- Abstract
- Introduction
- Presentation of results
- Outlook (no conclusion)
- Methods
- References

- Title
- Abstract
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- Results
- Discussion
- Methods
- References
- Acknowledgments
- Author contributions
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Несколько технических аспектов

Размер рукописи:

• Идеально в 25-30 страниц, включая только основной материал.

> Title page

Abstract1 параграф

► Introduction 1.5-2 cτp.

Methods2-4 стр.

➤ Results and Discussion 10-12 стр.

➤ Conclusions 1-2 ctp.

Figures 6-8Tables 1-3

References20-50 работ

• Письма и краткие сообщение имеют более строгие ограничения.

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Figures 6-8Tables 1-3

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• Письма и краткие сообщение имеют более строгие ограничения.

Variations on a theme

Abstract - Introduction — Presentation — Outlook - Methods - References

- Different publishers have different preferences
- Some prefer only very short introductions
- Conclusions sometimes in bullet point format
- Footnotes instead of references
- Large variations in lengths and number of allowed figures
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- The first (and hopefully not last) thing the reader sees of the paper
- Crucial on the web
- Needs to be declarative and self-contained
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- Abstract (50-300)
- Keywords
- Main text (IMRAD)
 - <u>Introduction</u>
 - Methods
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 - And
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- Conclusion
- Acknowledgement
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- Supporting Materials

- Заголовок должен привлекать внимание и отражать суть научной работы
- Ключевые слова в соответствии с Руководством для автора
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- Space for one key message only
- Be descriptive
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The Nature 'formula':

- write one or two general statements to set stage/context
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- Briefly state the key findings (try to mention 80% of the results by the end of the introduction)

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- Show error bars on graphs when possible
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- Обычно, в этой части допускается наибольшее число ошибок.
- Эта самая раздражающая редакторов проблема, вызывающая действительно сильную «головную боль»...
 - Включайте ссылки на работы, на которых действительно основывалось ваше исследование, ваша рукопись
 - Не раздувайте работу слишком большим списком ссыло это не улучшает вашу работу!
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Проверьте, что вы поблагодарили/отдали должное всем тем, кто помог вам в подготовке вашей работы

Включая отдельных людей:

- Спонсоров, финансовых помощников
- Корректоров
- Машинисток
- Тех, кто возможно предоставлял вам дополнительный материал, давал советы



- Последовательность развития темы в работе следует по общей схеме: общее → конкретное → общее
- Каждый раздел имеет определенную цель.
- Чаще пишут в следующе й последовательности:
 - Рисунки, схемы и таблицы
 - Методы, Результаты и Дискуссия
 - Заключение и Введение
 - Реферат и заглавие



Plagiarism and Other Ethical Issues

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Some ethical issues in science publishing

- Plagiarism
- Fabrication and falsification
- Duplication/self-plagiarism
- Inappropriate citation
- Image/data manipulation
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Даже в престижных журналах публикуется достаточное количество не цитируемых статей

Не все статьи журналов с высоким IF (напр. около 20% в Nature, Impact Factor= 32.2) цитируются!

†	Document (sort by relevance)	Author(s)	Date	Source Title	^ Cited By
1.	Threaded for degradation Abstract + Refs View at Publisher Full Text	Eggleston, A.K.	2005	Nature Structural and Molecular Biology 12 (12), pp. 1029	0
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11.	India makes waves over tsunami warning system Abstract + Refs View at Publisher Full Text	Jayaraman, K.S.	2005	Nature 438 (7071), pp. 1060+1061	0
12.	Diet book attacked for its high-protein advice	Dennis, C.	2005	Nature 438 (7071), pp.	0

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11.	India makes waves over tsunami warning system Abstract + Refs View at Publisher Full Text	Jayaraman, K.S.	2005	Nature 438 (7071), pp. 1060+1061	0
12.	Diet book attacked for its high-protein advice	Dennis, C.	2005	Nature 438 (7071), pp.	0

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- Contact information of the corresponding author
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ПИСЬМО

Professor H. D. Schmidt School of Science and Engineering Northeast State University College Park, MI 10000 USA

МУЮ

Dear Professor Schmidt,

Окончательное согласие соавторов

Enclosed with this letter you will find en electronic submi micromechanical entitled "Mechano-sorptive creep under compressive load model" by John Smith and myself. This is an original paper which has neither previously nor simultaneously in whole or in part seen submitted anywhere else. Both authors have read and approved the final version submitted.

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Пояснение важности исследования

Dr. Fernandez, Tennessee Tech, email1@university.com

Dr. Chen, University of Maine, email2@university.com

Dr. Singh, Colorado School of Mines, email3@university.com

I would very much appreciate if you would consider the manuscript for publication in the International Journal of Science.

Предложенные

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рецензенты

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How to get your Paper Published

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После подачи

Скорость рецензирования/реферирования может значительно отличаться в зависимости от журнала

— По данным Publishers Research Consortium, редакторы отмечак что в среднем продолжительность процесса «от подачи — до приня занимает 130-150 дней (18-22 нед.) Примерно ¾ редакторов (72%) отметили продолжительность до 6 месяцев. Это время уменьшаетс для медико-санитарных журналов и увеличивается для журналов гуманитарных и социальных наук.

• Редактор решит: "Accept", "Accept with Revision (Minor or Major или "Reject" вашу работу и уведомит в

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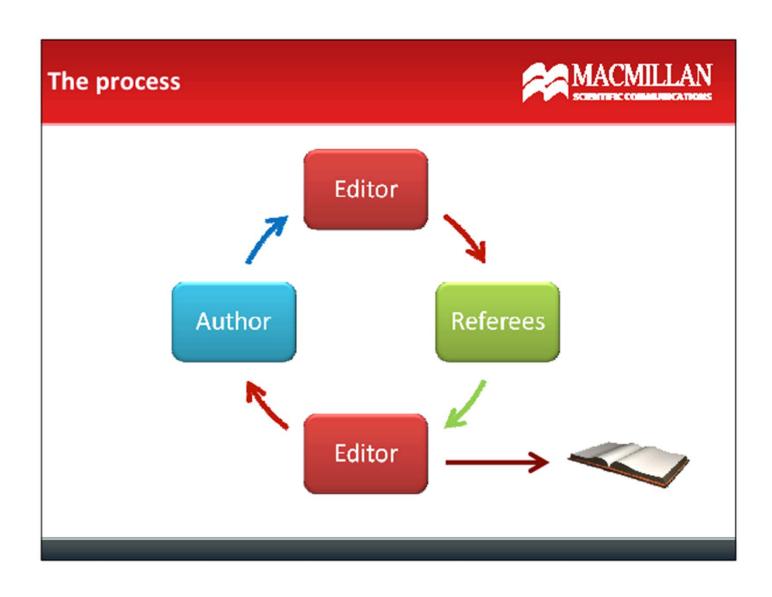
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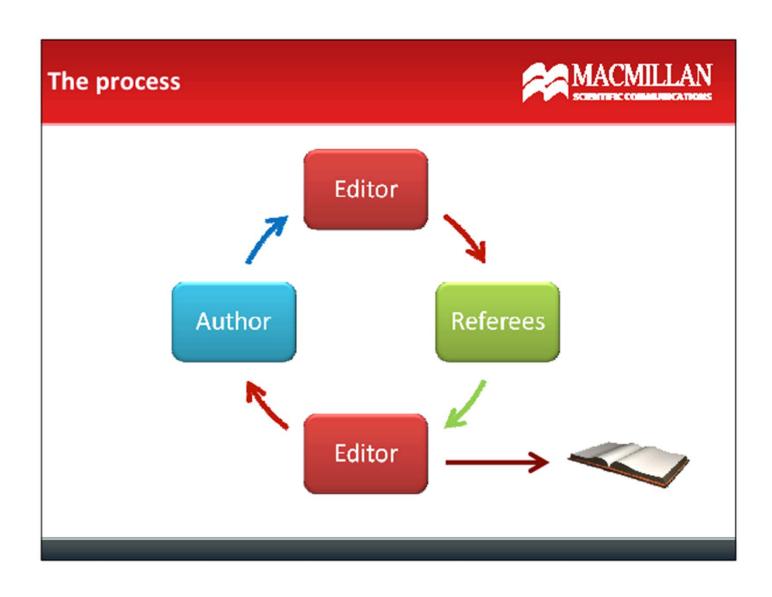
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The process



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Some numbers

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- 5-10%: fraction of papers accepted by leading journals
- 2-4: average number of peer reviewers per paper
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Einstein's only encounter with peer review! His response: Dear Sir,

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Peer review does not guarantee an equal level of standard!

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- Everybody gets bad reviews
- The iterative peer-review process strengthens the message and scientific content of papers
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Original research papers published:

nature

Year	No. submissions	No. papers published	% published
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2002	9,356	889	9.50
2003	9,581	859	8.97
2004	9,943	869	8.73
2005	8,943	915	9.77
2006	9,847	842	8.55
2007	10,332	808	7.82
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2009	11,769	803	6.80
2010	10,287	809	7.90



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Staying ahead

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Conclusions

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- Get and take feedback
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