

# Content

- ▶ How to read a research paper?
- ▶ Reasons to read a Scientific Paper
- ▶ Questions to Ask before selecting a Journal
- ▶ Finding the right journal to publish in.
- ▶ How to create your Academic profile



# How to Read a Research Paper (RRP)?

## ► Questions to ask while reading a research paper

It is important that you learn to read research papers **critically**, so here are some questions to ask yourself as you read and some **tips on reading**:

- **What** problem(s) are they solving? **Why** are these problems important?
- **What** did they really do? (as opposed to what the authors say or imply, they did)
- **What** is the contribution of the work? (i.e. what is interesting or new?)
- **What** methods are they using?
- **Would** you have solved the problem differently?
- **What** were the results? **Did** they fit together logically? **What** do you think they ought to do?

File

# Reasons to read a paper

- You were told to
- Describes current research
- Allows you to replicate/extend the results
- Provides you with useful data
- Gives you “pre-digested” thoughts
- To decide whether to publish it
- Teaches you how to write.

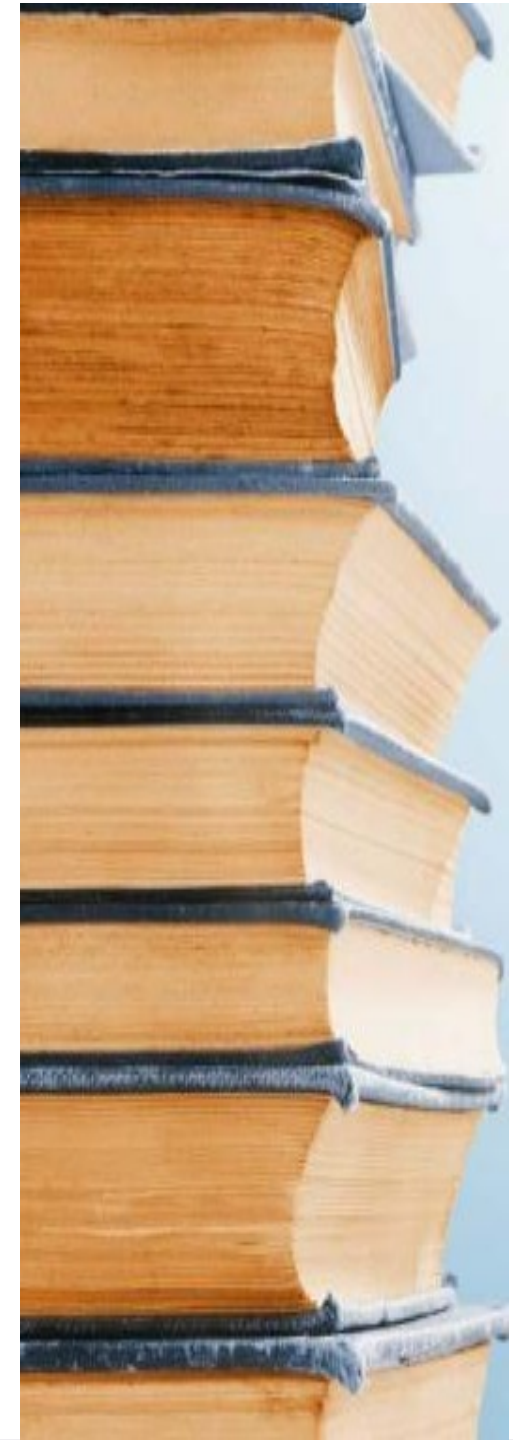


# Reading “mechanics”

- Remove distractions (Red Sox or paper - pick one)
- Take notes & save notes for future reference
- Jump around through the text, don't just read it like a Harry Potter book

# Types of papers

- **Theoretical**
  - prove theorems
  - describe new algorithms
- **Implementation**
  - describe new software tools
- **Experimental**
  - describe results of experiments
- **Survey/Review**
  - review current results in a field of research



# Types of papers/references

- Primary
  - actual description of the work/results reported
- Secondary
  - describe work/results of others
  - e.g. background section in most papers
  - survey papers
  - encyclopedias (e.g. Wikipedia)



# Venue

- First things first: Where was the paper published?
- If the work is similar to what you do, this should give you ideas about which journals/conferences you should target with your own work
- Over time, you'll learn to evaluate journal/conference quality based on the quality of papers you read.



How<sup>to</sup>  
**READ**  
<sup>a</sup> Scientific  
Paper



# How to Read a Scientific Paper

**Why?**



Why it's important for you to read the literature.

**How?**



How to make reading scientific papers as painless as possible.

**Anatomy**

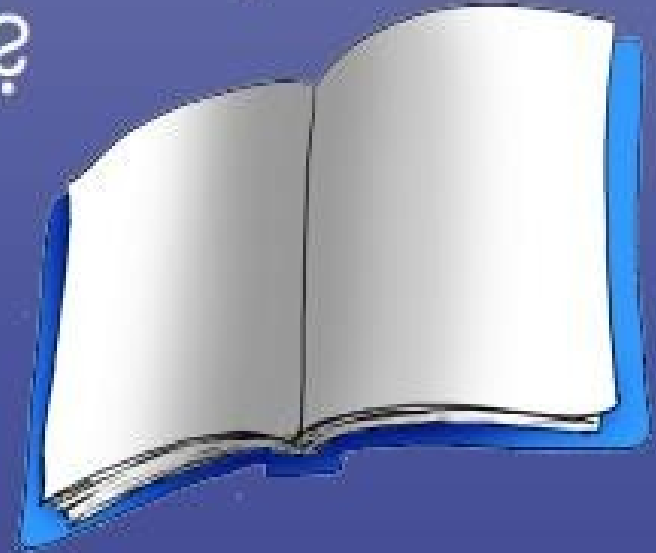


Everything you ever wanted to know... why it's there and what it's good for.

# How to Read a Scientific Paper

Why?

Does your professor just want to ruin your life?

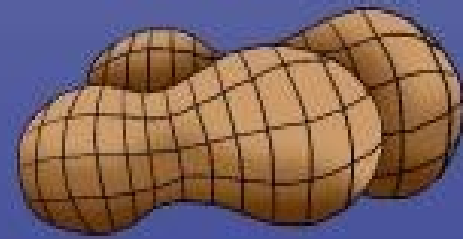


Or is there a good reason to read the literature?

# How to Read a Scientific Paper

How?

## From Soup to Nuts



How to make reading scientific papers as painless as possible.

# Why Read?

**It's Current!**



Textbooks can be years out of date by the time they are published. Journals tell you what is happening...

**RIGHT NOW!**

# Why Read?

It's Current!

**It Can Be Replicated!**



Popular articles and books give you general information and results. Scholarly journals give you enough information that **you could do the experiment yourself.**

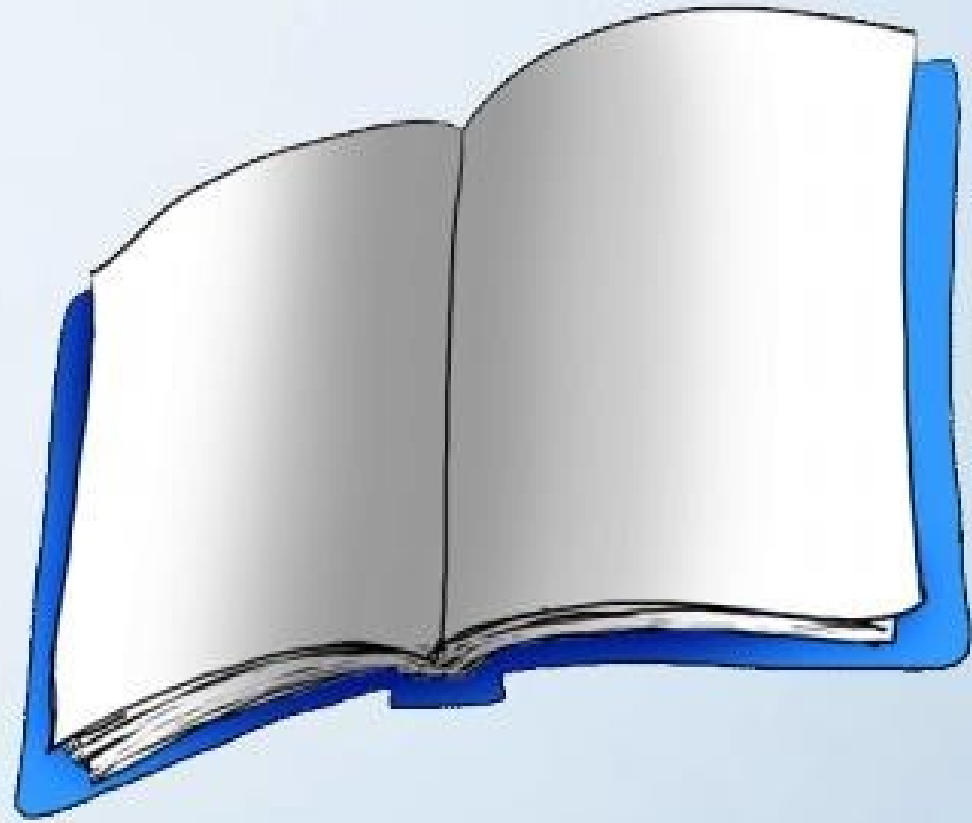
You can verify the research to see if you get the same results.

# Why Read?

It's Current!

It Can Be Replicated!

**It Has Actual Data!**



If you need to know **exact results or properties** for your own research...

Articles include actual data, uncertainties, conditions of the experiment, and much more.

# Why Read?

It's Current!

It Can Be Replicated!

It Has Actual Data!

**You Can Evaluate The Conclusions!**

**Do You Believe It... Or Not?**

Articles provide the authors' explanation of their results and conclusions. You can see their assumptions and determine whether you believe them or not.



# Why Read?

So, There You Have It...

## Current

It's the most up to date stuff

## Has Raw Data

Save time – use their results

## Replicable

I can redo the experiment myself

## Shows Logic

Do you believe it... or not?

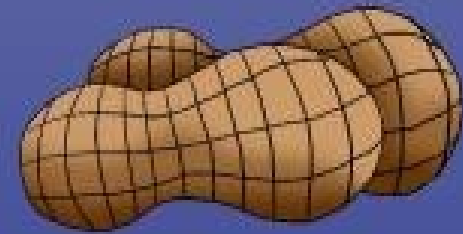
**All the Reasons to Read Scientific Papers**



# How to Read a Scientific Paper

How?

## From Soup to Nuts



How to make reading scientific papers as painless as possible.

*How To Read...*

**STOP**

**Don't Read Straight Through!**



**It's like walking through quicksand!**

# How To Read...

Before you read, you need the right equipment....



## A Scientific Dictionary:

- Look up terms you don't know.
- Try [www.AccessScience.com](http://www.AccessScience.com), for an online dictionary.



## Your handy-dandy notebook:

- Make notes so you'll remember your insights.



## Your friends and colleagues:

- Explaining to others will help you understand the paper yourself.

# How To Read...

Okay, all packed?



Then, let's go!

# How To Read...

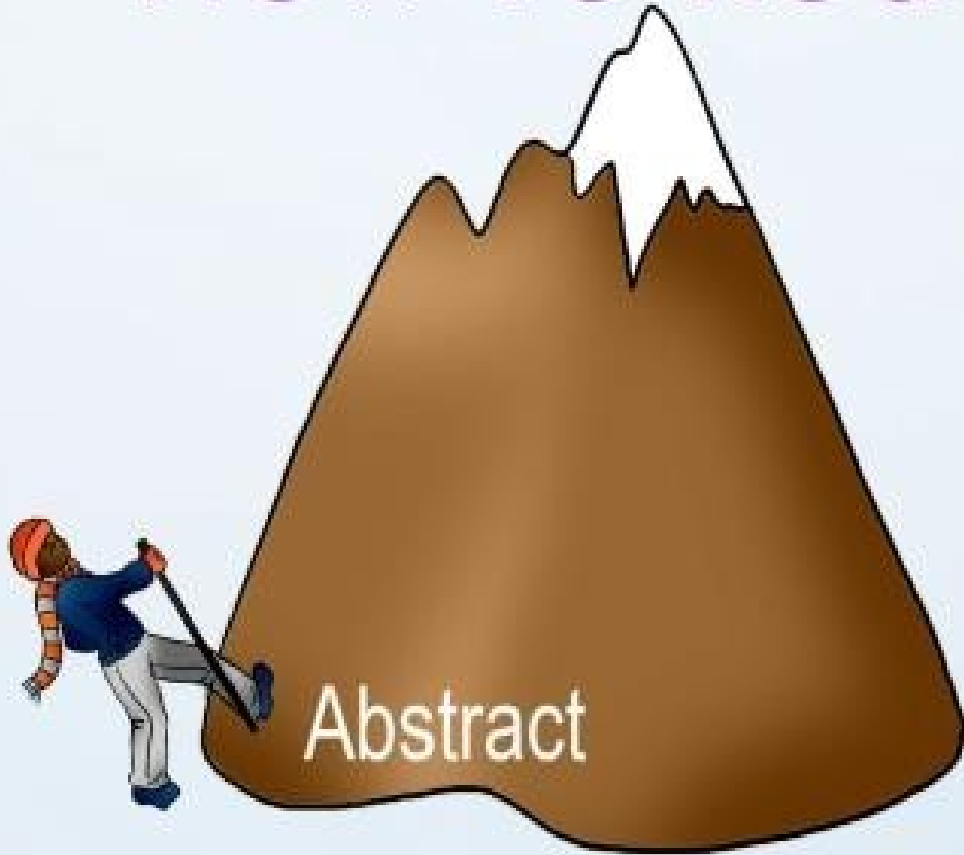


Okay, let's start our trip to understanding scientific papers!

In this section, we will read sections of a paper in the order that makes for **faster, more efficient comprehension** than reading the paper straight through.

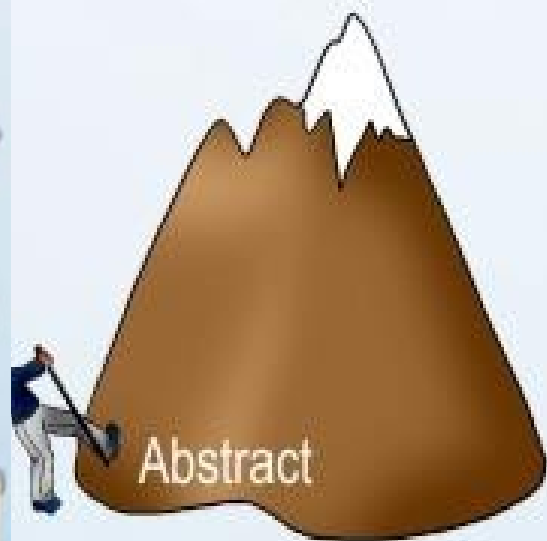
# How To Read...

Okay, let's start our trip to understanding scientific papers!



First stop, **The Abstract**

# How To Read...



Are All Apples Red?  
by  
Ida Cortland

**Abstract:**  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
**Introduction:**  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
**Methods:**  
XXXXXXXXXXXXXXXXXXXXX  
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**References:**  
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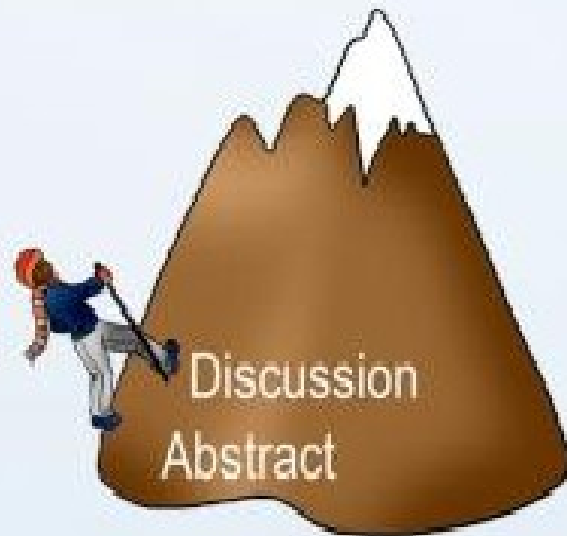


**Abstract:**  
We examined  
several apples'  
color. Although  
most are red, some  
are not.

**Abstract:** Tells you briefly **what** experiment **was done** and **what was found**.

**Question:** What *specific results* are mentioned? Are they *relevant*?

# How To Read...



## Are All Apples Red? by Ida Cortland

**Abstract:**  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX

**Introduction:**  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX

**Methods:**  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX

**Results:**  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX

Figure 1

**Discussion:**  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXX

**References:**  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXXX

### Discussion:

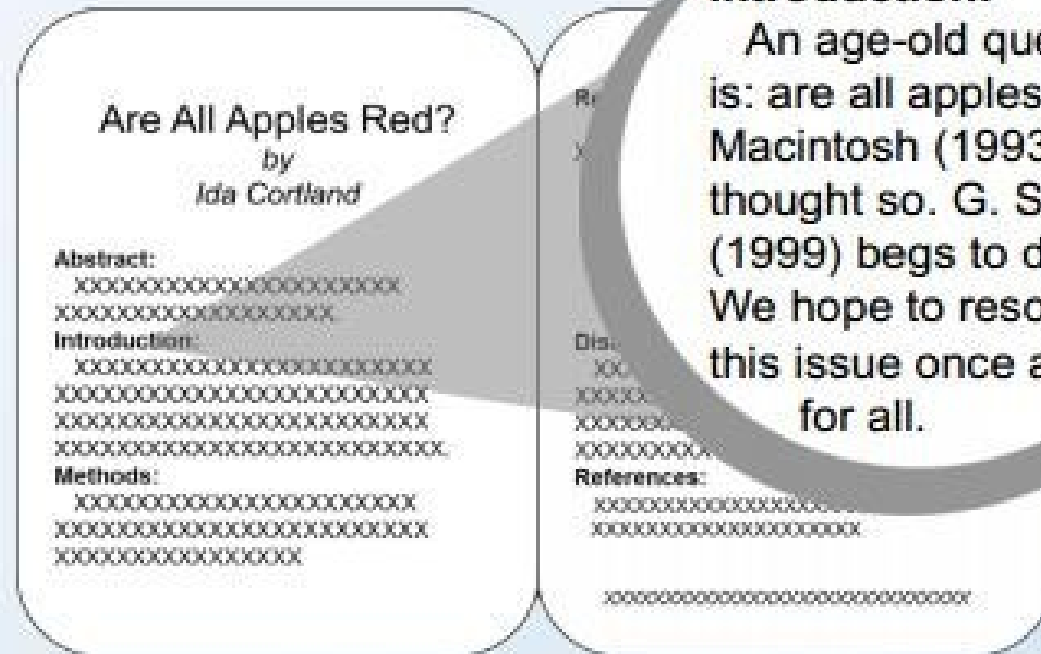
Since we found one yellow apple and two green apples, it must be true that all apples are not red. We concur with G. smith's findings.

**Discussion:** Summarizes **important results**, gives **reasons for conclusions** based on results.

**Question:** Do you *agree* with the logic of the conclusions?  
Are these results *useful* to you?



# How To Read...



**Introduction:** Explains motivation and importance of research, provides background information.

**Question:** Do you *understand* background info? Do you need to *look up references* for more info?

# How To Read...

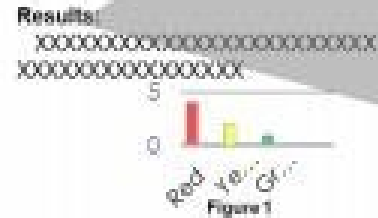


## Are All Apples Red? by Ida Cortland

**Abstract:**  
XXXXXXXXXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXXXXXXXXX

**Introduction:**  
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XXXXXXXXXXXXXXXXXXXXXXXXXXXX  
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**Methods:**  
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**Discussion:**  
XXXXXXXXXXXXXXXXXXXXXXXXXXXX  
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**References:**  
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### Results:

We found four red apples, one green apple, and two yellow apples. See Figure 1.



**Results:** Provides the **raw data** you might need for your own research. **Figures and tables** provide the data in a compact format for **easy viewing**.

**Question:** For figures, do you understand what the *axes mean*? What units are used? *Does the curve make sense*?



# How to Read a Scientific Paper

## *The Scientific Paper Exposed*



Everything you ever wanted to know...  
why it's there and what it's good for.

Anatomy

# Anatomy of a Scientific Paper

## Are All Apples Red?

by  
Ida Cortland

### Abstract:

We examined several apples' color. Although most are red, some are not.

### Introduction:

An age-old question is: are all apples red? Macintosh (1993) thought so. G. Smith (1999) begs to differ. We hope to resolve this issue once and for all.

### Methods:

We went to the local grocery store and bought one of every apple they had. We took them home and looked at them.

### Results:

We found four red apples, one green apple, and two yellow apples. See Figure 1.



Figure 1

### Discussion:

Since we found one yellow apple and two green apples, it must be true that all apples are not red. We concur with G. Smith's findings.

### References:

- Macintosh (1993) *Journal of Fruit Science*. 4(3): 121-135.  
Smith, G. (1999) *Apple Technology Today*. 7(3): 4-8.

# The Abstract

Gives you a **brief overview** of what the paper is all about.

Explains **why** the authors did the experiment, **how** they did it, and **what they found out**.

Ask yourself, are the findings **relevant** to the question you have?

It's very important to read abstracts to help you decide **whether to read** the whole paper or not.

Abstracts are **available in many indexes** to the journal literature, so you don't even need to find the actual article to determine whether it might be interesting to read.

## **Abstract:**

We examined several apples' color. Although most are red, some are not.



# The Introduction

Provides the motivation for doing the experiment, explaining '**Why did they bother**'?

## Introduction:

An age-old question is: are all apples red? Macintosh (1993) thought so. G. Smith (1999) begs to differ. We hope to resolve this issue once and for all.

It **explains prior research**, and what the accepted understanding of the field is.

In this case, **there is a dispute** between Macintosh and Smith, and **this paper seeks to settle the dispute**.

# Methods

Gives details on how the experiment was set up and carried out.

Should explain well enough that **you could replicate** the experiment yourself, if you wanted to.

Often the hardest section to understand, since it contains specialized techniques.  
**Skip this section until last.**

When reading, skim and **try to pick out basic methods** used. Don't worry that much about the details – that's for grad school.

**Ask you instructor** or **consult a scientific encyclopedia** or textbook if you don't understand the concepts of the technique.

## Methods:

We went to the local grocery store and bought one of every apple they had. We took them home and looked at them.



# Results

## Results:

We found four red apples, one green apple, and two yellow apples.

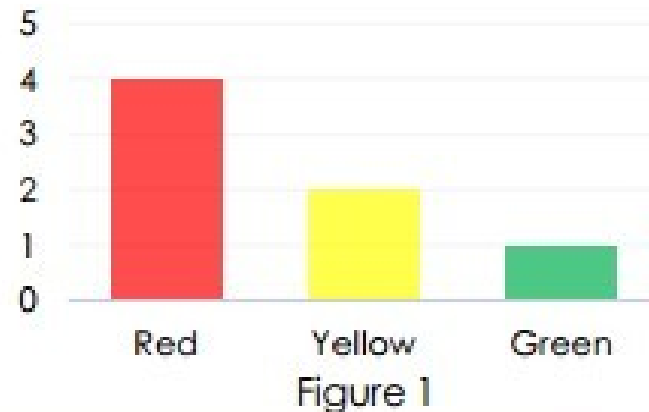


Table 1:  
Apple Colors

Brand	Color
Gala	Light Red
IdaRed	Red
Macoun	Red
Fuji	Yellow
...	...

This section provides the **data the authors use** to reach their conclusions.

Figures are often included to **make the data more compact** and intuitive, and **Tables organize data** in one place for easier reading.

Understanding Figures and Tables is **EXTREMELY** important in understanding a paper.

For figures, make sure you understand what quantities are on the axes. Are they linear or logarithmic? What units are plotted?



# Discussion/Analysis/Conclusion

*(This section may be named any of these things)*

This is where the author connects the dots – explaining what the data means, and why they support the conclusion.

## **Discussion:**

Since we found one yellow apple and two green apples, it must be true that all apples are not red. We concur with G. Smith's findings.

Compare **your own conclusions** about the data with the authors' analysis.

When skimming the paper for the first time, after reading the abstract **read the concluding section**. It gives more detail on the specific results that were found, and **helps you determine whether the paper is relevant** to your research question.



# References/Bibliography

Provides a list of resources quoted or referenced by the authors.

## References:

Macintosh (1993) *Journal of Fruit Science*.  
4(3): 121-135.

Smith, G. (1999) *Apple Technology Today*.  
7(3): 4-8.

Allows you to go back to those sources to **see why the authors referenced** that work, and **whether those sources seem reliable** and accurate.

Format of bibliography differs between journals. For other examples visit the [Purdue Online Writing Lab \(OWL\)](#).

**Author. (Year) Journal Title. Volume(Issue): pages.**

# Article Information

Combined with the author/title information, it **enables you to create a citation for the article** – so you can tell other people where to find it.

*Pomes and You, Volume 3,  
Issue 4 (2003) p.8*

Remember, if you use the data or concepts from this paper, **you must cite it** in your reports or publications. Failure to do that is

## PLAGIARISM

which could lead to failure of a course, expulsion from Purdue, and, after you leave school, legal or professional consequences.

It's always better to be **safe**, and **cite all of your sources**.



# Questions to Ask before selecting a Journal



# Which journals are used by you or mentors/colleagues?

- 1. Review the journals you use for your research.**
- 2. Which journals do you use frequently to keep track of new developments in your field?**
- 3. Which journals do you cite for your research?**
- 4. Which journals are used by the main researchers in your area of research?**
- 5. Does the professional organization you belong to publish any journals?**
- 6. Also, check with your mentors and colleagues about journals they use—there may be some journals that are highly recommended for your area of research.**
- 7. Select journals may be more prestigious for tenure and promotion for your academic and research institution.**

# Who is your desired audience?



Knowing the scope and aim of the journal can help assess whether your article will reach the intended audience.

**If the target audience is international**, select a journal with an international focus.

**If the target audience is limited to a select area of research**, select a journal with a narrow focus as opposed to one with a multidisciplinary focus.

**Topic specific journals** may disseminate your work more efficiently to your desired audience than a general science journal.

**More specialized journals**, even with a potentially smaller readership, may offer a broader dissemination of your work to your peers in a specific area of research.



## Are you required to comply with public access mandates for sharing of publications and/or data?

**Authors whose articles were generated as a result of research funded by organizations such as **NIH, Autism Speaks, CDC**, among others, are required to comply with public access mandates for sharing of publications and/or data.**

**Check the Instructions for Authors section of the journal website or the Copyright Transfer Agreement form to confirm the journal allows authors to comply with public access mandates.**





# Do you need to publish in a peer-reviewed journal?

**Publication in peer-reviewed journals is a requirement for tenure and promotion at most academic institutions.**

**Peer review:** is defined as an organized procedure carried out by a select committee of professionals in evaluating the performance of other professionals in meeting the standards of their specialty.



# What is the quality of the peer-review process?

- ✓ **Does the journal provide clear and transparent information about the peer review process?**
- ✓ **Is the review process described on the journal website?**
- ✓ **How are the reviewers selected?**
- ✓ **Are they qualified to serve as reviewers?**
- ✓ **How many reviewers will be assigned to a manuscript?**
- ✓ **How are revisions handled?**



# Is an expedited review process desired?

- ✓ Do you have a specific manuscript type in mind? Some journals publish specific types of articles and may not be appropriate for your research.
- ✓ What is the aim and scope of the journal? Is the journal appropriate for your research?
- ✓ What is the reputation of the journal? Is the journal published by a known publisher or professional organization?
- ✓ Does the journal provide information on research integrity and ethics for authors? Policies related to plagiarism, patient data, informed consent, duplicate publications, image integrity are noted by most journal publishers.
- ✓ Does the journal require reporting guidelines for reporting of research? Guidelines such as CONSORT, STROBE or PRISMA are examples of reporting guidelines. The purpose of standardized reporting guidelines is to ensure that readers can understand what was done, how and why.
- ✓ Does the journal follow best practices promoted by professional scholarly publishing organizations? Does the journal follow recommendations from professional scholarly publishing organizations such as the International Committee of Medical Journal Editors (ICMJE)?

# Finding the right journal to publish in



- **Elsevier Journal Finder:**

**Elsevier Journal Finder helps you find Elsevier journals that could be best suited for publishing your scientific article. The Journal Finder uses smart search technology and field-of-research specific vocabularies to match your article to Elsevier journals.**

**Link: <https://journalfinder.elsevier.com/>**



# Finding the right journal to publish in

- EndNote Match:

**Find the Best Fit Journals for Your Manuscript. With a few key pieces of information—your title, abstract, and references—EndNote Match can help you find the right journal for your manuscript.**

**Link:** <https://endnote.com/product-details/manuscript-matcher/>

# Finding the right journal to publish in



- Journal/Author Name Estimator (JANE):

Have you recently written a paper, but you're not sure to which journal you should submit it? Or maybe you want to find relevant articles to cite in your paper? Or are you editor, and do you need to find reviewers for particular paper? Jane can help!

**Link:** <https://jane.biosemantics.org/>

# Finding the right journal to publish in



- **Publish & Flourish Open Access:**

**FlourishOA is a resource for identifying high-quality, high-value open access journals.**

**Link:** <http://flourishoa.org/>

# Finding the right journal to publish in



- **Springer Journal Suggester:**

**Use the Springer Journal Selector to search for all Springer and BioMed Central journals to find a journal for your manuscript.**

**Link:** <https://journalsuggester.springer.com/>





# Finding the right journal to publish in

- **Think. Check. Submit:**

**Think. Check. Submit.** is a campaign to help researchers identify trusted journals for their research. It is a simple checklist researchers can use to assess the credentials of a journal or publisher.

**Link:** <https://thinkchecksubmit.org/>

# Finding the right journal to publish in



- **Web of Science Master List:**

**The Web of Science Master list contains a list of approximately 24,000 journals indexed by the Web of Science platform. A manuscript matcher tool is also available.**

**Link:** <https://mjl.clarivate.com/home>

# Journal Listings



- **[AAMC Annotated Bibliography of Journals for Educational Scholarship 2019:](#)** The AAMC Annotated Bibliography provides scholars and researchers with detailed information about the topics, types of manuscripts, and audiences for more than 60 journals that publish health professions education manuscripts.
- **[Directory of Open Access Journals \(DOAJ\):](#)** DOAJ contains more than 10,000 open access journals covering all areas of science, technology, medicine, social science and humanities. DOAJ is co-author to the Principles of Transparency and Best Practice in Scholarly Publishing (Principles), a list of criteria used for listing of journals and DOAJ members are expected to follow these principles as a condition of membership.



# Journal Listings

- **Embase Journal List:** Embase provides 32 million+ records from almost 8,300 currently published journals and includes six million+ records and 2,900+ journals that are not covered by MEDLINE.
- **Journals that Follow the ICMJE Recommendations:** Consult this list for journals whose editors or publishers have contacted the International Committee of Medical Journal Editors (ICMJE) to request listing as a journal that follows the ICMJE's Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals.

# Journal Listings



- **[NLM Catalog: Journals Currently Indexed by MEDLINE/PubMed:](#)** This resource is a list of journals currently indexed in MEDLINE.
- **[Scopus Journal List:](#)** Check the Scopus list of indexed journals including those no longer indexed due to publication concerns.
- **[Web of Science Master Journal List:](#)** The Master Journal List includes all journal titles covered in Web of Science.

# 2020 Latest Impact Factor (Clarivate Analytics Journal Citation Reports Release of JCR Thomson Reuters)



## InCites Journal Citation Reports

Journal Data Filtered By: Selected JCR Year: 2019 Selected Editions: SCIE,SSCI Selected Category Scheme: WoS

Rank	Full Journal Title	Total Cites	Journal Impact Factor	Eigenfactor Score
1	CA-A CANCER JOURNAL FOR CLINICIANS	39,917	292.278	0.093460
2	NEW ENGLAND JOURNAL OF MEDICINE	347,451	74.699	0.660800
3	Nature Reviews Materials	12,657	71.189	0.052800
4	NATURE REVIEWS DRUG DISCOVERY	33,154	64.797	0.049170
5	LANCET	256,199	60.392	0.437300
6	WHO Technical Report Series	3,560	59.000	0.001200
7	NATURE REVIEWS MOLECULAR CELL BIOLOGY	46,307	55.470	0.082320
8	Nature Reviews Clinical Oncology	12,384	53.276	0.035980
9	NATURE REVIEWS CANCER	52,053	53.030	0.066030
10	CHEMICAL REVIEWS	200,014	52.758	0.271190
11	Nature Energy	17,747	46.49	
12	ASSOCIATION	158,632	45.54	
13	REVIEWS OF MODERN PHYSICS	51,122	45.037	0.051690

File

# Scientific Databases



## Scientific databases



Google  
Scholar



PubMed



ScienceDirect



Scopus



EBSCO  
Information  
Services



CAS

Fil



# How to create your Academic profile?

- ▶ In this Section we will know how to create **a google scholar account** (Online) and activate it and how to add his/her publications.
- ▶ A quick overview of ORCID account and how to create one(Online).
- ▶ How to register for a Scopus account
- ▶ **(Online) Linking** all these accounts to Our Academic staff profile (Online)



# Reference



S

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- How to read a paper by S. Keshav.  
<http://www.sigcomm.org/ccr/drupal/files/p83-keshavA.pdf>
- Reading scientific papers (at Purdue)  
<http://www.lib.purdue.edu/phys/inst/scipaper.html>
- General writing resources (at Purdue)  
<http://owl.english.purdue.edu/>
- Connotea – reference organizer  
<http://www.connotea.org/>
- Zotero – firefox extension reference manager  
<http://www.zotero.org/>
- Comparison of reference manager software tools available  
[http://en.wikipedia.org/wiki/Comparison\\_of\\_reference\\_management\\_software](http://en.wikipedia.org/wiki/Comparison_of_reference_management_software)
- <https://beckerguides.wustl.edu/c.php?g=648201&p=4545487>

# Reference

## S

- [Academics and scientists: Beware of predatory journal publishers](#)
- [Beware of Predatory Publishers: Substandard Journals Exploit Open-Access Model](#)
- [Cope Discussion Document: Predatory Publishing](#)
- [Guidance to Help Inform Your Decision About a Journal](#) Learn more about selecting a journal for publication using guidance from Publons (<https://publons.com/home/>).
- [How do you know a paper is legit?](#)
- [Identifying predatory or pseudo-journals](#) This World Association of Medical Editors (WAME) document aims to provide guidance to help editors, researchers, funders, academic institutions and other stakeholders distinguish predatory journals from legitimate journals.
- [Phony vs. Legit Publishing](#)
- [Predatory or Deceptive Publishers – Recommendations for Caution](#)
- [Publishing tips from a journal editor: selecting the right journal](#)
- [Watch out for predatory journals, and consider retract/replace, suggests medical journal group](#)
- [What is a predatory journal? A scoping review](#)
- [Why Organizations, Researchers & Patients Are Falling Prey to Predatory Journals](#) Presentation by Kelly Cobey.
- [Selecting a Journal for Publication: Criteria to Consider](#) Commentary on selecting a journal published in Missouri Medicine, November/December 2019.

