Librarians are available to help you

On-Call Reference Librarian

Mon - Thurs from 9am-9pm
Fri from 9am-3pm
Sun from 8:30am-4:30pm

And we have a chat service available 24/7
Find a scholarly, peer reviewed article using a biology-specific database.
What We Will Learn Today

What is a scholarly article?

How do I know if an article is peer reviewed?

Find a scholarly, peer reviewed article using a biology-specific database.

How can I find one of these articles?

What are some biology-specific databases?

And how do I search a database that isn’t Google?
# Popular vs. Scholarly Articles

<table>
<thead>
<tr>
<th></th>
<th>Popular Articles</th>
<th>Scholarly Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Who reads them?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Popular vs. Scholarly Science Articles

<table>
<thead>
<tr>
<th>Who reads them?</th>
<th>Popular Articles</th>
<th>Scholarly Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everyone!</td>
<td></td>
<td>Academics (like you!)</td>
</tr>
</tbody>
</table>
## Popular vs. Scholarly Science Articles

<table>
<thead>
<tr>
<th></th>
<th>Popular Articles</th>
<th>Scholarly Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who reads them?</td>
<td>Everyone!</td>
<td>Academics (like you!)</td>
</tr>
<tr>
<td>Who writes them?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Popular vs. Scholarly Science Articles

<table>
<thead>
<tr>
<th>Who reads them?</th>
<th>Popular Articles</th>
<th>Scholarly Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everyone!</td>
<td>Academics (like you!)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who writes them?</th>
<th>Popular Articles</th>
<th>Scholarly Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science writer, generalist</td>
<td>Academics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Popular Articles</td>
<td>Scholarly Articles</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Who reads them?</td>
<td>Everyone!</td>
<td>Academics (like you!)</td>
</tr>
<tr>
<td>Who writes them?</td>
<td>Science writer, generalist</td>
<td>Academics</td>
</tr>
<tr>
<td>Is there a bibliography?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Popular vs. Scholarly Science Articles

<table>
<thead>
<tr>
<th></th>
<th>Popular Articles</th>
<th>Scholarly Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Who reads them?</strong></td>
<td>Everyone!</td>
<td>Academics (like you!)</td>
</tr>
<tr>
<td><strong>Who writes them?</strong></td>
<td>Science writer, generalist</td>
<td>Academics</td>
</tr>
<tr>
<td><strong>Is there a bibliography?</strong></td>
<td>No (usually)</td>
<td>Always!</td>
</tr>
</tbody>
</table>
# Popular vs. Scholarly Science Articles

<table>
<thead>
<tr>
<th></th>
<th>Popular Articles</th>
<th>Scholarly Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who reads them?</td>
<td>Everyone!</td>
<td>Academics (like you!)</td>
</tr>
<tr>
<td>Who writes them?</td>
<td>Science writer, generalist</td>
<td>Academics</td>
</tr>
<tr>
<td>Is there a bibliography?</td>
<td>No (usually)</td>
<td>Always!</td>
</tr>
<tr>
<td>Kind of language used?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Popular Articles</td>
<td>Scholarly Articles</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------------------------------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td>Who reads them?</td>
<td>Everyone!</td>
<td>Academics (like you!)</td>
</tr>
<tr>
<td>Who writes them?</td>
<td>Science writer, generalist</td>
<td>Academics</td>
</tr>
<tr>
<td>Is there a bibliography?</td>
<td>No (usually)</td>
<td>Always!</td>
</tr>
<tr>
<td>Kind of language used?</td>
<td>Informal, colloquial, common names</td>
<td>Formal, academic, scientific names</td>
</tr>
</tbody>
</table>
## Popular vs. Scholarly Science Articles

<table>
<thead>
<tr>
<th></th>
<th>Popular Articles</th>
<th>Scholarly Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who reads them?</td>
<td>Everyone!</td>
<td>Academics (like you!)</td>
</tr>
<tr>
<td>Who writes them?</td>
<td>Science writer, generalist</td>
<td>Academics</td>
</tr>
<tr>
<td>Is there a bibliography?</td>
<td>No (usually)</td>
<td>Always!</td>
</tr>
<tr>
<td>Kind of language used?</td>
<td>Informal, colloquial, common names</td>
<td>Formal, academic, scientific names</td>
</tr>
<tr>
<td>Is there an abstract?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Popular vs. Scholarly Science Articles

<table>
<thead>
<tr>
<th></th>
<th>Popular Articles</th>
<th>Scholarly Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who reads them?</td>
<td>Everyone!</td>
<td>Academics (like you!)</td>
</tr>
<tr>
<td>Who writes them?</td>
<td>Science writer, generalist</td>
<td>Academics</td>
</tr>
<tr>
<td>Is there a bibliography?</td>
<td>No (usually)</td>
<td>Always!</td>
</tr>
<tr>
<td>Kind of language used?</td>
<td>Informal, colloquial, common names</td>
<td>Formal, academic, scientific names</td>
</tr>
<tr>
<td>Is there an abstract?</td>
<td>No</td>
<td>Yes!</td>
</tr>
</tbody>
</table>
Examples of Popular Articles

● News articles (on paper or digital)
● Book reviews
● Press releases
● Magazine articles (on paper or digital)

You do NOT want to turn in one of these!
Weedkiller weakens bees by messing with their microbiomes

New study links Roundup to plummeting bee populations.

By Jillian Mock | September 28, 2018
Weedkiller weakens bees by messing with their microbiomes

New study links Roundup to plummeting bee populations

By Jillian Mock | September 28, 2018

The article has a glossy photo.
Weedkiller weakens *bees* by messing with their microbiomes

New study links Roundup to plummeting bee populations.

By Jillian Mock  |  September 28, 2018

The article uses common names for organisms.
The page offers options for advertisers.
Present and future perspectives of using biological control agents against pests of honey bees

Hossam F. Abou-Shaara¹ and Martin Staron²

Abstract
Honey bee, *Apis mellifera* L., is considered as an essential organism to the agricultural sector due to its role in pollination and alleviation of poverty in rural areas. Many pests attack honey bee colonies causing severe damages and economic losses. These pests include *Varroa* mites, *Vespa* hornets, wax moths, small hive beetles, and parasitic flies. Using chemical methods to control these pests causes some negative effects on honey bees and contaminates their products, while using biological control agents is promising and has no serious hazards. This article aimed to review available studies on the role of biological control agents mainly predators, parasitoids, and pathogens in controlling bee’s pests and to present new perspectives. Also, obstacles of using biocontrol agents inside and outside the hives were presented. This article is essential for planning integrated management programs for honey bee pests.

Keywords: Honey bee, *Apis mellifera*, Biological control, New perspectives, Review

Background
Honey bee, *Apis mellifera* L., occurs worldwide, and it is the main pollinator of many plants (Corbet et al. 1991 and Morse and Calderone 2000). Beekeeping is among Monceau et al. 2014; and Neumann et al. 2016). The use of chemicals to control these pests is not recommended. For example, acaricides and other chemicals that used to control *Varroa* mites can contaminate bee products
Present and future perspectives of using biological control agents against pests of honey bees

Hossam F. Abou-Shaara

Abstract
Honey bee, Apis mellifera L., is the main pollinator of many plants (Corbet et al. 1991 and Morse and Calderone 2000). Beekeeping is among Monceau et al. 2014; and Neumann et al. 2016). The use of chemicals to control these pests is not recommended. For example, acaricides and other chemicals that used to control Varroa mites can contaminate bee products

Keywords: Honey bee, Apis mellifera, Biological control, New perspectives, Review
The article uses scientific names for organisms.
Present and future perspectives of using biological control agents against pests of honey bees

Hossam F. Abou-Shaara¹ and Martin Staron²

Abstract
Honey bee, *Apis mellifera* L., is considered as an essential organism for pollination and alleviation of poverty in rural areas. Many pests and economic losses. These pests include *Varroa* mites, *Vespula* species. Using chemical methods to control these pests causes serious damage to their products, while using biological control agents is promising. This review available studies on the role of biological control agents in controlling bee’s pests and to present new perspectives. Also, the farm operations in the hives were presented. This article is essential for planning integrated management programs for honey bee pests.

Keywords: Honey bee, *Apis mellifera*, Biological control, New perspectives, Review

Background
Honey bee, *Apis mellifera* L., occurs worldwide, and it is the main pollinator of many plants (Corbet et al. 1991 and Morse and Calderone 2000). Beekeeping is among Monceau et al. 2014; and Neumann et al. 2016). The use of chemicals to control these pests is not recommended. For example, acaricides and other chemicals that used to control *Varroa* mites can contaminate bee products.
Further, although other studies have suggested that CCD-related mortality in honey bee colonies may come from bees’ reduced resistance to mites or parasites as a result of exposure to pesticides, the new study found that bees in the hives exhibiting CCD had almost identical levels of pathogen infestation as a group of control hives, most of which survived the winter. This finding suggests that the neonicotinoids are causing some other kind of biological mechanism in bees that in turn leads to CCD.

The study appears online May 9, 2014 in the Bulletin of Insectology.
Further, although other studies have suggested that CCD-related mortality in honey bee colonies may come from bees’ reduced resistance to mites or parasites as a result of exposure to pesticides, the new study found that bees in the hives exhibiting CCD had almost identical levels of pathogen infestation as a group of control hives, most of which survived the winter. This finding suggests that the neonicotinoids are causing some other kind of biological mechanism in bees that in turn leads to CCD.

The study appears online May 9, 2014 in the Bulletin of Insectology.
It is under the News category, and listed as a press release.

According to a new study from Harvard School of Public Health, low doses of the organophosphate neurotoxin chlorpyrifos and the neonicotinoids imidacloprid and clothianidin, had the same negative effect.

In other studies have suggested that CCD-related mortality in honey bee colonies is due to bees’ reduced resistance to mites or parasites as a result of exposure to pesticides. The study replicated a 2012 finding from the same research group that found a link between low doses of imidacloprid and Colony Collapse Disorder (CCD), in which bees abandon the winter and eventually die. The new study also found that low doses of a second organophosphate, chlorpyrifos, and the neonicotinoids are causing some other kind of biological mechanism in bees that in turn leads to CCD.

The study appears online May 9, 2014, in the Bulletin of Insectology.
It directs you to the actual scholarly article

The study appears online May 9, 2014 in the *Bulletin of Insectology*.
It does use scientific names, so be careful!

You need to evaluate the entire article and not just one aspect!
For your assignment, your article needs to have undergone a process called **PEER-REVIEW**.
Academic writes an article →

They submit article to journal →

Experts (i.e. peer reviewers) evaluate the article →

If they think the article is high-quality and of importance, they recommend that it be published →

Journal publishes the article
So....what is peer review?
So...what is peer review?

A process where an article is evaluated by experts for quality, importance, and originality before it is published.
Why go through all of that?
Why go through all of that?

Ensures that published articles are scientifically valid and do not have bias.
How can I tell if my article has been peer reviewed?

Take notes!
How can I tell if my article has been peer reviewed?

Step 1: Determine the journal title

Sounds easy right? Let’s practice!
Present and future perspectives of using biological control agents against pests of honey bees

Hossam F. Abou-Shaara & Martin Staron

Egyptian Journal of Biological Pest Control 29, Article number: 24 (2019)
Question 4: Egyptian Journal of Biological Pest Control

Springer Open is a company

In this example, the word “journal” is in the title of the journal
Risk to pollinators from anthropogenic electro-magnetic radiation (EMR): Evidence and knowledge gaps

Adam J. Vanbergen †, 1, 2, 3, Simon G. Potts 3, 4, Alain Vian 3, 4, E. Pascal Makemper 3, 5, Juliette Young 1, 2, 3, Thomas Tscheullin 1, 2

https://doi.org/10.1016/j.scitotenv.2019.133533

Get rights and content Under a Creative Commons license

No metrics available.
As you will see soon, ScienceDirect is a database.

And Elsevier is a company.
If you are having trouble figuring out the name of a journal, you can...

1. Use Google to investigate the all possible journal names on the page.

2. Contact a librarian!
How can I tell if my article has been peer reviewed?

Step 1: Determine the journal title.

Step 2: Google the journal title and the words “peer review” or “submission guidelines.”
Here, I googled the name of the journal and the words "peer review."

The first link looks good because it is linking to the journal. (FYI Wikipedia is not a good source!)
How can I tell if my article has been peer reviewed?

Step 1: Determine the journal title.
Step 2: Google the journal title and the words “peer review” or submission guidelines.
Step 3: Browse the journal’s web pages to find more info.
This journal uses the peer review process!

You are good!

Peer review

This journal operates a single blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. More information on types of peer review.

REVISED SUBMISSIONS

Use of word processing software
Regardless of the file format of the original submission, at revision you must provide us with an editable file of the entire article. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). See also the section on Electronic artwork.

To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.
How can I tell if my article has been peer reviewed?

Step 1: Determine the journal title.
Step 2: Google the journal title and the words “peer review” or submission guidelines.
Step 3: Browse the journal’s web pages to find more info.

Step 4: Double check and make sure your article is not an editorial, op-ed, or conference paper!
How do I know if it is a conference paper?

If your journal is titled something like “Conference Proceedings,” you should assume it is NOT peer reviewed!

If it is a conference paper, you will need to find a new article!
How do I know if it is an editorial or op-ed?

Editorials and op-eds will state this on the top of the article.

If it is an editorial or op-ed, you will need to find a new article!
Where can you find biology-specific databases?

Go to the Library’s BIO 191 Course Guide!

(There is a link right in the Assignment directions!)
Under “Finding Articles” is a link to the databases
USE ONE OF THE FOLLOWING DATABASES

- Scopus
- ScienceDirect
- BioOne Complete
- PubMed
- Google Scholar
So how do I search these databases?

1. Write down two or three key terms for your topic
2. Think of synonyms for your key terms
3. Use AND, OR, or NOT to connect your terms
AND will narrow your search (fewer results)

cats AND dogs

will only find articles with BOTH of those terms.

It won’t find articles with just the term cats or just the term dogs.
OR will broaden your search (more results)

cats OR dogs

will find articles with either of those terms, as well as articles with both
**NOT** will exclude resources from your search (fewer results)

**cats NOT dogs**

will find articles with the word cats in them, as long as the articles don’t also include the word dogs
Use “NOT” rarely, it’s very powerful!
**OR**

- Any data point present
- Inclusive

**AND**

- All data points are present
- Exclusive

**NOT**

- One data point is present but not other

**Image Source:** [Lotane, What is Boolean Logic?](https://www.lotanet.com/boolean-logic)
Which search string will give you more results?
Question 6: cats OR dogs will have more

**cats AND dogs**
Only shows articles that have both the terms cats and dogs

**cats OR dogs**
Shows articles that only have the term cats.
Also shows articles that only have the term dogs.
Also shows articles that have both terms.

**cats NOT dogs**
Only shows articles that have the word cats, as long as the articles don’t include the term dogs.
How do I search for both cat and cats?

Use the ASTERISK! (*)

So searching for the term cat* is the same as searching for both cat and cats.
Research Question:

"Does the color of Goldenrod attract certain pollinators?"

What are some search terms we could use?
Research Question:

"Does the color of Goldenrod attract certain pollinators?"

What are some search terms we could use?
"Does the color of Goldenrod attract certain pollinators?"

Are these the best terms? Are there better synonyms?
"Does the color of Goldenrod attract certain pollinators?"

Are these the best terms? Are there better synonyms?

We could use the scientific name for Goldenrod, *solidago*, to get better/more results.
So what does an example search string look like?

(Goldenrod OR Solidago) AND pollinat*

Used parentheses to group the search

Used the * to look for pollinate, pollinator, pollinators, and pollination all at once
So what does an example search string look like?

(Goldenrod OR Solidago) AND (pollinat*)

Remember:
OR will find all articles with the term Goldenrod, all articles with the term Solidago, and all articles with both of these terms.
Want an even more detailed search?

(Goldenrod OR Solidago) and (bee* OR butterfl*)

Instead of the word pollinat*, I searched for a specific pollinator.
Your Upcoming Assignment

**STEP 1:** Get the Assignment (on Canvas lecture page).

**STEP 2:** Use databases to find an article (linked on BIO 191 Course Guide).

**STEP 3:** Complete the written part of the Assignment.

**STEP 4:** Submit the article and the completed Assignment on lecture Canvas page.

**Step 5:** Bring the article to your lab whenever you lab instructor says.
THANKS!

Contact me if you have any questions!

Brigid at farrelb@lemoyne.edu