

LIB 160: Information Literacy

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CHAPTER 1: WORLD OF INFORMATION

Learning Objectives

After completing this chapter, you should be able to...

- give examples of how research is inquiry and strategic exploration
- match information needs and search strategies to appropriate search tools
- distinguish between different types of information sources and their purposes
- identify and use contextually appropriate search language
- recognize that the “flow of information” can determine what’s available on your topic

1.1 World of Information

Many of us use Google every day. We trust its search algorithms will find exactly what we want and that Google will place the “best” results right at the top of our search results for our convenience. The efficiency of web search engines usually makes us feel successful and satisfied within a few seconds. But this impression that everything can be found easily on the open web is a fallacy, especially when it comes to scholarly publications.

You can't trust that the best, most current, or most reliable information will always be delivered at the top of your results as soon as you hit enter on your keyboard. Getting a good grade in college often relies on finding and using the best and most authoritative information on a topic. To do this, you have to think critically, work through the resources you find, and construct your own ideas. In this course we focus on developing research skills that include:

- finding information appropriate to your needs,
- evaluating that information,
- and using it ethically.

This is known as **information literacy** and takes time, effort, and reflection to acquire.

A Few Fundamentals



Parks Library, Periodical Room

When you hear the word “library,” what do you think of? Chances are you thought of a building – a place with lots of bookshelves, some computers for looking up materials; tables, chairs, desks; maybe a librarian or two. Traditional libraries like

that have existed for centuries, serving as repositories for the world’s recorded knowledge. But the internet has changed how we need to think of research, libraries, and information literacy.

Today’s research libraries focus not only on the physical collections and spaces people use, but also on digital collections, other resources, and services that libraries have cultivated for their users.

The ISU Library provides a wide range of resources and services. We don’t have space to cover them all here, but here’s a small sample:

- [Laptop & Equipment Checkout](#): The ISU Library has technology such as chargers, tablets, laptops, and more available for check out.
- [Research Guides](#): Created by librarians with your work in mind, these guides include resources that will help you get started with research in a particular subject, class, or project.
- [Course Reserves](#): Instructors work with Library staff to create lists of books, articles, and media

for classes, the majority of which are available in full-text or streaming online. If your instructor has selected reserve materials, they will be listed in the course page in Canvas.

Collections and Connections

The amount of information available to us is also expanding rapidly. It is no longer possible for any research library to own everything in a specific subject area. In part this is due to the sheer number of scholarly books, journals, and articles published every year. Another reason that no library owns everything is skyrocketing costs. As a student, you're keenly aware of the high cost of textbooks. For research libraries, books, scholarly journals, and other research materials have an extremely high price tag. Libraries have responded to these trends through cost-reducing efforts that emphasize information access rather than ownership:

Interlibrary loan: a service which allows students to borrow materials owned by other libraries for free. If our library doesn't own the item you want, interlibrary loan can typically get something to you within a day or two. You'll learn more about interlibrary loan in later chapters.

Open access: materials that don't require a subscription

or login to use. Librarians and scholars are working to develop more scholarly journals that are high-quality yet low-cost or totally free to access, allowing people to use them regardless of their ability to pay.

1.2 What is Scholarly Information?

Scholarly information consists of materials produced by and for scholars (namely, students, researchers, scientists, professors, and so on) to learn or advance knowledge on specific academic topics. Scholarly materials are produced to share knowledge and communicate research. This typically takes the form of papers, presentations, journal articles, books, and textbooks. Scholarly publications such as journal articles and books include carefully researched content, cited references (e.g., footnotes, in-text citations), and bibliographies. These elements are intended to facilitate the sharing of knowledge through listing other sources for follow up and demonstrating that the new ideas build on previous research.

When you browse the shelves of a research library or search a scholarly database, you might be surprised by some of the research topics. For example, theses and doctoral dissertations have been written on such topics as women's swimwear, celebrity gossip blogs, buses in Bogotá, and more. These examples are real. Researchers somewhere found these topics to be of scholarly interest to them. Women's swimwear becomes an understandable topic of interest when considered in the framework of textiles research; the bus system in Bogotá, Colombia could be a useful case study in urban planning; celebrity gossip blogs have been a legitimate topic of interest in communication studies, and so on. Research topics are virtually limitless.

One unique aspect of scholarly information is **peer review**, a high standard of editorial review that takes place before a scholarly journal article or book can be published. Peer reviewers are experts in the relevant subject area of the article or book. Their thorough

readings and critical reviews help verify that the research is valid and the researcher's conclusions are not only sound but also important. Academic libraries heavily collect peer-reviewed scholarly materials, with a strong focus on the subject areas taught at their institution.

1.3 Search vs Research

When you hear the word **research**, you might think of the quick web searches we all do every day looking for information: a good recipe for Vietnamese bánh mì sandwiches, what are the top 100 movies of all time, what is Tourette's syndrome, and so on.

In this course, we're going to build on these types of easy searches to reach the type of college-level inquiry and thoughtful reflection that constitute scholarly research. You'll find that academic research is rarely done with one basic search using just one tool. Even the quick information-seeking process will benefit from advance planning.

Starting Your Research

Research is an ongoing cycle of questions and answers, which can quickly become very complex. For this reason, your research will benefit from thoughtful planning on how to get started. Here are three important areas to think about when starting your research.

Define your scope



The first thing you need to do is define the scope of your research. Take a few minutes to think about your topic and the kind of information you might need. You can define your

research scope by thinking about:

- **Content:** the kind of information you need
- **Amount:** how much information you need
- **Format:** the types of information sources you need
- **Subject area(s):** the discipline(s) your topic fits into

Information that is appropriate for one research project may not be appropriate or relevant for another. For example, if you need to give a 5 minute class presentation on the pros or cons of an issue, you probably need a few sources that cover the key aspects of the issue and not every paper that's ever been written on the topic. If you were writing a lengthy class paper, you would want more comprehensive coverage of your topic. Some examples of the types of information you might need for different research purposes are listed below:

- **Background information:** this is the kind of information that gives you a basic understanding and vocabulary of a topic. It is broad, tends to be general, and is helpful when you don't already know a lot about your topic.
- **Subject-focused scholarly information:** scholarly books and journal articles are formal pieces written about very specific topics which have undergone a rigorous review process before publication. These are helpful for projects where it is important to build a scholarly foundation for your ideas or interpretation.
- **Current events:** what is currently happening or has been in the news on a given topic; news sources can help illustrate your points with timely, real-world examples.
- **Statistical information:** this includes data and reports produced by research groups, associations, governmental organizations, non-profits, and more; these are helpful for making comparisons between groups, showing changes over time, making predictions, and so on.

Identify types of sources



Next, consider what types and formats of information you need for your project. For example, does the assignment require using books or scholarly articles? Are websites okay? What about blog posts, online videos, or presentation slides? Do you need current or historical information for your topic? Do you need scholarly or popular materials?

Some disciplines prefer to publish new research in peer-reviewed journal articles, while other disciplines may prefer scholarly books. Others rely on papers presented at conferences. To earn advanced academic degrees, many disciplines require students to thoroughly demonstrate their depth of knowledge by writing a thesis or dissertation. The common denominator here is that all these traditional formats undergo peer review, intensive review by subject experts before publication. It's quite possible that you could find information on your topic in any of these formats, so you need to be familiar with them.

Why is it important to pay attention to information formats?

Many instructors will tell you exactly what types of information sources to use or not use for research assignments, or tell you to use only peer-reviewed sources. It is important to look at your assignment requirements and tailor the information you use to meet those requirements.

Certain formats tend to be used for specific purposes. For example:

- **Newspaper and magazine articles** tend to be brief and to the point. They're intended to keep us current with relevant events and popular topics of interest, and rarely go in depth or provide sources for further reading.

- **Scholarly journal articles** tend to be several pages long and highly focused on very specific facets of a larger topic or research project.
- **Scholarly books** tend to be much longer and, because of this, they can go into greater depth than articles. Books are great sources for providing a “big picture” perspective of a topic with background information and rich detail.

Different tools lead to different types of information, so you'll want to choose a search tool that will help you find the type of material you're looking for.

Identify your search tools



Now that you have some ideas about the extent and kind of information you want and the

type of sources you need, it's time to think about which search tools will help you find precisely what you need. We might be tempted to try to do all of this information-gathering with a single internet search. However, when you view the research process as inquiry and strategic exploration, you'll realize that there might be more than one tool for finding useful sources to meet your information needs. That's especially true when the aim is to find scholarly materials.

To find out which tools are the best for your needs, you will probably need to explore a few of them and compare results. Try experimenting with search terms to see what works best in the tools you're using. This may lead you to new resources within the library you didn't find with your original search. You may even find information about resources that we don't have, so don't forget you can use interlibrary loan to borrow a copy, rather than giving up or changing your topic. For scholarly research, one-stop-shopping

doesn't happen very often. Instead, you need to use the right tools for the right job, and be willing to experiment and explore.

1.4 Three Tools for Finding Information

To get you started, here are three major tools for finding information: web search engines, library discovery tools, and article indexes. Each one of these tools is important for finding specific types of information. While some finding tools overlap in coverage (e.g., web search engines can also find books and journals), each has their own unique features and strengths that can help you determine which to use to find a particular type of resource. The finding tools complement each other, and each is a vital piece in the information-seeking puzzle. What are these tools best for finding?

Web Search Engines:

- websites
- up-to-date news
- images
- most of the information on the open web

Library Discovery Tools (ISU Library's Quick Search, etc):

- materials that a specific library owns
- include books, journals, audio-visual resources, and more

Article Indexes (ISU Library's list of [article indexes](#) for many subjects):

- scholarly journal articles
- article abstracts

Below, you can see some of the features of these tools, and how some are unique and others are shared:

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In addition to knowing the features of each finding tool, understanding the type of information you need can help you determine the best one for your research. For example, you might use a different tool when looking for background information versus when you are looking for subject focused information.

Where to find different information types

Background information:

- Books and encyclopedias often provide this information and can be found using library discovery tools.
- Online encyclopedias and authoritative websites found through web search engines can also provide background information.

Subject-focused scholarly information:

- Scholarly books and journal articles are usually found through library discovery tools and scholarly indexes.

Current events:

- Newspaper articles, news websites, and consumer magazine articles can be found using web search engines.
- Newspaper articles can also be found through newspaper and general indexes from your library.
- Many historical newspapers may be available through your library, but not on the open web.

Statistical information:

- The US federal government is a major supplier of useful statistics on many topics. Web search engines would be a great choice for helping find relevant government websites.
- Statistical databases from your library may help you find other sources of data and statistics.

Projects you work on may need to tap into many of these types of sources and tools. Keep in mind that research takes time, thought, and energy, and there will often be more than just one place to search or tool to use.

Check your understanding!



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<https://iastate.pressbooks.pub/lib160infolit1ed/?p=29#h5p-7>

1.5 Keywords: The Language of Databases

Let's talk about the language of searching. We know you can type almost anything in Google's search box or other web search engines and find something. But when you're doing research, it is important to think about your search terms more carefully. You'll get better and more relevant results in most finding tools if you choose your search terms wisely. Here is an illustration of what we mean.



In his book on effective online research, William B. Badke explains what would happen if a trip to the grocery store operated the same way a typical web search engine works. He uses the example of looking for a particular brand of chicken

soup, but unlike a typical grocery store, this store has no signs that list what can be found in each aisle, and all the brand names and labels of products have been taken away. Instead, you have to search for your chicken soup through all the aisles of the store.

Badke uses this example to explain the difference between unstructured web searches that look for your terms almost anywhere they might appear (the kind of web search most of us do every day), versus the kind of highly-focused searching that is possible in most scholarly indexes. We'll take things a few steps further in our version of Badke's supermarket analogy. Let's say you

1. Badke, William B. *Research Strategies: Finding your way through the information fog*. 3rd ed. New York: iUniverse, Inc., pages 56-57.

go to the grocery store with no signs and no labels looking for corn. Perhaps you ask a literal-minded employee to help you find “corn” in the huge store. You know what you mean by corn, but the employee has other ideas, and shows you popcorn, candy corn, canned corn, corn starch, high fructose corn syrup as an additive in many foods, corn pads for your grandma’s feet, fresh corn on the cob, and corn as an ingredient added to dog food. You’re forced to walk through all the aisles, looking through countless products that weren’t at all what you had intended.

We’re sure you have seen this in action when you’ve searched for information on the web. Part of this is due to the way that most web search engines work, and part is due to how we often search the web without much thought. Basic searches in most search engines will retrieve *anything* that includes your words just about *anywhere*. In our simple supermarket example, our search would have benefited from more description or detail. For example, specifying what kind of corn you were looking for would have been helpful.

The main point of Badke’s analogy is that article indexes label segments of the item records they contain, for the same reasons that supermarket aisles are labeled – to help you find what you’re looking for in a quick and organized way. In other words, scholarly indexes let you focus your search to find your terms in very specific areas – for example, in the **title**, **author**, or **subject** areas – the same way that you could restrict a grocery store search to one specific aisle like the frozen vegetables section. The keywords and search strategies you use have a huge impact on your search results, so consider them carefully.

Natural Language versus Controlled Vocabulary

There’s another important difference between most web search engines and many scholarly indexes. Web search engines are more

likely to support what's called **natural language searches**, which are search terms and phrases using everyday language and even complete sentences. You can easily search Google or other web search engines using flexible natural language searches like the following:

- examples of 20th century art from the United States
- Forever 21 clothing sweatshops scandal
- what is the future of electric cars
- Twitter audience backchannel during presentations
- what should I not say during job interviews

With natural language searches, you can *guess* any words that might work. Web search engines are typically designed to work well with natural language searches.

In contrast, scholarly indexes and databases are less likely to support this type of casual searching and rely instead on highly-defined **subject headings**, or what's called **controlled vocabulary**. You'll probably have more success when searching scholarly indexes if you take time to discover the subject headings used by the index you're searching. Use those terms instead of the natural language searches you might typically use with web search engines.

Here are some examples of controlled vocabulary you might use in scholarly indexes to find materials similar to those described above in the natural language searches:

- Art, modern-20th century-United States-Exhibitions
- Clothing trade-corrupt practices
- Hybrid electric cars
- Multimedia systems in presentations
- Employment interviewing

These specific phrases might seem clunky and awkward, but they are examples of controlled vocabulary selected to avoid confusion

between similar terms. With controlled vocabulary, you'll need to discover and use the subject headings or descriptors used in the index you're searching.

The search terms and strategies you use will depend on context. For example:

- What type of finding tool are you using?
- What type of search vocabulary does that tool accept?
- Are some terms or strategies more successful in the finding tool you've chosen?

Search boxes may all look alike, but they may not handle your search terms or phrases in the same way. When you search multiple tools for a project, you will need to use different search terms or strategies in each of the different tools. Take the time to explore!

You'll learn more about keyword and subject searching in specific finding tools in later chapters.

1.6 Translating your Topic into Searchable Keywords

Since you won't already know which subject headings to search, how do you get started? One way is to use keywords. Take a few minutes to think of potential synonyms or relevant aspects of your topic. You can even do sample searches to look for synonyms and other information.

Here is an example:

For a class project, you need to research the assigned topic of *home design that is safe and comfortable for the elderly*. You could go to Google and search for:

“home design that is safe and comfortable for the elderly”

Using this natural language approach, you'll find lots of results in Google, and some of them will be helpful and relevant. As you look through your results, you might find synonyms or alternate vocabulary that might be useful, including: “home safety,” “universal design,” “accessible housing,” “older adults,” “elder-friendly,” “seniors,” “supportive design,” and so on. These are keywords that might be helpful for you to consider using when building a new search within any finding tool.

For your project, you're required to use article indexes rather than web resources. So, you go to the library website, find the article index your professor told you to use, and you type in exactly what

you searched in Google: *home design that is safe and comfortable for the elderly* – only this time you get zero results. What now?

It's time to rethink your search terms. When using article indexes, search term selection becomes much more important. Let's break your topic down into the various concepts that comprise it, and then add some synonyms or alternate vocabulary that might be useful to describe the same concepts, or elements of those concepts:

Concept 1

home design: universal design; design for aging; elder-friendly design; housing design; architecture; architectural design; design features; supportive design; design

Concept 2

safe and comfortable: home safety, accessibility, barrier-free

Concept 3

the elderly: senior citizens, seniors, old, older adults, older people, aging, aged, elderly people, elder

You can then do some exploratory searching in your finding tool by using short combinations of your keywords, such as:

- elderly AND home design AND safety
- universal design AND safety AND older people
- senior citizens AND homes AND design

Different finding tools require different search vocabulary and techniques. When you're using scholarly finding tools, you will often find that you need to break down your topic into keywords appropriate for each finding tool. You may need to explore using different terms until you find your best results. This process of revising search terms will be helpful as you do research for your classes.

Need some more practice? Take a look at this [How to Generate Keywords](#) tutorial, from the University of Texas at Austin. It will take you through the steps of brainstorming synonyms for the topic of your choice. You can even copy and paste the terms you come up with into our own ISU databases.

1.7 The Flow of Information

A factor you may not have considered when starting your research is time. It's important to know *when something happened* because that can help you determine both how much and what type of information might exist on your topic. The *closer* you are to the actual date something happened, the *less information* there is likely to be on that topic. By the same token, the *further* away you are from the event in time, the more likely it is that *more information* and publications may be available. This concept is called the flow of information.

Primary Sources

The first information available about a particular happening usually attempts to describe or report the event on the same day or very soon after it happens. These types of information sources are often called **primary sources** because they are the *first accounts* and often provide *eye-witness* perspectives. (Note that some disciplines in the sciences define primary sources as publications describing original research.)

Common types of primary sources include web and newspaper articles from the time of the event, diaries, news transcripts, photographs, and citizen videos.

Here's an example:

On June 12, 2009, election protests began in Iran. Worldwide observers noted that the protesters made extensive use of Twitter, Facebook, and YouTube to communicate what was happening.

Television news coverage of the events began at once.

On June 14, 2009, an entry on the protests was created by anonymous users in Wikipedia.

The New York Times newspaper published an article and photo on the topic on June 15, 2009.

On Twitter, thousands of #IranElection tweets documented the developing situation. All of these are examples of primary source, produced while the protests were actually occurring.



In general, you can expect to find information on the web, television news, and social media in the first few days after a newsworthy event. As weeks go by, other information sources begin to emerge, adding new perspectives and information on the topic. Articles in news magazines and popular consumer magazines (such as Time, The New Yorker, Newsweek, People Magazine, Smithsonian, The Economist, etc.) – the types of magazines you can easily find in supermarkets, superstores like Walmart and Target, and most bookstores – appear next.

In our example, on July 27, 2009, Newsweek published a short article on the election protests and media use in Iran; The Economist and other popular consumer magazines also began publishing short articles and opinion pieces around this time. So, additional sources of information started being published months later, joining the mix of primary sources discussed earlier.

Secondary Sources

As more time passes, more information and scholarly research on noteworthy events becomes available. Often the focus of this new material is to understand or analyze the event, or to put it in context historically, by comparing it to other issues, trends, or movements.

These types of *analytical, after the fact*, information sources are called **secondary sources**. These typically look back in time and analyze the original event in much greater depth and context. Common types of secondary sources include books, research articles, and encyclopedia articles. (Some disciplines may define secondary sources mostly as books and encyclopedia articles.)

Let's return to the example of the 2009 election protests in Iran.

In 2010, one of the first peer-reviewed journal articles on the topic appeared in the International Journal of Emerging Technologies in Society (iJETS). Many other peer-reviewed journals published research articles on the topic from 2012 to the present. Also in 2010, scholarly book chapters began to be published on the protests, and in 2011, brief mentions of the event began to appear in some encyclopedias (such as Encyclopedia of Social Movement Media).

Check your understanding



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<https://iastate.pressbooks.pub/lib160info1ed/?p=34#h5p-8>

1.8 Publication Cycle

Let's think about time and the flow of information from another angle. Different types of information sources have radically different publication cycles. For example:

- **Newspapers** (both print and online) are typically produced on a daily basis.
- **Popular magazines** like *Time*, *Sports Illustrated*, *In Style*, and so on, might be issued once a week or once a month.
- **Scholarly journals** might be issued only a few times a year.
- **Books** might take years to research, write, edit, and publish.

Research materials typically undergo a thorough peer review process before they are published. This means that scholarly research materials typically take much longer to produce than popular materials, such as magazines.

Why is knowing all this important? If your topic is relatively current or recent, this will limit the types of information sources available to you. For example, you'll find many newspaper and magazine articles about the 2019 wildfires in California, but you'll probably find very few, if any, scholarly research articles or books yet.

Understanding the role that time plays in the production and dissemination of information helps you know where to look, and what types of information you're most likely to find.

Check your understanding



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<https://iastate.pressbooks.pub/lib160info1ed/?p=35#h5p-9>

CHAPTER 2: EVALUATING INFORMATION

Learning Objectives

After completing this chapter you should be able to ...

- recognize that information has value that varies based on your needs
- distinguish between the open web and subscription materials
- critically evaluate information to determine suitability for your needs
- use Google and Google Scholar effectively for your information needs

2.1 Available at Your Fingertips!

We know that you know how to find stuff on the internet. But is it the *right* stuff that you need for your college-level assignments? In today's digital world, we go online for nearly everything. It only makes sense that academic research has also gone online. However, finding scholarly information on the internet is not always easy. Research has shown that first-year college students often have difficulty making the transition from using Google to developing a more comprehensive set of research skills. If you plan to do academic research, you will need to know how to effectively select appropriate search tools, develop keywords, and evaluate your search results.

Information Has Value

Information is powerful. All information has value of some kind, whether it is making money, sharing knowledge, informing decisions, encountering new perspectives, or helping you engage with the world around you. Value is also relative to your information needs. The same content can have more or less value depending on your purpose.

Since information can have monetary value to its creators, publishers and copyright holders often seek to protect that value by placing their content behind paywalls.

A **paywall** is a system that requires users to either pay to access content, log in, or be members of a community (like ISU) that has paid subscription fees for them. For example, Netflix is a

subscription service that keeps its content (streaming movies and television shows) behind a paywall. A vast number of scholarly materials are also locked behind paywalls; however, there are resources online that are scholarly, reputable, and do not charge access fees.

2.2 The Open Web

The **open web** is comprised of everything you can access online without logging in or paying fees. Tim Berners-Lee invented the World Wide Web as a means for researchers to easily share information. He wanted the web to be available to everyone and not controlled by corporations, which is one reason why we see such a wide variety of content online today.

On one end of the open web spectrum, you can find someone's personal website dedicated to their cat. On the other end of the spectrum, you can find high-quality and reliable research material.

The open web is full of websites that may or may not be reputable. Popular search engines like Google retrieve results from the open web regardless of quality or credibility, so you need to critically evaluate all the sources you find. Although you can find scholarly information through the open web, much of it is either not available without a subscription or is difficult to separate from unreliable websites.

2.3 Wikipedia: Crowdsourced Information

Wikipedia took the original vision of the open web and went one step further to ask the question: What if everyone on the web came together to create an open encyclopedia? With that, Wikipedia was born. Chances are you use Wikipedia often. It ranks as the top result in many Google searches and can serve as a fantastic resource for providing background information on a variety of topics.

Who Creates Wikipedia?

Wikipedia is a crowdsourced encyclopedia, which means anyone can create and edit Wikipedia entries. This is both a strength and a weakness. One of the most fundamental ways the scholarly community determines the reliability and authority of information is by knowing the scholarly or professional credentials of authors. Wikipedia articles are usually not signed in any way – at least, not with real names. You can't tell who the authors or editors are or what qualifies them to write on the topic, if they are qualified at all. In the same way, anyone can discuss, contribute to, or challenge the content of any Wikipedia entry.

One study found that a majority of the over 58,000 Wikipedia contributors who responded to a survey were in their early- to mid-twenties and male. The highest degree earned by 45% of contributors answering the survey was high school or less. Twenty-six percent of contributors reported having an undergraduate college degree; 19% had a Masters degree, and less than 5% held a Ph.D. The main motivation for contributing to Wikipedia was that

they “like the idea of sharing knowledge and want to contribute to it.”¹

Given this, it's not surprising that Wikipedia is often an excellent source of background information on a wide range of current popular topics: anime, extreme sports, social networking, video games, popular music, movies, TV shows, and so on. It can also be a good place to find background information on a wide variety of topics, including academic subjects. A number of studies have evaluated the information provided in Wikipedia on various subjects, and for the most part Wikipedia has passed the test. When it comes to more advanced and detailed subject knowledge, coverage and reliability may differ. Original research and ideas, theories, analyses, and interpretations – the type of information that university students typically need for assignments and papers – are not included at all in Wikipedia. Thus, it's unlikely Wikipedia will be a good source for finding original research.

Wikipedia does an admirable job of evaluating its own strengths and weaknesses on its About page. It's interesting to note that the strengths and weaknesses alike are linked to the fact that Wikipedia is “...open to anyone, has a large contributor base, and its articles are written by consensus.” Unless you yourself are already an expert on the topic you're reading about, there's no way to quickly verify the accuracy of a Wikipedia article without consulting a number of other sources on the subject.

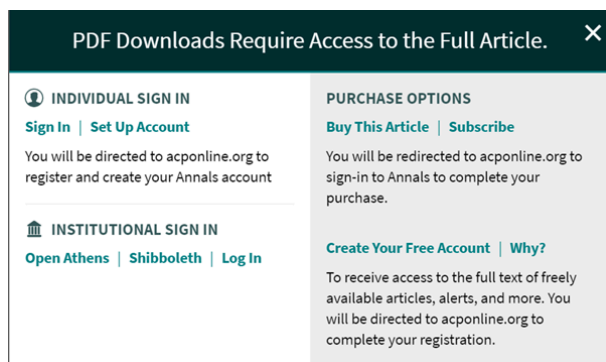
How should you use Wikipedia? Wikipedia itself suggests it be used only as a starting point and not an end. It can be used to learn vocabulary or technical terms for a topic you're not familiar with,

1. Glott, Ruediger, Philipp Schmidt, Rishab Ghosh. Wikipedia Survey: Overview of Results. United Nations University, Collaborative Creativity Group, March 2010. Available online: https://web.archive.org/web/20110728182835/http://www.wikipediastudy.org/docs/Wikipedia_Overview_15March2010-FINAL.pdf ↴

and find citations to reliable sources such as scholarly books and articles.

2.4 Behind Paywalls

The majority of online scholarly resources are available only to paying subscribers. This means that most people across the world are shut out from access to many scholarly materials.



This is an example of a paywall

Libraries all over the world pay for subscriptions to resources on behalf of their communities. For example, the ISU Library subscribes to thousands of electronic journals, scholarly indexes, ebooks, and many other types of online resources. Common search engines cannot get you access to the majority of these sorts of scholarly, subscription-based resources.

Paywalls in Action

If you rely on typical web search engines for all your information needs, you probably won't find a comprehensive set of scholarly information on your topic because a lot of it is behind a paywall.

Let's say you need to write a paper about the works of Jane Goodall, a world-renowned researcher and activist who has studied chimpanzees and animal behavior since the 1950s. She holds a PhD in ethology (animal behavior) from Cambridge University and has received numerous awards for her ground-breaking research in primatology and related conservation, environmental, and humanitarian work. She has also been named a United Nations Messenger of Peace.

Dr. Goodall has published at least 15 books on chimpanzees, animal behavior, and humanitarian/environmental topics. She has authored more than 100 scholarly articles about her research, publishing in some of the most renowned science journals. These works have been written primarily for an audience of fellow researchers.



Where do you start when looking for information for your paper on Jane Goodall's works? If you just need basic facts and news, Google would be a great choice. However, paywalled information isn't available to search engines, so they can't make it accessible to you. Because much of her scholarly work lives behind paywalls, you won't easily find her articles using Google.



When you Google Jane Goodall, you'll find websites related to her organizations, a Wikipedia entry, her Twitter feed, photos and videos, links to buy her books, news articles, and so on.

All of this may be good information, but most of it is not peer-reviewed scholarly material.

As you learned in Chapter 1, **peer review** means that subject experts review, read, and thoroughly critique another researcher's potential article or book before it is accepted for publication.

Content found on the open web has not necessarily gone through any review process. For example, social media platforms like Twitter, Facebook, and Instagram don't vet or fact check everything their users share or post. People can write whatever they want, regardless of truth, good judgment, or level of expertise.

2.5 Why Go Beyond Google?

To find the information you need from the open web, particularly scholarly information, you need to be able to search effectively. You can search for just about anything using Google and get millions of results. With all of those results, why bother to search beyond Google? For some answers, let's look a little closer at how Google works.

Google uses proprietary algorithms and a unique ranking system to determine where a website will be placed in your search results. This order is based on the idea that the more links there are to a website, the more authoritative, interesting, important, or reliable that website is. Your Google search results will generally lead with the most-linked sites that contain your search terms. However, these may not be the best sites for your intended purpose.

While Google is certainly the largest and most heavily used search engine, there are plenty of others available for use on the web. Other search engines may have different ranking systems and you may see results listed in a different order. You may even see differences between one computer and the next due to the effects of your search history.

Sponsored links are advertisements that often appear at the top of your search results. This means that someone has paid to have their website appear at the top of a specific web search. Depending on the search engine you're using, it may not always be easy to identify these ads from your real search results. Some are clearly labeled, others are not. Be sure you know the difference between these paid

advertisements and more authoritative content. Advertisements are a chief source of revenue for Google and other web search engines, and they are placed prominently in your search results to generate income from advertisers.

In short, Google is powerful for retrieving a wide variety of web materials that you need to take time to sort out and evaluate. Now that you understand why you see the results that you do, let's discuss Google's scholarly search engine, Google Scholar.

2.6 Google Scholar

[Google Scholar](#) is similar to Google except that its primary purpose is to find scholarly research materials. These include journal articles, books, materials from scholarly organizations such as universities, and other resources. Non-scholarly web content is excluded from Google Scholar search results.

Information about patents and legal documents on the web can also be selected and searched. You'll find these listed just below Google Scholar's search box. If you're not interested in that kind of information, be sure these are unchecked before you do your search.


One of the most important things to understand about Google Scholar is where its content comes from, because that determines if and how you can access it. Much of the material you find there comes directly from the open web. For example, it's common to see pdf files from researchers' websites, open access articles, and similar links in your Google Scholar search results. These types of materials are available to anyone, anywhere. You shouldn't have to log in to any website or database to access these materials.

Mixed in with these open web materials, you'll also find paywalled materials, including subscription journal articles and ebooks. In most cases you can still access these, though it may take a few steps.

For some paywalled material you find on Google Scholar, you may see a ViewIt@ISU link.

The Great Gatsby as a business ethics inquiry
T McAdams - Journal of Business Ethics, 1993 - Springer
... Bewley explains: The **Great Gatsby** is an exploration of the **American Dream** as it exists in a corrupt period, and it is an attempt to determine that concealed boundary that divides the reality from the illusions. The illusions seem more real than the reality itself. ...
[Cited by 36](#) [Related articles](#) [All 10 versions](#) [Cite](#) [Save](#) [More](#)

[jstor.org \[PDF\]](https://www.jstor.org/stable/2345678)
ViewIt@ISU



ViewIt@ISU indicates that this material is paywalled but may be available through the ISU Library. Clicking the link checks to see if a full-text version of your item is available from the ISU Library's online collections. If the library does have a subscription to the item, ViewIt@ISU will lead you to a page on the library website that links to the full-text of the article.

Login for Access

You will need to activate ViewIt@ISU by connecting Google Scholar to the ISU Library collections. That way you'll be able to see when the ISU Library owns something you've found. You can establish this connection by following these steps:

- In Google Scholar, go to **Settings** and choose **Library links** on the left menu. (Find Settings by clicking on the three-line icon at the top left corner.)
- Search for Iowa State University, and select **Iowa State University – ViewIt@ISU**, and then **Save**.

You'll now see ViewIt@ISU links in your search results when you've found items we own. Then click the ViewIt@ISU links to connect to the items. If you are not already logged into Okta in your browser, you will also need to log into the library system with your ISU NetID and password in order to access paywalled library materials, such as journal articles from ISU Library collections. If you've already logged into Okta during your browser session, this connection will happen automatically.

Interlibrary Loan

But what if the library does not subscribe to or own the item you find in Google Scholar? For legal reasons, copyrighted articles and books are typically not available in their entirety free online unless they have been explicitly published as open access. If you search *Great Gatsby and jazz age*, Google Scholar will list the journal article below in its search results, but you'll only be able to access the first page of the article – other pages are locked behind a paywall.

Gatsby, The Jazz Age, and Luhmann Land

DR Shumway - The Journal of the Gilded Age and ..., 2015 - Cambridge Univ Press

... Since **hip hop** is old enough now to be on the downward slope of its trajectory, I'm not sure this analogy works, but it does illustrate ... of the discourse of romance that goes back to Tristan and other literature of the late Middle Ages.¹⁴ Like the stories that **Shakespeare** borrowed to ...

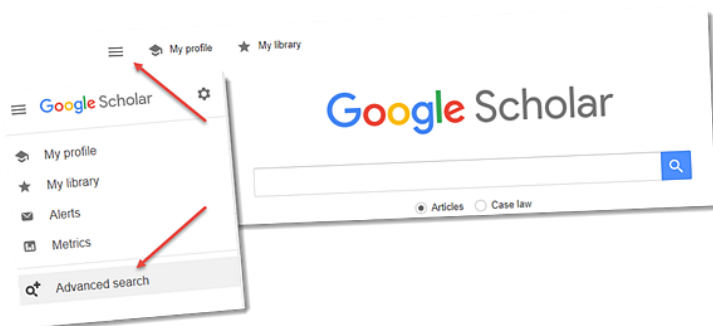
Cited by 1 Related articles All 3 versions Cite Save More

This example comes from a journal the ISU Library does not have. Note that there is no **ViewIt@ISU** link for this article. However, even though the article is not freely available online and the ISU Library does not subscribe to the journal that published this article, you still have another option: use ISU Library's **Interlibrary Loan (ILL)** service. ILL lets you borrow materials from other libraries for free.

You may not be able to get immediate access to what you want within Google Scholar, but if you use it along with library resources like ILL and Quick Search, you can get just about anything you need. Now let's take a look at Advanced Search features in Google Scholar.

2.7 Advanced Search in Google Scholar

Another important way Google Scholar differs from Google is its advanced search features that help you focus your search. To access Google Scholar's Advanced search, click the three-line icon in the top left corner of Google Scholar's home page. On the menu that appears, select **Advanced search**.

A screenshot of the 'Advanced search' form in Google Scholar. The form is titled 'Advanced search' and has a search bar at the top. Below the search bar, there are several sections for refining the search. The first section is 'Find articles' with options: 'with all of the words', 'with the exact phrase', 'with at least one of the words', and 'without the words'. The second section is 'where my words occur' with radio buttons for 'anywhere in the article' (selected) and 'in the title of the article'. The third section is 'Return articles authored by' with a text input field and an example: 'e.g., "PJ Hayes" or McCarthy'. The fourth section is 'Return articles published in' with a text input field and an example: 'e.g., J Biol Chem or Nature'. The fifth section is 'Return articles dated between' with two date input fields and an example: 'e.g., 1996'.

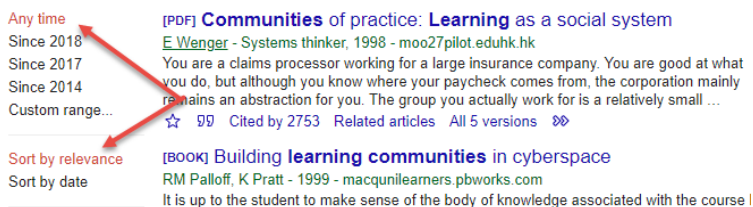
Let's say you want to find scholarly articles on the web about the benefits of learning communities for undergraduate students. Google Scholar's Advanced search can help you in a number of important ways.

For example, you can specify if you want some of your search terms to be treated as an exact phrase. In this case, you would want the words *learning communities* to be searched as a single phrase,

rather than searching for those words separately. Not using the exact phrase search box could retrieve sources about learning in a lot of different contexts and different types of communities, but not necessarily the specific concept of learning communities.

You don't have to use just one of these boxes. You can also use them together. For example, you can add *benefits* as an additional word you wish to find, using the **with all of the words** box. Advanced search also lets you specify where your words must occur, for example in the article title or author name.

Google Scholar offers the ability to sort your search results by relevance or by publication date. Selecting **sort by date** can help you more quickly find current materials.



Keep in mind that subject area coverage in Google Scholar can be uneven. Science and technology areas are especially well represented, but most areas have at least some coverage. You'll need to test Google Scholar yourself to see if it's the right tool for your research. Below are some strengths and weaknesses to consider when using Google Scholar.

Strengths

- Simple to search and mobile-friendly.
- Works with natural language searches.
- Good choice if you have a partial citation, missing some information on a specific item.
- Can sometimes find free versions of articles not in subscriptions held by ISU.

- Can be used without an ISU login, although with limited full text options in that case.

Weaknesses

- It's not easy to focus or refine your search.
- Coverage is less complete for the social sciences and humanities and more thorough for science and technology.
- You'll find things that are not articles even when you choose to search just articles.
- Lists older but frequently cited articles before newer articles that haven't been used as often yet.

2.8 Evaluating Information Online

Evaluating information is something you do every day, whether you know it or not. You evaluate information when you determine what to write down when you're taking notes in class, debate issues with friends, and look up new movie reviews — all this before you even start gathering information for a research project. In this section, we'll discuss how you can more effectively evaluate and fact-check the information you encounter every day, from news stories to academic articles.

Why Evaluate Information?

Vast amounts of new information are being created every minute and it can be overwhelming to make sense of it all. So how do you know you've found the best information for your needs? You evaluate it! Below are some reasons why you should make thoughtful evaluation a part of your research process.

Avoid misinformation

One reason to evaluate information is to sniff out bullshit. As Bergstrom & West (2017) state,

“Bullshit involves language, statistical figures, data graphics, and other forms of presentation intended to persuade by impressing

and overwhelming a reader or listener, with a blatant disregard for truth and logical coherence.”¹

It's not a good idea to blindly trust that the information you find is accurate or trustworthy. Sometimes authors will overstate the importance of an experiment or misrepresent information.

In other cases, a media outlet's interpretation of new research may oversimplify a paper's results. This is not always malicious or deliberate. It could be an attempt to draw more clicks with an exciting or dramatic headline, or it could just be a non-expert reporter misunderstanding the research.

This Twitter account highlights articles with deceptive titles by pointing out where research done in mice is being misrepresented by the media as directly applicable to humans.

IN MICE <https://t.co/DiTGvcJAhl>

— justsaysinmice (@justsaysinmice) [September 4, 2019](#)

Although avoiding misinformation is one of the first reasons you might choose to evaluate something, it's not the only one.

1. Calling Bullshit by Carl Bergstrom and Jevin West <https://callingbullshit.org/>

Save time

Even the best, most truthful, information won't be useful if it's not relevant for your research project. Your time is valuable. Make sure you're spending that time on resources you will actually be able to use.

It's not enough just to find several peer-reviewed articles. They should also be closely related to your topic. Below are questions to consider when thinking about relevance.

- Does it meet the requirements for your assignment? (e.g. peer reviewed articles and books only, number or type of resources)
- Does it address your research question directly?
- Does it add anything new to the conversation beyond what your other resources already state?

All of these things also apply to your everyday life when interacting with sources beyond formal research, such as news, forums, and social media.

Have you seen a friend share an article online and the comments exploded? How many of the commenters do you think actually read the article? Did your friend even read it before sharing? It's easy to rely on your friend's judgement. However, this can lead to embarrassment if you happen to get duped by a misleading post, especially if it's something taken out of context.

In the next section we'll dig deeper into some steps you can take to help you better evaluate information.

2.9 Evaluating Information Using SIFT

SIFT is an acronym developed by Mike Caulfield (2019) that describes four steps you can use to evaluate sources.

Here's a short video series by Mike Caulfield that explores and demonstrates some of what we'll cover in this section.



A YouTube element has been excluded from this version of the text. You can view it online here: <https://iastate.pressbooks.pub/lib160info11ed/?p=53>

S: Stop

Before rushing in, stop and check these two things:

Check yourself

Recognize that you bring your own expectations to your research and that you might be limiting your scope based on what you think the research should show, not necessarily what the research actually shows. If a source confirms or denies what you believe already, you may have an emotional reaction. Use this reaction as a reminder to check yourself and make sure your emotions are not affecting the quality of your research or argument. Verifying the truth of a source you agree with or finding additional sources that present a different perspective (even though it may upset you) can strengthen your case.

Check that you're on task

Stop is also a reminder to stay on task. It is easy to get lost exploring interesting tangents while researching. If this happens, stop and remember your original goal. Think about your purpose and whether you need in depth research, information on current events, or other types of sources, and how those can meet your research needs.

1. Building A Fact-Checking Habit By Checking Your Emotions: <https://webliteracy.pressbooks.com/chapter/building-a-habit-by-checking-your-emotions/>

I: Investigate the Source

Even if you like your source, do some more investigating. Ask yourself if you know what the source's reputation is, both in general and regarding your area of research. A smart approach is to see what others have said about this publication or the author's reputation using Wikipedia, Google, and other search tools. Here are some points to consider:

Reputation

What do other sources say about the reputation of the resource? The creators of a resource will often portray themselves as an authority on a topic, whether or not their work is well-respected by outside experts. For this reason, their own "about" page is not necessarily objective and shouldn't be your only source of information about them.

Approach

How does the source approach this kind of topic? Are they reporting on research or sharing strong opinions? Investigate how or if they support the points they are making. Check that any citations within their writing actually support what they're saying and haven't been taken out of context.

Purpose

What is the main purpose of the resource? Purpose is the reason

why something exists, such as to inform, convince, promote a particular viewpoint, entertain, or sell products. Think about what they're trying to say or do, or what they're trying to get you to say or do. Search beyond the resource to explore what others are saying about the website's purpose. Similar to how you go beyond a source to learn about its reputation, don't only stay within the website you're exploring when you're trying to figure out its purpose.

Authority

What are the author's history and credentials? Knowing where and what they studied, where they work, and how long they've done research on a topic can help you evaluate whether they actually know what they're talking about. It can also be valuable to know whether they have engaged in any ethical misconduct.

Domain

You might expect .edu websites to be more scholarly and objective since they are hosted by colleges and universities, but remember that personal home pages for students and staff hosted by campus servers also bear the .edu domain. Conversely, you may be aware that anyone can purchase a .com or .org domain; however, many scholarly journals are hosted on such websites. Domains can offer hints for where information came from, but the domain by itself does not give any assurance that the content is accurate, up-to-date, thorough, or unbiased.

Conflicts of Interest

How is the source or author funded? Check if any funding information or corporate ties to the project are listed, and consider whether those ties are likely to impact how the research is presented. This doesn't invalidate their work, but you may need to consider possible bias or conflicts of interest.

These are only a few things to consider when investigating your source.

F: Find better coverage

Before using a source, or sharing the information it contains, check to see how the topic has been covered elsewhere. Who else has written about it? Do other sources provide better information? Better sources might contain information that is more detailed, varied, authoritative, or recent.

T: Trace it back

Trace claims, quotes, and media back to the original source. Before trusting or reusing information, make sure you understand the original context and have verified that it has been presented accurately. Some things to check include who first wrote about it and when, and where they got the information. At this point, you may need to circle back to steps I and F to evaluate any new information you've found.

Fact-checking sites

Reputable fact-checking sites are good resources for clearing up viral stories, myths, urban legends and fake news on many different topics. Here are a few examples

[Wikipedia](#) and [Google](#) – Use the tools that you already know. Google the source name and add “Wikipedia” to your search to learn more about its reputation, beyond what the resource provides to you

[Media Bias/Fact Check](#) – Calling itself “the most comprehensive media bias resource,” this site is a good tool for checking up on various newspapers and news organizations. It identifies sites by how far they move (left or right) from a “least biased” centrist position. They also identify questionable sources, conspiracy-pseudoscience, and satire sites.

[Politifact](#) – This helpful site focuses on U.S. politics, using their own “Truth-o-meter” scale to rate how true or false public statements by politicians are

[Snopes.com](#) – Since 1994, this site has been fact-checking the web’s urban legends, news stories, hoaxes, political claims, and more

2.10 Moves for Evaluating Scholarly Information

Evaluating scholarly information takes more than just verifying that it has been peer reviewed, and then reading the title and abstract. Reading and evaluating a scholarly source can help determine if it is accurate, reliable, and relevant. In addition to using SIFT, there are some other strategies and considerations that can be useful when evaluating scholarly information.

Review the source

When reviewing scholarly resources, start by investigating the publisher or publication venue. Their reputations can tell you a lot about whether you should trust what you find there. A warning sign could be if several sources call the journal or publisher “predatory,” which often means that articles or books are published with no review and at great cost to the author.

For journal articles, start by investigating the journal. Google and Wikipedia can usually help you find more information. Look for the journal’s website to find its editorial policies, which will tell you whether the articles in that journal are peer reviewed. If you’re unsure after that, then dig in to investigate the publisher of the journal. Positive things to look for include whether the journal is affiliated with or published by a well-known scholarly or professional society or a respected university. When you’re unsure whether or not your source is something you should use, contact [your librarian](#).

For books, go straight to investigating the publisher to learn more

about their reputation. As with journals, when a book's publisher is associated with a university or scholarly society, it's usually a sign that the contents are trustworthy. Some scholarly books contain chapters written by multiple authors, compiled by an editor. Be careful not to assume that the editor on the cover of the book is the author of the individual chapters. Make sure to check the credentials of the author of the specific chapter you want to use, rather than trusting that each chapter is credible just because of who the editor is.

In the end, the usefulness of a scholarly resource will depend on two things: if the source is authoritative and if its content meets your needs.

Consider its timeliness

When evaluating a source to include in a paper or project, you also need to consider when your source was published. Depending on your topic or assignment, you may need something published within the last five or ten years, as can be the case when researching recent events or medical information. If you're researching the public's reaction to a historical event, it may be necessary to consult an older source. Consider the requirements of your assignment. Does timeliness or currency matter for this topic? If you're not sure, ask your instructor. Also think about when the theory or idea was first introduced. If it has been around for a long time, it has had more opportunity to be criticized, overturned, built upon, or reinforced.

Review its methods

If the source has an abstract and conclusion, read those first to get an idea of what the authors are trying to say. Then dig into the

methods section to see how the authors came to those conclusions. Be on alert for things like methods that are not explained (e.g., only stating “We ran a qualitative analysis”) or that you don’t understand and may need to look up. Reviewing a paper’s methods can give you a deeper understanding of how the authors got their results and will put their findings into a better context.

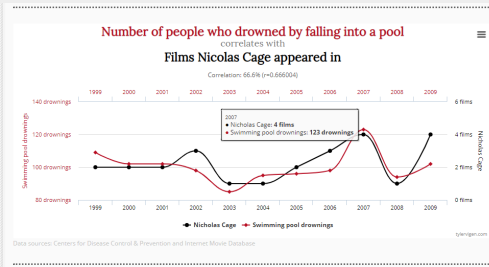
Understand the graphics

Examine the graphics being presented in your source to understand how they relate to the data. Consider whether results are being accurately represented. One thing to watch out for is if only a subset of data is shown in a graphic. For example, a graph may exclude data that doesn’t reinforce the author’s conclusions.¹ This can impact your understanding of the results.

Correlation does not equal causation

Even when all the data is displayed in the graphic, there might be conclusions drawn from it that don’t make sense. Trends can seem to form patterns or overlap (correlation) without actually being related in any way. Good research tests whether there is truly a connection where one change causes another (causation).

1. Calling Bullshit by Carl Bergstrom and Jevin West https://callingbullshit.org/tools/tools_misleading_axes.html



Spurious
correlations:
<http://www.tylervig.com/spurious-correlations>

Is Nicolas Cage's presence in movies really impacting the number of swimming pool drownings? Is the number of pool drownings impacting the number of Nicolas Cage movies made per year? No! These two variables were chosen because they line up, not because there is actually any connection between them. Remember this when you're looking at scholarly graphics, as well — though they may not be nearly as entertaining.

2.II In Practice

Here is an example that walks you through the process of evaluating a source online.

In 2019, the status of koala extinction was discussed on social media following a spread of wildfires in Australia, with hundreds of individuals tweeting about this topic.



After seeing others share that the koala's situation is dire, David Beard [tweeted](#) out an article that asserts that koalas are not functionally extinct. Kathy Gill [responded](#) on Twitter with another article about the same topic, asserting that koalas are becoming

functionally extinct. So, who should we believe?

First of all, we should start by checking our emotions. Why is this contentious? Because koalas are cute and they may be functionally extinct and that's sad. It might feel like David is claiming we shouldn't care about koalas. After all, he is asserting that we shouldn't “buy into the hype.” Is this the case, though? There is a lot here that we should stop and think about before jumping to conclusions.

First, let's investigate who shared this information. Who is David Beard? David Beard's bio on Twitter tells us that he used to work for the Washington Post and the Associated Press. After consulting the Washington Post's website, we can see that this is true. So David works with news organizations, but he may or may not be a koala expert. Kathy is also not a koala expert, and instead she

is a journalist and professor focusing on user experience. From their backgrounds, it seems that the individuals here are both fairly credible sources, but they aren't the authors of these articles, just the people who shared them.

Why are koalas suffering so much in this fire season?

When it comes to fire, everything seems to be stacked against koalas. Their only real defense is climbing higher into the eucalyptus trees where they make their homes—little defense at all in a raging forest fire.

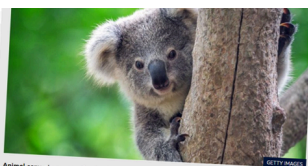


Left: Volunteers from the Port Macquarie Koala Hospital search for injured koalas after a bushfire ripped through prime breeding grounds.



Right: Koala Hospital staff tend to the injuries of Peta, a male koala found severely injured. [Read More](#)

PHOTOGRAPH BY NATHAN EDWARDS (LEFT) AND PHOTOGRAPH BY NATHAN EDWARDS (RIGHT)



Animal campaigners say that koala numbers have fallen so low that the animal is "functionally extinct".

The Australian Koala Foundation says there are fewer than 80,000 koalas left in the wild. Although 80,000 sounds like a lot, the foundation says these koalas are unlikely to produce a new generation.

Functionally extinct describes an animal population which has so few pairs that they are unlikely to produce a new generation.

It can also describe an animal which is breeding in such few numbers that they are more likely to become ill from disease.

Next, what about their sources? David shared a link to a [National Geographic article](#). According to Wikipedia, National Geographic is a magazine that shares “articles about science, geography, history, and world culture.” The article in question, “No, koalas are not functionally extinct – yet” cites [scholars](#) in wildlife conservation and environmental change biology at the [University of Queensland Australia](#) and the [University of Tasmania](#), experts who are likely closely examining this issue as it evolves. It also cites studies about the koala population from 2012 and 2016.

To argue that koalas are becoming functionally extinct, Kathy shared a link to an [article from Newsround](#). According to Wikipedia, Newsround is “one of the world’s first television news magazines aimed specifically at children.” This does not mean that Newsround is a low quality resource, only that it might be simplifying the news to better explain it to children. We can see this within the article proper. The article states that koala numbers are in decline and may be headed toward functional extinction. In fact, despite the way Kathy presented the article in her tweet, her article appears to actually support David’s point.

From this overview, we can see that National Geographic has a greater breadth of information about the koalas than Newsround, which included no citations to back up its claims. We could dig into the sources cited by National Geographic to learn more about the topic (and you should examine the resources being cited to make sure they are represented fairly), but it's safe to say that National Geographic has provided a good base of scholarship to support its claims. Further, it is not asserting that koalas are not in danger. It concludes with: "If we want koalas, we've got to look after them. We need to step up."

CHAPTER 3: FINDING LIBRARY MATERIALS

Learning Objectives

After completing this chapter you should be able to...

- recognize the purpose of library discovery tools and the types of materials they include
- search Quick Search effectively using basic and more complex search strategies to direct your results
- search using Boolean operators and truncation symbols
- interpret Quick Search records to identify and locate items
- locate an item in the Library using Library of Congress call numbers
- use WorldCat, Google Books, and interlibrary loan to access library materials beyond local collections

3.1 Library Discovery Tools

Libraries collect many different types of materials such as books and e-books; online indexes and databases; dissertations and theses; DVDs and CDs; journals, magazines, and newspapers. Traditionally, libraries depended on a finding tool called the library catalog, which told you what materials the library owned and where those materials were located. Catalogs contain basic information about each item including author, title, and publisher, as well as its location and call number. Library discovery tools take searching to the next level, helping researchers find a wider range of resources beyond the items the library owns.

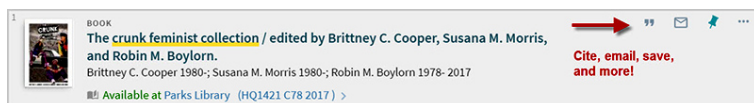
Our library discovery tool is called Quick Search, which you'll find prominently featured on the ISU Library homepage. Quick Search incorporates not only the traditional functions of a library catalog (helping you identify and find what we own), but also searches:

- Articles from some of the library's online indexes,
- Digital content from the library and other sources,
- Online course and research guides,
- Open access web resources such as books from Project Gutenberg,
- Other items that the library doesn't have direct access to, but which you can request through Interlibrary Loan,
- And more.

When you use Quick Search, your results will include a mix of articles and abstracts from some of the library's many article indexes, books, journals, DVDs, CDs, and magazines.

Quick Search has a lot of flexible and useful features for you to try out. For starters, Quick Search uses labels in your results list so you can instantly tell which items are books, which are DVDs or

videos, music CDs, and so on. Other helpful features allow you to cite sources you've found or put items you like in a list (just click the pushpin icon) and then email those results to yourself. You can also log in with your NetID to save your searches and specific items to your Favorites for future use.



There's a lot to explore in Quick Search. Let's focus on the features most likely to be helpful to you when doing research.

How Quick Search Works

Just like a web search engine, you can type just about anything in the Quick Search box and get results. As discussed in Chapter 1, basic searches like these require little thought. Depending on what you need, they might be effective. But when it comes to doing college-level research, you'll need to choose your search terms carefully, know what you're searching, and know how to direct your searches so you can find what you need.

We're all used to getting thousands of results whenever we search Google. Library discovery tools like Quick Search are designed to look and work a lot like Google. But do you really want or need them to? Scholarly materials are organized differently than materials from the open web. While you may get results in Quick Search using a natural language search, your results may not be the best. When you're doing research, you probably don't want to scan through thousands of results. Chances are, you need to focus on finding very specific items. For these reasons, you'll need to use Quick Search differently from the way you search the web.

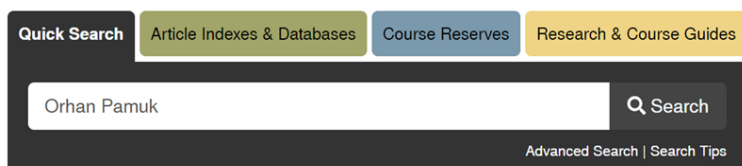
To get the best results, you'll need to begin thinking of the search process and research itself as strategic exploration. In order to focus your results in Quick Search, you'll need to use both the Simple and the Advanced Search features, along with a number of other strategies. We'll focus on these in the next section.

3.2 Search Strategies for Quick Search

Here are a few essential research strategies for making your Quick Search results more manageable and focused.

Start Simple, then Tweak

Starting simple is often a useful strategy, especially when you're not sure what you're looking for or what you might find. Just type a few words or an author's name into Quick Search. Let's say you want to find any books by or about the Nobel prize-winning author, Orhan Pamuk. It seems logical to simply use the name *Orhan Pamuk* as our initial search terms.

A screenshot of a library's Quick Search interface. At the top, there are four tabs: 'Quick Search' (dark blue), 'Article Indexes & Databases' (green), 'Course Reserves' (blue), and 'Research & Course Guides' (yellow). Below the tabs is a search bar containing the text 'Orhan Pamuk'. To the right of the search bar is a magnifying glass icon and the word 'Search'. At the bottom right of the search bar area, there is a link that says 'Advanced Search | Search Tips'.

Sometimes, searching Quick Search without changing any of its default settings might be exactly what you want to do. If you have some unique keywords, it might work well. However, you may also retrieve far too many results. If that's the case, you may have to try different search terms or strategies. In our example, even though the name *Orhan Pamuk* is very unique, a simple search for that name will find almost 3,000 results!

This example illustrates the sheer volume of materials Quick Search

covers, and why searching often becomes a multi-step process. In many cases, you'll need to refine your search to narrow your results to what you really need.

Refining your Search

Once you have some search results, one easy method to focus your results is to use the **Tweak my results** column to the right of your search results list.



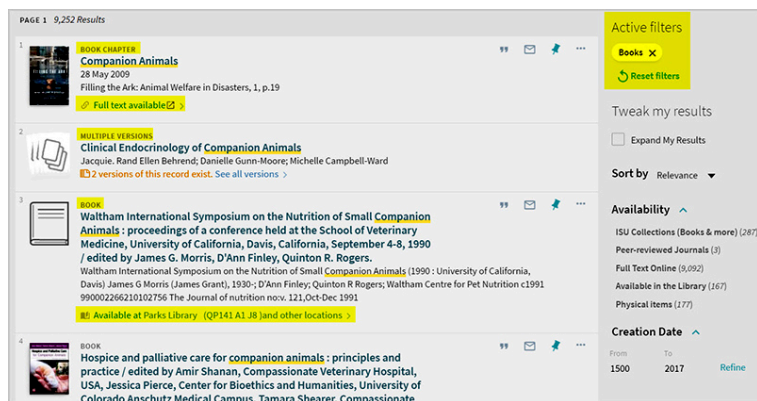
In the Tweak my results column, you'll see a number of categories like:

- Availability,
- Format Type,
- Topic,
- Author/Creator,
- and more!

Each of these categories includes filters to consider. In the Format Type category, we'll choose the Books filter in this example. There are many more filters to choose from, but this one alone will narrow our list down to 55 results.

3.3 Labels to Learn

Besides the many filters, there are also other important labels within your search results. The image below highlights some of those labels.



Active filters

Whenever you select a filter, you'll see it listed at the top of the right column under **Active filters**. In our example, we've chosen **Books** as our only filter. In your own searches, you can select more than one filter and click the X for any filter you want to remove.

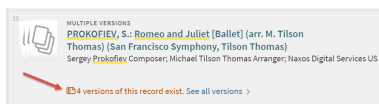
If you're doing multiple searches, you'll want to check whether filters from your previous searches are still listed as active. You may want to remove them if they're impacting your search results in a way you did not intend.

Material type

Next, notice that each item on your list has information to tell you what type of resource it is. This is above the item title. We've filtered our list to show only books, so all the labels show we have found books and book chapters. In other searches you do, you are likely to see a variety of labels, including videos, articles, and more.

Multiple versions exist

Notice how one record indicates **multiple versions** exist, and includes a **see all versions** link. Don't assume that this label literally means the library has multiple copies of the exact same book. Instead, your search has found more than one version of the same item in different formats or editions. Think of Shakespeare's *Romeo and Juliet*. In this case, "multiple versions" includes several different film versions, music recordings, different editions of books, physical books and ebooks, and more.









Full text available

Full text available means the whole item is available in a digital format. It's not just a snippet or excerpt like you might find in an Amazon preview.

To access the full text, click on the link following "full text available at." You'll may be taken directly to your item, or you may be taken to a page that provides a link to the **specific digital collection** that includes your item. Sometimes there may be multiple collections

that include your item so you may see more than one link. If there is more than one digital collection listed for your item, just click the first one that includes the year you need.

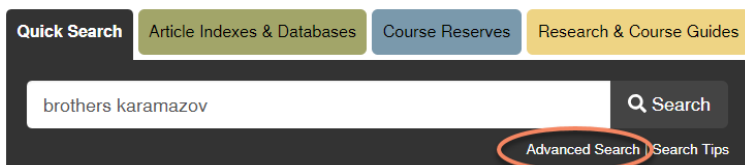
Available at: ProQuest Earth, Atmospheric & Aquatic Science Database 	SHOW LICENSE 
Available from 1990	
Most recent 1 year(s) not available	
<hr/>	
Available at: Nature 	SHOW LICENSE 
Available from 1940 volume: 145 issue: 3662	
<hr/>	
Available at: EBSCOhost Academic Search Complete 	SHOW LICENSE 
Available from 1997 until 2015	

Searching Quick Search in this way is guaranteed to bring lots of results, just like a basic search in Google. However, using Advanced Search in Quick Search is almost always guaranteed to bring you better results for your research topic.

3.4 Using Advanced Search

Unlike simple search, **Advanced Search** immediately gives you various ways to be very specific with your searches. You're more in control of your search results right away, which can be helpful when you're doing in-depth research!

Let's take a closer look at Advanced Search and its features. Look for the link to Advanced Search near the simple search box.



Anatomy of Advanced Search in Quick Search

First, let's notice how Advanced Search is structured. Among the first things you'll notice on Advanced Search are the various drop-down menus. You can use these drop-down menus to focus your search by limiting to certain fields in the record, how your search uses the keywords you enter, material types, language, and/or publication year.

Search in: ☒ ISU Library ☐ Partner libraries

Search Scope: Library Collections + Articles ▼

Any field ▼ contains ▼

AND ▼ Any field ▼ contains ▼

+ ADD A NEW LINE

Material Type
All items ▼

Language
Any language ▼

Publication Date
Any year ▼

Field Searching

Any field

Title

Author/creator

Subject

ISBN

Fields refer to specific segments of item records. These records are digital descriptions of the individual books, journals, and other materials within Quick Search. Using the **Any field** drop-down menu, you can search by the **Title**, **Author/creator**, and **Subject** fields, or leave it as **Any field** to search all of these at once. By restricting your search terms to a specific field you will most likely decrease the number of records

you retrieve. This can be a very effective strategy for focusing your search results. Next, let's examine each of these options.

Author/creator

Use this field when you know the author, editor, and/or creator's

name. For example, if you were looking specifically for things Jim Henson wrote, searching by **Author/creator** would be your best choice.

Authors can include anyone or any group who is responsible for creating a work, such as writers, music composers, companies or organizations, performers, and so on. You can find materials written or produced by NASA, the United States Department of Agriculture, scholarly organizations, and many others searching by Author/creator.

Subject

As discussed in earlier chapters, subject searching means searching for your terms within controlled vocabulary. Use this field with caution, as your search results may not be what you expect. It is best used when you know the controlled vocabulary terms match those found in Quick Search.

Title

Use this field when you know the item's title or some of the words in its title. There may be multiple titles associated with the item you are looking for (e.g., book title, book chapter title, article title, journal name, subtitle). Not all of these will return results in Quick Search.

Any Field

This is your default option and is the best place to start when

you don't have a specific resource in mind. Any Field searches all of the fields in the item record at once. For example, if you were looking for anything by or about Jim Henson, searching Any field would be your best choice. You'll search all database records at once for any mention of Jim Henson in author, title, subject, or any other field. Another example would be when your search terms fall into different fields, such as title and author/creator (e.g., *Brothers Karamazov* and Dostoevsky).

Fields in Action

What does this actually look like when you're searching? Take a look at the sample digital record in the graphic below.

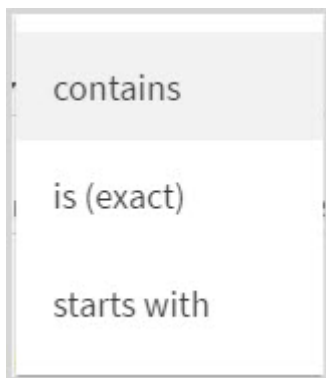
An item record typically includes information such as title, author, subject(s), format, publication year, publisher information, notes, and other details that specifically identify and describe the item.

Details

Title	Pets and people : the ethics of our relationships with companion animals / edited by Christine Overall.
Author/Creator	Overall. > Christine Overall 1949- >
Subjects	Pets > Pets -- Moral and ethical aspects > Pets -- Social aspects >
Description	This work offers 18 ground-breaking articles, written by an international group of philosophers, on companion animal ethics. It explores the ethical foundations of our relationships with pets , in particular dogs and cats, and specific moral issues, including breeding, reproduction, sterilization, cloning, adoption, feeding, training, working, sexual interactions, longevity, dying, and euthanasia.
Publisher	New York, NY : Oxford University Press
Creation Date	2017
Format	xxv, 295 pages ; 24 cm.
Language	English
Identifier	ISBN : 0190456078 ISBN : 9780190456078 ISBN : 9780190456085 ISBN : 0190456086
Record id	01IASU_ALMA21255329060002756 MMS ID:9920253376602756
Source	01IASU_ALMA

3.5 Other Drop-Downs and How to Use Them

Besides the **Any Field** drop-down menu, the first row in Advanced Search has two other drop-down menus you can use to control your search results. The default of the second drop-down menu is **contains**. This allows you to choose **word arrangement**, meaning if your search terms should appear in any specific order, and if so, where. For example, let's say you're looking for Stieg Larsson's novel, *The Girl with the Dragon Tattoo*. The three options here are helpful for different situations.



Contains

Use this if you don't remember the exact title or wording – for example, you could use **contains** to search just the words *dragon tattoo*. Your search terms could be in any order as well, such as *tattoo dragon*.

Is (exact)

Use this only when you're certain you remember the exact wording, for example *girl with the dragon tattoo*.

Starts with

Use this if you're sure how a title or phrase starts. In our example, you could use **Starts with** to search the phrase *the girl with the dragon*, which is just long enough to exclude similar titles such as *The Girl with 500 Middle Names*.

You can also control your search by using the **Material type** drop-down menu. This menu allows you to indicate whether you want to find only Books, Articles, Journals, Audio Visual (i.e., DVDs, videos, music CDs, etc.), or Images. If you don't care about limiting to a specific type of material, just leave this one set at its default of **All items**.

The remaining Advanced Search menus are **Language** and **Publication date**. The choices in the **Language** menu are a preset list based on ISU language courses, and do not cover the full range of languages represented in the library's collections. Lastly, **Publication date** allows you to find resources published within a specific date range.

If you're doing multiple searches, note that the drop-down settings you used for your previous search remain active until you reset or clear them. For example, if you chose **Author/creator** as the field to search, your next search will remain set to the Author/creator field.

If you're doing another author search, there's no problem; however, if you're doing something else, just be aware you'll need to set the field choice accordingly.

3.6 Searching by Subject

Like web search engines, Quick Search allows you to use natural language searches such as:

What are the benefits of learning communities?

How to improve writing and study skills

Are irradiated foods safe?

While searches like these might work for finding full text articles in Quick Search, such searches are often less effective for finding books and other library materials. This is because Quick Search does not search the full text of print books and other physical materials (DVDs, etc.)

Natural language searches work best with items we have full text access to, such as websites, because they search the entire text looking for your terms. However, you cannot search the full text of books and other physical items (DVDs, journals, images, and so on) in Quick Search. The records for these types of materials include predefined subject headings to describe what the item is about. Because subject headings come from preset lists, your terms will need to precisely match an existing subject heading to get good results in a subject search. So how do you find subject headings?

Subject Searching Tips

To search by subject effectively in Advanced Search, strategic exploration will be your best next step!

Already know a subject heading?

If you already know a specific subject heading, just type it into Advanced Search and use the first drop-down menu to choose **Subject**. However, it's more likely that you won't know the exact subject headings to use in advance.

Don't know the subject heading?

If you don't know in advance whether your starting search terms are in the Subject field, start with a Simple (or Any field) search. Next, look through your search results. When you find an item that looks relevant, click that item's linked title to **open the full record**, and scroll down to **Details** to find the subject headings. Do you see anything that describes your topic well? You can then click a relevant subject heading to search that specific subject and, in doing so, immediately focus your search results.

Subject searching in action

Say you're interested in finding books on the topic of exploring Mars and the feasibility of sending people to Mars. Not knowing the exact subject to search, just do a simple search using some likely subject terms, such as *mars exploration*. Here's one of the books you'll find:

Details

Title	Mission to Mars : my vision for space exploration / Buzz Aldrin ; with Leonard David ; foreword by Andrew Aldrin.
Author	Buzz. Aldrin > Leonard David >
Subjects	Space colonies > Space flight to Mars > Mars probes > Mars (Planet) -- Exploration >
Description	The view from Air Force One -- Time for decision-making : call for a unified space vision -- Your space : building the business case -- Dreams of my moon -- Voyage to Armageddon -- The march to Mars -- Homesteading the red planet -- The clarion call -- Appendix. Changing visions for space exploration.

You found this item because your search terms (mars exploration) are found in the item record, and specifically as part of Mars (Planet)

– *Exploration* in the subjects list. Both that and the *Space colonies* subject heading look relevant to what you want to know.

To find more books on your topic, just click the most relevant subject heading. If you will be doing repeated research on this topic, you'll probably want to write down or remember these subject headings.

Check your understanding



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://iastate.pressbooks.pub/lib160info1ed/?p=77#h5p-3>

3.7 Boolean Operators

Booleans: AND, OR, NOT

Boolean operators are connecting words (AND, OR, and NOT) that link two or more keywords or phrases in your search. In Quick Search, keyword search terms can be combined with Booleans that help you broaden or narrow your search, depending on which operator you use.

Simple search with Booleans

There are no prompts in Quick Search's Simple interface to suggest you can use Booleans, but you can. Just type out your search terms using the appropriate Booleans.

Example: *philosophy AND history AND mathematics*

Advanced Search with Booleans

Features built into Advanced Search help you structure more complex Boolean searches. The second row in Advanced Search allows you to add more terms to your search. The first drop-down menu in that row lists three Boolean operators – AND, OR, and NOT. These define how the terms on each row relate to one another.

The example below shows how you might search for works *about*

Orhan Pamuk's novel, *My Name is Red*. We've placed his name in the first row as a Subject, and placed the book title in the second row. The Boolean operator we would want to use to connect the terms in these two rows is AND.

Search in: ☒ ISU Library ☐ Partner libraries

Search Scope: Library Collections + Articles

Subject contains orhan pamuk

AND Title contains my name is red

+ ADD A NEW LINE

CLEAR

Material Type
All items

Language
Any language

Publication Date
Any year

→ Subject contains orhan pamuk AND Title contains my name is red

SEARCH

Note that each of the Booleans can impact your search results in different ways. Let's take a look!

AND is used to narrow your search results. The more search terms you add with AND, the more you focus and restrict your results.

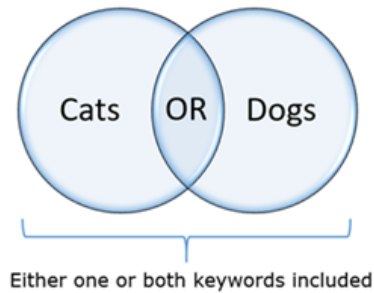
Why? Using AND specifies that all your keywords must be present in your retrieved records. This means you'll retrieve fewer results than if you searched just one of the terms.



Beware of adding too many specific terms with AND – you may quickly reduce your results to zero. If you get zero results in a search, that doesn't necessarily mean that the library doesn't have anything on your topic. You may just need to change your search terms and try again.

OR is used to broaden a keyword search. OR will find records containing either one or both terms specified.

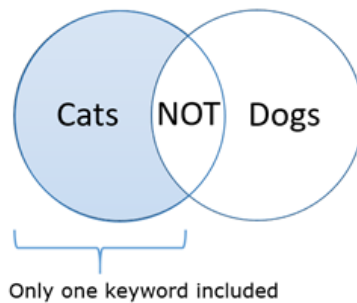
This is useful when you need to search synonyms or variant forms of a word. If you combine synonyms with OR, you'll retrieve more results than if you searched just one of your keywords. If we search only one of the phrases, we will be missing relevant items that just happen to use the other synonymous phrase. This is the value of using OR.



NOT is used to restrict a keyword search. NOT will find records containing the first term/phrase but not the keyword(s) following the NOT.

This is a useful way to prevent irrelevant or unwanted records from being retrieved.

Note that in Quick Search's Simple interface, you **must** capitalize Boolean NOT for it to be recognized.



An example of this is *languages NOT computer*. In this example, you're not interested in computer languages and want to filter this term out of your results. This search will retrieve records with the term *languages*, as long as those records do not also include the word *computer*.

NOT must be used carefully, though, because you might eliminate results that could be useful, even though they contain your NOT term. In the above example, you would eliminate any records about using computers to learn languages, even though those items might be useful.

Using Boolean operators helps give you more control over your search and yields more relevant search results. Discovery tools and most scholarly indexes and databases support Boolean searching. Even Google searches can benefit from the use of Boolean operators.

3.8 Nesting Keywords

Nesting lets you combine multiple searches into a single search. It allows you to group similar concepts or keywords together within parentheses so you don't have to perform multiple searches, using a new synonym each time. Combined with Boolean operators like AND and OR, nesting is an efficient and effective way to improve your keyword search results.

It can be helpful to think of this like order of operations in math, where using parentheses impacts the order in which an operation is performed. Similarly, Boolean operators have an order of operations. In a Boolean search NOT takes priority, followed by AND, and then OR. By using parenthesis you control which action the index applies first. Here are some examples:

sonic AND hedgehog AND protein NOT game

In the above example, the database will first remove any results that contain the word “game.” This should help eliminate any video or board game references. Finally, the database will search for records containing all three remaining search terms.

(phobia OR disorder OR fear) AND social anxiety



In this example, we want to search for *phobia* AND *social anxiety*, *disorder* AND *social anxiety*, or *fear* AND *social anxiety*. Using parentheses, we can perform all of these searches at once. Without using parentheses, this example would retrieve different results by grouping *fear* and *social anxiety* together first, and then searching for this grouped term OR *phobia* OR *disorder*, but not necessarily all three together. Because of this, many of your results would be missing the *social anxiety* element.

(cinema OR movies OR film) AND (french OR france) AND criticism

This final example combines two different sets of nested keywords. Similar to the example above, using nested terms with OR lets you group related concepts to control the order in which they are searched. In this case, we are looking for resources discussing *criticism of French cinema*. Because we know there are many ways to talk about cinema, we have included synonyms within the first set of parentheses. Similarly, we also know authors may use either French or France when talking about this topic. The reason we don't have all of the Boolean ORs in the same set of parentheses is because they are not interchangeable topics – both are integral to our search. For this reason, we have included AND between the sets of parentheses.

Boolean operators and nesting let you make your keyword search as simple or as complex as you wish – just remember that Boolean AND *narrows* your search results, while Boolean OR *broadens* your results. The more ANDs you include, the *fewer* results you will retrieve.

Using Quotation Marks for Phrases

When you are searching for a specific phrase, you can put your

terms within quotation marks to search for those words only as that exact phrase, and not the words separately or in any order.

Example: “journey to the center” – finds Journey to the Center of the Earth; Mandala: Journey to the Center; Centromeres: A Journey to the Center of the Chromosome, etc. In each case, you have found an exact match of your phrase, even if they may not all be exactly what you are looking for.

3.9 Truncation: Getting Useful Variations of Terms

Truncation means to cut something off. When searching with keywords (as opposed to searching by exact phrase, exact author name, or exact title), you can use an asterisk (*) to truncate, or shorten, a word. Using a truncation symbol allows you to get different forms of your search terms in a single search. For example:

tchaikovsk* retrieves tchaikovskii, tchaikovskij, tchaikovsky
simulat*retrieves simulate, simulates, simulated, simulation, simulator, etc.
psycholog*retrieves psychology, psychologist, psychological, etc.
method*retrieves method, methods, methodology, methodological, etc.

Why is truncation important? Well, you could do separate searches on the words psychology, psychologist, psychologists, psychological, and all the other variations. Or, you could combine all of these using Boolean OR – as in: psychology OR psychologist OR psychologists OR psychological. However, both of these methods can be time-consuming. Truncation allows you to simplify your search and retrieve other relevant variations of your term(s) that you didn't even know you needed.

Where is the last place the letters of the words overlap?

C	H	R	O	N	O	L	O	G	Y			
C	H	R	O	N	O	L	O	G	I	E	S	
C	H	R	O	N	O	L	O	G	I	C	A	L

chronolog*

Combining a truncated word with additional search terms using Boolean operators can be especially powerful. For example:

tchaikovsk* AND biography..... retrieves biographies of Tchaikovsky, regardless of how his last name has been transliterated (Tchaikovsky, Tchaikovskii, etc.)

simulat* AND computer..... retrieves works about computer simulations, simulators, etc.

Also be sure to truncate your word in a logical place. Insert the asterisk at the point where *useful* variations will occur in your term. For example, if you were looking for a **chronology or chronologies of American history**, you might want to truncate the term **chronology** as follows:

chronolog*will retrieve results that use **chronology**, **chronologies**, **chronological**, etc.

Truncating your term too early (i.e., before it is unique enough) will increase the likelihood that you'll retrieve irrelevant results.

Truncating too late (i.e., after useful variations might occur) negates the whole purpose of retrieving useful variations. Take a look:

chro*Too early! This will produce way too many irrelevant results – chromatic, chromatography, chrome, chromosome, chronic...etc.!

chronologi*Too late! This will retrieve chronologies, chronological, etc. but NOT the also relevant terms chronology, chronologue, etc.

When you're considering your search terms, take a few moments to reflect on whether truncation will be a useful technique for your search. It might be a good time-saver for you and an effective way to increase your relevant results.

Check your understanding



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://iastate.pressbooks.pub/lib160info1ed/?p=86#h5p-4>

3.10 How to Find a Book by its Call Number

We're not trying to turn you into a librarian but we do want you to be an independent and successful researcher who can locate the materials you need. For this reason, it's important to understand how **call numbers** work. You probably know that the purpose of call numbers is to help find items in the library. However, unless you have experience using a research library, chances are that you're not familiar with how our call numbers work.

Like most academic research libraries in the United States, the ISU Library uses the Library of Congress Classification System to organize its books and journals. The first thing you need to know about the Library of Congress Classification System is that it is an **alphanumeric** system – meaning its call numbers are composed of both letters and numbers. Books are arranged on the shelves in that alphanumeric order, which means that the letter order follows alphabetical order (A-Z) and smaller numbers come before larger numbers. Call numbers are made up of at least two (and usually more) alphanumeric lines that describe a book's subject and other attributes and indicate where it's located in the library.

When you see Library of Congress call numbers on the spine of a book, the call number will be stacked in several short rows. In library catalogs and library discovery tools like Quick Search, you'll typically see the call numbers in one long string with spaces in between each section of the call number. Here's an example of the same call number in these two different formats:

On a book spine	In Quick Search
ML419	ML419 K495 S313
K495	2006
S313	
2006	

In both formats, each row or section signifies a different part of the book's description. The first row is a code that indicates the book's subject, while remaining rows are code for the author, and so on. Luckily, it's not necessary for you to know or understand what the letters and numbers actually signify (but if you want to know what each piece of the code means, you can look at the basic outline from the Library of Congress). The important thing to remember is that in order to find a book, you need to understand how call numbers are read and arranged.

Here are the basic rules for reading a Library of Congress call number:

1. Each section (except for the publication year) begins with letters and is followed by numbers. Letters in each section are sorted before the numbers, in alphabetical order.
2. Numbers in the first alphanumeric section line are sorted as *whole numbers*. (In the example above, the 419 in the first section represents the whole number 419, or four hundred nineteen.)
3. Numbers in later alphanumeric sections are sorted as *decimal numbers*. (In the example above, the 495 in the second represents .495 or 0.495, and the same rules apply to the 313 in the third section: you read it as 0.313.)
4. The final section may consist of four numbers with no letters. This is the publication year.

Practice Reading and Arranging Call Numbers

Let's look at some examples that show call numbers arranged in correct order. We've emphasized the areas to consider, step by step through each segment.

1. Sort Alphabetically

As shown below, a single letter sorts before a two-letter combination starting with that same letter. So, **D** comes before **DG**, which comes before **DP**. Similarly, **DP** comes before **G**. The letters work the same in every line of the call number – just put them in alphabetical order.

If all your call numbers start with different combinations of letters, this is as far as you need to go to sort them into the correct order. Just put them in alphabetical order.

D210 D28 2008	DG309 B67 2011	DP302 C69 H37 2000	G1382 S1 L2 2011	GT1855 W37 2006
----------------------------	-----------------------------	------------------------------------	----------------------------------	------------------------------

In the example here, this is all the sorting we need to do to get these call numbers in the correct order. However, you'll often need to move beyond the first letter(s) in order to figure out how a particular set of call numbers should be arranged.

2. First letters match? Sort the first segment numbers!

For call numbers that start with the same letter(s), you'll need to move on to sort the numbers in that first section.

Remember, the number in the first segment of a call number is sorted as a whole number.

Thus, **TK9** comes before **TK531**, which comes before **TK5102**, and so on. Sometimes this number can include a decimal, which comes in between whole numbers, so **TK5102** comes before **TK5102.5**, which comes before **TK5103**.

TK9 K37 1996	TK531 K56x 1978	TK5102 R79 2006	TK5102.5 L285 2014	TK5103 B58 2011
---------------------------	------------------------------	------------------------------	---------------------------------	------------------------------

In the example here, once again this is all the sorting we need to do to get these call numbers in the correct order. However, in other cases it's likely you'll need to move beyond sorting only the first section of letters and numbers. This is shown in the next example.

3. First segment matches? Proceed to the second segment!

You don't need to compare the second segments of the call numbers unless the first lines match exactly, as is the case here with **E621**. The next step is to look at the letters starting the second lines and put them in alphabetical order. In this first example, this is all the sorting you need to do to get these call numbers in correct order.

E621 B54 2010	E621 G79 2012	E621 M36 2013
-----------------------------------	-----------------------------------	-----------------------------------

The second example here below is more complex, since the second lines all begin with the letter **K**. This means we must now sort by the numbers that follow **K**.

QA300 K 35 1996	QA300 K 3713 1986	QA300 K 52513 1996	QA300 K 53 1975	QA300 K 635 1986
------------------------------	--------------------------------	---------------------------------	------------------------------	-------------------------------

This is where things can get tricky. The numbers in the *second segment* of the call number are *decimals*.

The call numbers in the **QA300** example above are in the correct order. If you need help seeing this, imagine adding an invisible decimal point to the numbers in the second line, like this:

.35

.3713

.52513

.53

.635

Adding imaginary zeros to the ends of the numbers until they are all the same length can also help with visualizing this. Again, this is now all the sorting you need to do in this example to get the call numbers in the correct order.

4. First and second segments match? On to the third segment!

It's not unusual in academic library collections for there to be a *third* alphanumeric segment in a call number.

If the first two segments are identical, as in the examples below, you will need to sort by this third segment. This works the same way as the previous segment: alphabetical order and then decimal numbers.

QA76.76 C672 A322 2010	QA76.76 C672 C44 2012	QA76.76 C672 C447 2007	QA76.76 C672 C66 2001	QA76.76 C672 F553 2012
--	---------------------------------------	--	---------------------------------------	--

5. Date of Publication

The final part of a call number is often the year of publication. Not all call numbers include a publication year, but if it's present and all other sections of the call numbers are identical, you can sort the call numbers by putting the publication dates in chronological order.

P306 T7436 2000	P306 T7436 2004	P306 T7436 2012
------------------------------	------------------------------	------------------------------

You will see call numbers that are identical up to the publication year when the library owns more than one edition of a book. For one example, Harold Bloom's literary analysis entitled *Fyodor Dostoevsky's Crime and Punishment* was first published in 1988, then significantly revised and republished in 2004. The library owns both the 1988 edition (PG3325 .P73 B55 1988) and the 2004 edition (PG3325 .P73 F964 2004).

Check your understanding of call numbers



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://iastate.pressbooks.pub/lib160info1ed/?p=93#h5p-5>

3.11 Locating Library Materials

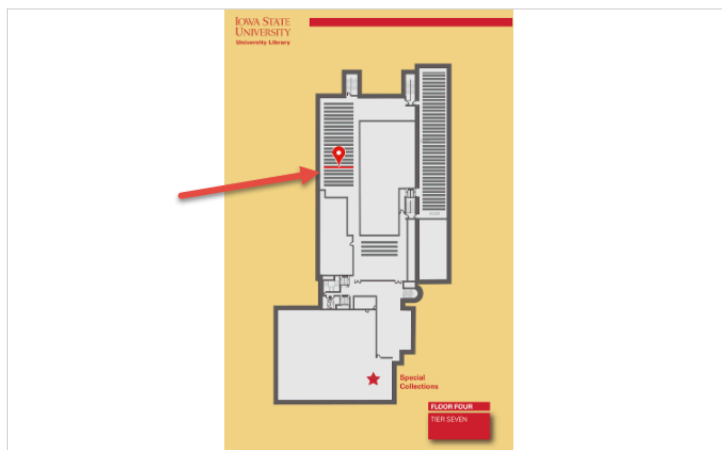
The call number is “X marks the spot” for locating an item in the library. It’s all well and good to find a book in Quick Search, but then what? First you’ll want to check which **collection** your item is in. Most library materials are in the **General Collection**, which is located on the Lower Level, Floors 2, 3, and 4, and in the seven tiers of the library.

If the item you want is not in the General Collection, it might be in one of the library’s other collections such as **Reference** (Tier 2), **Media Center** (Lower Level), or other locations listed with the call number. Always make note of the location and call number in Quick Search before setting off to find your book. If your item is in the General Collection, you’ll also need to find out what floor or tier your item is on before you set out.

To do this, click on your item, then on **Map It** button in Quick Search. This will show you a map of where your item is in Parks Library.



🔍 zoom in 🔍 zoom out ➕ entire map



📍 This pin indicates your item's location on the map

Directions:

The red pointer on the floor map shows the item's location. Unable to locate this item? Visit the [Circulation Desk](#) on the First Floor, west of the main entrance.

This item is located on Floor 4 of Parks Library.

Look for the item with this call number:

PN6728 B519338 B539x 2017

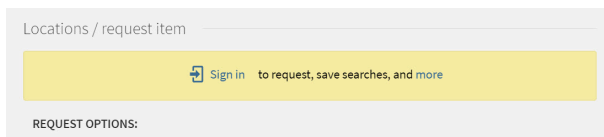
Powered by [StackMap.com](#)

Now that you know what floor your item is on, you are ready to head out and find it on the shelf!

Once you've gone to the right floor, note that the ends of the bookshelves are labeled with ranges of call numbers. The first number listed is the first book on the shelf, and the second number is the final book on the shelf in that row. Now find the shelf where your call number would fit between the two numbers on the label. Then browse the call numbers on the spines of the books until you find your call number.

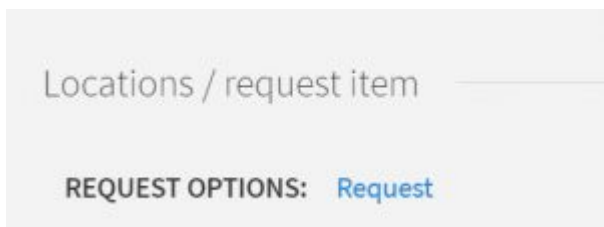
Sometimes, visiting the shelves to find the item you want isn't always the best option. The library provides a service which lets you request items and pick them up at the main desk. This service is

called Pick from Shelf. While the process may take some time, it can also be convenient if you're busy or have many items to retrieve. Run your search, and then select an item record. In the "request options" section, you'll find a yellow bar with the "sign in" button.



Screenshot from an item record showing the location of the item request sign in box.

Once signed in, you'll now find a "request" link. If you're already signed in, you'll automatically see the "request" link. Clicking "request" brings up a form where you designate a pick-up location.



Screenshot from an item record showing the request link. Clicking that link will bring up a form.

Select your preferred location (e.g. Parks, Design, Vet Med) and then click the "request" button to submit. You will receive an email message when your item is ready to be picked up. If you are a distance student, there is a possibility that the item may be mailed to you at no cost.

Check your understanding



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://iastate.pressbooks.pub/lib160info1ed/?p=98#h5p-17>

3.12 Interlibrary Loan

What happens when your research identifies a book or article not owned by your local library? Should you give up or change your topic?

No, don't give up! As mentioned in earlier chapters, research libraries today are comprised of vast networks linking resources from around the world. Most research libraries provide a service called Interlibrary Loan (ILL). ILL is your key to go beyond the physical walls of your local library, so we encourage you to try it out. No matter how you use our Interlibrary Loan service, it is totally free for you. Below are two simple ways to use ILL.

Partner libraries

If the ISU Library doesn't have the book you need, one easy way to get books from other libraries is to check our **Partner libraries** through Quick Search. Once you've done a search and are on the results page, notice that an **ISU Library** drop-down menu appears in the search box itself. Click the drop-down to see Partner libraries, a collaborative group of academic libraries in Iowa. You can choose to search one of our Partner libraries or all of them. When you find a book you need, click **Check holdings** to see if the item is available for loan. If so, just follow the steps online to borrow the book. Once you've submitted your request, you should get an email within 2-3 business days that the book is ready for you to pick up at the Parks Library Circulation desk.

Interlibrary Loan Request

In some cases, you may find that neither our library nor our partner libraries have the book you want, or perhaps you need an article from a journal we don't have. In these cases, use our standard Interlibrary Loan request service. Just fill out the ILL request form on the library website. In most cases, you'll get books you requested within 5-7 days, and articles often much quicker than that. In fact, articles may even arrive within 24 hours. Here at ISU, our ILL service has its own name: it's called **ILLiad**. We point this out because it is sometimes referred to by this name.

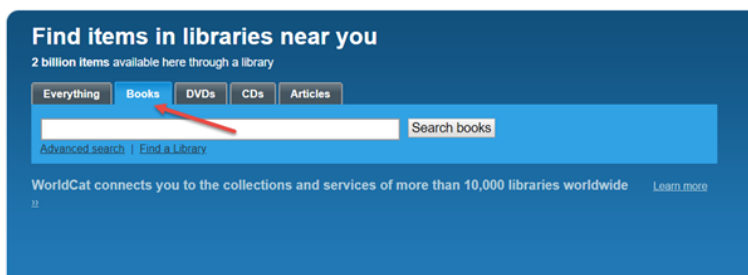
We'll look now at two different online tools — WorldCat and Google Books — that can help you locate scholarly books. Both of these tools are connected with Interlibrary Loan to help you access the materials you need.

3.13 WorldCat – the World's Books at Your Fingertips

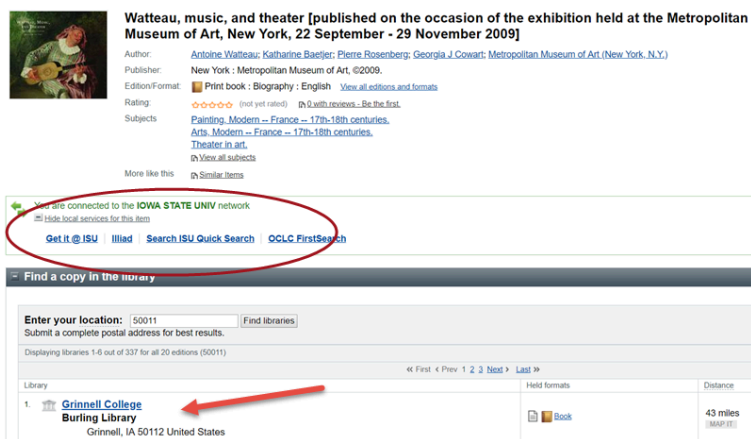
One of the easiest ways to locate books and library materials anywhere is to use a database called WorldCat. WorldCat lets you search the library catalogs of thousands of libraries across the world, including the ISU Library and Ames Public Library. WorldCat is a great tool for finding what books exist on your topic, regardless of whether they happen to be owned by the ISU Library. If the ISU Library doesn't own a book you find in WorldCat, you can easily use the library's Interlibrary Loan (ILL) service to borrow that book from another library for free.

Using WorldCat

Let's take a look now at **WorldCat**, found at www.worldcat.org, so you're familiar with how it works. WorldCat has a simple search interface with a few useful tabs to help you search for specific materials. You can choose a tab and then type your search into the search box. For example, if you are looking for a book, use the **Books** tab.



When you find a book of interest in your search results, click it to open the full record of that book. Look for the **Find a copy in the library** section. In **Enter your location**, type in your zip code (in case you don't know, the zip code for ISU is 50011) and click the **Find libraries** button. You'll then see a list of libraries nearest to the zip code you entered that own the book. In the image below, Grinnell College's Burling Library is the nearest library to ISU that owns the book.



So, do you drive to Grinnell then to read the book? Well, you could if you wanted but it will be easier to use Interlibrary Loan to request

the book. In the example here, you'll also see a link to **ILLiad** located right above the **Find a copy in the library** section, circled in red. If you click the ILLiad link in WorldCat and then login to ILLiad with your ISU NetID and password, you'll see many fields of your Interlibrary Loan request form are already filled out for you, including title, author, and so on. Submit the online form and Interlibrary Loan staff will take care of the rest. You should have the book delivered to the ISU Library for you within 5-7 days. Simple! WorldCat is a very handy tool to add to your research skill set – get started today!

Check your understanding

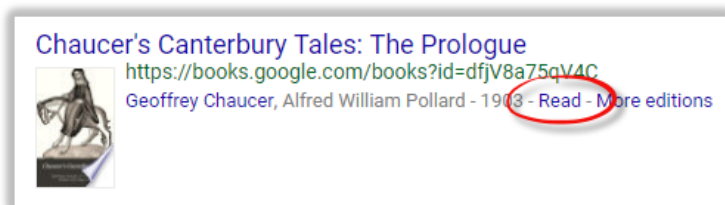
[How to use WorldCat](#) – a hands-on interactive guide to give you practice with this tool and finding scholarly books.

3.14 Google Books

Google Books is a growing collection of ebooks and scanned magazines that you can easily search and, in many cases, read free on the web. Many of these books come from academic library collections in the US and have been digitized through partnerships with libraries and publishers. Due to copyright and legal issues, the full text may not be available for all titles in Google Books. Remember, full text means a book or journal article is available to read in its entirety. You will often need to examine the records in Google Books closely in order to tell whether the full text is available to read online or just a preview of a few pages.

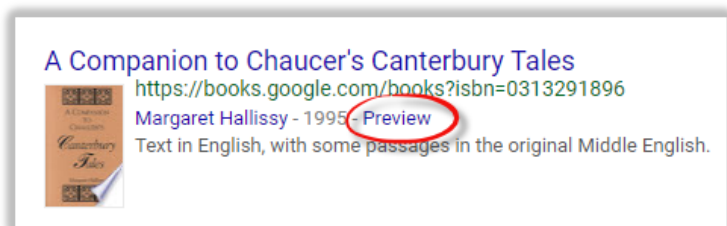
One easy way to check if an item is available in its entirety within Google Books is to pay close attention to your search results. Google Books labels items in your results to help you identify which ones are available to read fully and immediately. The labels are as follows:

Read – this label indicates that the full text of your item is available within Google Books. Just click on the title of your book to start reading! Books with this view are often older publications that are no longer under copyright, open access books, or works produced by the US federal government which are never under copyright.

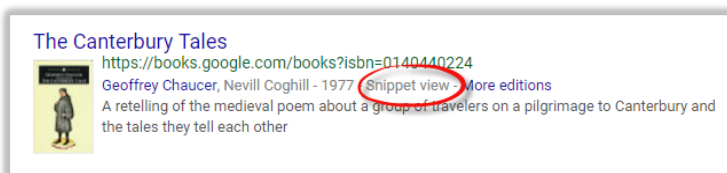


Preview – this label indicates that the book's publisher has allowed

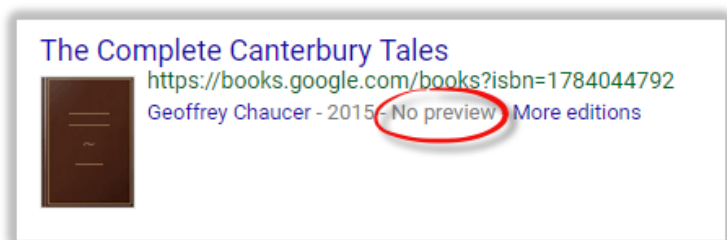
some but not all of the pages of the book to be displayed. Previews are excerpts, not the full text of your book.



Snippet view – this label means that Google Books will show only a sentence or two from the page on which your search terms were found.



No Preview – books with this label will include just a brief description, with no pages and no snippets to view.



If you overlook these labels in your search results and select a book, there are still several other indicators that let you know whether the book you've chosen is a preview only or if it's full text. For example, when you're scrolling through the online book's content,

at the bottom of a **Preview** book's cover you'll see a clear statement that not all pages of the book are included. As you scroll through the included pages, you will also see statements like "Some pages are omitted from this book preview," and so on. Items that are not available to read in their entirety are restricted in this way because they are copyrighted. You'll learn more about copyright in Chapter 5.

Try it! [Look at this book now in Google Books](#) and see how many indicators you can find that this book is a **Preview** only.

There is also an **Advanced search** available in Google Books. After you perform a search, you can find Advanced search under the **Settings** link. This allows you to direct your search results in many ways, including finding **Full view only** (i.e., full text) results. The **Tools** link also allows you to filter your search results to retrieve **Any books**, **Preview items**, **Google eBooks** (e.g., those you buy from Google Play), and **free eBooks**.

You might be wondering why you should be interested in Google Books if so many of the scholarly and recent books there are not available to read in their entirety. You can use Google Books to find books of interest and get them through Interlibrary Loan if they are not available. You could also buy some of them, if you like, but you can save money and use free Interlibrary Loan instead.

Here's how Interlibrary Loan works with Google Books. In your Google Books search results, click the title of your book to enter it.



On the left side of your screen click the **Get this book in print** button to access a menu that will show your options for accessing the book. Even if the full text of the book you chose is already available on the page you've entered, you may have additional access options. This menu will always show whether an ebook is available for free or for purchase or not at all. On this menu you will find a **Find in**

a library link which leads directly to WorldCat. From WorldCat, you can use Interlibrary Loan (Illiad) to request the book be sent to you.

Be aware that Google Books is a dynamic collection. What you see there one day may not be there the next. Or you may find that a number of other editions of your book have been added, making it harder to find a specific item. Just the same, it is an important collection of information and a useful resource for finding books.

Try it! Enter [Google Books](#) now and search for Iowa author Ray Young Bear's book called *Black Eagle Child*. When you find it, click the book title to enter the book. Is this book a Preview or available in full text in Google Books? What are your access options for this book? How much does the ebook cost? When you click **Get this book in print** and then choose the **Find in a library** link, you'll enter WorldCat. Can you see if the ISU Library owns this book?

Check your understanding



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<https://iastate.pressbooks.pub/lib160infolit1ed/?p=108#h5p-6>

CHAPTER 4: FINDING ARTICLES

Learning Objectives

After completing this chapter you should be able to ...

- find articles for research and information purposes
- recognize articles, journals, and article indexes and their purposes
- use Google Scholar, Quick Search, and Indexes effectively to find articles
- distinguish between scholarly and popular articles
- distinguish among article finding tools to choose those relevant to your needs
- recognize and interpret different types of citations

4.1 Types of Scholarly Material

In this chapter, we'll focus on journal articles but also talk about other types of scholarly materials you'll encounter in your research – what they are, how to find them, and how to interpret what you find.

Journal Articles

We'll start with journal articles, papers written by subject experts and published in scholarly journals. In the course of your studies your instructor may tell you to use “peer reviewed journals” in a writing assignment. Most of the time, what your instructor means is that you need to use individual **articles** published in a peer reviewed journal, not the entire journal and all its contents.

Articles and Journals: Knowing the difference

The term **articles** refers to the papers within journals, magazines, and newspapers. The term **journal** means the entire publication. There are specific tools and search techniques that help you find articles, and others that help you find journals. For this reason, it's important to recognize the difference between articles and journals.

Journals are published on a regular, ongoing basis (weekly, monthly, quarterly, etc.). Journals can be broken up into volumes, issues, and articles. An **article** is a single paper focused on one topic, most often the results of a single research project. An **issue** is a set of articles

published together each week, month, or quarter. A **volume** is a collection of all the issues published in a single year.

The parts of a journal are easier to remember if you compare them to parts of a television show.

- An article in a journal focuses on a topic in the same way that a scene in a television show focuses on a plot element.
- A collection of articles forms an issue similar to the way scenes come together to complete an episode. Not all journal articles within the same issue will be on the exact same topic. They may just be loosely related within the same discipline. Think of a show with multiple plot lines or separate segments (e.g., Saturday Night Live sketches).
- A year's worth of issues adds up to a volume in the same way episodes comprise a season.
- These volumes are part of a journal, like seasons are part of a series. Some have completed their run, and some are ongoing.
- Journals and the articles they contain are made available through indexes in a similar way to how series and episodes are made available by networks or distributors (e.g. CBS, Netflix, ESPN). You'll learn more about indexes later in this chapter.

The main difference between journals and books is that journals are published on an ongoing basis and books are only published once. As such, we search for them differently. Since journal issues are released frequently, articles can address up-to-date research on a subject long before a book can be written and published. It takes a great deal longer to compile the information necessary for a 200-page book than it takes to write, review, and publish a 10-page journal article. Because of this, many academic disciplines (such as the sciences) rely on journal articles more than books to communicate major research findings and new ideas.

Check your understanding



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://iastate.pressbooks.pub/lib160info1ed/?p=110#h5p-2>

4.2 Book Chapters

Book chapters in a scholarly context are typically research papers on a certain topic or theme that were written by different authors and brought together in a single book. Often there is an editor of the book who solicits and compiles chapter submissions.



Many disciplines in the humanities and social sciences rely on book chapters for communicating their research findings and learning about their peers' work.

Many scholarly books are collected articles or essays written by different authors on a topic. The editor is the person responsible for the compilation.

The Gathering



Acknowledgments

Permissions

Forty Years and More in the Clearing:
Selected Morrison Chronology, 1970-2012

Introduction: Gather at the Clearing CARMEN GILLESPIE

In the Beginning, Two Reviews: John Leonard's *New York Times*
1970 Review of Toni Morrison's *The Bluest Eye* and
Alice Walker's *New York Times* "Letter to the Editor" in Response
to Sara Blackburn's 1973 Review of *Sula*

In Search of the Clearing ELIZABETH BEAULIEU

Trouble in Paradise: Representing Bliss in Non-Orgiastic Language
KATIE G. CANNON

"Margaret's Lullaby" (from *Margaret Garner*) RICHARD DANIELPOUR

"Creatively Serving — the Process:" An Interview with
Playwright Lydia Diamond, Author of the Play *The Bluest Eye*
LYDIA DIAMOND WITH CARMEN GILLESPIE

American Romance, the Moral Imagination and Toni Morrison:
A Theory of Literary Aesthetics JAN FURMAN

Meditations on Love JOANNE V. GABBIN

And Everyone Will Answer NIKKI GIOVANNI

Morrison as Subject: Photographs TIMOTHY GREENFIELD-SANDERS

Wrestling Till Dawn: On Becoming an Intellectual In the Age of Morrison
FARAH JASMINE GRIFFIN

Playing in the Wild: Toni Morrison's Canon and the Wild Zone
MISSY DEHN KUBITSCHKE

This book has more than 11 authors. Each author wrote an article (a chapter) on the topic.

4.3 Conference Proceedings

Conference proceedings are another type of scholarly publication that you may not have heard of before. Conferences are meetings of the members of scholarly and professional organizations. Some academic disciplines rely heavily on scholarly conferences as a means of quickly sharing and discussing new research and creative contributions by scholars in that subject area. Conferences are a major venue for scholarly conversations to take place. Conference presentations are typically research papers, powerpoint presentations, or posters presented by the researcher to an audience of peers and subject experts.



Scholars present their research at formal conferences to share their findings and ideas with other experts on the subject.



The presentation is often a paper, slides, or a poster that is read or explained to attendees.



After the conference, scholarly organizations compile the presentations and publish them. Traditionally, these are called proceedings.

Many scholarly organizations compile and publish all the presentations after the conference is over so that there is a lasting record of the research ideas that were shared at the event. These publications are often called **conference proceedings**. They will typically include the name of the sponsoring organization in the publication's title. When you find a citation for a conference paper

or presentation, you may also see a description such as “Paper presented at...,” which gives a clue that you’re looking at a conference proceedings citation.

4.4 Want a Scholarly Resource? Use an Index!

Now that you understand some of the basics about articles and other scholarly publications, let's discuss some of the tools that help you find them. When you are doing research and need to make sure you're finding the best, most comprehensive group of articles on your topic, the most efficient finding tool to use is an index. **Article indexes** will help you identify and find articles on your topic. Some indexes also cover magazines, newspapers, book chapters, conference presentations, dissertations, or other materials.

You may be familiar with using the word "index" for a list of topics and page numbers in the back of a book, but in this class, "index" refers to an article finding tool.

It's difficult to know how many journals exist in the world, but it's safe to say that millions of articles are published each year. The ISU Library alone currently subscribes to more than 110,000 journals, and more than 100,000 of those journals are online. An article index allows you to search for your topic in hundreds of journals at once, so using an index is a huge time saver when you don't have one specific journal in mind.

Which index should you choose?

The ISU Library subscribes to hundreds of article indexes providing access to articles from the past to the present. Each index is different in terms of:

- types of materials covered

- subject(s) covered
- dates included
- how information is presented
- languages included
- whether abstracts or full text materials are provided

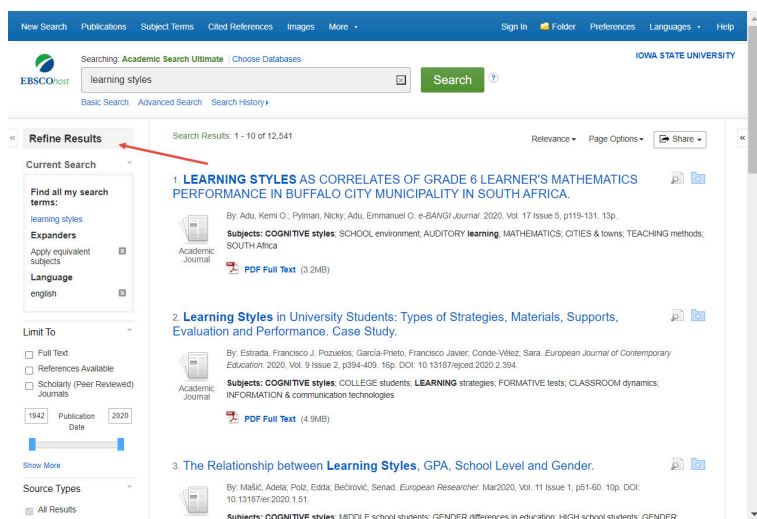
What are abstracts? Abstracts are brief summaries of articles, books, and other published materials. These help you decide whether you want to read the full item.

Indexes provide a variety of flexible and robust advanced search features to help researchers and scholars focus and redirect their searches efficiently. You can typically select, sort, and download citations and often entire articles. For scholarly research, indexes tend to be either multidisciplinary **general purpose indexes** or **subject-focused indexes**.

4.5 General Purpose Indexes

General purpose article indexes cover many different subject areas and often include articles from magazines and newspapers as well as from scholarly journals. One good example of a general purpose index is [Academic Search Ultimate](#). Because it covers many different subject areas, a general purpose index like Academic Search Ultimate can be a good choice for starting to find articles.

Like Quick Search, when you get results from a search in Academic Search Ultimate, you'll see a number of facets listed on the left side of your screen. You can use these facets to focus your search results based on the criteria mentioned above.



Academic Search Ultimate has some interesting and unique features, including text to speech technology that can read articles to you. Click the **Listen** button on articles that support this feature to start playback, or download the .mp3 to listen to it another time.

Indexes like Academic Search Ultimate are great for finding information when you're not sure which subject area your topic falls under. However, there are also subject-focused indexes which allow you to search for resources in specific academic subject areas.

4.6 Subject-focused Indexes

When you are doing in-depth research and need to find a comprehensive set of scholarly articles in a particular subject area, the best finding tool will almost always be an index focused on that subject. Here are a few examples of subject-focused indexes to give you a better idea of what they can cover:

[Design & Applied Arts Index](#)

DAAI is an international index that provides resources on topics related to design and applied arts such as advertising, product design, and architecture. It contains citations and abstracts of articles, news items, and reviews created from 1973 to the present.

[GeoRef Database](#)

GeoRef indexes thousands of journals on topics related to geoscience, including engineering geology, environmental geology, geochemistry, and others. With resources dating back to 1665, this index covers a wide range of topics and time periods.

[Sociological Abstracts](#)

Sociological Abstracts provides full-text access to resources on topics related to sociology such as family and marriage, social change, and culture. This index covers thousands of journals dating back to 1952 and includes articles, book chapters, and conference papers.

These subject-focused indexes offer discipline-specific tools to help you search, sort, and focus your results. For example, history databases may let you search by the date an event occurred, whereas chemistry databases may let you search by chemical compound. You will want to familiarize yourself with the indexes in your major or that support your classes in order to access authoritative scholarly articles for your various class assignments and projects.

Interdisciplinary Topics

When you're doing in-depth research, you may need to search more than one subject-focused index. If you're researching an interdisciplinary topic, such as marketing new products to college students and influencing their buying behavior, you'll want to search for your topic in more than one index. In this example, you'd probably want to search a business-focused index (such as ABI/INFORM) and maybe also an index focused on sociology or psychology (such as Sociological Abstracts or PsycInfo). When you search more than one subject-focused index, you will often find articles with different viewpoints, keywords, or subject emphases in each index. Talk with your instructor or a librarian if you need help identifying the right indexes for your topic.

4.7 Finding Indexes

The library website has a list of [Article Indexes & Databases](#) that you have access to as an ISU student. To find an article index that covers your subject area, you can browse the indexes by subject or research area using the **All Subjects** drop-down menu. Once you choose your subject you'll get a list of indexes and databases that cover that area, with **Best Bets** at the top.

Article Indexes & Databases: Chemistry
Find the best library databases for your research.

Chemistry (12) All Database Types All Vendors / Providers

All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

12 Databases found for Chemistry [New Search](#)

Best Bets!

SciFinder (new browser requirements!) [Best Bet](#)
NOTE: Use requires 2014 or new browser. If problems with access, use the Ask Us link at the top of the page.
Contains information about chemistry resources including articles, patents, and proceedings.
[more...](#)

SciFinder Registration [Best Bet](#)
First-time SciFinder users must establish a personal account using a valid ISU email address (i.e. ending in ...@iastate.edu). After you successfully submit the registration form, you will receive an email containing a confirmation link. You must click on the link within 48 hours to complete your registration.

B

BCC Research
BCC Research is a collection of market research reports covering primarily science and technology areas. Reports are EXTENSIVE (upwards of 100 pages each) and include market forecasts and company information.

E

E-EROS: Encyclopedia of reagents for organic synthesis
Contains in-depth online information on reagents and catalysts for all chemists planning or working on organic syntheses.

If you know the name of the article index you want, you can find it

by using the A-Z list or by using the search box. Then click on the name of the index you want to use. If you're not sure which index to use, you can also use a general article database like Academic Search Ultimate.

The search box on the Article Indexes and Databases page can help you find indexes with a specific word in their name or description. However, this search box does not search for articles within the index. When using the search box, it is best to use very general terms, such as "chemistry" or "design."

Logging in

You will need to log in with your ISU NetID and password to use these indexes and databases. Logging in verifies that you are affiliated with ISU and that you're entitled to use these subscription resources.

4.8 Using Indexes

Like Quick Search, most article indexes allow you to do a simple search or use more advanced features. Search features you are likely to find in an article index include:

- limiting to only peer-reviewed articles
- full-text or abstract only
- selecting a date range
- restricting to languages you understand
- document type (book chapter, article, etc.)
- subject searching using controlled vocabulary
- field searching (as mentioned in Chapter 3)
- searching with Booleans, truncation, or exact phrases

It's often best to search these indexes using keywords or controlled vocabulary rather than trying to use natural language phrases or sentences.

Once you've done a search, you'll see a list of records describing some of the contents of the database, including articles and other scholarly materials. Generally you'll see a list of very brief information with the option to click and open an item's full record.

Indexes list key information about the items in the search results, such as title, author, publication date, and source (e.g., journal title, or book title if the item is a book chapter). In some indexes, an item's record may also include an abstract or link to the full text.

Here's a screenshot from a typical subject-focused index. You can see some of the important parts of the item record, such as article title, article author, and the source that published the article are labeled in this index; other indexes may list this information without labels.

 Detailed Record

 PDF Full Text (4.1MB)

[Find Similar Results](#)
using SmartText Searching.

[Result List](#) [Refine Search](#) 13 of 1,566

Social Networking to Support Foreign Language Instruction and Acquisition.

Authors:	Daniel, Heather
Source:	Information Searcher, 2010, Vol. 19 Issue 3, p5-11, 7p
Document Type:	Article
Subjects:	Computer network resources; Website reviews; Foreign language education digital resources; Online social networks; Language acquisition; Services for students
Abstract:	The article reviews several social networking web sites for students of foreign language acquisition including ePals, located at http://www.epals.com , Livemocha, located at http://www.livemocha.com/ , and italki, located at http://italki.com/ .
ISSN:	10553916
Accession Number:	71098236

4.9 Field Searching in Indexes

As discussed earlier in this chapter and in others, Advanced Search features typically allow you to search for your terms in specific areas of the item record (e.g., author, date, type, format).

Here's something to keep in mind when field searching in indexes: many indexes call their subject headings by different names such as subjects, categories, subject terms or descriptors. No matter what they are called, you can recognize subject descriptors by what they contain: descriptive names for concepts that relate to the record. These are all forms of controlled vocabulary, which we've learned about in previous chapters.

It's important to remember that each index may use different subject headings to refer to similar topics. For example, in a psychology index, there may be more, highly-specific subject headings related to psychology than there would be in an engineering index. For this reason, when you get started with a new index, you'll probably need to do some initial exploration to discover the specific controlled vocabulary in that index that best defines your topic.

You should begin your index search using simple keywords rather than using natural language. You could use truncation, nesting and Boolean search strategies (discussed in Chapter 3) as well. When you retrieve records that are relevant to your topic, look for the descriptors or subject terms for that record. Usually, you'll be able to click on those subject terms to easily redirect your search, and retrieve everything in the index on that topic. Combining keyword and subject searching in this way is an effective and efficient search technique.

Strengths and Weaknesses of Indexes

Strengths

- The best finding tool for searching scholarly articles
- Provide many robust search features that give you control over your searches
- List what subjects and dates are covered on the “about” page
- List which journals and conference publications may be found within
- Subject-specific indexes cover a comprehensive set of authoritative journal articles and other materials focused on a subject area
- Connect directly to full-text articles using the **Get it@ISU** link

Weaknesses

- Not good tools for background information on a subject
- Many cannot easily process natural language searches
- Interfaces may be clunky or not compatible with mobile devices
- May not include the full text of articles

When the full text isn't available within the index, Get it@ISU can help you find it. Let's take a quick look at how Get it@ISU works.

4.10 Get it@ISU

There are a lot of indexes that include the full text of articles, but some subject-focused indexes do not. So what do you do when you find a record for an article you want to read but the index doesn't have the full text? In most cases there will be a **Get it@ISU** button nearby. Click on the button and the library's system will check our subscriptions for a full text version of your article.

49. The Future Impact of Artificial Intelligence on Humans and Human Rights.



Academic
Journal

By: Livingston, Steven; Risse, Mathias. *Ethics & International Affairs*. Summer2019, Vol. 33 Issue 2, p141-158. 18p. DOI: 10.1017/S089267941900011X.

Subjects: ARTIFICIAL intelligence; HUMAN rights; ETHICAL problems

Get it@ISU

In some indexes, this button might look different. Here are some examples:

Document title		Authors	Year	Source
<input type="checkbox"/> 1	The Impact of Artificial Intelligence on the Accounting Industry	Shi, Y.	2020	Advances in Intelligent Systems and Computing 928, pp. 971-978
View abstract ▾		Get it@ISU	View at Publisher	Related documents

Scopus

1. [Research and implementation of financial decision model based on artificial intelligence](#)
Zha, Desheng (Langfang Polytechnic Institute, Hebei Langfang, China); Liu, Xiaoyu Source: *Agro Food Industry HI-Tech*, v 28, n 3, p 2576-2579, May-June 2017
Database: Compendex
Document type: Journal article (JA)
[Detailed](#) [Show preview](#) [Iowa State University Library](#)

Compendex
x

If the library has electronic access to the full text, you'll be given one or more links to it via Get it@ ISU. All you have to do is click on one of the suggested sources to go to the full text article. You may need to click on more than one of the listed links if the first link you try is broken.

The Democratization of Artificial Intelligence: One Library's Approach -- Information Technology and Libraries (Online)
Full text (brought to you by Iowa State University Library)
Available at: [ABI/INFORM Global](#) [SHOW LICENSE](#)
Available from 2012.

Available at: [Publicly Available Content Database](#)
Available from 2012.

Available at: [Boston College Open Access Journals](#)
Available from 2005 volume: 24 issue: 1.


Available at: [DOAJ Directory of Open Access Journals](#)
Available from 2005.
Public notes:
This title is provided free on the Internet. Access to the contents may change without warning.

What if there's no link to your article? Then you need to find out

whether the library has the journal in print. Search for the name of the journal (not the article title) in Quick Search, selecting **Journals** in the **Material Type** menu in Advanced Search. You may find that the library owns the digital or print version, or both.

If the library has electronic access, the available volumes (years) will be shown under the **View It** section of the journal's full description. Not all journals have online access to all the years of publication, nor does the library always subscribe to all the years a journal is available online. Pay close attention to which years are available.

The sample Quick Search record here shows the print version of a journal owned by the library. You need to click the call number or title of your journal to view the **Locations/Request item** information. Here you will see a list of the specific print volumes of that journal held by the library, along with the location (General Collection, in this case), and the call number.



JOURNAL

Journal of physics. Condensed matter : an Institute of Physics journal.

Institute of Physics (Great Britain); American Institute of Physics.

c1989-

Available at Parks Library PARKS General Collection (QC173.4 C65 J68x) >

Map it

TOP

TAGS

LOCATIONS / REQU

DETAILS

SEND TO

LINKS

VIRTUAL BROWSE

Send to

EXPORT BIBTEX

EXPORT RIS

ENDNOTE

CITATION

PERMALINK

PRINT

E-MAIL

Locations / request item

REQUEST OPTIONS: Request a different issue / Request article from within

Year All

Volume All

Description All

PARKS PARKS General Collection QC173.4 C65 J68x

Hide Details

v. 1 (1989) - v. 21 (2009)

1 - 10 of 347 Records

1 2 3 NEXT LAST

BARCODE	TYPE	POLICY	DESCRIPTION	STATUS	OPTIONS
32792018558563	Bound issue	1 Week Loan	v. 16,2004,nos.32-35	Item in place (0 requests)	Request
32792020898536	Bound issue	1 Week Loan	v. 16,2004,nos.30-31	Item in place (0 requests)	Request
32792020898395	Bound issue	1 Week Loan	v. 16,2004,nos.27-29	Item in place (0 requests)	Request
32792020898320	Bound issue	1 Week Loan	v. 16,2004,nos.24-26	Item in place (0 requests)	Request

4.10 Get it@ISU | 149

When you've found an item you want to use, you can find it on the shelf using the call number, or you can request an emailed scan of the article or chapter be made and sent to you through [Document Delivery](#).

Document Delivery is a free service for getting electronic access to articles and book chapters the library already owns in print (not full-length books). This process can take up to 48 hours (longer over a weekend), so if you need an item right away or need an entire book, coming to the library to grab it in person may be your best bet.

If the library doesn't have what you need, then it's time to request the full text through **Interlibrary Loan**. In most cases, you can get a pdf copy of the article you need within a few days and at no cost to you.

If you're looking for a book chapter instead of a journal article, the steps are similar. Search in Quick Search using **Books** in the **Material Type** menu in Advanced Search, and search for the **book's title** (not the chapter title). Again, the purpose is to find out if the library owns the book that your chapter is in.

Check your understanding

Try this interactive hands-on tutorial on how to find articles using Quick Search, Article Indexes & Databases, and journals: [Finding Journal Articles](#).

[Subject-Focused Indexes](#) – a hands-on interactive guide to give you practice in searching scholarly subject-focused indexes to find articles.

4.11 Using Quick Search to Find Articles

As discussed in Chapter 3, Quick Search is:

- A library catalog showing you what a library owns and where those materials are located
- A collection of millions of articles from a large number of databases, including some of the library's subject-focused indexes

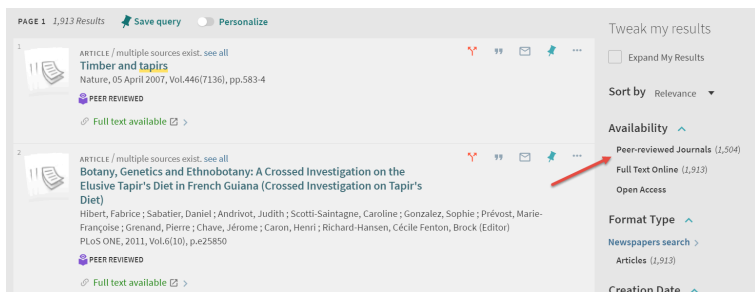
Similar to general purpose indexes, a library discovery tool such as Quick Search is a good choice when you're looking for articles on an interdisciplinary topic. You already learned in Chapter 3 that Quick Search is a powerful discovery tool that allows you to access information on a very wide range of subjects.

While Quick Search is often useful, it's important to know that it does not find every article the ISU Library provides access to, just articles from resources that are compatible with Quick Search. Furthermore, Quick Search's Advanced Search features cannot compete with the results found in subject-focused indexes, which usually have deeper subject coverage and include more ways to refine your searches.

When you're looking for articles with Quick Search, use Advanced Search and set Material Type to **Articles**. As mentioned in the previous section, if you choose **Journals** as the Material Type, you will be looking for an entire journal rather than articles published in journals.

When you search for articles, your results list will include many types of articles, some of which may not be peer reviewed. To limit

your results to peer-reviewed articles, use the **Availability** category in **Tweak my results**.



Focusing your search results by selecting **Peer-reviewed Journals** is one way to increase the likelihood that you'll find authoritative scholarly articles on your topic. This feature of Quick Search helps you identify works that are found in peer-reviewed journals. As with any information, you will still need to evaluate whether what you have found fits your purpose.

Strengths and Weaknesses of Quick Search

Strengths

- A wide range of topics and materials covered
- Simple search interface
- Not just limited to articles, can find books and other materials
ISU library provides access to

Weaknesses

- Even with Advanced Search and Tweak my results, it can be difficult to narrow your results

- Less extensive subject coverage when compared to subject-specific indexes
- Unlike subject-specific indexes, it lacks highly specialized search tools for every subject area (e.g. chemical formula, study methodology)

Finding Articles using Google Scholar

As mentioned in Chapter 2, Google Scholar retrieves online information sources that Google has deemed scholarly. However, there's no easy way to separate journal articles from other resources covered by Google Scholar, including many free web resources, some digitized books, scholarly websites, and presentation slides. For more comprehensive research, you'll need to use both library discovery tools and article indexes to control, refine, sort, and download your search results.

4.12 Evaluating What You Found: Scholarly or Popular?

In Chapter 2 we talked about evaluating web resources, but these aren't the only resources you need to evaluate. When you find articles using indexes or Quick Search, you'll still need to determine whether they should be used for your assignment. You'll want to consider:

- Whether the article fits your topic. Don't just settle for the first results you find – make sure they're going to support or add to your research.
- What type of article you've found. For example, your professors may tell you to find scholarly peer-reviewed articles, as opposed to popular articles.

Scholarly or Popular

Popular publications are written for the general public rather than for scholarly audiences. *Newsweek*, *Time*, *National Geographic*, *InStyle*, *Vogue*, *Discover*, and *Rolling Stone* are examples of popular publications. These sources can be good if your topic has to do with recent events, popular culture, or hobbies.

Scholarly resources focus on communicating complex ideas and research to the scholarly community, rather than being written for the general public. These usually focus on a specific subject area. Journals like the *Quarterly Journal of Economics*, *Advances in Textiles Technology*, *Journal of Environmental Engineering*, and *Latin American Music Review* are examples of scholarly publications.

Check with your professors before using popular materials for course projects. They may expect you to exclusively use scholarly sources.

How can you tell if something is scholarly or popular?

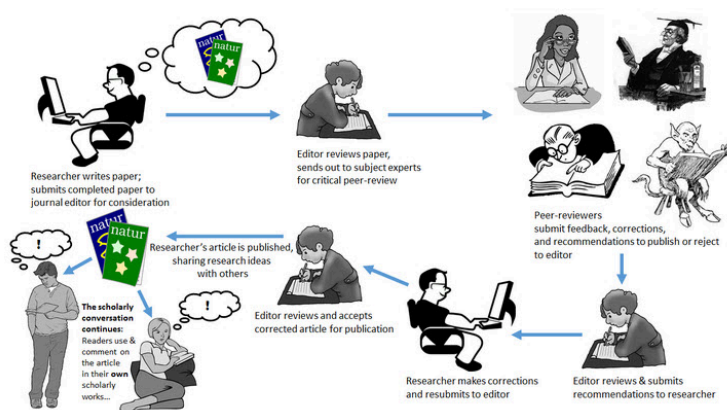
When you find an article, you'll want to verify two things: whether it fits with your research and whether the material is popular or scholarly. You can't tell by the journal or magazine name alone whether something is scholarly or popular, and you can't depend on the word "journal" being an indicator of scholarly work. For example, *Science*, one of the world's top scholarly science publications, is sometimes referred to as a magazine. The chart below lists some criteria to help you distinguish between popular and scholarly publications.

Popular	Scholarly
can often be found at local stores and public libraries	found in research libraries, indexes, and journal websites; sometimes found at campus bookstores
articles are proofread and copyedited but not peer-reviewed	articles are peer-reviewed by several subject experts as well as proofread and copyedited
articles are short and often not signed; when signed, author credentials are usually missing	articles are longer and in-depth; author credentials and contact information are clearly listed
often no citations, footnotes, references, or bibliographies	requires thorough citations, footnotes, and references be included
written for general public; language is clear, simple and direct	written for specialists in the field; language is scholarly and often complex
most articles are illustrated with photographs; online versions often have videos	most illustrations are charts, graphs, or other ways to present data
include advertisements for commercial products of all kinds	if present, advertising focuses on publishing, professional societies, and conferences tied to the journal topic

4.13 Peer Review: What Does It Really Mean?

One of the most important differences between scholarly and popular articles is that articles in scholarly journals almost always go through a rigorous peer review process before the article is published. Here are some steps that describe the typical publication process for a scholarly article.

1. Researcher writes paper; submits completed paper to journal editor for consideration
2. Editor reviews paper, sends out to subject experts for critical peer-review
3. Peer-reviewers submit feedback, corrections, recommendations to publish or reject to editor
4. Editor reviews and submits recommendations to researcher
5. Researcher makes corrections and resubmits to editor
6. Editor reviews and accepts corrected article for publication
7. Researcher's article is published, sharing research ideas with others
8. The scholarly conversation continues; readers use and comment on the article in their *own* scholarly works



As depicted in the graphic above, the peer review process involves subject experts who read and critique research articles to verify that the content is accurate, timely, well-written, and likely to make an important contribution to the subject. Peer reviewers often make detailed criticisms or suggestions for improving the paper. Only after the author has addressed all these points successfully will the paper be published. If the author doesn't make the corrections to the satisfaction of the reviewers and journal editors, the paper is rejected and not published.

Why all this work? Scholarly papers are published to advance knowledge in a discipline through scholarly conversation. Readers will learn and potentially use the published paper in their own scholarly creations, which in turn will need to undergo peer review before acceptance for publication. Research, writing, and rigorous peer review take time. There is a very high standard set for the publication of scholarly articles.

4.14 What are Citations?

A citation contains information that identifies the author, article/chapter title, journal/book title, volume number, issue number, page(s), column (in newspapers), date, publisher, and/or place of publication for an item. Some of these elements should look familiar based on the work we've already done with field searching.

You will primarily find citations in the works cited or reference section of a paper or book. They may also appear on websites, your course syllabus, or other materials provided by your instructor.

Interpreting Citations

Understanding the parts of a citation can help you search for items you want to find more effectively.

Each type of citation has unique features that can help you determine whether a citation describes a book, a chapter in a book, a journal or magazine article, or a newspaper article. Knowing what you've found and being able to recognize its parts helps you find the item the citation is referring to.

Be aware that different citation styles (MLA, APA, Chicago, etc.) will have different rules or ways of representing common elements of citations, such as author name, title of article or book, and so on. For the examples below, we're using APA Style just for the purpose of illustration. What's important here is to focus on recognizing these citation elements rather than specific details of APA Style.

Below, we've listed some citation examples for common resource types you may encounter in college.

Journal article or magazine article

Common elements of a journal or magazine article citation include:

- author(s),
- publication date,
- article title,
- journal title,
- volume and issue number,
- page numbers,
- online index (for some citation styles),
- doi or URL (for online articles),
- access date (for online articles in some citation styles)

Journal article citation example

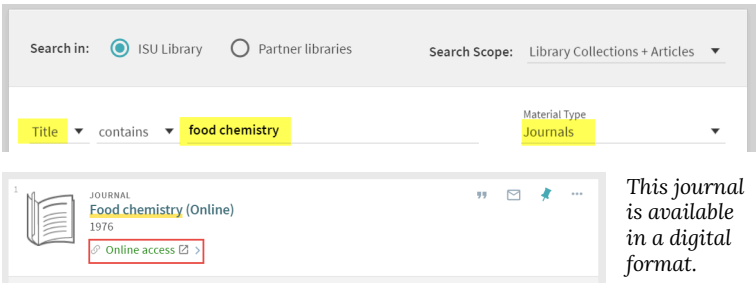
Upadhyay, R. & J.M. Rao. (2012). Microwave-assisted extraction of chlorogenic acids from green coffee beans. *Food Chemistry*, 130(1), 184-188.

-
- authors – Upadhyay, R. & J.M. Rao.
 - publication date – 2012
 - article title – *Microwave-assisted extraction of chlorogenic acids from green coffee beans*
 - journal title – *Food Chemistry*
 - volume number – 130
 - issue number – 1

- page numbers – 184-188

How would you find this item?

There are several ways to find a journal article from a citation. The best starting place for finding out if the library owns a copy is usually Quick Search. First, identify the title of the journal in which the article was published. Then use Quick Search's Advanced Search feature to find out whether the library owns this journal. Choose **Journal** from the **Material Type** drop-down menu and enter the journal title. If the library subscribes to the journal, check the record details to see which years are available and in what format. Compare the article's date to the years available to see where or whether you can access it. The article might be available in one, zero, or multiple formats.



The screenshot shows a library search interface. At the top, there are options for 'Search in:' with 'ISU Library' selected and 'Partner libraries' unselected. To the right, 'Search Scope:' is set to 'Library Collections + Articles'. Below this, the search criteria are 'Title' contains 'food chemistry'. The 'Material Type' dropdown is set to 'Journals'. The search results show a single entry: 'JOURNAL Food chemistry (Online) 1976'. A red box highlights the 'Online access' link next to the entry. To the right of the search results, a text box states: 'This journal is available in a digital format.'

You can also search for a journal article by searching for the article title in Google Scholar. If you take this approach, be sure that you

have chosen **Iowa State University** as your institution in your Google Scholar Settings so you can see whether you can access the article. If you don't remember how to do this, review [Chapter 2](#).

Finally, some citations include a web address at the end. This may be a URL or it may be a DOI (Digital Object Identifier), a persistent, unique identifier for an item, such as a journal article or book chapter. This should retrieve the article if you are on campus or if the article is open access.

Online article citation example

Searleman, A. and Carter, H. (1988). The effectiveness of different types of pragmatic implications found in commercials to mislead subjects. *Applied Cognitive Psychology*, 2: 265-272. [doi:10.1002/acp.2350020404](https://doi.org/10.1002/acp.2350020404)

Book (i.e., an entire book)

Common elements of a book citation include:

- author(s),
- publication date,
- book title,
- place of publication,
- publisher

Book citation example

Crowdy, D. (2016). *Hearing the future: The music and magic of the Sanguma band*. Honolulu: University of Hawai'i Press.

- author – Crowdy, D.
- publication date – 2016
- book title – *Hearing the future: The music and magic of the Sanguma band*
- place of publication – Honolulu
- publisher – University of Hawai'i Press

How would you find this item?

To find out if the Library owns this book, enter the book's title and the author's last name into Quick Search. In most cases, this simple search will retrieve your book. If you need to get more specific, you can perform a field search in Quick Search's Advanced Search or limit your Material Type to **Books**.

Book chapter

Common elements of a book chapter citation include:

- chapter author(s),
- publication date,
- chapter title,
- editor(s),
- book title,
- page numbers,
- place of publication,
- publisher

All of the citation elements for a book are here, along with some extras that let you know the citation is for only part of a book. Note the information for an editor, an additional title for the chapter level, and page numbers for the chapter being cited.

Book chapter citation example

Costley, C.L., & Brucks, M. (2013). The roles of product knowledge and age on children's responses to deceptive advertising. In P.N. Bloom (Ed.), *Advances in marketing and public policy* (pp. 41-63). Greenwich, CT: JAI Press.

-
- chapter authors – Costley, C.L., & Brucks, M.
 - publication date – 2013
 - chapter title – *The roles of product knowledge and age on children's responses to deceptive advertising*
 - editor – P.N. Bloom
 - book title – *Advances in Marketing and Public Policy*
 - page numbers – 41-63

- place of publication – *Greenwich, CT*
- publisher – *JAI Press*

How would you find this item?

Unlike a book, you cannot reliably search for a book chapter by the chapter author's name or the chapter title. Quick Search does not list chapter titles and authors for every book in the library, so your best option is to find out if the library owns the book. To find the book that contains your chapter, enter the **book's title** (not the chapter title) and the **editor's last name** (not the chapter author's name) into Quick Search to find your book.

Other common citation types

Website

Websites used in your research must be cited like any other resource. The obvious hallmark of a website citation is the inclusion of a web address, usually as a URL. URLs may change over time as websites reorganize their content. Because of this, many citation styles require you to list the specific date that you viewed or accessed the resource.

Website citation example

Iowa Board of Educational Examiners. (n.d.). *Apply for a license*. Retrieved from <https://boee.iowa.gov/apply-license>

Conference proceedings paper

Citation elements for a conference presentation or paper look similar to journal article citations. However, you can distinguish these citations by the “paper presented at” information that is often included.

Conference proceedings citation example

Dorrie, J.W., Kohlhouse, M., & Linsen, L. (2013, January 9-10). *OpenMathMap: Accessing math via interactive maps*. Paper presented at the Joint Mathematics Meeting, Special Session of the American Mathematical Society and Mathematical Association of America: Topics and Issues in Electronic Publishing, San Diego. Eggenstein-Leopoldshafen, Germany: FIZ Karlsruhe. Retrieved from

[http://www.emis.de/proceedings/TIEP2013/
06kohlhase.pdf](http://www.emis.de/proceedings/TIEP2013/06kohlhase.pdf)

How would you find this?

Different organizations handle their proceedings differently. You may be able to find the paper you're looking for by searching Quick Search or Google Scholar—try both the paper title and the conference name. If you need help, ask a librarian.

Newspaper articles

The citation elements for a typical newspaper article include a specific date, and often specific pages or columns (“col2” means column 2). Even if you didn’t recognize the name of The New York Times as a newspaper, these elements are hallmarks of a newspaper article citation.

Newspaper article citation example

Reynolds, G. (2019, May 1). How exercise affects our memory. *The New York Times*. Retrieved from <https://www.nytimes.com/section/well/move>

How would you find this?

To find a newspaper article using Quick Search, first search for the title of the newspaper. If the library has access to the newspaper, open the record to see which dates are covered and in which format(s). If it is available online, click on the **Online access** link to the newspaper and search for the title or browse by the date of the article. If the newspaper is not available online, ask a librarian for help.

Check your understanding



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://iastate.pressbooks.pub/lib160info1ed/?p=141#h5p-16>



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://iastate.pressbooks.pub/lib160info1ed/?p=141#h5p-10>

CHAPTER 5: ETHICS OF USING AND CREATING INFORMATION

Learning Objectives

After completing this chapter you should be able to...

- identify what constitutes plagiarism, how to avoid it, and why doing original work is important
- recognize how citing sources advances the scholarly conversation
- identify what copyright is and how public domain and fair use relate to it
- recognize and manage how the information you produce is used online

5.1 Being an Information User

Ethical Use of Information

The research process helps us learn and use information to build on what has come before. An important component of information literacy is understanding economic, legal, and social issues relevant to finding and using information. Issues of privacy and ethical behavior are relevant in all areas of your life, not just in the classroom.

Academic integrity

It's easy to copy content from virtually anywhere and paste it into your paper, especially when you're facing a deadline. Sometimes students feel overworked and end up cutting corners. Other times they're just unfamiliar with how or when to cite sources properly. This can lead to unintentional cheating. Other students might intentionally cheat, feeling that their professors will never find out, or that the misdeed is small and "not that bad." Whatever the circumstances might be, you need to know that the penalties for cheating at Iowa State and in the typical workplace are severe and it's very likely those who cheat will get caught, sooner or later.

Academic dishonesty is defined at Iowa State as: "Academic dishonesty occurs when a student uses or attempts to use unauthorized information in the taking of an exam or assignment; or submits as their own work themes, reports, drawings, laboratory

notes, or other products prepared by another person; or knowingly assists another student in such acts; or plagiarism.”

Examples of academic misconduct are:

- Attempting to use unauthorized information in the completion of an exam or assignment;
- Submitting as one’s own work, themes, reports, drawings, laboratory notes, computer programs or other products prepared by another person;
- Knowingly assisting another student in obtaining or using unauthorized information or materials; or,
- Plagiarism.

Cheating can be very hazardous to your academic or professional career and reputation. The consequences for academic misconduct at Iowa State can be found here:

<https://www.studentconduct.dso.iastate.edu/academic-misconduct/armstu>

How to make sure this doesn’t happen to you

- Visit the [ISU Academic Success Center](#) to learn ways to improve your study habits, time management skills, or get tutoring support. They also have online handouts to help with writing, taking better notes, dealing with procrastination, learning to organize your class work, and they have a lot of good tips on test taking strategies in general.
- Strengthen your writing skills at the [Writing & Media Center](#). They can help whether you’re new to writing papers or an

1. Iowa State University. (2018). *Student disciplinary regulations, Code of conduct*. Retrieved from <https://www.policy.iastate.edu/policy/SDR#4.2.1>

experienced writer; they can also help you with citing sources.

- If you've got a quick question about how to find or cite a source, stop by the main desk at the library and ask.
- Notice that helping others cheat is also cheating! Sharing papers or old assignments, or allowing others to copy your work doesn't help your friends, and it makes you guilty of academic dishonesty.

Time management

Time management is frequently a problem for students and faculty alike, making it hard to meet deadlines. Being overwhelmed with college life, illness, and having family or personal problems are also common factors that may lead students to make bad academic choices, such as cheating or missing deadlines. Here are a few ways you can get help with time management:

- Develop a plan for your project by working backward and estimating how much time each step will take. One tool that can help you do this is the online [Assignment Calculator](#) from the University of Minnesota. It helps you put your assignments and research projects into a timeline.
- The Academic Success Center recommends developing a weekly, monthly, and/or semester-long study schedule that accounts for everything you need to get done.
- Find ways to reduce distractions. Some things that can help include muting phone notifications, using time management apps, and finding quiet places to study.

If you feel overwhelmed, you should talk with your professor, or with your adviser, or with Dean of Students office staff. You can also contact the [ISU Student Counseling Services](#) for help. They can help with issues as varied as depression, loneliness, eating disorders,

substance abuse problems, and so on. They can help you get counseling for family or personal problems, and also help with career planning.

Everyone knows that university students are busy with class assignments, papers, managing finances, and leading busy social lives, but cheating is unacceptable and is a huge risk. A better choice is to learn more about how to manage the various demands of student life, and to take care of yourself. Learning how to do this as a student will help you prepare for life after college.

5.2 Plagiarism

Plagiarism is defined as using someone else's words, ideas or other creative works and failing to give credit to that person. Academic institutions have very strict guidelines for how people who commit plagiarism are disciplined. To avoid plagiarizing, you need to know how to do your own research, document your process, and properly cite your sources.

Why cite sources?

In this course, we've talked about scholarship as a conversation. Think of research you produce as entering a conversation in progress.¹ You listen to and acknowledge what has been said before, and you have something of your own to add to the mix. Your contribution should acknowledge what others have learned and said before you, but for your contribution to be original, it should be a new twist on what has gone before – not just a repeat of what has already been said.

Keep in mind that you are not going to find just one article or book that is exactly what you need to prepare your paper or presentation. You will need to read several sources – analyzing and synthesizing to generate your own part in the conversation. By crediting those who have come before you, you also lend credibility to your argument. If a researcher has done work that proves or documents something in a subject area, by citing that scholar you are using

1. The metaphor of scholarship as a conversation can be traced back to Kenneth Burke's *The Philosophy of Literary Form*, published in 1941 by the University of California Press, Berkeley.

their authority to support your claims. This is one of the prime reasons for citing sources.

Self-Plagiarism

Did you know it's possible to plagiarize yourself? Self-plagiarism involves unacknowledged recycling of your own past work, perhaps work you have completed for a different class. Scholarly disciplines have differing attitudes toward this kind of recycling, ranging from tolerance in very specific situations to absolutely forbidding it in all cases.

If the primary aim of the scholarly conversation is to further ideas and scholarly knowledge, then recycling word-for-word what you have already said or written elsewhere, even if it is to a new audience, doesn't exactly accomplish that goal. It can be considered unethical if you do not cite the original source and do not disclose that you are reusing your own work.

Before you resubmit work or assignments you have completed for a different course or purpose, you should always first discuss with your instructor whether it is permitted to recycle your own work like this, whether in part or in its entirety.

What you need to cite

When we use another person's words from an article or book, we need to put those words in quotations and give a citation indicating where those words came from. However, there are other types of resources that also need to be cited that you may not have considered. You need to provide citation information for things such as:

- images, websites, and podcasts
- personal communications, including interviews and emails
- equations, graphics, tables, and charts
- TV programs, movies, songs, and speeches
- and more!

Anything you use as source material in your research must be cited in your work or you have committed plagiarism. Citing these sources in your work takes some time and effort, but crediting others through citing is an essential component of ethical research.

5.3 Common Knowledge

You don't have to cite **common knowledge**. You might think "common knowledge" refers to things you and your friends already know, but in academic circles, common knowledge is defined differently. Common knowledge means information that you or anyone can easily prove through authoritative sources. It is a fact rather than an opinion or something open to debate.

If a fact can easily be verified in multiple authoritative sources (e.g., encyclopedias, dictionaries, reputable websites, and books), it's probably considered common knowledge. It is common knowledge whether you happen to know that specific fact or not.

MIT provides the following examples of common knowledge:

- Information that most people know, such as that water freezes at 32 degrees Fahrenheit.
- Information shared by a cultural or national group, such as the names of famous heroes or events in the nation's history.
- Knowledge shared by members of a certain field, such as the fact that the necessary condition for diffraction of radiation of wavelength from a crystalline solid is given by Bragg's law."

Can you imagine having to write "*Encyclopaedia Britannica confirms that there are 4 quarts in a gallon*"? Looks weird, doesn't it? Factual common knowledge like this does not have to be cited because there is no "original" source for this information – they are simply facts. Even if you didn't know that Lincoln was the 16th president, or when and where the world-famous artist Pablo Picasso was born, examples like these are still considered common knowledge because you can easily confirm this information in multiple authoritative sources.

Examples that are not common knowledge

Others' opinions, information open to debate, research findings (including statistics), and recent discoveries are *not* common knowledge. It is very unlikely that you'll find 100% agreement or multiple sources for these types of information. Some typical clues have been bolded in our examples below to help you identify opinions, new research, and ideas open to debate, which must be cited.

- **Some** biographers of Abraham Lincoln say he suffered from clinical depression.
- The quart measurement **might** have originated in medieval England as a measurement for beer.
- **60% of art majors believe** that Pablo Picasso's paintings are more interesting than his sculptures.
- In **recent studies** of Y-chromosomes, geneticists have found that Genghis Khan has approximately 16 million descendants living today

Be aware that some *common knowledge may also be contextual*. For example, what's common knowledge among microbiologists may not be common knowledge among lawyers or musicians, and vice versa. But if you have any doubt whether something is or isn't common knowledge, *the best practice is to cite!*

5.4 Paraphrasing

Paraphrasing refers to incorporating someone else's ideas into your own work, using your own analysis and voice. This means more than simply swapping out their words for synonyms and putting them in your paper. This skill can be challenging and takes practice. If you paraphrase improperly, you will be committing plagiarism. Understanding the purpose of paraphrasing and how to paraphrase correctly will help you be a better and more ethical writer.

Paraphrase for a purpose

The purpose of paraphrasing is to build on someone else's work in an original way. By correctly paraphrasing you demonstrate that you have understood an author's ideas, and that you can analyze and restate them without altering the author's meaning. Perhaps you agree with the author and wish to further explore their main points. Or perhaps you disagree with their conclusions and wish to explain your own perspectives. In either case, the ideas you are paraphrasing must somehow add to your argument or thesis. They should serve a real purpose in the context of your paper, not just to fill up space. If you're paraphrasing simply to make your paper longer, your efforts would be better used on expanding upon your argument.

Understanding your source

When you understand someone else's perspective and how it fits into your argument, only then can you put those ideas in your

own words. Most writing guides will recommend that you read and reflect on the main points that may be relevant to your project.

The key is to understand the significance of the author's point, not just their literal words. One way to do this is to read the source, then put it away and take time to make sense of what you've read. Then describe the importance of that author's main points using your own words. After you have written this down, return to the source and make certain that your work is your own and not words remembered directly from the source.

Quoting within your paraphrasing

You may have been told at some point that you don't need to use quotation marks unless you copy some specific number of words in a row from an author's work. This is not really true. If the author has used any words or phrases in a distinctive way, make sure that you use quotation marks if you use the same words in your paper. For example, a source might define a new process or system that must be cited, such as "action painting," a term which combines common words in a new way, and was coined by a specific art critic.

Acknowledge the source

You must always cite the source whenever you paraphrase. Citing acknowledges that you are using someone else's ideas whether or not you are using the exact words of the original author. Not citing paraphrased material is plagiarism. Your work is strengthened when you show that you have done your research; citing other writers' works is your evidence!

Be true to the source

Finally, you must accurately represent the message of the original author in your paraphrasing. This doesn't mean you have to agree with the ideas, just that you explain them accurately.

Paraphrasing Examples

The original source reads:

“In recent decades, destination cards have become quite common, especially in larger cities, facilitating, for example, free entrance or discounts on major attractions and free or low-priced public transportation. The Dutch coastal province of Zeeland, the Netherlands, introduced four regional destination cards in 2014 and branded them as the ‘Zeelandpas’. The cards themselves had their own names and specific offers but were all part of the Zeelandpas innovation project and were promoted as such. In 2015, the regional destination cards became unified into one Zeelandpas destination card that could be used across the entire state province” (Derriks, van der Duim, & Peters, 2019, p. 115).

References (APA)

Derriks, T., van der Duim, R., & Peters, K. (2019). Tourism innovation by bundling practices: A genealogy of the ‘Zeelandpas’ destination card. In L. James, C. Ren, & H.

Halkier (Eds.), *Theories of practice in tourism* (pp. 115-132). London: Routledge.

A poorly paraphrased section might read:

“Destination cards are very popular in big cities these days because they let tourists get discounts on public transit, attractions, and more! One example of this is the Zeelandpas card, originally a set of four destination cards released by Zeeland, a province in the Netherlands. These four cards were consolidated into one Zeelandpas card in 2015, one year after their original release.”

The above rewrite is essentially a word scramble of the original source, substituting words here and there. Reading closely, you'll see several unique words and phrases from the original paragraph appear in the bad paraphrasing but without quotation marks to indicate these words are borrowed. Most importantly, the bad paraphrasing does not cite the original source in any way. There's no footnote, no language that indicates the source of this information or idea (such as “According to” or “As described by”). This is a classic example of plagiarism.

To contrast, here's an example of correct paraphrasing:

As Derriks et al. (2019) explain, “destination cards,” a

card that allows visitors to get discounts or even free access to local attractions such as tourist destinations and museums, are coming into popular use around the world. One example of a destination card is the “Zeelandpas,” a set of four unique cards introduced by the Dutch province of Zeeland in 2014 and consolidated into a single, all-inclusive destination card the next year (Derriks, van der Duim, & Peters, 2019). In this paper, I argue that having a single destination card is a better way of attracting tourists than offering multiple cards at a lower price.

In this example, it is clear where the information comes from, as the author has included proper citations. In paraphrasing, the author demonstrates that they have read the original work, thought about its meaning, and summarized it to further their own work. The author has even put quotation marks around the unique phrases “destination card” and “Zeelandpas.” But what if the writer hadn’t put quotation marks around the phrase “destination card” when paraphrasing Derriks et al.’s work? Or worse yet, what if they hadn’t clearly acknowledged the source at all? Not putting quotation marks around that phrase or acknowledging Derriks et al. as the source would be plagiarism, plain and simple. A careful and ethical researcher shows how ideas and arguments are developed, building on and acknowledging the work of others.

Try it yourself!

You can review some examples of distinguishing correct paraphrasing, summaries, and examples of plagiarism at the [Purdue](#)

[University Online Writing Lab](#) (OWL) website. They have an excellent handout on paraphrasing, plus some good online paraphrasing exercises that you can try. Check it out!

5.5 Citation Styles

Style Manuals are guides that help you learn how to improve your writing, to write particular types of papers (such as research reports, technical reports, theses), and to acknowledge your sources properly and consistently through footnotes and reference lists. You can get helpful advice on how to strengthen your writing skills by consulting a style guide.

In chapter 4, we discussed how academic disciplines use particular style guides with rules for creating citations, often developed by professional associations in those specific subject areas. For example, chemists might use the *American Chemical Society (ACS) Style Guide*; sociologists would probably use the *Style Guide from the American Sociological Association (ASA)*; those in psychology and related fields might use the *Publication Manual of American Psychological Association (APA)*, and so on. There are also publication styles that are not associated with a specific subject area, such as the *Chicago Manual of Style*, and the *Manual for Writers of Term Papers, Theses, and Dissertations* (commonly known as *Turabian's*), and others.

The exact form of citations will vary depending on the style guide used but they all provide most of the same information. Understanding what each part of a citation represents will help you read the citation, no matter which style is used. Below is an article citation formatted in a few different styles:

APA Style	Beezhold, B., Radnitz, C., Rinne, A., & DiMatteo, J. (2015). Vegans report less stress and anxiety than omnivores. <i>Nutritional Neuroscience</i> , 18(7), 289-296. doi:10.1179/1476830514Y.00000000164.
Chicago Style	Beezhold, Bonnie, Cynthia Radnitz, Amy Rinne, and Julie DiMatteo. "Vegans Report Less Stress and Anxiety Than Omnivores." <i>Nutritional Neuroscience</i> 18, no. 7 (2015): 289-96.
IEEE Style	B. Beezhold, C. Radnitz, A. Rinne, and J. DiMatteo, "Vegans report less stress and anxiety than omnivores," <i>Nutritional Neuroscience</i> , vol. 18, pp. 289-296, 2015.
MLA Style	Beezhold, Bonnie, et al. "Vegans Report Less Stress and Anxiety Than Omnivores." <i>Nutritional Neuroscience</i> 18.7 (2015): 289-296.

Your professor will usually tell you which style you should follow for your papers in that class. If not, you should ask. If no specific style is preferred, the most important thing for you to remember is to choose a particular style, follow its rules, and be consistent.

Why use a style guide?

When you write a research paper, you are writing for an audience of subject experts. This is true whether you're writing a class paper for your professor or submitting a research article to a journal for publication. Style guides are an important part of the scholarly conversation. Style guides help you communicate in a very consistent manner and in a way that is understood by your specific audience, addressing such points as:

- Which sections of your paper should contain types of information such as background, methods, and analysis
- How you show you're using ethical practices in your writing
- Where your ideas came from and which works were consulted
- Where readers can learn more about this topic

- How you conducted your research and what steps you took
- What support you have for your claims

Take the time to get to know the standards for communicating in your major. It's a great way to improve the quality of your writing!

Finding style guides

Some styles have quick guides available on the Web. The library also has copies of many different style guides, and librarians can help you locate them, whether they're available online or in the library. To find style guides in your area of study, talk with your professors or a subject specialist librarian. You can also consult the library's handy [online guide](#).

5.6 Being an Information Creator

With all the emphasis on finding information and research materials, you might think of yourself as just a user of information. Let's talk about you as a creator now. Most of us spend a lot of time every day online. It's very likely that you create content often, whether or not you realize it. When you tweet, post on Tumblr, or share photos on Instagram, you are creating content. You're not just sharing content you created; you're sharing information about yourself and your interests.

In college, you're building on your content creation skills to develop content that is more academic by using other formats or platforms. When you write a paper or give a formal presentation, you're taking an active role in continuing the scholarly conversation. You're creating information on academic topics in a way that demonstrates your learning and mastery. As you continue your studies, you may create course projects that you're proud of and can use in a professional portfolio.

Copyright

As soon as you create something that is your own work, such as a short story you've written or a video, you hold that work's copyright. You have automatic protection under copyright law. You don't need to actually register your work to have copyright protection.

Copyright refers to **federal laws** that, in the US, were originally intended to protect the works and the rights of authors. Copyright law determines how or if someone else's protected work can be

legally copied, posted on the web for others to use, performed, or reused. Often fees and lawyers may be involved in settling the terms or conditions of reuse. For example, libraries often pay fees to post copies of journal articles and published book chapters online in course reserves for students like you to use. **Copyright infringement** means copying or distributing someone else's copyrighted material without permission.

You might wonder why information would need to be protected. The original idea behind US copyright law back in 1790 was to incentivize authors to create more works. The law was intended to help authors and creators make a living from their works and to publish without fear that someone else could copy or resell their work without their permission. Authors as copyright holders could control how their works might be used or reissued and guarantee that they themselves would profit from legitimate sales and reuse of their creative works.

So how is this relevant to you?

As you might expect, a lot has changed since the 18th century. Copyright may no longer be protecting *authors'* rights. Professors, researchers, and scientists are often encouraged to publish their works with high-prestige publishers. These pressures have given publishing companies the control to require authors to sign over their copyright upon publication, effectively handing over the rights to scholarly information. Because of this model, publishers are allowed to raise journal, book, and textbook prices to exorbitant levels. While authors benefit from having their works published by high-profile publishing companies, in the process, they have lost copyright control of their own works. This publishing environment has a major impact on us both as consumers and producers of content.

As an information consumer, you pay the high price of textbooks that are published in this model. As an information user, you need to know who controls the copyright of content you might want to copy and use in new ways. As an information creator, you can make more informed decisions on how you want your works to be used or shared when you're aware of your rights. For example, when you post to a social media platform, you might be signing away your copyright for that content as part of the company's terms of use.

If you want to learn more about copyright law, copyright.gov from the U.S. Copyright Office is a good place to start.

5.7 How do Plagiarism and Copyright Differ?

Many people get plagiarism and copyright issues mixed up. After all, both deal with information use and re-use.

Plagiarism is a form of intellectual theft and an **ethical violation**. When someone commits plagiarism they haven't broken any state or federal law and can't be thrown in jail for their offense. They have, however, broken a shared trust between themselves, their peers, and their institution. Once detected, it may be difficult or impossible for plagiarists to regain credibility and respect among their communities.

Copyright infringement is a **legal offense** that may incur financial penalties. When someone commits copyright infringement, consequences range from having something taken down from the internet, to jail time or facing fines.

Using Works by Others in Your Creations

Now that you understand some basics, let's compare plagiarism and copyright infringement in the context of information use. Quoting or building off of the works of researchers who came before you is a core component of scholarship. You don't need anyone's *permission* to quote or cite their work as something you consulted for your own paper or creation, but you do need to carefully cite your sources to avoid committing plagiarism.

Copyright is more complicated. Let's say you want to include some copyrighted photographs (not your own) in a paper you're writing for a class assignment. You carefully cite in your paper where the

photographs came from, who was the photographer, and so on. Your professor will read your paper, and perhaps your paper will be discussed in class, but it will not be shared outside of the classroom. This is an example of what's commonly called "educational use," and is not considered a copyright violation.

But what happens if you want to *publish* your paper? Not only would you need to cite the image sources properly, you would also need to contact the copyright holder and ask for permission to use the photographs in your publication. The copyright holder gets to decide the outcome and any conditions or fees for use. If you didn't comply with those conditions, you would be infringing copyright (that is, breaking the law) and putting yourself at legal risk to be sued.

It is unlikely that you will have to deal with a lawsuit over copyright infringement at this stage in your studies, if ever. However, it is good to know that there are work-arounds to copyright restrictions – namely, using your own content or materials that are not copyrighted. There are also special provisions called **fair use** that allow easier use and reuse of copyrighted materials for educational purposes. Fair use is often misunderstood, so let's take a quick look at what it really means.

5.8 Understanding Fair Use

Fair use refers to specific legal exceptions to copyright restrictions that allow copyrighted material to be used in certain ways without having to ask for permission or pay any fees. One reason fair use exists is to make it easier for copyrighted material to be used in universities and other educational settings. We need to use others' works in education because we comment on them, teach them, make copies of them for classroom use, and use them in our research. Outside of the classroom, fair use is often cited when a visual or musical artist reuses a reference or other piece of art in their own work (e.g. Andy Warhol).

In one example, graphic designer Shepard Fairey based his well-known “Hope” poster on a photograph of Barack Obama that was taken by photographer Mannie García, who was working for the Associated Press (AP).

Fairey did not acknowledge the source of his derivative work. When the source was revealed, Fairey tried to defend his work as fair use. When the AP took Fairey to court for copyright infringement, a judge decided Fairey's use was **not** transformative enough and thus **not** fair use. In addition, since the original was **not** cited



Side-by-side Obama photo by Mannie García (AP) & Hope poster by Shepard Fairey from *Ethics in Graphic Design*.

or acknowledged, it would be difficult to consider Fairey's work as *commentary* or *critique* of the original. Below, we review the four

1. Ethics in Graphic Design, <http://www.ethicsingraphicdesign.org/test-for-legalities/> and Wikipedia https://en.wikipedia.org/wiki/Barack_Obama_'Hope'_poster

factors for determining fair use and how Fairey's work fails to meet them.

Purpose and Character of the Use

This factor considers what you'll be doing with the work.

- Are you going to use it in its entirety “as is”, or are you going to transform it somehow?
- Will that transformation radically and significantly change it from the original?
- Will you provide some kind of commentary or critique or parody?
- Have you added new meaning or new value through your use?
- Are you going to be using the content to teach or learn?

In the case of the “Hope” poster, the graphic designer attempted to transform the photograph by color blocking sections of the picture; however, they did not significantly transform the photo from the original.

Nature of the Copyrighted Work

Fair use is more likely to support the use of scientific material rather than original, creative works.

- Is the work you are using completely original, and unique to the work's creator, or something that has been done before?
- Is the work intended to be used/consumed, such as a workbook, or used over time, like a book?

Using someone else's creative work, such as Mannie García's

photograph, is less likely to be considered fair use. Copyright law was created to protect authors so that they would create more. Mannie García's photograph was his own creative expression, another reason why the judge determined Fairey's derivative poster was not fair use.

Amount and Substantiality

Fair use supports the use of a small or less important portion of a work.

- How *much* of the work will be used, all or part?
- How important to the original is the part you're using? Is it an essential piece?

It appears that Mannie García's **entire** photo was used. Again, this leans against fair use.

Effect upon Work's Value

Fair use supports a reuse that does not negatively impact the market for the *original* work.

- Will use of the work mean fewer people will buy the original?
- Will people not even *recognize* the original work as the originating work?
- Will the original work be mistaken as a derivative work, or even ignored?

The photograph in this example was Mannie García's original creation. However, Shepard Fairey's derivative work became so famous that most people would never know the poster was based

on someone else's work. In other words, you could say that Mannie García's photograph and creative vision was *devalued*.

As we've seen in this example, fair use is determined by considering not one or two but *all* four factors. One common misconception is that *everything* is fair use if the material is used for an educational purpose. That's an oversimplification. There are four key factors that serve as guidelines for determining when a use can be considered fair use.

Fair Use and Classroom Use

Before we move on, let's do a quick review and contrast the “Hope” poster example to the typical classroom use or the use of copyrighted images in course materials such as ours. Teachers use a lot of graphics in their course materials to illustrate concepts and content being taught in their courses, often putting graphics in a new context or combining them in collages and creating something new. That use is probably not detracting from the value of the original. Most importantly, many materials like these are available only to students enrolled in a class, not published, distributed, sold, or posted on a website anyone anywhere can access. All this builds a strong argument for fair use.

5.9 Creative Commons Licensing

We live in an era of reuse, remix, reformat, and repurpose. Sharing content has never been easier, and using existing content in new ways happens all the time. **Creative Commons licenses** have made legally reusing content online much easier.

Most works are under full, “all rights reserved” copyright. This means that they cannot be reused in any way without permission from the work’s copyright holder. One way you can get permission to use someone else’s work is through a license, a statement or contract that allows you to reuse a copyrighted work in specific circumstances. For example, the copyright holder for a popular book might sign a license to provide a movie studio with the rights to use their characters in a film.

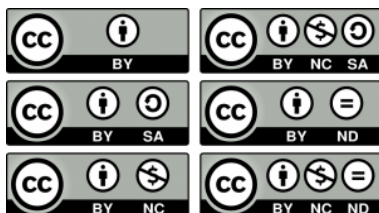
Creative Commons licenses were created to encourage the sharing of resources by making open and shareable materials on the web easily identifiable. They are a type of copyright license that lets the creator dictate the ways *anyone* else can reuse their work. This helps us understand what we can and can’t do when reusing other people’s work.

Popular sites like YouTube, Wikipedia, and Flickr and many others have used Creative Commons licenses for years.

As a creator, you probably care about how others use your work. Creative Commons licenses can help you share your work but still control how others may use it. For example, do you want to:

- allow others to adapt your work?
- remix and sell it?
- allow your work to be reused or remixed, as long as you still get credit?

There are six different types of licenses available that allow each of these things, and attaching the license to your digital work lets others know how they may use your



material. You can explore those on the [Creative Commons website](https://creativecommons.org/). Once you've chosen a Creative Commons license for your work, you simply apply the appropriate license on your online work, and visitors will know at once the terms of how you are sharing it.

Be aware that assigning a Creative Commons license to your original work does not remove your copyright protection for your work, nor remove you as the copyright holder. Instead, these work together. The license indicates the kind of uses you will allow and under what conditions, while copyright still protects your work as your work.

5.10 Public Domain

Public domain materials are works that are not protected by copyright. This means that you don't have to ask for permission from the copyright holder to reuse the content. There are a lot of different materials that fall into this category. Here are two common examples:

- **Materials that are not copyrighted:** Published US *government documents* are, by design, never copyrighted because they are created to benefit the American people and meant to be open to all. Examples of government documents include materials published by the US government, its agencies, and departments. For example, transcripts of congressional hearings are government documents, as are images from NASA, and the data from the US Census. Other materials that cannot be copyrighted include simple mathematical equations and food recipes.
- **Materials whose copyright has expired:** Books published 95 years ago or longer in the US are another example of public domain materials. Their copyright protection has simply expired. Remember that the original intent of copyright law was to protect the author's rights of redistribution and sales. Authors of works published before 1923 are probably not alive anymore, thus the need to protect and incentivize that author is also gone.

You can find a lot of public domain works on the internet using tools like Google Books and searching for works published 95 years ago or earlier. [The Internet Archive](#) is another good source of out-of-copyright public domain books, films, and community-contributed material.

Does this mean that you can copy content from a US government

website, such as this image from NASA, and use it in an assignment *without* citing the source?

No, that would be plagiarism and unethical. It's important to always credit the source, regardless of whether or not it is in the public domain. Also, the safe route is to consider everything you find on the web and in libraries to be copyrighted until you can find an explicit statement indicating otherwise.



A black hole and its shadow captured by NASA scientists.

5.11 Managing your Digital Presence

Whenever you interact with people online, you leave behind a digital footprint, clues about yourself that future professors, colleagues, and supervisors will be able to find for years to come. No doubt you or someone you know has posted embarrassing photos or information that you might not want everyone to see. Pay close attention to the personal information that you make available to others.

- Do your friends tag you in Facebook photos or upload videos of you when you don't want them to? Even if you have your own privacy settings locked down, information about you can still be found. Facebook knows a lot about you, even if you don't have an account!
- Have you ever tried to get someone to take down something that they posted online about you? Even if you take down embarrassing content you have posted, if other people took a screenshot, they might still repost it in places beyond your control.

As you progress in your studies and head toward your first professional job, you'll want to be sure to present yourself in the best possible light. Here are some strategies for building a professional digital presence.

- Join LinkedIn or other professional social networking communities that allow you to manage your professional identity.
- Post positive messages in your social networks about your studies and professional pursuits.
- If you participate in scholarly conferences, consider sharing

your research online.

ISU's Digital Repository (DR) is an ideal location for you to consider showcasing your conference poster session or presentation. ISU's [Symposium on Undergraduate Research and Creative Expression](#) is an important example of ISU undergraduate students showcasing their research in the DR. Take a look!

Privacy and Security

In a university environment where there are many shared computers across campus, you've probably stumbled across someone else's private information that was stored on a public computer. Maybe you've even left a public computer without logging out of a personal account, without thinking. If you lost your phone, what would someone else have access to? Your friends' names and phone numbers? Your Twitter account? Your bank account? These are prime examples of how issues of privacy and information security affect everyone.

You or your friends may be creating information about yourself without even knowing it. For example:

- Do you have Shutterfly or Instagram on your smartphone? If so, according to a recent news report, downloaded apps like these track your user behavior and activities and sell this information to companies.

1. The Data Brokers: Selling your personal information. 60 Minutes Segment, March 9, 2014. Retrieved

- If you use Gmail or other Google tools, you should know that Google tracks all of your messages and searches. That's how they determine what ads to present to you. The same applies if you login to Google-owned sites like YouTube.
- Have you ever shared a "10 facts about me" post on social media? Many of these can be mined for personal information you may have used in security questions and passwords (e.g. first pet, street name, favorite color, birthdate).

Maybe some of these privacy concerns matter to you more than others, but the point is that you can take control.

- Read the fine print when you sign up for anything online or complete a profile that includes personal details. The same applies when you download and install a free app. How will your personal data and activities be used, shared, or sold?
- Check the privacy settings in the social media you use and set your privacy filters as high as possible. This includes using features like tag review in Facebook.
- Turn ad personalization off in Google. When you opt out, Google ads still won't disappear completely but they won't be based on your personal information, your searches, and interests. Google may still be tracking your movements and searches, but at least they won't be reminding you of that constantly with creepy ads.²
- Don't save your information to shared computers. Instead, save files to a flash drive or a cloud service like CyBox. If you logged in to any account, remember to log off before you leave.
- Make your passwords hard to guess. There are many online resources for creating complex passwords that are still easy to

August 14, 2015, from: <http://www.cbsnews.com/news/the-data-brokers-selling-your-personal-information/>

2. Control your Google ads. Google how-to page. Retrieved August 14, 2015, from: <https://www.google.com/settings/u/0/ads/authenticated> Images: Google ads opt-out screenshot from google.com, Facebook Privacy Shortcuts screenshot from facebook.com

remember. Also, when your browser asks to remember your login information, just say no. Be sure to use different passwords for different accounts, so if one account is hacked, they are not all compromised.

If you find someone else's private information running or stored on a shared computer, the ethical thing to do is to close the program or delete the file. The University and most workplaces have very strict rules that govern the use and misuse of computer information. Ethical behavior is expected and, when necessary, enforced at the workplace and on campuses so act accordingly.

Check your understanding



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://iastate.pressbooks.pub/lib160info11ed/?p=156#h5p-19>

5.12 Putting it all Together

In this course we have focused on the world of information, how it's organized, and how you can find and evaluate relevant resources on the web and in research libraries. You've compared different types of search tools, such as web search engines, library discovery tools, and article indexes, and you should now know the different types of information you'll retrieve when you use these various tools.

Starting your Research

When you're beginning a project, look for background information to acquaint yourself with the major ideas surrounding your topic. You can do this by researching your topic in encyclopedias, books, and other reputable sources. Carefully evaluate the websites and other resources you use to learn more about your topic, though! Make sure that your information is backed up by other sources, and is authoritative, current, and relevant to your research.

Once you have the basic knowledge you need to understand your topic, you can begin searching for articles and other sources that help support your project. Using Quick Search is a good first step for finding articles, books, and other sources.

Doing In-depth Research

As you progress in your research projects, you will have to go beyond basic background information and do more in-depth research. You'll use peer-reviewed articles and other publications that you can find in subject-specific indexes.

When searching in an index, you should always start small with basic keyword searches. If you get too many or too few results, try modifying your search by using Boolean operators (AND, OR, NOT), nesting your terms within parentheses, or filtering your results to a specific date range. There's never a perfect search that will meet all of your research needs on the first try, so try combining a few different techniques!

Writing up results and sharing your work

Once you've identified a few great sources and you want to finish putting your project together, you'll need to carefully read through your sources, paraphrase what you've found, and synthesize the ideas into your own argument. By building on the resources you find, citing them properly, and adding your argument to theirs, you can contribute your thoughts to the scholarly conversation.

Finally, if you want to share the work you've done, you have copyright control over your work and can publish, present it at conferences, or choose to license and share it for free online. Just be careful where you share it and remember: once your information is on the internet, it's a lot harder to take down than it was to put up!

Remember, we have covered *just the basics* in this class. As you progress through your studies, you will want to learn more about finding, evaluating, and using information, and use more subject-specific finding tools. Keep in mind that the information world is constantly changing. As you continue your college career, remember these aspects of the research process and don't be afraid to talk to a librarian for more advanced research support.